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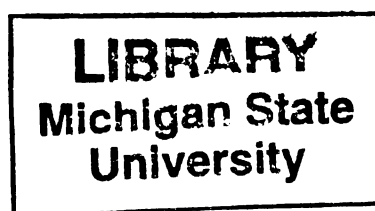
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**PARENT MANAGEMENT TRAINING (PMT) FOR
CHILDREN WITH DISRUPTIVE BEHAVIOR DISORDERS:
MOTIVATIONAL ASPECTS**

BY

Anne Marie Caruso

A DISSERTATION

**Submitted to
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ABSTRACT

PARENT MANAGEMENT TRAINING (PMT) FOR CHILDREN WITH DISRUPTIVE BEHAVIOR DISORDERS: MOTIVATIONAL ASPECTS

Current well-developed lines of theory and research on parent management training for children with disruptive behavior disorders focus on predictors of outcomes, especially as they apply to demographic and environmental variables. In particular, a great deal is known about the following traditionally examined predictors: single parenthood, low socio-economic status, maternal depression, number of psychosocial stressors, and severity of the child's behavior problem. Much less is known about potential motivational predictors in parent management training.

The current study investigated parent's motivational aspects and resources that might be included in a central schema in conjunction with traditionally examined factors which predict outcomes in parent management training. Featured motivational aspects included parent self efficacy, attributions, achievement strivings, goal theory, implicit theories, and self schemas. These motivational resources were examined within the context of value/interest/appreciation aspects and integrated into a cohesive model of motivational schema through factor analysis of the Parent Motivational Schema Scale. Outcomes of parent management training were compared across various levels of traditional predictors, motivational schemata, and individual motivational

resources in a canonical correlation, discriminant functional analysis, logistic regression, and series of chi-square analyses.

The results indicate that motivational measures can make significant contributions and have future implications for parent management training particularly in decisions regarding customized additional components in treatment delivery for a particular parent (or subgroups of parents).

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To my parents (Matilde and Ernesto) and all other parents

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Table of Contents

List of Tables	xi
List of Figures	xv
List of Abbreviations	xvi
Chapter 1	1
INTRODUCTION.....	1
Statement of the Problem	1
Definitions	4
Children with Disruptive Behavior Disorders	4
Parent Management Training	13
Questions Leading to Hypotheses	16
Organization of the Dissertation.....	17
Chapter 2	19
LITERATURE REVIEW.....	19
Universality Of Parent Management Training	19
PMT as Prevention For Behavior Problems	19
PMT As A Cross Categorical Treatment For All Disruptive Behaviors	25
Predictors In Parent Training Interventions.....	41
Traditionally Examined Outcomes And Predictors	41
Single Parent Families (SPF)	47
Socioeconomic Status (SES).....	48
Parent Psychopathology.....	49
Psychosocial Stressors.....	50
Severity of Child Behavior	51
Other Predictors	52
Failure to Find Consistent Predictors	52
Parent Cognitions As Predictors	59
Interactions Among Teps And Parent Cognitions	63
Potential Motivational Predictors Of Outcomes In Pmt	65
Self Efficacy Theory	70
Personal Control Beliefs.....	78
Achievement Strivings.....	82
Goal Theories	84
Implicit Theory.....	90
The Self.....	94
Integrating Inner Motivational Resources	96
Pilot Study	106
The Development Of The Parent Motivation Schema Scale	106
Method.....	106

Participants	106
Measure	107
Response Scale	110
Contributions Towards Validity And Reliability	111
Phase 1: Establishing Item Content.....	112
Phase 2: Administering The Scale	113
Phase 3: Evaluating The Factor Structure Of The Scale	113
Phase 4: Evaluating Reliability Of The Scale.....	114
Results.....	115
Discussion	127
Hypotheses.....	130
 Chapter 3	 133
METHODOLOGY.....	133
Participants	133
Procedures	134
Setting and Materials	137
Data Collection	139
Traditionally Examined Predictors:.....	141
Parent Motivational Aspects/ Schema.....	143
Outcomes.....	146
Child Behavior Changes	147
Parent Satisfaction	147
Parent Engagement.....	148
Design and Analysis	150
Analysis I: Treatment Effects.....	150
Analysis II: Linear Relations Among Continuous Variables.....	152
Analysis III: Classifying According to Drop Out	153
Analysis IV: Using Motivational Subscales Classify Drop Out.....	154
Analysis V: Univariate Examination of Discrete Variables.....	154
Analysis VI: Change in Parents' Motivational Schema	155
 Chapter 4	 156
RESULTS.....	156
Analysis I: Treatment Effects	156
Analysis II: Linear Relations Among Continuous Variables	168
Analysis III: Classifying According to Drop Out.....	178
Analysis IV: Individual Motivational Resources.....	192
Analysis V: Univariate Examination of Discrete Variables	196
Analysis VI: Changes in Parent Motivational Schema	199
 Chapter 5	 202
DISCUSSION	202
Summary of Results	202
Hypothesis I: Treatment Effects	202
Hypotheses II, III, and IV (All Predictors and Outcomes)	207

Hypothesis V (Individual Predictors)	210
Hypothesis VI (Changes in Motivational Aspects due to Participation) ..	211
Further Comments	212
Limitations of the Present Study	215
Instrumentation	215
Sampling Issues	219
Random Assignment	221
Developmental Considerations	222
Subgroups and/or Comorbidity Considerations	223
Treatment Integrity	223
Reactivity	224
Chapter 6	226
SUMMARY AND IMPLICATIONS	226
Implications for Theory	226
Implications for Practice	227
Parent Efficacy and Outcomes in Practice	228
Parent Personal Control Beliefs and Practice	230
Learned Helplessness in Practice	232
Goal Theory and PMT Practice	232
Self Schemas, Possible Selves, and Practice	233
Value Aspects and Practice	234
Summary	235
Implications For Future Research	237
Final Thoughts	240
APPENDIX A	241
Parent Motivational Schema Scale (PMSS)	241
APPENDIX B	245
Consent Forms	245
APPENDIX C	252
Decisions on Factor Dimensions	252
APPENDIX D	257
Logistic Regression Results Using Factor Scales in Lieu of Subscales	257
APPENDIX E	261
Method Of Calculating Socio-Economic Status	261
APPENDIX F	263
Power Analysis Results for T-Tests	263
BIBLIOGRAPHY	264

LIST OF TABLES

Table 1	The Individuals with Disabilities Act (IDEA) Definition Used to Describe Children with Behavior Disorders.....	5
Table 2	The Council for Exceptional Children Definition Used to Describe Children with Behavior Disorders.....	7
Table 3	Diagnostic Criteria for ADHD.....	8
Table 4	Diagnostic Criteria for ODD.....	9
Table 5	Diagnostic Criteria for CD.....	10
Table 6	Select List of Well Known PMT Programs.....	15
Table 7	Summaries of DSM Nomenclatures and Prevailing Theoretical Views of ADHD.....	28
Table 8	A Comparison of Disruptive Behavior Disorders.....	42
Table 9	Summary of Studies Examining Predictors in Parent Training.....	52
Table 10	Studies Examining Motivational Variables within PMT or Similar Intervention Contexts.....	67
Table 11	Explanatory Style Categorized Within the Three Attributional Dimensions Regarding Child Misbehavior.....	79
Table 12	Hypothesized Parent Strategies for Responding to PMT as Related to their Expectancy x Value Perceptions.....	97
Table 13	Demographic Characteristics of Parent Participants in PMSS Pilot Study (n = 200) and Treatment and Control Parents (n=93).....	108
Table 14	Demographic Characteristics of Children Whose Parents Completed the Pilot PMSS (n=293).....	109
Table 15	Correlations among the motivation variables, statistical means, standard deviations, and reliability analysis of motivational aspects of the PMSS.....	116
Table 16	Eigenvalues, Percentages of Variance, and Cumulative Percentages for Factors of the 44 – Item Parent Motivation Schema Scale (PMSS).....	118
Table 17	Summary of Items and Factor Loadings of Varimax Orthogonal Five-Factor Solution.....	119
Table 18	Factor Loadings for Varimax Orthogonal Five-Factor Solution.....	121

LIST OF TABLES

Table 19	Descriptives for Varimax Orthogonal Five-Factor Solution on all 144 items of the PMSS (n=293).....	123
Table 20	Correlations among Motivation Measures pre- PMT and post- PMT Program for Treatment (n=64) and Control (n=29).....	124
Table 21	Correlations among Motivation Measures pre- PMT and post- PMT Program for all Participants (n=93).....	125
Table 22	Correlations among Motivation Schema pre- PMT and post- PMT Program for Treatment (n=64) and Control (n=29).....	126
Table 23	Test-Retest Reliability Coefficients pre- PMT and post- PMT Program for Treatment (n=64) and Control (n=29).....	128
Table 24	Demographic Characteristics of Participants in PMT Program for Treatment (n=64) and Control (n=29).....	135
Table 25	Demographic Characteristics of Children Whose Parents Participated in the PMT Study (n=93).....	136
Table 26	Step by Step Procedures as Detailed in Defiant Children (Barkley, 1997).....	140
Table 27	Factor Loadings on the Therapy Attitude Inventory (TAI).....	149
Table 28	Summary of Specific Hypotheses (abbreviated), Measures, and Analyses.....	151
Table 29	Mean Participant Scores (Standard Deviations) on Continuous Outcome Variables.....	157
Table 30	Mean Change Scores (Standard Deviations) from CBCL Measures.....	164
Table 31	Analysis of Variance Results for Main Effects and Interaction Effects of Group, Time Point, and Scale on Child Behavior Changes (CBCL).....	165
Table 32	Correlations and Standardized Canonical Coefficients and Their Canonical Variates in Separate Models.....	169
Table 33	Correlations and Standardized Canonical Coefficients and Their Canonical Variates in a Combined Model.....	171
Table 34	Canonical Analysis of Predictors and Outcome Variables in PMT.....	172

LIST OF TABLES

Table 35	Correlations and Standardized Canonical Coefficients Between Traditional and Motivational Predictors and PMT Outcome Variables and Their Canonical Variates in a Combined Model without SES.....	174
Table 36	Correlations, Standardized Canonical Coefficients and Their Canonical Variates in Traditional and Motivational Models.....	175
Table 37	Correlations, Standardized Canonical Coefficients and Their Canonical Variates in a Combined Model.....	176
Table 38	Canonical Analysis of Predictors and Outcome Variables in PMT.....	177
Table 39	Means and Standard Deviations of Predictor Variables as a Function of PMT Drop Out Point.....	179
Table 40	Predictor Variables in Discriminant Function Analysis by Traditional, Motivational, and Combined Models.....	181
Table 41	Correlation of Predictor Variables with Discriminant Functions (Function Structure Matrix) and Standardized Discriminant Function Coefficients.....	182
Table 42	Correlations Between Discriminating Variables and Discriminant Functions (Function Structure Matrix).....	183
Table 43	Classification Analysis for Drop Out Using Traditional Predictors Only.....	184
Table 44	Classification Analysis for Drop Out Using Motivational Predictors Only.....	188
Table 45	Classification Analysis for Drop Out Using Both Traditional and Motivational Predictors in a Combined Model.....	191
Table 46	Logistic Regression Predicting PMT Drop Out.....	195
Table 47	Prevalence (%) of Statistics Canada Income Cutoffs within Points of Drop Out.....	197
Table 48	Prevalence (%) of Early Developmental Milestones within Points of Drop Out.....	197
Table 49	Chi-Square Analyses of Participant Characteristics within Points of Drop Out.....	198

LIST OF TABLES

Table 50	Mean Change Scores and T-test for Pre- and Post- PMSS Subscales by Treatment (n=37) and Control Group (n=29).....	200
Table 51	Mean Change Scores and T-test for Pre- and Post- PMSS Factors by Treatment (n=37) and Control Group (n=29).....	201
Table 52	Summary of Specific Hypotheses (abbreviated), Analyses, and Decisions with Predictors.....	203
Table 53	Salient Motivational Aspects and Value Interventions as Potential SMEPT modules.....	236
Table A.1	Agreement Among Independent Raters.....	242
Table A.2	PMSS Items Listed by Motivational Resource.....	245
Table C.1	Descriptives for Varimax Orthogonal Nine-Factor Solution.....	256
Table C.2	Eigenvalues, Percentages of Variance, and Cumulative Percentages for Nine Factor Solution.....	257
Table C.3	Summary of Item and Factor Loadings for Nine-Factor Solution.....	258
Table C.4	Descriptives for Non-orthogonal Five Factor Solution.....	259
Table D.1	Logistic Regression Predicting PMT Drop Out Using Factor Scores.....	261
Table D.2	Correlation of Individual Items of the PMSS with Drop Out Outcome.....	262
Table E.1	Hollingshead Two Factor Index.....	264
Table E.2	Low Income Cutoffs.....	265
Table F.1	Power Analysis Results.....	266

LIST OF FIGURES

Figure 1	Scree Plot Yielding Five Factor Solution.....	117
Figure 2	Pre- Post- Mean Scores of CBCL for Treatment and Control Groups.....	158
Figure 3	Median CBCL Results Across All Scales.....	159
Figure 4	Median CBCL Total Subscale Results.....	160
Figure 5	Median CBCL Internalizing Subscale Results.....	161
Figure 6	Median CBCL Externalizing Subscale Results.....	162
Figure 7	Box Plot Depicting Interaction of Group * Scale Results.....	166
Figure 8	Bar Graph Depicting Interaction of Group * Scale Results.....	167
Figure 9	Territorial Map with Traditional Model.....	186
Figure 10	Territorial Map with Motivational Model.....	189
Figure 11	Territorial Map with Combined Model.....	193

LIST OF ABBREVIATIONS

SMePT.....	Schema Mediated Parent Training
PMT.....	Parent Management Training
ADHD.....	Attention Deficit Hyperactivity Disorder
ODD.....	Oppositional Defiant Disorder
CD.....	Conduct Disorder
DSM-IV.....	Diagnostic and Statistical Manual of Mental Disorders - Fourth Edition
PMSS.....	Parent Motivation Schema Scale
TEP.....	Traditionally Examined Predictors
SE.....	Self Efficacy
OES.....	Optimistic Explanatory Style
PES.....	Pessimistic Explanatory Style
Sch.....	Schematicity
Imp.....	Implicit Theory
PGD.....	Performance Goals-Self Defeating
PGE.....	Performance Goals-Self Enhancing
LG.....	Learning Goals
Val.....	Value
CBCL.....	Child Behavior Checklist (4-18)
HSQ.....	Home Situations Questionnaire
TAI.....	Therapy Attitude Inventory
BDI-II.....	Beck Depression Inventory- 2nd Ed.
LICO.....	Low Income Cutoffs
SPF.....	Single Parent Family
LV.....	Factor 1 (LG, Val)
IMC.....	Factor 2 (SE, OES, Sch)
PGE.....	Factor 3 (PGE, 1 PGD)
PGD.....	Factor 4 (PGD)
IT.....	Factor 5 (Imp)

Chapter 1

INTRODUCTION

Statement of the Problem

Parent behavior management training (PMT) is a widely studied intervention for children with disruptive behavior disorders. Outcome studies have demonstrated considerable success in reducing symptoms in children. As well, studies suggest that parent management training (PMT) can also be viewed as widely applicable. First, parent management training is an effective prevention method for the development of disruptive behaviors (Adelman & Taylor, 1997; Hinshaw, Klein, & Abikoff, 1998). Second, put within the context of the shifting conceptualizations of Attention Deficit Hyperactivity Disorder (ADHD) and the development of comorbid disorders including Oppositional Defiant Disorder (ODD), Conduct Disorder (CD), and possibly other disorders, it can be argued that selection of specific PMT strategies should not hinge on a specific diagnosis but on other factors. Furthermore, disruptive behaviors are found among children with various diagnoses (including developmental disorders) and children who do not meet criteria for any particular diagnosis (Johnston, 1996). Finally, the majority of referrals for mental services are due to disruptive behaviors, regardless of diagnostic status (Kazdin, 1987).

PMT therapies which are concerned with specific childhood outcomes need not be isolated to specific childhood categorical labels but include all disruptive behavior problems and address several additional (and possibly) interacting predictors. Previous studies in parent training have recurrently

examined several predictors of successful outcomes in PMT, usually measured as child behavior changes. Among the predictors examined are the following: marital status (Holden, 1990; Webster-Stratton, 1985; Webster-Stratton & Hammond, 1990), socio-economic status (Holden, 1990; Prinz & Miller, 1994; Webster-Stratton, 1985; Webster-Stratton & Hammond, 1990), parent psychopathology and/or depression (Frankel & Simmons, 1992; Webster-Stratton, 1985; Webster-Stratton & Hammond, 1990), severity of the child's problem (Ruma, 1996), and number of life stressors (Prinz & Miller, 1994; Webster-Stratton & Hebert, 1993). These predictors are largely demographic and environmental. Little research has been devoted to examining other predictors and little research has explicitly addressed potential mediators in parent training outcomes. This is where the challenge reportedly lies in research (Kazdin & Weisz, 1998).

For behavioral outcomes, it seems reasonable to examine cognitions related to the individual-environment interaction. Parent cognitions may be organized in "schemas" which encompass a wide range of constructs. The notion that parental beliefs and attitudes should be considered in selecting strategies to teach effective parenting can be supported by bodies of research literature specific to social science research in parenting and to educational research in motivation.

First, research studies have been conducted to demonstrate relationships between parent beliefs and attitudes and children's behavior (Goodnow, 1995; Holden, 1995; Lisi & Sigel, 1995). Surprisingly, parent management training

research which has examined specific predictors and childhood outcomes, has, for the most part, ignored these potential cognitive mediational predictors, until recently (Johnston, 1996).

Second, considerable research has examined the relationships among motivational concepts and learning outcomes (Brophy, 1999; Reeve, 1996). Since PMT involves educational and learning components, considerable potential exists for parent motivational aspects acting as mediators in parent training outcomes. Within this second body of research, less emphasis has been given to value aspects of motivation which imply that some relevance to personal schemas must be perceived in order for learners to benefit from the activity (Brophy, 1998). This value aspect certainly would contribute significantly to parent expectations regarding PMT and ultimately, outcomes.

The purpose of the present proposal was to examine parent's motivational resources, as individual constructs and as integrated motivation schemas as mediators of predictors of outcomes in parent training. It was hypothesized that these motivational aspects are mediators of traditionally examined predictors and have implications for the predictive success of parent training outcomes. Specifically, the present study investigated the relations between parent's inner motivational resources (self efficacy, attribution, goal, implicit, and self schema theories) and value as related to motivation, and how these predict PMT outcomes as measured by child behavior changes, parent satisfaction, and parent involvement. It was expected that these findings would culminate in a solid rationale and empirical basis for the development and inclusion of Schema

Mediated Parent Training (SMePT) components/modules into traditional PMTs.

Definitions

To better understand the contents of this dissertation, two central and broad categories of terms must be defined. These include definitions for behavior disorders as well as definitions for parent management training.

Children with Disruptive Behavior Disorders

Many approaches have been used to classify children with behavior disorders. Notably, the term, behavior disorders has been used to describe children with both external (social, directed at others) and internal (emotional, directed at self) problems (Hardman, Drew, & Egan, 1999). Children with externalizing or disruptive behaviors gather the most attention from parents and teachers and are the most commonly referred (Kazdin & Weisz, 1998). Children with internalizing disorders (e.g. depression, anxiety, and withdrawal) are more likely to be overlooked (Kazdin & Weisz, 1998); yet, it is this latter group which qualifies for special education services under the Individual's with Disabilities Education Act (IDEA) (1997).

The IDEA describes children with behavior disorders under its Seriously Emotionally Disturbed (SED) definition (Table1). The current definition states that SED is "*a condition resulting in persistent and consistent maladaptive behavior which interferes with the student's learning process*" (Hardman, 1999, p. 219). This federal definition excludes children with social maladjustment (such as

Table 1

The Individuals with Disabilities Act (IDEA) definition used to describe children with behavior disorders.

“Seriously emotionally disturbed” is defined as:

1. a condition exhibiting one or more of the following characteristics over a long period of time and to a marked degree, which adversely affects educational performance:
 - a. an inability to learn which cannot be explained by intellectual, sensory or health factors;
 - b. an inability to build or maintain satisfactory relationships with peers and teachers;
 - c. inappropriate types of behavior or feelings under normal circumstances;
 - d. a general pervasive mood of unhappiness or depression; or
 - e. a tendency to develop physical symptoms or fears associated with personal or school problems
2. the term includes children who are schizophrenic or autistic.
3. the term does not include children who are socially maladjusted, unless it is determined that they are seriously disturbed.

(adapted from Hardman, 1999 , p. 219)

Conduct Disorders below) from satisfying criteria for a Serious Emotional Disturbance (SED) (Forness et al., 1996).

However, children with externalizing problems can also qualify under the IDEA. For example, children with ADHD can qualify under PoHI and can also qualify under Section 504 of the Rehabilitation Act of 1973 which can also lead to special education or accommodations in general education.

The Council for Exceptional Children (CEC) has proposed a more inclusive definition which has significant advantages over the IDEA definition (Table 2). These advantages include a) recognizing impairments in adaptive social, emotional, and behavioral areas; b) using multiple sources, considering cultural and ethnic factors, and using normative standards; c) examining prereferral and other interventions before labeling; and, d) potentially including children labeled as socially maladjusted (Hardman et al., 1999).

The Diagnostic and Statistical Manual of Mental Disorders (4th ed.; DSM-IV; American Psychiatric Association, 1994), classifies disruptive behavior disorders as Attention Deficit Hyperactivity Disorder (Table 3), Oppositional Defiant Disorder (Table 4), and Conduct Disorders (Table 5). Attention Deficit/Hyperactivity Disorders are characterized by the presence of six or more criteria within two broad categories: a) inattention and b) hyperactivity/impulsivity (American Psychiatric Association, 1994). Oppositional Defiant Disorders are characterized by the presence of at least four behaviors consistent with a pattern of negativistic, defiant, disobedient, and hostile behavior towards authority figures (APA, 1994). Conduct Disorders (CD) are characterized by the presence of

Table 2

The Council for Exceptional Children definition used to describe children with behavior disorders.

Emotional or behavior disorder (EBD) refers to a condition in which behavioral or emotional responses of an individual in school are so different from his/her generally accepted age-appropriate, ethnic, or cultural norms that they adversely affect educational performance in such areas as self-care, social relationships, personal adjustment, academic progress, classroom behavior, or work adjustment.

EBD is more than a transient, expected response to stressors in the child's or youth's environment and would persist even with individualized interventions, such as feedback to the individual, consultation with parents or families, and/or modification of the educational environment.

The eligibility decision must be based on multiple sources of data about the individual's behavioral or emotional functioning. EBD must be exhibited in at least two different settings at least one of which must be school related.

EBD can coexist with other handicapping conditions as defined elsewhere in this law [IDEA].

This category may include children or youth with schizophrenia, affective disorders, or with other sustained disturbances of conduct, attention, or adjustment

(Adapted from Hardman, 1999, p. 220)

Table 3

Diagnostic criteria for Attention Deficit Hyperactivity Disorder (ADHD).

A. Either (1) or (2):

- (1) six (or more) of the following symptoms of **inattention** have persisted for at least 6 months to a degree that is maladaptive and inconsistent with developmental level.

Inattention

- (a) often fails to give close attention to details or makes careless mistakes in schoolwork, work, or other activities
- (b) often has difficulty sustaining attention in tasks or play activities
- (c) often does not seem to listen when spoken to directly
- (d) often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (not due to oppositional behavior or failure to understand instructions)
- (e) often has difficulty organizing tasks and activities
- (f) often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort (such as schoolwork or homework)
- (g) often loses things necessary for tasks or activities (e.g. toys, school assignments, pencils, books, or tools)
- (h) is often easily distracted by extraneous stimuli
- (i) is often forgetful in daily activities

- (2) six (or more) of the following symptoms of **hyperactivity-impulsivity** have persisted for at least 6 months to a degree that is maladaptive and inconsistent with developmental level:

Hyperactivity

- (a) often fidgets with hands or feet or squirms in seat
- (b) often leaves seat in classroom or in other situations in which remaining seated is expected
- (c) often runs about or climbs excessively in situations in which it is inappropriate (in adolescents or adults, may be limited to subjective feelings of restlessness)
- (d) often has difficulty playing or engaging in leisure activities quietly
- (e) is often "on the go" or often acts as if "driven by a motor"
- (f) often talks excessively

Impulsivity

- (g) often blurts out answers before questions have been completed
- (h) often has difficulty awaiting turn
- (i) often interrupts or intrudes on others (e.g. butts into conversations or games)

B. Onset before age 7

C. Impairment present in two or more settings

D. Clear evidence of impairment in social, academic, or occupational functioning

E. Symptoms do not occur exclusively during the course of a Pervasive Developmental Disorder, Schizophrenia, or other Psychotic Disorder and are not better accounted for by another mental disorder (e.g. Mood Disorder, Anxiety Disorder, Dissociative Disorder, or a Personality Disorder)

Code based on type:

Attention-Deficit/Hyperactivity Disorder, Combined Type

Attention-Deficit/Hyperactivity Disorder, Predominantly Inattentive Type

Attention-Deficit/Hyperactivity Disorder, Predominantly Hyperactive-Impulsive Type

(American Psychiatric Association, 1994, pp. 84-85).

Table 4

Diagnostic criteria for Oppositional Defiant Disorder (ODD).

- A. A pattern of negativistic, hostile, and defiant behavior lasting at least 6 months, during which four (or more) of the following are present:
- (1) often loses temper
 - (2) often argues with adults
 - (3) often actively defies or refuses to comply with "adults" requests or rules
 - (4) often deliberately annoys people
 - (5) often blames others for his or her mistakes or misbehavior
 - (6) is often touchy or easily annoyed by others
 - (7) is often angry or resentful
 - (8) is often spiteful or vindictive

Note: Consider a criteria met only if the behavior occurs more frequently than is typically observed in individuals of comparable age and developmental level.

- B. The disturbance in behavior causes clinically significant impairment in social, academic, or occupational functioning.
- C. The behaviors do not occur exclusively during the course of a Psychotic or Mood Disorder.
- D. Criteria are not met for Conduct Disorder, and, if the individual is age 18 years or older, criteria are not met for Antisocial Personality Disorder.

(APA, 1994, pp. 93-94).

Table 5

Criteria for Conduct Disorder (CD).

A. A repetitive and persistent pattern of behavior in which the basic rights others or major age-appropriate societal norms or rules are violated, as manifested by the presence of three (or more) of the following criteria in the past 12 months, with at least one criteria present in the past 6 months:

Aggression to people and animals

- (1) often bullies, threatens, or intimidates others
- (2) often initiates fights
- (3) has used a weapon that can cause serious physical harm to others (e.g. a bat, brick, broken bottle, knife, gun)
- (4) has been physically cruel to people
- (5) has been physically cruel to animals
- (6) has stolen while confronting a victim (e.g., mugging, purse, snatching, extortion, armed robbery)
- (7) has forced someone into sexual activity

Destruction of property

- (8) has deliberately engaged in fire setting with the intention of causing serious damage
- (9) has deliberately destroyed others' property (other than by fire setting)

Deceitfulness or theft

- (10) has broken into someone else's house, building, or car
- (11) often lies to obtain goods or favors or to avoid obligations (i.e., "cons" others)
- (12) has stolen items of nontrivial value without confronting a victim (e.g. shoplifting, but without breaking and entering; forgery)

Serious violation of rules

- (13) often stays out at night despite parental prohibitions, beginning before age 13 years
- (14) has run away from home overnight at least twice while living in parental or parental surrogate home (or once without returning for a lengthy period)
- (15) is often truant from school, beginning before age 13 years

B. The disturbance in behavior causes clinically significant impairment in social, academic, or occupational functioning.

C. If the individual is age 18 or older, criteria are not met for Antisocial Personality Disorder.

Specify type based on age at onset:

Childhood-Onset Type: onset of at least criterion characteristic prior to age 10

Adolescent-Onset Type: absence of any criterion characteristic prior to age 10

Specify severity:

Mild: few if any conduct problems in excess of those required for diagnosis and conduct problems cause only minor harm to others

Moderate: number of conduct problems and effect on others intermediate between "mild" and "severe"

Severe: many conduct problems in excess of those required to make the diagnosis or conduct problems cause considerable harm to others

(APA, 1994, pp. 90-91)

three or more criteria within four broad categories: a) aggression to people and animals, b) destruction of property, c) deceitfulness or theft, and d) serious violations of rules (APA, 1994) (Table 5). A central feature of *conduct disorder* is *a persistent pattern of behavior in which the rights of others and age-appropriate social norms are violated* (Kazdin, 1997, p. 162).

In the research literature, several terms are sometimes used interchangeably with conduct disorders, all having to do with varying degrees of conduct related problems. Juvenile delinquency, (a less inclusive, legal term) and antisocial behavior are among those terms most closely associated with Conduct Disorders. Violence is defined as aggressive acts causing serious harm, such as aggravated assault, rape, robbery, and homicide (Loeber & Stouthamer-Loeber, 1998, p.242). Aggression refers to acts that inflict bodily harm or mental harm on others and is confined to acts that cause less serious harm or mental harm on others (Loeber & Stouthamer-Loeber, 1998, p. 242). Thus, aggressive acts are viewed as less serious than violence which is an extreme form of antisocial or delinquent behavior (Tolan & Guerra, 1994, p.3). In examining the criteria for conduct disorders, some children with conduct disorders may exhibit behaviors consistent with antisocial, delinquent, violent, and/or aggressive acts and some may not, depending upon the constellation of symptoms. For the purposes of this paper, the distinctions among the disruptive behavior disorders and these other acts/areas will be retained when required; however, results from studies examining each of these concepts will be discussed.

While recognized in the DSM-IV (APA, 1994), Conduct Disorders (per se) do not meet the federal guidelines under the IDEA as a disability condition (Murray & Myers, 1998). In fact, little concordance has been reported between DSM-IV diagnosis and eligibility for special education services under the category of SED under the IDEA (Forness et al., 1996). This may lead to some compensatory strategies on the part of educational personnel which can be deemed inappropriate and unethical. For example, school personnel may misclassify children with CD as SED as the “path of least resistance” and misplace them in special education self-contained classes for SED (Murray & Myers, 1998). Children with CD tend not to do well in special education settings and tend to be disruptive with children who are genuinely emotionally disturbed (Murray & Myers, 1998). Furthermore, putting both disorders within the same educational setting may exacerbate the problems since educational programs and treatments for children with conduct disorders and serious emotional disturbances are not the same (Murray & Myers, 1998).

Clarizio (1996) further differentiates this distinction by suggesting that placement in special education programs and related interventions for SED is contraindicated for the children in the late onset CD group. Another concern has been voiced that children who are socially maladjusted have learned their behavior patterns and should not be served under the SED definition which has been interpreted to address only those behavioral disorders that have an emotional causation (McIntyre & Forness, 1996). The definition of SED continues to need further revisions (Murray & Myers, 1998) despite various previous

proposals and attempts towards potential changes (McIntyre, 1993; McIntyre & Forness, 1996; Sweeney, 1995). Since the IDEA definition for behavior disorders continues to be criticized on these same grounds, i.e., for excluding children described as socially maladjusted (Hardman et al., 1999), the focus of the current paper will be on disruptive behavior disorders as defined by the DSM-IV.

Parent Management Training

Major treatments for children with behavior disorders address a variety of general goals within a variety of approaches including the following: a) insight oriented therapy (for relieving symptoms, treating causes of behavior, developing therapeutic relationships, understanding unconscious causes of behavior; b) play therapy (for developing therapeutic relationships, playing out emotional problems, developing positive peer relationships, teaching social skills, developing problem solving skills; c) behavior therapy (for developing positive peer relationships, teaching language, self-help, academic, social skills and controlling disordered, unusual, aggressive and general overt behavior); d) marital and family therapy (for treating causes of behavior, developing therapeutic relationships, and developing problem solving skills; e) drug therapy (for relieving symptoms controlling behaviors); and f) group psychotherapy (for treating causes of behavior, developing therapeutic relationships, developing positive peer relationships, developing problem solving skills, and understanding unconscious causes of behavior (Hardman et al., 1999). As noted above, the selection of the most efficacious approach may be dependent, in part, upon the classification of behavior disorder.

Kazdin (1997) identified four psychosocial treatments which are reported to have considerable promise in treating conduct disorders. Using carefully selected criteria for evaluation, Parent Management Training (PMT) was identified as among the most well developed and researched. PMT primarily consists of training parents to alter their child's behavior in the home (and other settings) through changing coercive, unsupportive patterns of interchanges between parent and child into more prosocial and reinforcing interchanges (Kazdin, 1997). Using a more stringent criteria of treatments, Kazdin and Weisz (1998), identified only three treatments in the efficacious category (i.e., established), again including PMT. Efficacious treatments have been shown to be more effective than no treatment, placebo, and other treatments with findings replicated by multiple and different researchers (Kazdin & Weisz, 1998). Brestan and Eyberg (1998) describe PMT as having one of the strongest bases in controlled outcome research for children with behavior disorders. Webster-Stratton (1993) describes PMT as having the most effective and promising results with children with ODD or CD.

A plethora of PMT programs exist and have been shown to be efficacious in treating the disruptive behavior disorders (ADHD, ODD, and CD) as well as a wide domain of child problems and ages (Table 6). These PMT programs can be primarily classified as behavioral management programs or based on operant learning principles. The behavioral PMT programs have several elements in common as follows: a) a focus on accurate descriptions of child behavior; b) the identification of antecedents and consequences; c) an emphasis on teaching

Table 6

Select List of Well Known PMT Programs

Author(s)	Program Description or <i>Treatment Manual Name</i>	Model or Approach
Barkley (1997)	<i>Defiant Children</i>	behavioral
Bloomquist (1996)	<i>Skills Training for Children with Behavior Behavior Disorders</i>	combination behavioral and cognitive behavioral
Dinkmeyer & McKay (1989)	<i>Systematic Training for Effective Parenting (STEP)</i>	Adlerian
Eyberg (1998)	<i>Parent-Child Interaction Therapy (Special Inroads; U. of Florida)</i>	behavioral
Forgatch & Patterson (1989)	Parents and adolescents living together	behavioral
Forehand & Mahon (1981)	<i>Helping the Non-Compliant Child</i>	behavioral
Fox & Fox (1990)	<i>STAR Parenting Program (stop, think, ask, respond)</i>	cognitive behavior modification
Getz & Gunn (1988)	Parent education	family systems
Gordon (1975)	<i>Parent Effectiveness Training (PET)</i>	Adlerian
Patterson & Forgatch (1987)	Parents and adolescents living together: The Basics	behavioral
Phelan (1995)	1-2-3 Magic	behavioral
Webster-Stratton (1981)	BASIC ADVANCE	behavioral
Webster-Stratton (1996)	treatment manual and training materials with video tapes and discussion questions	behavioral
Wells (1993)	Parent Training Manual for Oppositional Children	behavioral

consistency; d) use of reinforcement techniques; and, e) assigned homework tasks between sessions (Hutchings, 1996). Overall, PMT refers to a set of interventions that target parenting skills critical to improving family interactions and enhancing their children's socializing skills (Frick, 1998). The term PMT used throughout this proposal encompasses these behaviorally oriented approaches except in instances where PMT approaches need to be clearly differentiated.

Interestingly, it is reported that the parent advocacy/involvement movement in children's mental health (including PMT) has its roots in special education (Bickman, Heflinger, Northrup, Sonnichsen, & Schilling, 1998). Specifically, the IDEA explicitly includes parent participation in special education as a due process issue (Bickman et al., 1998; Heflinger, Bickman, Northrup, & Sonnichsen 1997).

Finally, the term "parents" is used throughout the proposal. It is recognized that parents may include grandparents, step-parents, and other primary caregivers or guardians.

Questions Leading to Hypotheses

Little or no attention had been focused on demonstrating (a) whether parent motivational aspects influence outcomes in PMT; (b) whether parent motivational aspects change as a result of PMT participation; (c) evaluating how to maximize parent motivational aspects, and (d) whether maximizing parent motivational aspects will lead to better outcomes. The present study addressed the first two questions as follows:

1. Do certain motivational resources, either individually or as integrated schema, increase parent involvement or engagement; and, if so, does the involvement lead to changes in the way parents benefit from PMT and consequently, lead to better outcomes for the child and parent?
2. Are the levels of various parent motivational resources stable and consistent constructs or do they change as a result of participating in parent management training sessions?

The main hypothesis of the study is that traditionally examined predictors and motivational aspects are predictive of positive changes in child behavior, parent satisfaction, and parent engagement.

Organization of the Dissertation

The first chapter introduces the study, defines the problem, and briefly describes the purpose for the study. The concept of Schema Mediated Parent Training (SMePT) is introduced and several key terms (disruptive behavior disorders and parent management training) central to the arguments of the dissertation, are defined. An argument is presented for the study of motivational resources as predictors in parent management training outcome research.

Chapter 2 provides a comprehensive literature review and the main body of the dissertation. Arguments for the wide use of parent behavior management training are supported by research which 1) discusses parent training as a viable prevention method for the development of disruptive behavior disorders; 2) presents a rationale for why treatment may not necessarily need to be tailored to specific, isolated, identified disorders; and, 3) outlines treatment efficacy studies supporting parent management training for disruptive behavior disorders. A detailed description is provided on traditionally examined predictors of PMT outcomes, including marital status, socioeconomic status, parent

psychopathology, number of psychosocial stressors, and severity of the child's behavior disorder.

Chapter 2 also presents an argument for considering parent cognitions as predictors in PMT outcomes. Specifically, research on the influence of student inner motivational resources on academic achievement is postulated to directly translate to the influence of parent inner motivational resources on parent training "achievement". A pilot study describes the development of an instrument, the Parent Motivational Schema Scale (PMSS), which was specifically designed to measure these inner motivational resources.

Chapter 3 describes the methodology, Chapter 4 presents the results, and Chapter 5 discusses the findings of the study. This latter chapter also discusses shortcomings and limitations regarding the research study. A summary containing implications for theory, future research, and practice is presented in Chapter 6. Based on findings of significant motivational predictors, Chapter 6 presents a detailed rationale towards the development of Schema Mediated Parent Training (SMePT) and clearly articulates components which may be a necessary and beneficial addition to PMT approaches.

Chapter 2

LITERATURE REVIEW

Universality Of Parent Management Training

The majority of PMT studies tend to concentrate on primary interventions for full-blown disorders and isolate specific populations for their research. Arguments can be made that parent management training may have some efficacy with all behavior populations. In several replication studies, the Webster-Stratton PMT approach has been shown to be efficacious with several different populations as well as superior to wait-list control groups (Webster-Stratton, 1993). First, PMT is a viable prevention intervention for the development of disruptive behavior disorders. Second, treatment need not necessarily be directed towards specific homogeneous populations, especially because treatment results may not necessarily be a result of the nature of children's disorders.

PMT as Prevention For Behavior Problems

Cowen and Hightower (1988) define prevention according to two broad strategies: 1) "primary prevention... seeks to forestall the development of pathology" and 2) "secondary prevention seeks to identify early signs of dysfunction and to introduce prompt correctives to short circuit negative outcomes" (Cowen & Hightower, 1988, p. 777). Within the context of juvenile delinquency, Davidson and Redner (1988) consider primary prevention as intervention before behavior is labeled while secondary or tertiary prevention as

intervention after formal labeling. It has been reported that schools have done some work with early secondary prevention and even less with primary prevention (Cowen & Hightower, 1988).

Many prevention programs seem to target populations at risk or treat identified behavior disordered populations and sometimes neglect the direct caregivers such as parents. Even when prevention programs make efficient use of supportive personnel such as child-aides, they rarely employ the use of parents as service providers. For example, the Primary Mental Health Project uses child-aides for children in primary grades at risk for academic difficulties and uses parent aides who function similar to paraprofessionals in keeping parents informed (Cowen & Hightower, 1988). There is no mention of using parents as child-aides. Other examples of prevention programs which do not overtly mention parent involvement include programs designed for children with severe behavior problems (Dyer & Larsson, 1997; Wolery & Winterling, 1997), aggression (Matson & Duncan, 1997) and noncompliant and aggressive behavior in a case study of a child, JB, who was at risk for a behavioral disorders (Umbreit & Blair, 1996). In fact, in an analysis of experimental studies on intervention for emotional and behavior disorders from 1980 to 1993, intervention types were characterized along 6 categories: skills training, self management, antecedent based, consequence based, peer mediated, and other (Dunlap & Childs, 1996). Nowhere in the article was parent training explicitly mentioned. These studies are surprising in light of the fact that Kazdin (1987) has been quoted as writing *"no other intervention for antisocial children has been investigated as thoroughly*

as parent management training and has shown as favorable results” (Strayhorn et al., 1993).

In contrast, The Fast Track Multi-Site Demonstration Project directly addresses the importance of parent involvement (Bierman et al., 1996). Their Conduct Problems Prevention Research Group (CPPRG) advocates the need for interventions including socializing agents (parents, peers, teachers, etc.) as a secondary necessary condition in order to affect long term developmental changes in children at risk for conduct disorder (Bierman et al., 1996). It should be noted that the CPPRG view aggression and later conduct disorders as multifaceted and multiply determined (Bierman et al., 1996). As a result, they have designed a particularly extensive and intensive preventive intervention which will likely be beyond the scope of most independent agencies unless mechanisms are in place for school linked services or integrated services such as those described by Adelman and Taylor (1997):

The call is for moving from fragmentation to coordinated/integrated intervention and from narrowly focused, problem-specific, and specialist-oriented services to comprehensive general approaches.
(Adelman & Taylor, 1997, p.408)

Similarly, comprehensive services may be made possible through integrated services among community based mental health and social service programs in a system of care defined as:

a community based approach to providing comprehensive, integrated services that are available through multiple agencies and professionals, in collaboration with families.
(Eber & Nelson, 1997).

Several current programs are emphasizing these comprehensive systems of care wherein agencies share resources (Adelman & Taylor, 1997; Eber & Nelson, 1997; Forness et al., 1996). In addition to researching the most comprehensive of treatments, it might be beneficial for researchers to investigate the necessary and sufficient conditions, i.e., minimal services required to affect change in outcomes of at-risk children.

Other studies have addressed parent training as an important intervention for children at risk for developing conduct disorders. Kaiser and Hester (1997) listed parent training as first among three components essential for prevention of conduct disorders. However, they also note that most behavioral interventions target populations already identified as behavior problems as opposed to children at risk (Kaiser & Hester, 1997). Ramey et al. (1988) wrote about the Carolina Early Intervention Program which not only directly involved parents but also considered care giver characteristics (such as expectations, propensities, development, supports, stressors, and interactions with the child) as important factors in their conceptual model for early intervention. Forness et al. (1996) recommended parent training as an initial intervention in their multistage approach to prevention and intervention of emotional behavioral disorders. Many current programs for children with SED have been criticized for emphasizing comprehensive systems of care without considering prevention in service delivery systems (McConaughy, Kay, & Fitzgerald, 1998).

Davidson and Redner (1988) developed their prevention training model for at risk juvenile delinquents around a family focus. Eber and Nelson (1997) also

discuss a family focus as important for comprehensive and collaborative planning and service delivery in their wraparound approach. Wraparound has been described as “a needs-driven process for creating and providing services for individual children and their families” (Eber et al., 1997). This latter approach provides support for direct caregivers (whether teachers, parents, etc.) using an interactive team to empower members.

Price et al. (1989) note that *not everything called a prevention program is, in fact, a prevention program*. This philosophy is consistent with previous research suggesting that there have been no known studies in the long term prevention of conduct disorder (Bierman et al., 1996). Long term studies are necessary to evaluate if prevention interventions with children at risk for conduct and other behavior disorders are beneficial. Studies advocate up to three to five year follow ups (Kaiser & Hester, 1997) or even treatment up until children reach secondary school age (Bierman et al., 1996). Some studies indicate that children at risk for behavior problems have benefited from early intervention prevention programs (Ramey et al., 1988; Strayhorn & Weidman, 1991). Other studies suggest that, because there is such difficulty in accurately identifying high risk groups, there is no evidence that prevention affects later juvenile delinquent behavior (Davidson & Redner, 1988). Strayhorn and Weidman (1991) demonstrated that a parent-child interaction, preventive mental health intervention had beneficial long term effects. Specifically, the results of a one year follow up indicated that improvements in classroom behavior were correlated with improvements parents had shown in training.

Webster-Stratton (1998) evaluated the effectiveness of a parenting theory based, multi-faceted, prevention intervention which was designed to prevent the development of ODD and CD in at risk Head Start children. Results indicated that children in the parenting program showed significantly more improvements (fewer CD problems, less ODD, less negative affect, more positive affect) than children in the control condition who had received the regular Head Start program.

Tucker, Gross, Fogg, Delaney, and Lapporte (1998) recently examined the efficacy of a behavioral parent training (BPT) intervention as a prevention strategy for young children at risk of developing CDs. One of the findings of the study indicated that the amount of parent participation in the treatment was correlated with greater gains in parent-child outcomes at one year. Similarly, in a review of the literature on early intervention and prevention programs, Tucker and Gross (1997) found that PMT significantly reduced negative child behaviors, promoted positive parent child interactions, and that these treatment gains were maintained over time.

The phrase has been coined that "parent training is prevention".

Furthermore,

prevention activity creates a safe and productive environment and develops the type of attitudes and capacities that students and their families need to deal with violence and other threats to safety.

(Adelman & Taylor, 1997, p. 417).

Finally, PMT programs which view parents as equal partners in developing and implementing interventions rather than helpers while mental health professionals

remain the “experts”, lead to more successful outcomes (McConaughy et al., 1998).

PMT As A Cross Categorical Treatment For All Disruptive Behaviors

Discussion in this chapter focuses on categorical versus cross-categorical approaches, and the state of the art with DSM-IV classification systems. Both issues are used as arguments against the practice of rigidly defining target populations (based on child diagnoses) for intervention research. Cross-categorical approaches have several advantages over categorical approaches in designing intervention studies. Also, DSM-IV classifications are far from reliable and consistent. In addition, comorbidity becomes a factor.

Presently, a common educational practice of classifying children for intervention services is through categorical or disorder based approaches (Hardman et al., 1996). For purposes of intervention research, participants are divided into discrete groups based on individual characteristics or disorders, usually based on the Diagnostic and Statistical Manual of Mental Disorders - Fourth Edition (DSM-IV). The selection of treatment based upon a categorical approach is based on the assumption that children will respond differentially to treatments contingent on their diagnosis. For example, it is assumed that children with Oppositional Defiant Disorder have different characteristics and instructional needs than children with Attention Deficit Disorders or Conduct Disorders. According to a categorical approach, grouping each of these children under their respective labels would be most functional in meeting their needs (Hardman et al., 1996). Thus, the selection of target populations (usually homogenous groups)

for intervention research has the dual intent of maximizing treatment gains as well as controlling for any extraneous variables.

Several other researchers have argued that categorical approaches are neither necessary nor beneficial (Hardman et al., 1996). They argue that there is no need to separate children by categorical labels, traditional categorizing approaches result in unnecessary separation, and categorizing can be an expensive label. Considerable debate exists among proponents of cross-categorical approaches and categorical systems (Hardman et al., 1996). Cross-categorical approaches do not use the traditional categories in defining and classifying children with learning and behavior disorders but do identify children according to the level of severity of their difficulties (Hardman et al., 1996, p. 59). When serious consideration is given to the parameters or state of the art in the current classification system, DSM-IV, then a categorical approach may not be the most functional for intervention research with disruptive behavior disorders.

An example of a disruptive behavior disorders category which may have lost its utility as a research label is Attention Deficit Hyperactivity Disorder (ADHD). The literature on Attention Deficit Hyperactivity Disorder is replete with hard core research, interactive clinical research (actuarial science), popular psychology, and anecdotal accounts. It should be noted that a historical overview of attention deficit disorders indicates several diagnostic labels and descriptions of children with behaviors consistent with ADHD prior to the publication of the first DSM (Lerner & Lerner, 1991). As cited in Lerner and Lerner (1991), these categories included Brain Damage Syndrome (Werner &

Straus, 1941; 1947) and Minimal Brain Dysfunction (Clements & Peters, 1962) despite lack of evidence that these children had suffered brain damage. Even earlier, near the end of the nineteenth century, Heinrich Hoffman, a German physician and poet described children with ADHD characteristics as “Fidgety Phils” and George Stillman, an English Physician, described these children as defective in control of behavior and inhibition (Barkley, 1992). Despite these descriptions, it was not until the second DSM in which ADHD was recognized (Table 7). This historical summary supports the observation that the various Diagnostic and Statistical Manuals of Mental Disorders (DSMs) demonstrate a lag in research conceptualizations; furthermore, variables and factors other than rigorous scientific experimentation are instrumental in decisions regarding the creation and publication of these diagnostic manuals (Barkley, 1993; Pelham, 1996; Tannock, 1998). As a result, it is posited that specific intervention strategies should not be based on a generic diagnosis of ADHD.

With the publication of every Diagnostic and Statistical Manual of Mental Disorders (DSM), changes to the Attention Deficit Hyperactivity Disorder (ADHD) category have involved specific definitional criteria and nomenclature (Table 7). In fact, there have occurred major changes regarding what the criteria are at either a sub-symptom level or addressing the category of ADHD as a whole. The debate has been about how best to weight the symptoms, how best to combine them, and so on.

Most recently, diagnosis of ADHD changed drastically from DSM-III-R to DSM-IV. A number of changes had been recommended for inclusion in the final

Table 7

Summaries of DSM Nomenclatures and Theoretical Views of ADHD

DSM	Nomenclature	Proposed but Rejected Nomenclature	Theoretical Era
DSM	No recognition	NA*	None
DSM-II (1968)	Hyperkinetic Reaction	Kyperkinetic Reaction of Childhood	Hyperactivity Motor
DSM-III (1980)	ADD / + H ADD / - H	Attention Deficit Disorder	Attention
DSM-III- (1987)	ADHD U-ADHD	ID (Impulse Control) HID (Hyperactive Impulse Disorder)	Motivational response to rewards
DSM-IV (1994)	ADHD-IN ADHD-HI ADHD-Co	EFD (Executive Function Disorder)	Self Regulation Disinhibition Executive Dysfunction
DSM-V (2001)	NA	SRD + IN SRD + HI	Self Regulation With Inattention Self Regulation with Hyperactivity-Impulsivity

draft of DSM-IV by the Committee on the Disruptive Behavior Disorders (Barkley, 1993). Empirical field trials and expert consultations provided the basis for the recommended changes (McBurnett et al., 1993). Several studies provide detailed descriptions of the field trial process for the DSM-IV (McBurnett et al., 1993; Power & DuPaul, 1996). Symptom items were field tested on both normal and clinic referred children at 10 or 11 sites across the United States, depending on the source (McBurnett et al., 1993 and Power & DuPaul, 1996, respectively). Researchers used predictive power statistics to determine diagnostic utility (Power & DuPaul, 1996). Experimental items which did not demonstrate sufficient level of predictive power were excluded from the diagnostic criteria. Other criteria which remained uncertain, required further analyses from the field trial data set (Barkley, 1993).

The entire Child and Adolescent Categories Work Group and other APA governance structures passed approval on the majority of recommendations by the committee. Other additional diagnostic criteria were recommended by committee members but did not pass approval and were not incorporated in the ensuing DSM (Barkley, 1993). These included the following:

1. adjust DSM-III-R cutoff for age
 2. symptoms exceed 93 % of same age normal children
 3. onset by 6 years of age (arguable)
 4. duration of symptoms of 12 months
 5. symptoms occur across many tasks and situations demanding persistence
 6. if IQ is below 85, use mental age norms in 1. above
- (adapted from Barkley, 1993)

One final recommendation involved re-instating the Attention Deficit Disorder (ADD) category to describe those children previously labeled ADD without Hyperactivity (DSM-III) or Undifferentiated ADD (DSM-III-R).

The final published DSM-IV (1994) contains two clusters or lists of symptoms to focus on: 1) Inattention symptoms and 2) Impulsivity-Hyperactivity Symptoms conceptualized as one cluster (Pelham, 1996; Tannock, 1998). Several Inattention symptoms appear to be taken directly from the Connors Rating Scale. Six symptoms from this list are part of the criteria for meeting diagnosis of ADHD - predominantly Inattentive (ADHD-IN). Similarly, six symptoms from the Impulsivity-Hyperactivity Symptoms lists are required to meet diagnosis of ADHD-predominantly Hyperactive-Impulsive (ADHD-HI). Research has demonstrated that the impulsivity and hyperactivity tend to cluster together providing an impetus to group the symptoms under one list in the DSM-IV (Power & DuPaul, 1996). DSM-IV is the first time, Hyperactivity-Impulsivity is put in as a separate category. When factor analysis research is done, symptoms relating to hyperactivity do not separate out from those indicating impulsivity. Research from the DSM-IV field trials has shown that impulsivity and hyperactivity load together to form a single behavioral dimension (Applegate et al., 1997). All but one of the studies reviewed by McBurnett et al. (1993) found a two factor structure: inattention and hyperactivity/impulsivity. Hinshaw (1994) in his review also supports the notion of two stable dimensions: inattention/disorganization and impulsivity/hyperactivity.

The DSM-IV conceptualizations of ADHD are based on the belief that these two clusters of symptoms are distinct in terms of their etiology, in their clinical course, prognosis, and response to treatment. Researchers argue that this belief in distinct subtypes, is as of yet still unfounded by empirical data, but is the very premise upon which the DSM-IV is based (Power & DuPaul, 1996; Tannock, 1998). Furthermore, the DSM-III category of ADHD without Hyperactivity cannot be conceptualized as the same as the DSM-IV category of ADHD-Predominantly Inattentive type. The former incorporated symptoms related to impulsivity while the latter does not. Currently, there is a conceptualization or belief that three distinct types of children exist which can all receive this global label of ADHD: ADHD-IN and ADHD-HI as mentioned above as well as ADHD - Combined type (ADHD-CO). Other researchers argue that differences in meeting the 7 year old age of onset criteria among subtypes (ADHD-IN, 43%; ADHD-HI, 100%; & ADHD-CO, 18%) support the validity of these three distinct types of children (Applegate et al., 1997). These latter results, however, raise the question about the validity of the age of onset of impairment criteria rather than an age of onset of symptoms criteria.

As a result of the somewhat arbitrary judgements and beliefs, the DSM-IV also contains several additional criteria changes which have the potential to pose considerable problems. First is the criteria that symptoms have to be present before the age of 7. Tannock (1998) found a low reliability of recall among parents of ADHD children. Only 33 % of parents were able to recall the age of onset one year after initial clinic visit. However, Green et al. (1991) found

recall of age of onset of ADHD behavior by the mother as stable. While age of onset is a historically based requirement, there has been little consistent empirical evidence to support this criterion. First, age of onset is difficult to establish reliably through retrospective studies and second, age of onset makes little difference in the reliability of the diagnosis if it is not required (Barkley, 1993; Tannock, 1998). This age cutoff for the onset of ADHD symptoms appear to be a continuing source of disagreement among researchers. Researchers have previously argued to keep the diagnostic cutoff at age 7 (Green et al., 1991), lowering the cutoff to age 6 (Barkley, 1993), and having no cutoff at all (Power & DuPaul, 1996).

A developmentally appropriate cutoff criterion is proposed because a marked decline in hyperactive-impulsive behaviors with age, has been found in the general population (Barkley, 1993). Barkley (1993) argued that a fixed cut off score is not logical in populations with declining baselines. This fixed criterion is problematic because clinicians are likely to over diagnose preschool children and under-diagnose adolescents and adults. From this perspective, arguments that people outgrow the disorder can be viewed as artifacts of having a fixed cut off score in the diagnostic criteria. This issue has become one of the criticisms of the DSM-IV, i.e., it fails to account for developmental changes in ADHD presentation (Power & DuPaul, 1996).

Requiring the presence of symptoms in two or more settings (e.g. at school, work, and/or home) presents tremendous difficulties for clinicians (Power & DuPaul, 1996; Tannock, 1998). These may include problems with

how to operationalize this requirement in practice, how clinicians know how to select which two settings and informants, and how clinicians decide what constitutes a setting (e.g., are the school playground and school classroom two different settings or do they constitute one setting?).

Setting and informant can easily become confounded in any diagnostic decisions. Tannock (1998) found that there is major discrepancy or disagreement among informants especially between parents and teachers. If the teacher states one thing and parents state something else who is the more credible source, particularly if inattention and hyperactive impulsivity are distinct problems. Similarly, August and Garfinkel (1993) reported that requiring two or more settings (home and school) or two corroborating sources may be too restrictive. Not all researchers have arrived at the same conclusion. Biederman et al. (1993) concluded that although correlation between parent and teacher ratings were low to moderate, parent ratings were corroborated by teacher reports using “broad” teacher diagnoses of ADHD. The DSM-IV stipulates that problems in impairment must be present in social and/or academic settings in order to meet criteria (Power & DuPaul, 1996). This leaves room for considerable interpretation. In fact, many clinicians report paying homage to the DSMs, following the criteria to some degree, and correcting for errors and doing an even better job by adding their own idiosyncratic criteria (Applegate et al., 1997). Barkley (1997) recommends that clinicians locate evidence that the symptoms existed in several settings but not insisting on agreement between parents and teachers in order to diagnosis. These elements of clinical

judgement create a potentially unreliable diagnostic process (Power & DuPaul, 1996). According to the DSM-IV, the prevalence of ADHD is estimated at 3% to 5% among school age children (APA, 1994). According to its predecessor, the DSM-III-R, the prevalence of ADHD was described as common and as occurring in as many as 3% of school age children (APA, 1987). Surprisingly, this increase suggests that the prevalence of children diagnosed with ADHD is higher when requirements stipulate two settings. However, the criteria for ADHD also stipulated the presence of 8 symptoms as opposed to 6 in the DSM-III-R and DSM-IV, respectively.

The field trial researchers also recommended many more symptoms for the DSM-IV but symptoms were dropped due to nonscientific rationale. An anecdotal account revealed that one of the higher ups in the APA governing body decided that there were too many symptoms and wanted some dropped (Barkley, 1993; Pelham, 1996). For political reasons, the APA governing body chose two smaller symptom lists, one with hyperactive and impulsive symptoms congregated together and one with inattention symptoms together and reduced the list with the claim that clinicians would not be able to remember the larger lists (Barkley, 1993). The changes appear scientifically questionable since shortening an item list tends to weaken reliability which in turn weakens the validity of the diagnostic criteria. The Committee had originally planned that children who met criteria on the Hyperactive Impulsive would be called ADHD and children who met criteria on the Inattentive list would be ADD. The DSM-IV governance bodies changed this recommendation so that all children who meet

any criteria are labeled as ADHD but with one of three trailing clauses: Predominantly Inattentive, Predominantly Hyperactive-Impulsive, or Predominantly Combined Type. Barkley (1993) viewed this change as regressive scientifically in that it was a throw back to DSM-III where ADD and ADHD were viewed as sub-types of a common problem, i.e., they were viewed as the same disorder. Barkley (1993) did not view ADD as a disruptive behavior disorder and did not even want to include ADD in the Disruptive behavior disorders section of the DSM. Thus, according to Barkley (1993) DSM-IV obscured where it could have clarified. Certainly, given an analysis of some of the field trial studies specifically regarding symptoms (Applegate et al., 1997), it becomes apparent that research may not be the determining factor in devising diagnostic manuals.

Other researchers have found evidence consistent with the notion that ADD and ADHD are separate disorders (August & Garfinkel, 1993). Goodyear and Hynd (1992) in an extensive review of the literature suggested that ADHD/H and ADHD/ WO present with distinct behavioral and neuropsychological differences that distinguish them in clinical presentation, etiology, and possibly intervention and that the two groups may constitute two separate disorders. Later in the same article, they qualified this suggestion and concluded that their review does not permit a categorical answer to the question of the existence of ADD subtypes. Goodman and Poillion (1992) synthesized 48 articles and books to examine the agreement regarding

characteristics and cause of ADHD. They found 69 characteristics and 38 causes.

Consistent with the notion of separate disorders are several growing clinical beliefs which are unsubstantiated by conclusive empirical data. One belief is that the risk factor lies with the Hyperactive-Impulsive Type and that Inattentive types are less severely impaired (Tannock, 1998). The implications are severe; if clinicians believe that Inattentive type children have less severe problems, then it is likely that the Inattentive types will receive less treatment or intervention (Tannock, 1998). Other related general beliefs are that 1) Inattentive type are more likely to have more anxiety, depressive, and reading disorders and 2) The hyperactive-impulsive type are more likely to have more oppositional defiant disorder, conduct disorder related problems. Tannock (1998) found that hyperactive impulsive children are more likely to have conduct disorder but oppositional defiant disorder did not cluster together.

Morgan et al. (1996) found that ADHD/Combined type children are perceived by their parents to display significantly more externalizing, delinquent, and aggressive behavior than ADHD/Inattentive type. Findings from studies suggest that ADHD/Hyperactive-Impulsive types are at greater risk for antisocial behavior but no longitudinal studies have been conducted to date (Power & DuPaul, 1996). One earlier research study identified three different subtypes of ADHD: ADD without hyperactivity; ADD with hyperactivity; and ADD with hyperactivity and aggression, ADDHA, (Dykman & Ackerman, 1993). Other research found no significant difference between ADHD subtypes and

rate of affective or anxiety disorder co-diagnosis (Morgan et al., 1996). Other subtypes have been proposed in the literature including ADHD with and without aggression, and ADHD with learning disabilities (Power & DuPaul, 1996). However, ADHD with and without hyperactivity children have similar rates of learning disabilities when reading and math disabilities are grouped together (Barkley, 1990; Morgan et al., 1996). The latest ICD also classifies a hyperkinetic-conduct disorder subtype.

Power and DuPaul (1996) recommend continuing to treat these subtypes as co-morbid disorders rather than distinct subtypes. For a nomenclature to be effective, common characteristics must be attributed to the system to be known and agreed upon by all who use the system. Thus, the entire diagnostic and nomenclature issue of ADHD is not only complicated by the heterogeneity of ADHD but also by the prevalence of comorbidity. This has huge implications for future research directions but especially for current diagnosis and treatment.

Currently, there are no empirical studies which examine ADHD subtypes and differential response to various treatments including pharmacological intervention, contingency management, and modification to academic instruction (Power & DuPaul, 1996). Yet researchers have made recommendations based on subtypes:

In terms of intervention, the findings indicate that with combined type children, it is important to identify and treat aggressive, oppositional, or delinquent behavior and/or to take a preventative approach (Morgan et al., 1996).

Power and DuPaul (1996) suggested that the DSM-IV diagnostic criteria should be useful for predicting effective lists of treatment for children diagnosed with ADHD. Recommended treatments for ADHD include parent training, family therapy, adaptation in school environment, pharmaceutical, behavior intervention in the classroom and playground, and involvement in parent support groups (Power & DuPaul, 1996). However, the utility of diagnosis for treatment is very general and therefore limited in being helpful for designing behavioral and instructional intervention (Power & DuPaul, 1996). Goodman and Poillion, (1992) also held the view that diagnosis has limited value for treatment because of the uncertainty of the nature of ADHD.

Pelham (1996) also presents a strong argument for why clinicians should place less emphasis on diagnosis for attention deficit disorders and nomenclature. Because the criteria change all of the time, practicing clinicians should not be overly concerned or devote inordinate amounts of time to diagnosis (Pelham, 1996). It is probable that the next DSM (either DSM-IV-R or DSM-V) will have a different list of symptoms, or different way of grouping them, and a different way of conceptualizing the disorder. Throughout the years, they have all been the same children, they all have impairment, and they have all had problems that required treatment. It would be a rare clinician who assessed children, found them just short of meeting the number of symptoms, and sent them on their way. Regardless of whether the child needs 12 symptoms and only meets 10 for criteria, he still has a problem which likely requires some form of intervention. As a result, Pelham (1996) recommends

establishing impairment and designing treatment based on impairment.

However, any decisions regarding impairment also require a cut-off score.

Barkley (1993) argues that how professionals conceptualize the disorder will affect how clients will be treated. This is problematic considering that ADHD has been conceptualized from various perspectives for decades.

Given the lack of consensus in the field, treatments cannot be tailored to ADHD. Thus, an argument can be made that the ensuring recommendations for multi-modal treatments for children with ADHD can be viewed as a blitz treatment to cover all contingencies.

The anecdotal accounts from various sources (Barkley, 1994; Pelham, 1997; Tannock, 1998) suggest that specific criteria that are a part of diagnosis in the DSMs vary tremendously according to many different dimensions or parameters of which research may be a relatively small part. Basically, a treatment committee put together the diagnostic criteria and governing bodies made the final decisions. It was originally predicted that using the DSM-Field Trial data would improve the reliability, internal consistency, and clarify the association of ADHD with functional impairment (McBurnett et al., 1993). Regarding ADHD in particular, the DSM continues to be criticized for being far from fully reliable, specific, or valid (Hinshaw, 1994). "The clinical field has long grappled with issues of classification, diagnosis, underlying patho-physiology, associated difficulties, and treatment of youth with this syndrome" (McBurnett et al., 1993). Given the shifting nomenclature, diagnostic criteria, and theoretical models of ADHD presented above, one can ask the question, how can

clinicians decide on effective treatment based on a diagnosis. Inter-clinician agreement on what the problem is constitutes a prerequisite to linking diagnosis and treatment.

This categorical – treatment issue with ADHD is further complicated by the prevalence of comorbidity with other disruptive behavior disorders as well as other DSM-IV disorders. The research literature is converging to the view that Attention Deficit Hyperactivity Disorder is likely a neurodevelopmentally disorder (Barkley, 1993; 1995, 1997). However, the developmental progression of ADHD into other disruptive behaviors disorders has been viewed within a behaviorist model. Large percentages of children with ADHD (35 to 60%) develop Oppositional Defiant Disorder (ODD) by 7 years of age and a large percentage (30 to 50%) will eventually meet criteria for Conduct Disorders (CD) (Whalen & Henker, 1998). Predictors of development into ODD behaviors were found to be parental consistency and predictability. Predictors of development into CD were related to parental monitoring and tracking. These predictors are related to parent characteristics. It is also noted that a substantial percentage (15 to 25%) eventually develop antisocial personality into adulthood (Whalen & Henker, 1998).

Finally, it has been reported that the nature or type of children's disruptive behavior disorders is not predictive of parent training outcomes (Ruma et al., 1996). Rather the severity of the disorder is a more reliable predictor. One of the parameters of cross categorical approaches, characterize children according to the severity of their condition (e.g., mild, moderate, or

severe). To objectively evaluate the proposition that PMT is suitable to all disruptive disorders, Table 8 summarizes similarities on various dimensions among children with ADHD, CD, and ODD, as well as differences (Anastopoulos, Barkley, & Sheldon, 1996; Barkley, 1998; Clarizio, 1996; Frick, 1998; Hinshaw & Anderson, 1996; Kazdin, 1996; Marx & Gross, 1998; McMahon & Wells, 1998; Whalen & Henker, 1998).

Brestan and Eyberg (1998) describe PMT as having one of the strongest bases in controlled outcome research for children with behavior disorders. Furthermore, research has documented PMT's efficacy across a wide age range of children with various kinds of behavior problems (Brestan & Eyberg, 1998). Thus, these findings provide support for the view that cross-categorical approaches can be used in PMT intervention research.

PREDICTORS IN PARENT TRAINING INTERVENTIONS

Predictors of outcomes in PMT can be grouped according to two broad categories which may not necessarily be mutually exclusive: 1) traditionally examined predictors and, more recently, 2) parent cognitions. The first include primarily demographic types of predictors as well as child characteristics. The second, parent cognitions, may include attitudes, beliefs, and perspectives as well as inner motivational resources.

Traditionally Examined Outcomes And Predictors

Outcome research has consistently confirmed the efficacy of parent training as a treatment for changing behavior problems in children (Ruma et al., 1996). Considerable research has also been conducted throughout the years

Table 8

A Comparison of Disruptive Behavior Disorders

Dimension	Behavior Disorder		
	AD/HD	ODD	CD
CARDINAL SYMPTOMS			
Core	hyperactive-impulsive (disinhibition) inattention severity fluctuates according to context	defiant irritable oppositional	aggressive antisocial infliction of pain initiating fights denial of others' rights persistent not transient
Number of Symptoms	6/18	4/8	3/15
EPIDEMIOLOGICAL			
Subtypes	Predominantly Inattentive Predominantly Hyperactive- Impulsive Predominantly- Combined	none	Childhood-Onset Adolescent-Onset
Prevalence	2 % to 6.3 %	5 to 7% 2 to 16%	6 to 16% males 2 to 9 % females
Age of Onset	<3years, PHI 5 to 7 years, PI	before 8 years	as early as 5 to 6 years usually childhood or adoles.
Sex ratios (male to female)	3:1 community samples 6:1 to 9:1 clinic samples	aprox. 1:1	2:1 to 4:1
ASSOCIATED CHARACTERISTICS			
Social Problems	yes	yes	yes
Medical Risks	yes	na	na
Conscience Delays (moral reasoning)	no normal	no	yes, deficient lack empathy, guilt
Voluntary control over behavior	no uninhibited, minimal control	yes	yes calculated, planful
Attachment relations	typically poor	typically poor	poor quality
Academic Problems	yes	yes	yes

Con't Table 8

ETIOLOGIES			
Heredity Influence	10 to 35%	no	yes
Neurobehavioral Patterns	yes strong evidence prefrontal lobes	negative temperament cognitive characteristics	yes (strong with early onset)
Dietary Contributions	unsubstantiated	na	na
Environmental Toxins	yes	no	no
Psychosocial Influences Contextual	yes (on severity)	yes (quality of parent-child interactions)	yes (strong with adolescent onset)
DEVELOPMENTAL TRAJECTORIES/ PATHWAYS			
age change in cardinal symptoms	yes maximal	no minimal	yes small
influence on pathways	subtype	parent consistency	subtype parent monitoring & tracking
parent influence on symptom progress	minimal compensatory strategies re: symptoms	consistency predictability indiscriminant parenting	monitoring tracking
characterization	heterotypic continuity	highly stable	heterotypic continuity
INTERVENTIONS			
Punishment Need in Treatment	responsive to external controls	need for change in coercive interactions	reward dominant learning style
PMT	efficacious	efficacious	efficacious
Pharmacotherapy	methylphenidate antidepressants	no specific pharmaco- therapy for core symptoms	no specific pharma- cotherapy for core clonidine for aggression lithium for aggression and explosiveness
Cognitive-Problem Solving	yes promising	na	yes efficacious
Choice of target behaviors	self control self regulation	compliance	covert (stealing, lying, firesetting) overt (bullying, compliance)

examining predictors of successful and unsuccessful outcomes in parent training programs with various disruptive behavior populations. The outcomes have included a broad range of measures across studies. The predictors have primarily included parent depression, marital status and adjustment, social class, number of negative life experiences, maternal insularity, age, and severity of disorders, (Ruma et al., 1996; Webster-Stratton & Hammond, 1990). There has been considerable interest in how and why some parent training programs work for some parents and not others. Several years ago, Webster-Stratton (1985) demonstrated that depending on definition of treatment outcome criterion, different clusters of predictors of treatment will have varying success or failures. These treatment outcome criteria can be grouped into three broad categories: a) changes in child behavior; b) parent engagement; and, c) parent satisfaction.

Many studies have measured childhood outcomes as perceived by parents on rating scales. Some studies have examined outcomes of child behavior through direct observation in home and school. Other studies have examined parental outcomes and changes in parent's behavior. One study reported changes in parent attitude; however, examination of the study revealed that parental attitude was measured through having the parent rate the child's behavior on the Child Behavior Checklist (CBCL) (Webster-Stratton, 1990). The CBCL appears to have set the standard as an outcome measure of changes in child behavior.

A second category of outcome measures involves parent satisfaction.

Consumer satisfaction has become an essential component of outcome evaluation of psychological treatments (including parent training), due to the recent changes in mental health delivery, funding, and emphasis on treatment effectiveness (Brestan, Jacobs, Rayfield, & Eyberg, 1999) as well as managed care organization preference (Bilbrey & Bilbrey, 1995, July/August).

Furthermore, (Brestan et al., 1999) view standardized measures of treatment satisfaction with child treatments, as a priority. Parent satisfaction would be defined as the extent to which parents liked the PMT process and outcomes which include the format, techniques, and effects of treatment (Brestan et al., 1999). Webster-Stratton (1993) reports that Patterson's PMT treatment approach, Forehand and Mahon's approach, and Webster-Stratton's programs have been extensively evaluated and all have had high reports of parent satisfaction.

Outcomes have also been assessed through examination of parental engagement. Several indexes of parental engagement have included premature drop out and behavioral signs in training which may include sporadic attendance, missed and late appointments, last minute cancellations, skipped sessions without cancellation, and failure to complete homework (Prinz & Miller, 1996). Other signs of inadequate parental engagement include quality of participation in sessions such as low level of interaction, complaints or arguments, giving up on strategies after one attempt, and refusing to role play (Prinz & Miller, 1996).

Holden et al. (1990) describe three related criteria in assessing parent engagement outcomes in parent training programs: 1) the proportion of clients who successfully complete training; 2) the magnitude of client's behavioral change; and, 3) the length of time needed to bring about change. Previous researchers have described outcomes according to two levels: 1) those clients who terminate treatment prematurely and drop out; and, 2) those clients who stay in treatment but fail to demonstrate positive change (Webster-Stratton, 1985).

Holden et al. (1990) break these levels down further in their description of a "continuum of effectiveness". At one end, certain clients may progress rapidly and show improvement (Holden et al., 1990). In the middle of the continuum, clients may experience difficulty in attaining treatment goals. They complete training and take longer to demonstrate progress but only after training has been completed (Holden et al., 1990). It is probable that these middle clients would present as clients at the opposite end of the continuum unless long term outcomes are evaluated. At this opposite end, clients may drop out from training and for a variety of reasons are least likely to benefit from training.

Several studies have noted significant changes in parent report measures but nonsignificant changes in child behavior data (Webster-Stratton, 1985). Several studies have also reported that immediate post treatment gains were not maintained on follow up (Webster-Stratton, 1990). Kazdin (1997) summarized the conclusions of several outcome studies as follows: 1) parent management training outcomes as measured by parent and teacher reports of deviant behavior, direct home and school observations, and institutional records (e.g.,

truancy, police contact, arrests) indicate significant improvement; 2) the magnitude of changes place children with conduct disorder within normal ranges of behavior in comparison to non-referred same sex, age peers; 3) long term treatment gains from 1 to 3 years have been maintained; 4) studies include some sparse data on “incidental improvements” such as in marital satisfaction, maternal psychopathology (depression), family cohesion, and sibling behavior which were not a direct focus of training.

The most commonly studied predictors of parent training outcomes, henceforth called traditionally examined predictors (TEPs), include single parent families (SPFs), socioeconomic status (SES), parent psychopathology (especially, maternal depression), number of psychosocial stressors, and severity of the child’s behavior problem.

Single Parent Families (SPF)

Treatment failure has also been related to marital adjustment (Webster-Stratton & Hammond, 1990). Specifically, single parent families are more likely to be non-responsive to treatment or drop out of treatment (Webster-Stratton, 1985; Webster-Stratton & Hammond, 1990). In contrast, intact families are more successful in maintaining treatment effects over time (Webster-Stratton & Hammond, 1990). No mention was made as to the nature of the marital relationship and whether or not this would have an impact in parent training.

The Webster-Stratton and Hammond (1990) study examined multiple predictor measures with a large sample of parents at post treatment and at one year follow up. They found that marital status and SES were the strongest

predictors of maternal behavior with their children post-treatment while marital status alone was the strongest predictor of paternal behavior (Webster-Stratton & Hammond, 1990). In contrast, Holden et al. (1990) found that marital status was not found to be predictive of parent training outcomes. In their case, outcome was defined as completion of the program.

Marital status appears to be a variable worthy of examination. Single-parent families are a growing segment of the U.S. population (25%) and Canadian population (20%) and usually headed by mothers (Statistics Canada, 1992; U.S. Bureau of the Census, 1994).

Socioeconomic Status (SES)

Socioeconomic disadvantage has been defined by low income, low education, single parent status, poor area of residence, large number of children in the family, and referral to the clinic by outside agency (Webster-Stratton, 1985; Webster-Stratton & Hammond, 1990). Family SES has been consistently reported to be related to parent training outcome. Low SES parents were more likely to drop out of parent training programs (Kazdin & Wassell, 1999; Webster-Stratton & Hammond, 1990) or do more poorly in parent training in that they were generally less successful in making positive behavioral changes (Holden et al., 1990; Kazdin & Wassell, 1999). These results were found at both immediate post-treatment and long term post treatment. An earlier summary of the research literature indicated that SES was an important predictor for outcome criteria, i.e., the more disadvantaged the family (single, low income, and low education), the less likely it was to benefit from parent training (Webster-Stratton, 1985).

On the other hand, advantaged SES can also be viewed as predictive of poor outcomes in terms of missed appointments and dropouts. Financially secure families may be overly committed to individual activities (e.g. volunteering or church) and recreational activities (sports or clubs) (Prinz & Miller, 1996). Engagement in these other activities can lead to inflexible or infrequent scheduling of sessions (Prinz & Miller, 1996). Also, families with extensive other activities may have disorganized lifestyles which would make it difficult to practice new strategies learned in parent training (Prinz & Miller, 1996).

Parent Psychopathology

Studies have suggested that pretreatment levels of maternal depression were significantly related to treatment failure or relapses (Kazdin & Wassell, 1999; Webster-Stratton & Hammond, 1990). Webster-Stratton and Hammond (1990) also found that paternal depression was just as predictive of reports on child adjustment.

Not all studies have found maternal depression to be a predictor of parent training outcomes. One study found that maternal depression as measured by the Beck Depression Inventory, was not a predictor in parent training outcomes (Webster-Stratton, 1985). It was hypothesized that this may have been the result of maternal depression decreasing significantly from pre- to post-treatment assessment. Similarly, Frankel and Simmons (1992) did not find evidence to support the notion that maternal depression is a predictor of parent training outcomes. They found that the only parent personality variable which was related to parent training outcomes was psychotic distortions. However, it was noted that

parents endorsed scale items which reflected helplessness and negativity rather than psychotic processes (Frankel & Simmons, 1992). Helplessness and negativity are also consistent with depressive affect. These parents tended to drop out of treatment (Frankel & Simmons, 1992).

Psychosocial Stressors

Ecological variables have been found to have a significant contribution to parent training outcomes. For example, stressful life experiences make it difficult to find time to do assignments, participate in parent training, and follow through with suggestions (Kazdin & Wassell, 1999; Webster-Stratton & Herbert, 1993). Also, the degree of life crisis and environmental stresses would be significantly related to a family's ability to maintain treatment effects (Webster-Stratton, 1985).

Situational demands and constraints have an influence on behavioral outcomes in treatment. Prinz and Miller (1996) discussed the research in this area and concluded that a multitude of stressors has an adverse impact on training outcomes including parental engagement in therapy, reduced treatment motivation and participation, as well as the parent child relationship. Parents with a multitude of environmental and personal stressors are more likely to over react to daily hassles (car repairs, sick family member) (Prinz & Miller, 1996). Parents may rationalize and attribute drop outs and missed appointments to these types of situational obstacles (Prinz & Miller, 1996).

Webster-Stratton (1985) hypothesized that an interaction between types of life experiences and the availability of social supports may be predictive of parent training outcomes. Wahler's early seminal research found that single mothers

who have contact with other people outside the home have much more treatment success than mothers who are socially isolated (Dumas & Wahler, 1983).

Maternal insularity increases the probability of parent training program failure (Wester-Stratton & Hammond, 1990). Other researchers have found that social insularity may interact with other stressors to affect parenting styles (Dadds & McHugh, 1992). High levels of social support was found to be predictive of how parents responded to treatment, specifically mothers without support failed to benefit from traditional parent training (Dadds & McHugh, 1992). However, when access to social support systems was made a part of the treatment, mothers without their own supports still failed to benefit (Dadds & McHugh, 1992).

Severity of Child Behavior

Studies have discussed the limited effects of parent training for adolescents (Ruma et al., 1996). Ruma et al. (1966) used archival data to test for age effects on the outcomes of parent group training. They found that the best predictor of parent training outcome was the severity of the child's problems and concluded that severity of the behavior problem was responsible for the age effects in parent training (Ruma et al., 1996). This study, however, was limited in that they had no control or comparison group, follow-up data was not available, long term effects were not noted, outcome measures were limited to one global rating of psychopathology among children (the Child Behavior Checklist), and one informant (mothers) provided the rating (Ruma et al., 1996).

However, other researchers have also found that parents of children with greater numbers of presenting problems were less likely to complete their parent

training program (Holden et al., 1990; Kazdin & Wassell, 1999). Kazdin (1997) reported that more severe antisocial behavior and comorbidity are predictive of negative outcomes to parent management training.

Other Predictors

Webster-Stratton (1993) summarized the research on predictors and concluded fewer treatment gains with the following parent and family characteristics: marital distress, spousal abuse, lack of a supportive partner, maternal depression, poor problem solving skills, high life stress, and SES disadvantages coupled with lack of social support.

Bank et al. (1991) studied time in treatment as a predictor and offense rates among chronic delinquents as the outcome variables. They found a significant treatment by time effect with greater reduced rates of serious crimes with time in therapy (Bank et al., 1991). Holden et al. (1990) found that ethnic minorities were less likely to complete parent training.

Failure to Find Consistent Predictors

Based on the review of studies examining predictors, there is no single consistent predictor of treatment success or failure (Table 9). For example, evidence from the Carolina Early Intervention Program indicated that children demonstrated benefit regardless of parent (mother in this case) intelligence, age, education, or type of family (Ramey et al., 1988). The apparent failure to find consistent predictive outcomes based on variables identified in the literature may be due to several limitations in the research literature.

Table 9

Summary of Studies Examining Predictors in Parent Training.

Study	Population	Predictors Examined	Results/ Conclusions
Dumas & Wahler (1983)	behavior	social insularity & single parents socioeconomic disadvantage	less treatment success
Webster-Stratton (1985)	ODD CD	maternal depression single parenthood low SES	maternal depression, non-significant significant
Holden, Lavigne, & Cameron (1990)	referred for aggression & non-compliance	marital status psychosocial stressors ethnic minority status	not predictive of completion predictive of completion predictive of completion
Webster-Stratton & Hammond (1990)	ODD CD	maternal depression single parenthood low SES social insularity	predictive of drop out
Bank, Marlowe, Reid, Patterson, & Weinrott (1991)	chronic delinquents	time in treatment	significant treatment * time effect

Cont'd Table 9

Dadds & McHugh (1992)		low social support	failure to show benefits
Frankel & Simmons (1992)	referred non-compliant & behavior problems	psychotic distortions parent depression	predicted higher rates of drop out non-significant predictor of outcome
Webster-Stratton & Herbert (1993)	CD	psychosocial stressors	low participation
Prinz & Miller (1996)	at risk for CD	high SES psychosocial stressors	predictive of drop-outs predictive of drop outs
Ruma, Burke, & Thompson (1996)	referred behavior problems	severity of child behavior	severity predicted outcomes
Kazdin (1997)	severe anti-social	severity of behavior	
Kazdin, Holland, & Crowley (1997)	oppositional aggressive antisocial	parent perception regarding relevance, relationship with therapist	barriers interfered
Kazdin & Wassler (1999)	CD	severity of behaviour stressors SES parent psychopathology	predictive of child behaviour changes influenced by barriers to treatment

In a review of parent training research, Rogers Wiese (1992) discussed the shortcomings in research methodology which had been addressed by previous reviews as follows: 1) an over-reliance on reporting data about child behavior changes rather than specific parent behavior changes; 2) inconsistent use of multiple observers; 3) failure to report inter-rater reliability with the former; 4) failure to use multiple outcome measures; 5) little assessment of generalization of treatment effects; and 6) limited, if any, follow up data (Moreland et al., 1982; Rogers Wiese & Kramer, 1988).

Subsequent research appears to have addressed many of these methodology shortcomings. Notably, later parent training research shows an upward trend in collecting parent change data, increased multiple outcome measures, and collection of generalization data (Wiese, 1992).

Group studies in parent research also contained several methodological limitations. These included a failure to gather or include follow up data, failure to include control groups, minimal collection of treatment integrity data, and fairly limited reporting of assessment and treatment protocols (Wiese, 1992). These undermined the internal and external validity of the group results and thus make it impossible to determine if the intervention is responsible for changes and if changes generalize over time, settings, and people (Wiese, 1992).

Several researchers have Webster-Stratton and Hammond (1990) described several confounding issues in many parent training studies as follows:

1. examined only one isolated predictor variable at a time, or combined predictors in a single index score making it difficult to determine effects of individual predictors (Webster-Stratton & Hammond, 1990)
2. lack of a standard method to assess treatment success or “clinical

- significance" (Webster-Stratton & Hammond, 1990)
3. almost exclusive reliance on single not multiple outcome measures such as maternal information, neglecting paternal variables (Webster-Stratton & Hammond, 1990) and ignoring parent and child (Tucker et al., 1998)
 4. using small homogeneous samples, lack of control groups at long term follow up, lack of random assignment, and wide variability in training programs (Tucker et al., 1998).

Two specific examples of methodology shortcomings involve the child's age as a predictor and the selection of outcome measures. While age has been discussed as a predictor of outcomes, studies have also seldom controlled for different age groups, younger and older children, whose parents are involved in training (Ruma et al., 1996). Home observations and teacher reports have been discussed as possibly better outcome measures because they are less biased and based on performance demands than parent reports of behavior (Webster-Stratton & Hammond, 1990).

Thus, research has yet to demonstrate how several predictors may function together, how predictors function independently and how to operationally define treatment success (Webster-Stratton & Hammond, 1990). Consequently, it makes sense to conclude that different predictors would affect different outcomes (Webster-Stratton & Hammond, 1990).

Using statistical analysis, actual variance among predictors of outcomes in parent training has been reported to be small (Webster-Stratton & Hammond, 1990). The data suggest that the predictor variables which were studied (including maternal depression, marital situations, SES, life stressors) may have limited utility in practice. Secondly, the authors suggested that researchers may need to look for other predictors that determine outcomes in parent training.

Kazdin, Holland, and Crowley (1997) label traditionally studied predictors as “variables of convenience”. Researchers may select variables to study based on easy access, such as clinic intake forms. Also, the predictors are usually demographic data which provides little information regarding mechanisms involved in outcomes nor guidelines on how to intervene in parent training to prevent negative outcomes and provide better treatments (Kazdin et al., 1997). This creates the propensity towards exclusionary practices. The solution for many PMT programs has been to carefully select clients and exclude parents who have mental health problems (Hutchings, 1996). Another example involves SES. Knowing that low SES is a predictor of negative outcomes in parent training does not provide guidelines for treatment.

Kazdin et al. (1997) proposed, studied, and found support for their hypothesis regarding a conceptual model which would be predictive of parent training outcomes. The “barriers-to-treatment model” includes predictors which describe practical obstacles to participation, perceptions of treatment, and relationship with the therapist (Kazdin et al., 1997). One notable finding was that the predictor findings related to SES may be due to several mediating variables such as cost factors for transportation, more severe child-rearing strategies, more child and/or parent health problems, and discrepant parent - therapist expectations (Kazdin et al., 1997).

In a meta-analysis of psychotherapy dropout, Wierzbicki and Pekarik (1993) found that psychotherapy dropout was significantly related to minority status, racial status, low education, and low SES; however, mean effect sizes

were moderate, ranging from .23 to .37. In fact, they concluded that these mean effect sizes are likely upper estimates of the true value of the effects, due to limitations in their study (missing data) (Wierzbicki & Pekarik, 1993). Although the study did not specifically address or examine why SES is related to dropout, the authors speculated that SES may be related to dropout because of several underlying factors such as differences among therapists and clients regarding education, value systems, and expectations (Wierzbicki & Pekarik, 1993).

These results suggest that outcome research should focus on more complex psychological variables rather than demographic characteristics (Kazdin et al., 1997; Wierzbicki & Pekarik, 1993). Furthermore, parent management training can encompass many variations in treatment within the actual program and in combination with other treatments (Kazdin, 1997). This would have implications for outcome studies that attempt to identify predictors of outcome. One area of study which has not been sufficiently explored is who profits from single modality treatments such as PMT or from combined treatments (Kazdin, 1997). Also, unexplored is whether certain parents profit from certain types of PMT treatments as opposed to others. It has been hypothesized that certain parents and children may be a "good fit" for a particular type of parent training program (Holden et al., 1990). This proposal is designed in an attempt to build on previous findings regarding the predictors of PMT, identify those characteristics/variables in advance to anticipate and provide the most effective training and prevent parents from dropping out prematurely or progressing slowly.

Parent Cognitions As Predictors

Attention to parents' cognitions arose within psychology as a reaction against the exclusively behavioral accounts of parenting (Goodnow, 1995). Interest in belief and attitude theories arose partially out of a reaction to simplistic behavioral explanations for the development of childhood disorders (Goodnow, 1995). Furthermore, interest in the literature on parental beliefs and attitudes is consistent with Eifert's (1996) recommendation to use more theory driven approaches in behavior therapy complemented with individualized and manualized treatment. Yet, more general parent cognitions, such as childrearing beliefs and attitudes have been shown to be limited in predicting parent behavior (Geller & Johnston, 1995). Part of the reason may be the difficulties with defining constructs. In examining the research literature on beliefs in general, research studies demonstrate no consensus regarding what beliefs and attitudes really are and considerable confusion about the constructs. The constructs of beliefs, attitudes, perceptions, ideas, attributions, values, expectations, knowledge, cognition, perceptions, judgements, and conceptions have been used interchangeably throughout the literature (Holden, 1995; McGillicuddy-De Lisi & Sigel, 1995). *Beliefs* have been defined as *knowledge or ideas that are accepted as true*; *attitudes* defined as *an evaluative aspect that is an integral component of the parent's cognitive orientation as in "positive" or "negative"*; *values* refer to *longstanding goals that a parent holds for a child, rather than truths*; *both attitudes and values may include a cognitive component but these are not seen*

as *facts or truth* (McGillicuddy-De Lisi & Sigel, 1995, p.334). Kohn (1969) in his seminal study on social class and values defined values as:

the values that parents would most like to see embodied in their children's behavior -- the characteristics they consider most desirable to inculcate in their children.

(Kohn, 1969, p.18).

Basically, there is no generally acceptable term for belief nor any agreed upon definitions for the different cognitive constructs in the literature (McGillicuddy-De Lisi & Sigel, 1995). Consequently, research has shifted to other areas of parent cognitions.

According to four models, (attribution, information processing, constructivist, and transactional) parental beliefs are sources of influence on the developing child, on the parents, and on the parent-child relationship (McGillicuddy-De Lisi & Sigel, 1995). An implicit and explicit assumption is that parental beliefs guide parental actions with children and consequently will influence childhood behavior. Some studies attempt to target the nature of parent's beliefs and link them to childhood outcomes (McGillicuddy-De Lisi & Sigel, 1995). Interestingly, these studies view the age of the child as less important and do not include the children in their studies. More important is the issue of measuring these attitudes and beliefs.

Studies have developed child rearing attitude surveys for predominantly descriptive, theoretical, and methodological purposes (Holden, 1995). Few studies developed surveys to serve as clinical tools. Frequently studied parental attitudes toward childrearing include four main categories: 1) attitudes related to discipline and control (authoritarian, permissive, restrictiveness, physical

punishment, democratic versus autocratic); 2) attitudes related to affection (acceptance, hostility, rejection, approval, warmth); 3) other parental attitudes (consistency of parenting, encouragement of independence or dependence, toilet training, role in education/teaching, over-involvement, and worries about childrearing); and, 4) attitudes related to views about child or child characteristics (assertiveness of child, conformity/deviance of child, fears of child, judgements about child behaviors, sex behavior of child, achievement of child, approval of child, emotional health of child, health of child, sex role expectations of child, and verbal output of child) (Holden, 1995). There were few psychometrically solid, formal instruments available for measuring parent cognitions (Johnston, 1996).

Earlier, seminal research utilized parent interviews to measure parent cognitions. Baumrind (1971) and Baumrind and Black (1967) categorized parental attitudes into authoritarian, authoritative, and permissive types based in part, upon interviews.

Attitude surveys sometimes include descriptive beliefs, instrumental beliefs, behavioral intentions, and values. Parents have descriptive beliefs about childrearing which are beliefs about how children develop or how parents affect children (Holden, 1995). For example, the statement, *most children are toilet trained by 15 months* is a descriptive belief. Parents also have instrumental beliefs about childrearing which are defined as the ways in which parents can achieve particular goals (Holden, 1995). For example, the statement, *I believe physical punishment is the best way to discipline*, is an instrumental belief. It is

these instrumental beliefs which are of the most interest and may have the most applicability to outcomes in parent management therapies.

Behavioral intentions are simply the intention to behave in a particular way (Holden, 1995). Few childrearing surveys explicitly address childrearing practices which focus on specific behaviors and how often parents behave in that manner. The surveys that do, include questions such as *how often do you require your child to put away his or her clothes*" (Holden, 1995).

Values, perceptions, and self-perceptions are also addressed in some childrearing surveys. Values are regarded as superordinate categories that reflect abstract goals or a coherent set of attitudes (Holden, 1995). An example of the former is to *raise a happy child* while an example of the latter is *respect one's parents*. Perceptions address parents' views or reactions to their child (Holden, 1995). For example, items assess views about how difficult the child is (Holden, 1995). Self-perceptions refer to parents' attitudes about their own abilities and their relationship with their child (Holden, 1995). For example, an item here might include the statement, *I find the greatest satisfaction in my child*.

Research has demonstrated over and over again, that parents' childrearing attitudes and beliefs explain only a small proportion of the variance in parenting behavior (Geller & Johnston, 1995). This suggests that attitudes and beliefs are not the sole determinants of parenting behavior and that other cognitions may play a role (Geller & Johnston, 1995). First several investigators have examined the interaction among parents' beliefs and attitudes with single

parenthood, SES, parent psychopathology, and life stressors. Second, investigators have begun to examine other cognitions.

Interactions Among Teps And Parent Cognitions

Studies have examined the relationship among childrearing attitudes and several traditional examined predictors (marital status and maternal insularity, SES, maternal depression, and life stressors) as determinants in parenting behavior. Marital status and adjustment has also been linked to various childrearing attitudes. Goldberg (1990) replicated previous work and again found that mothers in happy marriages reported attitudes of greater warmth and more encouragement of independence in their children while mothers in unhappy marriages reported more aggravation with their children. Cox et al. (1989) in a study of 38 couples with infants, reported that mothers in close, confiding marriages were warmer and more sensitive and fathers in the same marriages had more positive childrearing attitudes than parents in less happy marriages.

Kohn (1969) hypothesized about the relationship between attitudes and social class. Kohn found substantial support for his theory which relates social class to values to parent behavior. It is noteworthy that social class was evaluated by the Hollingshead Index which is based on education and occupation. This index leaves out income and subjective class identification. He proposed that working class parents value conformity to external rules, emphasize obedience and good manners, neatness, and impose constraints on their children. Furthermore, these values are the result of life conditions, i.e., parent job requirements associated with working under supervision, and following

instructions. In contrast, parents from higher occupational levels value self direction, self-control, curiosity, creativity, and are more supportive of independence in their children in keeping with their job requirements.

Early studies have linked maternal depression to parent attitudes. Scores on the Parent Attitude Research Instrument (PARI), specifically, hostile childrearing attitude scores were associated with anxiety and depression in mothers (Holden, 1995). Brunquell, Chrichton, and Egeland (1981) in a large study of 267 high risk mothers described the interaction of childrearing attitudes and personality variables as the best predictors of quality of care infants received with implications for exploring intervention in mother-child disturbed relationships. Neither single attitudes nor single personality variables were discriminant of high functioning versus lower functioning mothers. Hall et al. (1991) in a study of 225 mothers found low income, single mothers to be at high risk for depressive symptoms. Maternal depression symptoms predicted parent attitudes which in turn predicted child behavior (Hall et al., 1991). Research also supports the findings that depression promotes negative perceptions of child behavior and is associated with more negative attributions for child behavior (Johnston, 1996).

Maternal insularity and social support has also been linked to various childrearing attitudes. Cochran and Niegro (1995) found the presence or absence of social supports impacted on maternal attitudes and adjustment. Crnic and Acevedo (1995) found that social support and stress predicted maternal attitudes toward satisfaction in parenting. Crockenberg (1987) in a study of 40 mothers with two year old children found that mothers who experienced little support and

were, themselves rejected by their parents, held negative, punitive, and angry attitudes towards childrearing. In an extension of the research associating life stressors with parent perceptions of child deviant behavior, (Johnston, 1996) reports that major life stressors differentially affect mothers' perceptions of child behavior. Thus, links have been drawn among other traditional predictors (maternal depression and marital adjustment) and parent attitudes.

Potential Motivational Predictors Of Outcomes In Pmt

Many of the problems parents face in managing the disruptive and inappropriate behavior of their children are likely motivational in nature. Considerable research has been done in the general area of motivation in parenting behavior and child development outcomes (Goodnow, 1995; Holden, 1995; Lisi & Sigel, 1995). One basic premise has been that parent child rearing "attitudes" and their core philosophies guide their behavior and ultimately, the child's development (Gillis-Arnold, Crase, Stockdale, & Shelley, 1998). The present proposal contends that many of the problems and negative outcomes in PMT programs also contain a motivational in nature mediating component. Furthermore, these motivational mediating components are central to *parent's* inner processes and not only the child's inner processes (which is an entire other proposal). A definition of motivation will help illustrate these points:

Motivation is the study of the internal processes that give behavior its energy and direction.....motivation originates from a variety of sources (needs, cognitions, and emotions), and that these internal processes energize and direct behavior in multiple ways such as starting, sustaining, intensifying, focusing, and stopping it.
(Reeve, 1996, p. 2).

It has long been established that student motivation has a direct causal relation to student achievement (Brophy, 1998). Parents involved in PMT programs are essentially involved in achievement type situations – hence the term, parent education with some programs. Consequently, it stands to reason that parental motivational factors influence parent “achievement” in parent management training programs, and ultimately, translate into goal directed behavior which facilitates either positive or negative outcomes of PMT.

Reeve (1996) describes eleven inner motivational resources including psychological needs (self-determination, competence, and relatedness), cognitive domains (self-efficacy, personal control beliefs, achievement strivings, goal setting, and the self), and emotional states (curiosity, interest, and enjoyment/positive effect). Brophy (1998) defines motivation as “a theoretical construct used to explain the initiation, direction, intensity, and persistence of behavior, especially goal directed behavior” (Brophy, 1998, p. 3). Organizing much of the motivational research within an *expectancy x value* model, he explains that,

the effort that people are willing to expend on a task is the product of 1) the degree to which they expect to be able to perform the task successfully if they apply themselves (and thus the degree to which they expect to get whatever rewards that successful task performance will bring and 2) the degree to which they value those rewards as well as the opportunity to engage in the processes involved in performing the task itself.

(Brophy, 1998, p.14).

Few of these inner motivational resources and value aspects have been directly and explicitly examined within the context of parent management training (PMT) outcome research. Only a handful of studies have alluded to the influence

of parent motivation within the context of PMT outcomes and mostly in a peripheral fashion (Table 10). One study which explicitly examined motivation within a PMT program, taught parents “motivational” strategies for changing child behavior and did not address the motivational constructs underlying the strategies (Koegel, Bimbela, & Schreibman, 1996). Another study examined motivations for foster parenting in a foster parent training program (Gillis-Arnold et al., 1998). Other studies did not mention the word motivation or related motivational aspects, although the content suggested elements consistent with the motivational constructs of goals (First & Way, 1995) and value aspects of motivation (Kazdin, Holland, & Crowley, 1997; Kazdin & Wassell, 1999).

A few studies directly addressed the motivational aspects of self-efficacy but not as predictors of PMT outcomes but as a parent outcome of participation in PMT (Thompson, Ruma, Schuchmann, & Burke, 1996; (Tucker et al., 1998); and, as a pre-post measure of self-efficacy regarding the use of children’s mental health services (Bickman et al., 1998; Heflinger et al., 1997). Outside the context of PMT but within a situation responsive nursing program, one study examined parent’s general self-efficacy and locus of control as related to health promotion behavior (Ford-Gilboe, 1997).

Those resources pertaining to parent’s cognitive domains (self efficacy theory, personal control beliefs/attributions, achievement strivings/goal theory, self theory, and value) are the focus of the present proposal and postulated to be predictive of outcomes in PMT. Early seminal studies are credited for their theories of motivation and implications for understanding thought and behavior

Table 10

Studies Examining Motivational Variables within PMT or Similar Intervention Contexts.

Study	Population	PMT or Similar Program	Motivational Construct	Conclusions/specific to motivation
Bickman, Heflinger, Northrup, Sonnichsen, & Schilling (1998)	children with various mental health needs	Vanderbilt Caregiver Empowerment Project (Fort Bragg Project)	self-efficacy	self efficacy training no effects on child behavior outcomes and parent involvement outcomes
First & Way (1995)	untargeted	elements of several programs (eg. PET)	implicates goals, self schemas	phenomenological investigation, outcomes = transformative learning
Ford-Gilboe, M. (1997)	single parent and two parent families	Developmental Health Model (DHM) = situation responsive nursing	internal health locus of control; general self efficacy	sources of motivation positively affect family participation in health work, healthy practices
Gillis-Arnold, Crase, Stockdale, & Shelley (1998)	adoptive and nonadoptive foster parents	Iowa's Preparation for Foster Parenting: Preservice Training Curriculum	no constructs; motivations for foster parenting	adoptive more motivated to rescue child, companionship, replacing grown children, companionship for own child/ nonadoptive motivated by financial gain
Heflinger, Bickman, Northrup, & Sonnichsen (1997)	children with various mental health needs	Vanderbilt Caregiver Empowerment Project (Fort Bragg Project)	self-efficacy	self efficacy training no effects on outcomes (above)
Kazdin & Wassler (1999)	children with CD	Parent Management Training outpatient, individual	one of the barriers to treatment implicates value aspects	parent perceived relevance of treatment most strongly related to child behaviour change

Cont'd Table 10

Kazdin, Holland, & Crowley (1997)	children with oppositional, aggressive, & antisocial	Problem Solving Skills Training (PSST) for child and/or Parent Management Training (PMT)	implicates value aspects of motivation	barriers to treatment included perception that treatment is not relevant (among other barriers)
Koegel, Bimbela, & Shriebman (1998)	children with autism	teaching behavior modification: 1. Teaching target behavior 2. Above + teaching Pivotal responses (strategies on how to motivate the child)	no constructs; strategy stated: give the child choice; mix new with old tasks tasks; reward attempts; use naturally rewards	significant effect for treatment approach; overall more positive child-parent interactions with motivation training format
Thompson, Ruma, Schuchmann, & Burke (1996)	children with behavior problems	behavior management skills taught through direct instruction, role plays, video, and treatment manual	self efficacy	treatment cost effective; parent age and marital status no effect on parent efficacy as outcome
Tucker, Gross, Fogg, Delaney, & Lapporte (1998)	mildly difficult toddlers	behavioral parent training (BPT) (Webster-Stratton's program)	self efficacy	significant effect for treatment approach; BPT lead to positive changes in parenting efficacy (outcome)

related to self efficacy (Bandura, 1997), causal attributions (Weiner, 1979), and performance and learning goals (Dweck & Leggett, 1988). These and some of the more recent studies in motivation regarding other domain specific areas provide the groundwork for application to PMT. Within each motivational section, a review of relevant studies examining motivational factors which influence parenting in general are provided as well as a discussion of the sparse, PMT research which can be related to these motivational aspects. The motivational factors discussed below (self efficacy, personal control beliefs, achievement strivings, goal theories, implicit theory, self theory, and value) are those which are the focus of the present study and predominantly apply to PMT outcomes.

Self Efficacy Theory

Self efficacy is concerned with how well or poorly people judge or believe that they will perform on a task given their skills and a variety of circumstances (Bandura, 1997, p.37). It is the individuals' beliefs about their abilities and about the outcomes of their actions which influence the many ways in which they behave (Pajares, 1996). For example, individuals avoid tasks in which they feel incompetent and engage in tasks in which they feel competent (Pajares, 1996).

Self efficacy beliefs originate from four sources of information including performance accomplishments, vicarious experience (modeling), verbal persuasion, and physiological state, in decreasing order of potency of influence (Reeve, 1996). Performance accomplishments are first hand mastery experiences in which successes increase efficacy while failures decrease efficacy beliefs (Reeve, 1996). Several caveats to these maxims are given which

implicate perceived difficulty of the task, the amount of physical guidance received, and the timing of the pattern of successes and failures (Reeve, 1996).

The second source of information, vicarious experience, occurs when people base their efficacy beliefs on a social comparison process with others (Reeve, 1996). Furthermore, efficacy beliefs are strengthened when observers watch coping models (who struggle and cope to overcome difficult tasks) as opposed to mastery models (who expertly perform flawlessly) and when they watch multiple models (Reeve, 1996).

The third source of information upon which individuals base efficacy beliefs, verbal persuasion, occurs when others (teacher, parent, coach, peer, employer, therapist, audience, inspirational poster, song) give a successful pep talk (Reeve, 1996). The persuader must be credible, trustworthy, and have some “expertise” in order for verbal persuasion to have an influence on efficacy expectations (Reeve, 1996).

The least potent source informing efficacy beliefs, physiological state, comes from experiences prior to, or during task performances (Reeve, 1996). Autonomic nervous system arousal (increased heart rate, respiratory rate, trembling hands), somatic arousal (muscle tension, fatigue, pains and aches), and cortical arousal (rate of thinking, mental confusion) sometimes occur during some performances (Reeve, 1996). The degree to which they are perceived to be “under control” heightens efficacy beliefs (Reeve, 1996).

Self efficacy beliefs have been found to have diverse influence on student’s academic functioning including choice of activities and selection of

environments; extent of effort and persistence put forth during task performance; quality of thinking and decision making during performance; and, emotional reactions, related to stress and anxiety (Reeve, 1996). Students with low self efficacy likely “shun and avoid activities and situations they see as likely to overwhelm their coping capacities” and arrest developmental potentials (Bandura, 1997; Reeve, 1996). Similarly, parents with low self efficacy may be likely to drop out of PMT. Students with strong self efficacy beliefs choose active engagements that contribute to growth of competencies (Reeve, 1996). Students with low self efficacy slacken their efforts or give up when things get difficult. Students with high self efficacy persist with coping efforts when things get difficult (Reeve, 1996). Again, parents with high self efficacy are more likely to follow through with PMT suggestions and to complete homework assignments. Students with low efficacy become cognitively erratic when problem solving is required (Reeve, 1996). Students with high efficacy become highly efficient in their analytic thinking during complex decision making (Reeve, 1996). This latter finding is among the most salient in reference to parent efficacy when judging how well or effectively, they can manage their child’s disruptive behavior. In order to maximize the efficacy of PMT involvement, parents must use memories of past events to generate hypotheses about the most effective course of action, analyze feedback to assess the validity of their plans and strategies, reflect upon performances and remember which were most effective and which not. Parents who are low in self efficacy are likely high in self doubt which deteriorates and impairs the thinking and decision making process, especially in the face of

situational stress and problem solving failures (Reeve, 1996). Finally, students high in self efficacy, visualize success scenarios and react to challenges with enthusiastic effort, optimism, and interest (Reeve, 1996). Students low in self efficacy dwell on personal deficiencies, visualize formidable obstacles, and react to challenges with pessimism, anxiety, and depression (Reeve, 1996). Basically, events offer potentially aversive experiences and consequences but individuals offer coping capabilities which can counteract the potentially overwhelming aspects of the event (Reeve, 1996, p. 89).

The above discussion is central to parent self efficacy beliefs regarding their own capabilities. Also relevant here, is the teacher efficacy literature which involves “an instructor’s belief or conviction that he or she can influence how well students learn, especially students considered to be difficult or unmotivated” (Reeve, 1996, p. 89). Because teacher efficacy influences a teacher’s selection of activities, effort, and persistence (Reeve, 1996), it is also likely that parent efficacy influences the same. Parents with high efficacy may also believe that they can bring about “learning, performance, and achievement” in their children. Parents with low efficacy avoid offering activities that have the potential to be unmanageable, give up quickly, and forgo the effort to reteach or try again. Although measuring teacher efficacy is difficult, three types of items are deemed to represent the essence of teacher self efficacy (Reeve, 1996):

1. When I really try, I can get through to most difficult students.
2. If a student did not remember information I gave in a previous lesson, I would know how to increase his or her retention in the next lesson.
3. If a student in my class becomes disruptive and noisy, I feel assured that I know some techniques to redirect him quickly.

(Reeve, 1996, p. 90)

Similar statements from surveys assessing self efficacy and supported through factor analysis procedures include the following five items:

1. If I really try hard, I can get through to even the most difficult or unmotivated student.
 2. If some students in my class are not doing well in math, I feel that I should change my approach to the subject.
 3. By trying a different teaching method, I can significantly affect a student's achievement.
 4. There is very little I can do to insure that most of my students achieve at a high level.
 5. I am certain I am making a difference in the lives of my students.
- (Midgley, Feldlaufer, & Eccles, 1989)

By altering the domain specificity of these items, these same types of items can be translated and applied to parent self efficacy:

1. When I really try, I can get through to my son or daughter when he or she is being most difficult.
2. If my son or daughter did not remember the last time we had a "scene" about a certain house rule, I would know how to increase his or her memory the next time.
3. If my child became disruptive and noisy in public places (malls, church), I feel assured that I know some techniques to redirect him or her quickly.
4. By trying a different discipline method, I can significantly affect my child's behavior.
5. There is really very little I can do insure that my child behaves appropriately.

(With one additional related question),

6. If I could choose to have children, if I had the decision to make over again, I would choose parenthood.

Notably, these statements involve judgements which are task and domain specific. In order to be clear about what is being measured and to differentiate other expectancy beliefs from self efficacy beliefs, assessment requires context-specific judgments at a micro-analytic level (Pajares, 1996). From the

perspective of more task and situation specific judgements, the following statements may also apply to parent efficacy:

1. I am confident that I can make the decisions that are made in our home (parent efficacy).
2. I am confident that I can have my son or daughter listen to me and comply when I am discussing household chores (self-efficacy for engaging compliant behavior).
3. I am confident that I can learn the material with the other parents in these sessions (collective efficacy).

(adapted from Pajares, 1996)

Collective efficacy is defined as “a group’s shared belief in their capabilities to realize given levels of attainment” (Bandura, 1997). Furthermore, this collective efficacy has been reported to mediate the influence of students’ socioeconomic status and prior academic achievement (Bandura, 1997). Coupled with the findings from a number of studies which have demonstrated the relationship between teacher efficacy and student achievement (Midgley et al., 1989), parent efficacy beliefs are likely to have similar influences on achievement in parent training and ultimately child behavior. It is also possible that the group parent training “collective efficacy” may serve to mediate the effects of traditionally examined predictors, such as SES, in PMT outcomes.

A series of studies on The Family Empowerment Project is among the sparse literature found which remotely examines the relationship between parent self efficacy and PMT (Bickman et al., 1998; Heflinger et al., 1997). Bickman et al. (1998) utilized a multi-component parent training curriculum to enhance parent empowerment and increase their involvement in mental service delivery for their children with special needs. While this training does not meet the

definition of PMT nor apply exclusively to children with disruptive behavior disorders, the program included mental health service's self efficacy as a key aspect and novel addition (Heflinger et al., 1997). The four self efficacy sources of information (performance accomplishments, vicarious experience/modelling, verbal persuasion, and physiological state) were used as training techniques to help parents perceive themselves as capable of acquiring and using newly acquired knowledge and skills about the mental health system to improve their children's treatment. The training of mental health services self efficacy specifically addressed (a) encouraging active participation in decision making, (b) promoting collaborative relationships between parents and professionals, (c) modeling participation in a support group (Heflinger et al., 1997).

This series of evaluations indicated that the training intervention increased parent mental health services efficacy but parent knowledge and self efficacy was not related to parent involvement, service use, or children's mental health (Bickman et al., 1998; Heflinger et al., 1997). This suggests that parents' confidence in their knowledge of service systems and skills needed to interact with service systems is not related to better outcomes, in this case as measured by increased involvement. However, these studies still leave open the question as to whether parents' confidence in their knowledge of child management and skills needed to apply that knowledge, promotes better outcomes in PMT.

Two other studies examined self-efficacy within the context of PMT but explored self-efficacy as an outcome measure of participation in the PMT interventions (Thompson et al., 1996; Tucker et al., 1998). Thompson et al.

(1996) examined cost effective PMT treatments and evaluated changes in parent self-efficacy as an outcome of participation. Specifically, the authors found that a modified, less time consuming and less costly PMT program is an effective treatment on post test outcome measures including child behavior changes, parent attitudes and satisfaction with family relationships. As noted previously, the authors also found that marital status did not predict outcomes in parenting efficacy or parenting satisfaction (Thompson et al., 1996). However, outside the context of PMT, Johnston (1996), discusses the reciprocal nature of disruptive child behaviors and parenting efficacy. This may suggest a link between self-efficacy and severity of child behavior, another TEP.

Tucker and colleagues, (1998) examined the effectiveness of a behavioral parent training (BPT) intervention which is another name for PMT. The authors found that positive changes in parenting self efficacy, parenting stress, and parent-toddler interactions resulted from participation in a PMT intervention.

A study peripheral to PMT examined general self efficacy and locus of control, noted below in the attribution section (Ford-Gilboe, 1997). The term general self efficacy was used to denote a general belief in one's capabilities to successfully perform behaviors across situations (Ford-Gilboe, 1997). They found a moderate correlation between general self-efficacy and health behavior. The authors point out that the usefulness of general self-efficacy as a predictor of specific health behaviors has been debated (Ford-Gilboe, 1997). Given the lack of clarity and domain specificity of efficacy beliefs, it is possible that other motivational expectancy aspects were measured as well.

Personal Control Beliefs

Personal control beliefs relate to the level of mastery an individual feels over life's outcomes and involve the two psychological constructs of causal attributions and explanatory style (Reeve, 1996). A causal attribution is an explanation of why a particular outcome comes to pass and most often involves the following five attributions: ability, effort, task difficulty, strategy, and luck (Reeve, 1996). Because any list of causal attributions is possible, attributions are organized along three dimensions: 1) internal versus external; 2) stable versus unstable; 3) controllable versus uncontrollable (Reeve, 1996). Internal versus external attributions involve those that exist within the individual (intelligence) versus those that exist outside, in the environment (help from others), respectively (Reeve, 1996). Stable versus unstable attributes involve those that are permanent (personality traits) versus those that are temporary (moods), respectively (Reeve, 1996). Controllable versus uncontrollable attributions involve those that the performer can take responsibility (personal effort) versus those that the performer cannot (luck), respectively (Reeve, 1996).

The three attributional dimensions can be grouped into two explanatory styles (pessimistic or optimistic) which are cognitive personality variables that reflect the habitual manner in which people explain the cause of bad events that befall them (Reeve, 1996, p. 98). Table 11 illustrates the explanatory styles and related attributional dimensions within the context of child misbehavior (any behavior or task

Table 11

Explanatory Style Categorized Within the Three Attributional Dimensions
Regarding Child Misbehavior

Causal Dimensions	Explanatory Style	
	Pessimistic	Optimistic
Internal vs. External	Internal	External
Stable vs. Unstable	Stable	Unstable
Controllable vs. Uncontrollable	Uncontrollable	Controllable

Note. Adapted from Reeve, 1996.

can be substituted here). Hypothetically speaking, parents with optimistic explanatory styles, attribute their child's misbehavior to 1) external, 2) unstable, 3) controllable dimensions and endorse related statements as follows:

1. When my child is in one of his/her moods, there is usually something that set him off but can be handled.
2. My child gets oppositional, hostile, or defiant because of situational circumstances, he can be appeased with appropriate discipline.
3. My child experiences difficulties because of his school or home environments which can be altered to suit his/her needs.

In contrast, parents with pessimistic explanatory styles attribute their child's misbehavior to 1) internal, 2) stable, 3) uncontrollable dimensions and endorse related statements as follows:

1. My child's behavior is mostly biological, a big part of his/her personality, and sometimes, we're lucky to get through one of his/her temper tantrums.
2. There is little influential relationship between my behavior and how my child behaves, especially since s/he has a hostile and defiant temperament.
3. There is little to be gained from an open, accepting, and supportive relationship with my child, especially since my child is unmanageable.

It is this latter, pessimistic explanatory style which predisposes students to a passive approach to studying and learning and also leads to a helpless motivational orientation whereas students with an optimistic explanatory style develop a mastery motivational orientation and persist in the face of difficulties (Reeve, 1996). Thus, parents with a pessimistic attributional style may also be predisposed to similar approaches to learning and consequently, negative outcomes in parent training.

Three recent studies discuss the association between parent attributions and parenting behavior outside the context of PMT. Ford-Gilboe (1997) examined the impact of motivational aspects (and other resources) on health promotion among single versus two parent families. Locus of control, an attributional motivational aspect, defined as the family's beliefs about their ability to influence health, was one of the sources. A second source of motivation was general efficacy defined as a general belief in one's capability to successfully perform behaviors across situations. Both, internal health locus of control and general self efficacy were positively correlated with participation in health work.

A second study examined mothers' attributions and general parenting attitudes and their relation to responses to child noncompliance (Geller & Johnston, 1995). These authors' review of the literature consistently linked parent attributions of child behavior with parenting responses (Geller & Johnston, 1995). Similarly, the study findings also indicated that mothers' attributions for both child and parent behavior were predictive of particular parental responses. In particular, maternal depressed mood was also associated with more negative attributions for child behavior, suggesting a link between a well established TEP and a more pessimistic explanatory style.

Third, in a basic mediational model of parenting children with disruptive behaviors, Johnston (1996) included the following four parent cognitions: a) expectations for child behavior; b) perceptions of child behavior; c) attributions for

child behavior; and, d) sense of parenting efficacy. Among the four parent cognitions discussed, the latter two were obviously motivational in nature. Interestingly, lines of research have examined parent attributions regarding child intentional (malicious defiance) and unintentional (fidgety, restlessness) child behaviors, characteristics of OD and ADHD, respectively (Johnston, 1996). Young adult raters were better able to discriminate between these behaviors when presented separately than when they co-occurred (Johnston, 1996). Thus, the raters were found to have difficulty matching their attributions to the intentionality of the child's behavior, blaming children for unintentional fidgeting while, conversely, excusing children for overt defiance (Johnston, 1996). Given the prevalence for comorbidity among the disruptive behavior disorders, this has implications for parent attributions and parenting behavior.

If we consider that parent cognitions predict the outcome of parent-child interactions, these studies support the notion that parent attributions may play a role in PMT outcomes.

Achievement Strivings

Students' adaptive or maladaptive patterns of motivation influence whether students seek or avoid academic challenges, exert or withhold effort, persist or give up in the face of failure, and work to develop skills efficiently (Reeve, 1996). Dweck termed the adaptive motivational pattern as a mastery orientation and a maladaptive pattern as a learned helpless orientation (Reeve, 1996). These patterns are not necessarily related to ability or intelligence but to two types of goals which students adopt in

achievement situations (Reeve, 1996). The two types of goals pertaining to the achievement/competence class of goals (Dweck, 1996) are defined as follows:

- 1) *Learning goals*: students approach academic challenges with the desire to increase their competence, gain task mastery, improve knowledge and skill, and understand something new. This orientation leads students to ask the question, *What is the best way to increase my ability or achieve mastery?*
- 2) *Performance goals*: students approach academic challenges with the desire to gain favorable and avoid unfavorable evaluations of their competence and to measure/evaluate their ability. This orientation leads students to ask the question, *Is my ability adequate or inadequate?*

(Dweck & Leggett, 1988; Reeve, 1996)

Furthermore, perceptions of ability combine with these two goal orientations to produce different levels of achievement behavior (Dweck, 1996; Reeve, 1996). Specifically, students with high performance goals and high ability perception sacrifice learning and choose moderate or moderately difficult tasks to display competence. In response to difficulty, these students demonstrate a mastery orientation of effective problem solving. Students with performance goals and low ability perception sacrifice learning and choose moderately easy tasks to avoid displays of non-competence. In response to difficulty these students demonstrate a learned-helpless response, low quality problem solving strategies, impaired performance, lowered persistence, and negative affect (Dweck, 1996; Elliot & Dweck, 1988). In contrast, students with learning goals and either high or low ability choose learning at the risk of displaying mistakes to increase competence, focus on effort or strategy, maintain positive

affect, and demonstrate a mastery orientation of effective problem solving in response to difficulty or failure (Dweck, 1996; Elliot & Dweck, 1988).

Parents who demonstrate a mastery orientation with learning goals may endorse statements such as the following:

1. Making mistakes is a part of learning.
2. I work hard to learn.
3. The therapist makes sure I understand the work.
4. The therapist wants us to try new things.

(adapted from Ames & Archer, 1988)

Alternately, parents who demonstrate a learned helpless orientation with performance goals may endorse statements such as the following:

1. Other parents want to know how I am doing on assignments.
2. I really don't like to make mistakes.
3. Only a few parents will get a lot out of this parent training.
4. I work hard to get the homework assignments done.
5. Parents feel bad when they do not do as well as others.

(adapted from Ames & Archer, 1988)

Parents with exceptionally high scores on performance goals may be more likely to be obsessed with self-worth protection and public appearances than with learning goals, i.e., on how to make the situation better. This is somewhat related to the notion that overall classroom setting, and possibly school and even community culture may play a role in students' goal orientations (Lemos, 1996).

Goal Theories

No published research has been found, to date, which examines the role that PMT interventions play in parents' goal orientations.

Dweck (1996) delineates three classes of goals within goal theory frameworks and patterns. The first class of goals (previously mentioned

above) focus on the goals that people adopt in achievement/competence situations and can be categorized according to learning goals, performance goals, and work avoidant goals (Brophy, 1998). Learning goals are adopted when students focus on trying to learn whatever they need to know in order to develop the skills necessary for the task (Brophy, 1998). Synonymous terms in the literature include learning goals (Dweck & Leggett, 1988) and mastery goals (Ames & Archer, 1988). Performance goals are adopted when students focus more on themselves than on the task, i.e., on their self-perceptions, and on their public reputations (Brophy, 1998). Synonymous terms include performance goals (Ames & Archer, 1988; Dweck & Leggett, 1988) and ego-involvement or ego-oriented goals (Midgley, Arunkumar, & Urdan, 1996; Nicholls, 1984). Work avoidant goals are adopted when students refuse to accept the academic challenge and minimize time and effort to it (Meece & Holt, 1998).

The Patterns of Adaptive Learning Survey (PALS) has been factor analyzed and provides evidence of construct validity and contains items measuring an ego-oriented goal orientation (performance goals) and a learning-oriented goal orientation (Midgley et al., 1996). A recent study (Midgley et al., 1996) examined self-handicapping orientations and adapted the following five learning oriented items:

1. I feel most successful in school when I learn something I didn't know before.
2. The main reason I do my work is because I like to learn.
3. I like school work the best when it really makes me think.
4. I like school work I'll learn from even if I make a lot of mistakes.

5. Understanding the work in school is more important to me than the grades I get.

As well as the following four ego-oriented goals:

1. I would feel successful in school if I did better than the other students in my class.
2. I like school work that lets me show how smart I am.
3. I'd like to show my teachers that I'm smarter than the other kids.
4. I'd like to show my parents that I'm smarter than the other kids in my class.

Translating, adapting these items to similar items relating to PMT, the

following items may suggest similar constructs:

Learning Oriented Goals:

1. I will feel most successful in parent training when I learn something I didn't know before.
2. The main reason I am doing my parent training homework is because I like to learn.
3. I like parent training work best when it makes me think.
4. I like parent training work I'll learn from even if I make a lot of mistakes.
5. Understanding the parent training work is more important to me than getting evaluated (others looking at my behavior and approving).

Performance Goals:

1. I would feel successful in parent training if I did better than the other parents in the sessions.
2. I would like parent training activities that let me show how good I am at managing behavior.
3. I would like to show my group leader, therapist, that I am better at managing behavior than the other parents.
4. I would like to show my other relatives who are parents (my parents, siblings, cousins), that I am better at managing behavior than other parents.

Two possible dimensions of performance (ego-oriented goals) have been identified (self-enhancing and self-defeating ego orientations) and analyzed separately (Skaalvik, 1997). The above examples of performance goal statements (Ames, 1988; Midgely et al., 1996) define goals in terms of ego-enhancing ego orientations. Students with strong

self-enhancing ego orientations adapt performance goals which strive to demonstrate superior abilities, do better than others, or outperform others (Skaalvik, 1997). Students with strong self-defeating orientations adapt performance goals which strive to avoid looking stupid and being negatively judged by others (Skaalvik, 1997). Factor analysis studies identifies the following statements as related to self-defeating ego orientations:

1. *When I answer questions in class, I am occupied by how I am perceived by other students.*
2. *When I am working on the blackboard I am concerned about what my classmates think about me.*
3. *At school I am concerned not to make a fool of myself.*
4. *When I give a wrong answer in class I am most concerned about what my classmates think about me.*
5. *The worst thing about doing mistakes at school is that other students may notice.*
6. *At school, it is important for me to avoid looking stupid.*
7. *At school, I try not to be among the poorest students.*

(Skaalvik, 1997)

Applied to PMT and parents, the above statements are reformulated:

1. *Whenever I talk in group sessions, I am occupied (I wonder) by how I am perceived by other parents.*
2. *When I participate in the group activities, I am concerned about what my peers think about me.*
3. *When interacting with my child in public places, I am concerned not to make a fool of myself.*
4. *Whenever I talk about how unsuccessful homework assignments have been at home, I am most concerned about what other parents think about me.*
5. *The worst thing about making mistakes at home and discussing them in groups is what other people may notice.*
6. *At home, it is important for me to avoid looking stupid.*
7. *At group sessions, I try to avoid being among the poorest students/parents.*

Students, preoccupied with social comparisons and highly concerned with not being perceived as stupid, are particularly vulnerable in achievement situations (Skaalvik, 1997). Thus, parents, similarly preoccupied, may be predisposed to negative outcomes in PMT programs.

Dweck's (1996) second class of goals, interpersonal or relationship goals, contain two subclasses of goals which are analogous to learning and performance goals. Developmental goals involve a focus on building relationships, seeking intimacy, helping others, and seeking to improve one's relationship skills and are more likely to produce mastery-oriented responses (focus on attributions to controllable factors, maintenance of positive affect, and increased self-disclosure) in the face of failure or rejection (Dweck, 1996). Approval goals involve a focus on striving for validation, seeking approval, acceptance, and are more likely to produce helpless responses in the face of failure or rejection (Dweck, 1996).

Dweck's (1996) third and fourth classes of goals are viewed as social dominance and control goals and as hedonic goals (focus on pleasure or pain or on concrete rewards or punishment), respectively. When the focus is on dominating, controlling, or seeking power over others, control goals have been shown to be predictive of hostile attributions and aggression (Dweck, 1996). All goals are described as universal in that any individual is likely to pursue all classes at various times (Dweck, 1996). However, different classes have been shown to

create different vulnerabilities when certain goals predominate (Dweck, 1996).

Other theorists have reformulated and discussed other types of goals, other than strictly achievement oriented have been described in learning situations. For example, students may adopt up to seven highly distinct types of goals in order of descending priorities: academic orientations (working, evaluation, and learning goals), social and interpersonal orientations (complying, discipline, and interpersonal relationship goals), and enjoyment orientations (enjoyment goals) (Lemos, 1996). Moreover, these student goals appear to be consistent in that they bring to the classroom setting a general goal orientation (e.g. working) and implement specific goals when faced with the real setting (Lemos, 1996).

Performance goals were apparent in the phrases used by parents describing their experiences and outcomes of participating in parent education classes (First & Way, 1995). Although this phenomenological study did not discuss parent responses within the context of goal theory, parent responses interpreted as belonging to the category of happier outcomes, more confidence, and feeling like “good” parents contained elements of self enhancing performance goals. For instance, parents made statements such as *“People say...here’s somebody we can look up to...”*, *“I’ve made a lot of progress..somebody look up to me for what I’ve done..”* *“I’m trying hard to put them [mother qualities] to use and let other people know that I do have them...”*, and *“my kids will be proud of me”*. In

this study, transformative learning in which parent training contributed to a major change in the parent's lives, was described as an overarching explanatory theme in parent responses (First & Way, 1995).

Implicit Theory

Dweck et al. (1991) examined individuals with similar abilities who set either learning or performance goals and suggested that these individuals have different implicit theories about the nature of the intelligence. Individuals who are entity theorists view intelligence (and other traits, attributes) as a fixed entity which cannot be changed and over which they have no control (Hong, Chiu, Dweck, & Sacks, 1997). Those individuals who are incremental theorists view intelligence (and other qualities) as incrementally responsive and malleable to an individual's effort (Brophy, 1998; Hong et al., 1997; Levy, Stroessner, & Dweck, 1998). This implicit theory of intelligence has been used to explain why some individuals favor performance goals over learning goals and vice versa (Dweck & Leggett, 1988).

In addition, the implicit theories have been applied to social domains and generalized to external attributes. When individuals adopt entity theories in which other's attributes are viewed as fixed or uncontrollable, they are predisposed towards judgment goals which influence behavior (low initiation and resistance towards change), cognition (rigid, over-simplified thinking), and affect (contempt) (Dweck & Leggett, 1988). Furthermore, individuals who are entity theorists are more

likely to give up in the face of difficulties (Dweck & Leggett, 1988). Recent research has implicated the role of entity theory as predictive of biases towards social stereotyping (Levy et al., 1998), prejudices, evaluative processing (Hong et al., 1997), and increased emphasis on evaluative processes rather than processing and contextualizing factors which mediate behavior (Heyman & Dweck, 1998).

When individuals adapt incremental theories in which others' attributes are viewed as malleable, they are predisposed toward developmental goals which influence behavior (mastery oriented goal pursuit), cognition (process analysis), and affect (empathy) (Dweck & Leggett, 1988).

Hong et al. (1997) used three domain-general items of implicit person theory to measure a diverse set of skills as follows:

1. People can do things differently, but the important part of who they are can't really be changed.
2. The kind of person someone is, is something very basic about them and it can't be changed very much.
3. Everyone is one kind of person and there is not much that can be done to really change that.

(Hong et al., 1997, p. 303).

In order to depict a unitary theme, avoid monotonous repetition, highly compelling, and socially desirable responses only three items pertaining to entity theory were used while explicitly incremental theorist type items were not depicted. Apparently, this practice was well substantiated by research (Chiu, Dweck, Tong, & Fu, 1997; Hong et al., 1997).

Furthermore, disagreement with the entity theory items can be taken to

represent an incremental theory (Chiu et al., 1997). Previous validation studies have found the scale to have high internal reliability, test-retest reliability, and construct validity (Hong et al., 1997). Furthermore, the scale does not correlate with measures of intelligence, academic aptitude, self esteem, optimism regarding human nature, positivity about the self and others, and ideological rigidity (Hong et al., 1997), self presentation concerns, and political attitudes (conservatism and liberalism scales) (Chiu et al., 1997). These findings suggest that the items are not confounded with these other constructs.

A more indirect method of assessing implicit theories would be to ask individuals to explain positive or negative behaviors. For example, individuals would be told "Alexis stole some bread from the bakery shop" and then asked to make causal attributions by completing the following sentence stem: "*This probably occurred because....*" (Hong et al., 1997). It has been found that entity theorists generate significantly more personality trait responses such as "*Alexis is a thief*", "*Alexis was dishonest*" while incremental theorists tend to generate more process oriented, psychological state explanations such as "*Alexis was hungry*", "*Alexis was desperate*" (Hong et al., 1997).

Chiu et al. (1997) studied the association among implicit theories (entity or incremental) and moral beliefs (duty based or rights-based). The authors found that entity theory and moral character were associated with a preference for duty-based moral beliefs which also served to maintain

the status quo. In other words, these individuals view other people's moral character as fixed, consider duty as the basis to judge morally right behavior, are less tolerant of deviance, preserve the status quo, and, are more likely to sanction behavior, use punishment, and not reward appropriate conduct (Chiu et al., 1997). Incremental theories were associated with a preference for rights-based moral beliefs which served to allow, promote, and guide change. Individuals who are incremental theorists view other people's moral character as malleable, shapeable, cultivated, and improvable; consider fundamental principles and rights as the basis to judge behavior; and, are more likely to use positives, appreciate appropriate behavior, use more negotiation and education, and use less punishment. Within the conduct domain, entity theorists were more likely to use directives while incremental theorists were more likely to use negotiation and assurance when talking to children with undesirable behavior.

The influence of implicit theories are likely transferable in parent training and behavioral outcomes. Using the Chiu et al. (1997) measures of morality theories as a framework, the following statements may be viewed as equivalent in the parent training framework:

1. My child's behavior is something very basic about him/her and it can't be changed much.
2. Whether my child follows directions, obeys instructions, and acts appropriately or not is deeply ingrained in his/her personality. It cannot be changed much.
3. There is not much that can be done to change my child's behavioral traits (e.g. oppositional, aggressive, defiant)

(adapted from Chiu et al., 1997)

Just as implicit theory of personality is an individual difference factor that mediates automatic attitude activation towards others (Hong et al., 1997), implicit theories may serve as mediators in parent training outcomes. No studies were found which addressed parent's implicit theories and PMT.

The Self

Self schemas are defined as domain specific and as “*cognitive generalizations about the self, derived from past experience, that organize and guide the process of self-related information contained in the individual's social experience*” (Reeve, 1996, p. 139). These self schemas serve several valuable and useful functions: a) promote the ability to encode, evaluate, and retrieve information; b) provide structure for quick and confident judgments; c) allow flexible adaptation to information processing goals; d) enhance sensitivity and attunement to schema relevant information; e) direct close attention to and favor information relevant to that domain; and, consequently, f) provide individuals with the ability to exercise the skills/abilities when needed (Brophy, 1998; Cross & Markus, 1994).

Individuals who have developed self schemas are said to be *schematic* in a domain. Schematic individuals recognize that they have a particular ability (in that particular domain) and believe that this ability is of critical importance which together produce their self schemas (Cross & Markus, 1994). Individuals are said to be *aschematic* when they do not possess a self schema in a particular domain (Cross & Markus, 1994).

Aschematic individuals do not recognize that they have a particular ability (in that particular domain) and do not believe that this ability is of critical importance, (or at least at lower levels) (Cross & Markus, 1994). It has been postulated that aschematic individuals may be less likely to anticipate, recognize, and employ the relevant abilities and strategies needed for completing tasks, especially when tasks are novel and require considerable structuring (Cross & Markus, 1994).

Self schemas have been measured through self ratings on domain specific direct questions as follows:

1. How good are you at analytical problem solving?
2. How good are you at logical problem solving?
3. How important is analytical problem solving to you?
4. How important is logical problem solving to you?

(Cross & Markus, 1994)

The function and organization of self schemas have been examined in several domains such as problem solving and competence (above), dependence-independence, gender roles, shyness, depression, career orientation, and Type A personality (Cross & Markus, 1994). Students who were schematic and aschematic performed equally well on a problem solving task yet demonstrated variable judgements regarding perceptions of facility and enjoyment of the task (Cross & Markus, 1994).

No attention has been given to the consequences of schematicity in parenting performance with children with disruptive behaviors. Yet, these same questions can be directly addressed through domain specific, simple modifications:

1. How good are you at controlling your child's behavior?
2. How good are you at managing your child's behavior?
3. How important is it to you to control your child's behavior?
4. How important is it to you to manage your child's behavior?

These questions may also be modified to be even more domain specific or setting specific (e.g. *how good are you at controlling behavior in the home?*).

Self schemas change through discrepant feedback and/or through future oriented self conceptions which are called *possible selves* (Cross & Markus, 1994). Markus and Nurius (1986) developed the concept of *possible selves* which are cognitive representations of oneself in the future" (Brophy, 1998, p. 216). *Possible selves represent those selves the person could become, would like to become, or is afraid to become* (Cross & Markus, 1994, p.424). With the creation of more vivid and elaborated possible selves, individuals tend to perform better toward desired outcomes (Cross & Markus, 1994). Furthermore, being able to view oneself as "successful" within a particular domain in the future may also help reduce anxiety or worry during the activities (Cross & Markus, 1994).

Integrating Inner Motivational Resources

Many of these inner resources can be organized within the expectancy x value model of motivation. The expectancy x value model predicts four primary student responses to classroom activities. First, students react with *engagement* when they see value to a task and they are confident they can do it (Brophy, 1998). Second, students react with *dissembling* when they recognize the value but do not feel capable of

meeting the task demands (Brophy, 1998). Third, students respond through *evasion* when task value is low yet they feel capable of successful performance (Brophy, 1998). Finally, students respond with *rejection* when task value perceptions are low coupled with low success expectations (Brophy, 1998). These same student strategies for responding may be applicable to parents engaged in parent training programs (Table 12).

Dissembling parents and *evading* parents may differ only in program completion; for example, *dissembling* parents may complete the program but find excuses such as time constraints while *evading* parents may simply drop out.

Obvious parallels can be drawn among the various motivational aspects of self efficacy theory, attribution theory, personal control beliefs, goal setting, value, etc. For example, Pintrich and De Groot (1990) reported that self reports of self-efficacy and value perceptions (interesting and important course work) were positively related to student performance on classroom English and Science assignments.

Many causal attribution theorists have focused on individual's causal attributions regarding performance on tasks and have neglected value aspects inherent in many tasks (Brophy, 1998). The interdependent relationship with self-efficacy and personal control expectations and parent causal attributions addressing task value aspects of motivation may be revealed by answers to the following open ended questions:

Table 12

Hypothesized Parent Strategies for Responding to PMT as Related to their Expectancy x Value Perceptions

	Success Expectations	Value	
		Low	High
Low	<i>Rejection</i> minimal participation in groups; high risk for dropping out	<i>Dissembling</i> protects image of competence; humor and "clowning" with activities (e.g., role plays)	
High	<i>Evading</i> does the minimum; incomplete or absent homework; high risk for dropping out	<i>Engagement</i> active during group activities; likely to generalize learning to home situation; highest probability for successful outcomes	

Note. Adapted from Brophy, 1998.

1. What benefits do I expect to derive from engaging in this task?
 2. Why do I seek /avoid opportunities to learn about parent management?
 3. What does parent management training do/fail to do for me?
- (adapted from Brophy, 1998; Brophy, 1999).

Subjective task value may have three major components as described by Eccles and Wigfield (1985). The first, attainment value, involves achieving success for enhancing self concept or fulfilling achievement, power, or prestige needs. Thus, parents may sustain interest and appreciate PMT involvement in order to meet certain personal needs. The second, intrinsic or interest value, involves engaging in tasks because of the enjoyment of involvement. Translating this concept of intrinsic value into PMT involvement, parents may also engage in PMT because of the social aspects. These parents are interacting with a reference peer group where they can make social comparisons. The third component, utility value, involves engaging in the task in order to reach certain goals. In the PMT case, this may involve the parental perception that PMT will aid in meeting their goals as explicitly articulated at the start of therapy, though sometimes, implicitly addressed. These three task value components may be reflected in the following statements:

1. Involvement in PMT will help me learn how to manage my child's behavior and help me feel better about myself.
2. Involvement in PMT will help me learn how to manage my child's behavior and have better control and power.
3. Involvement in PMT will help me learn how to manage my child's behavior and other's won't look down on me so much, anymore.
4. Involvement in PMT will be interesting and possibly fun, as I will meet other parents in similar situations.
5. Involvement in PMT will be useful in helping me to reach my goals.

6. Involvement in PMT will be helpful in improving the quality of our lives.
7. I think that what I am learning in this group is useful for me to know.
8. I think that what we are learning in this class is interesting.
9. It is important for me to learn what is being taught in these groups.
10. I like what I am learning in these groups.

(Pintrich & De Groot, 1990)

Support for considering the value aspects of motivation within PMT

contexts and antisocial populations comes from the work of (Kazdin et al., 1997; Prinz & Miller, 1994). Kazdin et al. (1997) examined barriers to child and/or parent treatment and found that parent perceptions of treatment irrelevance was associated with premature termination from therapy.

Prinz and Miller (1994) found that parents who had been given opportunities to discuss feelings about being in therapy (and other personal issues) showed lower drop out rates. Results from both of these studies suggest that parent perceptions of value may be predictive of PMT outcomes.

Research has effectively established the interrelationships among sense of efficacy or expectations for success and the following: causal attributions for success and failure, learning versus performance goals, selection of strategies for accomplishing tasks, managing failure, and handling frustration (Brophy, 1999). Within specific content domains, research has established relationships among various motivational variables and perceptions of competence. For example, in comparison to students who rated their competence as low in mathematics, students who rated their competence highly also demonstrated learning and mastery

goals, more positive emotions, greater enjoyment, and fewer negative emotions (Stipek, Salmon, Givvin, & Kazemi, 1998). Within the parenting domain, a more pertinent study finding involves the association between mothers' feelings of self efficacy and attributions of personal controllability, i.e., beliefs about their ability to impact child misbehaviors (Geller & Johnston, 1995).

Goal theorists have extensively researched motivational factors (expectations, self-efficacy, attributions) and their influence on individual's engagement in tasks and ultimate levels of achievement success (Brophy, 1998). This inter-relationship and mediating influence of goals can be seen in the functional definition of goals:

Serving as filtering mechanisms for beliefs about the self and subsequent action and as setting the stage for eliciting motivational cognitions (such as values, expectations, attributions, and self-evaluations), particular cognitive operations (mental representations, monitoring, evaluation of responses and strategic thinking), and affects about the self, and the tasks and others.
(Lemos, 1996, p.152)

Research has begun to establish the interrelationship among classes of goals as follows: goals play a critical role in setting up individual's attributions; self schemas and possible selves are beginning to be discussed in relation to people's classes of goals; the nature of the relationship between self efficacy, related variables (competency), and goals is being explored (as noted above) (Dweck, 1996).

Research has yet to establish empirically the connection between the value, interest, and appreciation aspects of motivation and

engagement in domain specific learning activities as well as ideas about engagement in activities (Brophy, 1999). Theoretically, (Dweck, 1996) suggests that attitudes (including values and evaluations) translate into behavior when housed within goal structures; the more value one gives to something the more it has the power to drive goals. At the very least, these motivational aspects and value aspects may interact to predict PMT outcomes. Ideally, all of these aspects comprise the major elements of a cognitive theory of motivation and may be structurally combined in a complex motivational schema which impacts on PMT outcomes.

In a model, described as Schema Mediators, the present dissertation would like to build on the above conceptualizations of inner motivational resources and value aspects and incorporate the various components into an integrated model with interrelated parts. Like students who are high in motivation to learn, parents who are high in motivation to learn may also possess a motivated learning schema which is triggered/activated whenever they enter a PMT program (Brophy, 1998). Those parents with most successful outcomes, ideally would possess a motivation to learn schema described as follows:

A network of connected insights, skills, values, and dispositions, that enable [parents] to understand what it means to engage in [PMT] activities with the intention of accomplishing their learning goals and with awareness of the strategies that they use in attempting to do so.

(Brophy, 1998, p. 14)

Furthermore, these schema are instantly accessible, guide information processing and problem solving, are accumulated from prior knowledge

and experience, and tend to be domain or situation-specific (Brophy, 1999). Those with more elaborated and better developed motivational and cognitive schemas are more likely to appreciate and benefit from engagement in more abstract and complex learning activities (Brophy, 1999).

Just as Brophy (1998) points out that the same principles that apply to student motivation and achievement, apply to teacher motivation and professional challenges, the same may apply to parent motivation and PMT outcomes. Furthermore, it has been suggested that “motivated functioning in [their respective] domain[s] is schema-driven” (Brophy, 1999). It would be worthwhile to examine how these motivational resources combine to influence parent outcomes in PMT.

Two additional, final points need to be addressed. First, many of the concepts noted above have been essentially dichotomized and described as mutually exclusive dimensions such as in task (learning) versus ego (performance) goal orientations even though evidence suggests the two goals are interdependent (Ames & Archer, 1988; Meece & Holt, 1993). Other examples involve studies which examine high efficacy versus low efficacy, internal versus external attributions. Unlike the above studies, future studies plan on evaluating the individual motivational inner resources on a continuum and acknowledge that an entire spectrum of motivational factors may exist in evaluating various levels of the concepts.

Second, the various parent motivational resources throughout the PMT interventions may not be static constructs. It has been argued that “motivation in therapy is not a personal characteristic, stable trait, something a person does or does not have, or a driving force channeled by biology and experience” (Kanfer, 1996, p. 2). As such, it is quite possible that parent motivations in PMT may be subject to a process of continual “refinement” and adjustment to environmental conditions over the course of treatment. Research findings suggest that as parents are involved in the PMT process, their cognitive processes may go through various phases and changes as they work to cope with their child’s disruptive behavior (Spitzer, Webster-Stratton, & Hollinsworth, 1991). Johnston (1996) speculates that as parents progress through these phases, different cognitions (including motivations) may be central at different times. Furthermore, parent motivations, independent of PMT participation, may also be subject to the same processes. Consequently, parent motivational resources and value aspects may change.

Two areas of research have been drawn upon for this dissertation. One has to do with traditionally examined predictors which are usually consistent with demographic information about parents and children and their impact on PMT outcomes. The second has to do with conditions “inside” the parent. The concern here is predominantly with the parent preferred style of interacting with their child, nature of parent goals and values, and degree of responsibility for affording change in their child. This second area can be expanded to include parent

motivational resources and values and their influence on outcomes. To consider only those conditions which are internal or external to the parent and child in isolation is insufficient. The challenge is to consider several predictors and eventually find ways of analyzing and predicting influences of various combinations, and to ultimately develop treatment plans for better outcomes.

The various nine motivational inner resources (self efficacy, optimistic explanatory style, pessimistic explanatory style, learning goals, self enhancing performance goals, self defeating performance goals and self schemas) in conjunction with valuing aspects (interest, appreciation, importance) are integrated into a smaller number of cohesive motivational schemas in the pilot study below. The pilot study addresses the first question related to motivational resources and provides the impetus for the second question which is examined in the main study:

1. Do the motivational resources and value aspects covary to form central schemas (4 or 5) among individual parents? And if so,
2. Are these schemas predictive of parent training outcomes?

PILOT STUDY

THE DEVELOPMENT OF THE PARENT MOTIVATION SCHEMA SCALE

The Parent Motivation Schema Scale (PMSS) is designed to uncover particular parent motivational aspects and values which may eventually contribute to, if not determine, outcomes in parent management training. Nine of the twelve inner motivational resources are reflected in the PMSS. These cognitive motivational resources include self efficacy, attributions (divided into optimistic and pessimistic explanatory styles), learning goals, performance goals (both self-enhancing and self-defeating), implicit theories, self schemas, and value. The purpose of study 1 was to establish the reliability, internal validity, and factor structure of the PMSS.

METHOD

Participants

The pilot survey participants were 200 parents (168 mothers, 30 fathers, 2 unknown) and their children (78 girls, 113 boys, 9 unknown). Families were 91 % White, 6% Native Canadian, and 1 % Asian Canadian. The children's mean age at the time of the survey was 9.25 (SD=4.50).

The treatment and control participants were 93 parents (69 mothers and 24 fathers) and their children (29 girls and 64 boys). Families were 81 % White and 16 % Native Canadian. The children's mean age at the point of the treatment study was 8.23 (SD=2.35).

Parent gender, education, current annual household income and child gender as well as child education for all participants (pilot survey, treatment, and control) are summarized in Tables 13 and 14, respectively.

The group of parents who served as participants live in a small, northern, Canadian community (population = 80,000). The participant demographic data is representative of this population.

Measure

In this first study developing the PMSS, items are adapted from previous factor analysis research. Items are adapted from various instruments with stable factor structures used to assess student motivation aspects including self efficacy (Midgley et al., 1989; Pajares, 1996; Reeve, 1996), goal theory (Ames & Archer, 1988; Midgley et al., 1996; Skaalvik, 1997), implicit theory (Cross & Markus, 1994; Hong et al., 1997), and values (Brophy, 1999; Pintrich & De Groot, 1990). Factor analysis had originally been used to guide the scale construction of each of these motivational aspects within their respective research studies. Within the present study, these items are translated and adapted to fit the specific parenting domain as opposed to the initial content domains of the original studies.

The domain specificity of the PMSS items are based on the principal investigator's clinical experiences with PMT. Parents have offered statements in therapy, written comments in homework assignments, made notes in journals, and reflections in behavioral diaries, which implicate specific motivational resources. The domain specificity of these item responses are generated from

Table 13

Demographic Characteristics of Parent Participants in PMSS Pilot Study

Descriptive	Pilot		PMT Groups		Total	
	(n=200)		(n=93)		(n = 293)	
	<u>n</u>	%	<u>n</u>	%	<u>N</u>	%
Parent gender						
Male	30	15	24	26	54	18
Female	168	84	69	73	230	78
Parent education						
Elementary	4	2	3	3	7	2
High School	52	26	32	34	81	28
College (Community)	64	32	38	40	100	34
University (undergraduate)	47	24	13	14	60	20
University (graduate)	28	14	5	5	33	11
Other	2	1	0	0	2	1
Ethnicity/ Race						
Native Canadian or Inuit	12	6	15	16	27	9
Asian-Canadian	2	1	0	0	2	1
White / Caucasian	182	91	76	81	252	86
Current Annual Household Income						
Under \$10,000	4	2	10	11	13	4
\$10,000 – 14,999	4	2	18	19	21	7
\$15,000 – 19,999	3	2	10	11	11	4
\$20,000 – 24,999	11	6	10	11	20	7
\$25,000 – 29,999	10	5	1	1	11	4
\$30,000 – 34,999	6	3	1	1	7	2
\$35,000 – 39,999	12	6	6	6	15	5
\$40,000 – 44,999	10	5	3	3	12	4
\$50,000 – 54,999	12	6	7	7	19	7
\$55,000 – 59,999	11	6	8	9	18	6
\$60,000 – 64,999	21	11	4	4	26	9
\$65,000 – 69,999	23	12	6	6	30	10
\$70,000 and over	61	31	8	9	67	23

Note. Totals do not sum to 100% due to missing data.

Table 14

Demographic Characteristics of Children Whose Parents Completed the Pilot PMSS (n=293)

Characteristic	<u>Pilot</u>		<u>Treatment and Control</u>		<u>Totals</u>	
	<u>n</u>	%	<u>n</u>	%	<u>N</u>	%
Child Gender						
Male	113	57	63	67	172	59
Female	78	39	29	31	105	36
Child Education						
Preschool	23	12	2	2	24	8
Junior Kindergarten	6	3	10	11	11	4
Senior Kindergarten	11	6	3	3	14	5
Grade 1	20	10	15	16	34	12
Grade 2	11	6	6	6	16	5
Grade 3	16	8	14	15	28	10
Grade 4	12	6	12	13	25	9
Grade 5	15	8	11	12	24	8
Grade 6	9	5	14	15	22	8
Grade 7	12	6	3	3	15	5
Grade 8	7	4	1	1	7	2
Grade 9	16	8	0	0	17	6
Grade 10	10	5	0	0	10	3
Grade 11	6	3	0	0	6	2
Grade 12	9	5	0	0	9	3
Grade 13 / OAC	0	0	0	0	5	2
Other	2	1	1	1	2	1
(special education classes)						

Note. Totals do not sum to 100% due to missing data.

these sources as well as from past informal discussions with professionals experienced in the field of PMT.

Statements are written to measure parent motivational aspects and values regarding both a) their children's behavioral difficulties and b) involvement in parent management therapies. Some of the values of parents are transformed into a set of futuristic statements reflecting perceived usefulness, importance, and relevance of PMT. As such, explicit expectations are unavoidably combined with value statements.

Response Scale

The PMSS is written in English and can be self-administered in approximately 15-35 minutes. Parents are required to rate how they feel about a set of 44 statements, on a scale of 1 to 5, where 1=not true of me at all, 2=just a little true of me, 3= somewhat true of me, 4 =very much true of me, and 5 = extremely true of me. The statements are divided into nine subscales based upon motivational aspects (self efficacy, optimistic explanatory style, pessimistic explanatory style, learning goals, self-enhancing performance goals, self-defeating performance goals, implicit theory, self schema/schematicity, and value). Points earned for responses to each subgroup of statements are combined yielding a total score for each of the motivational aspects subscales. High scores on seven of the subscales indicate corresponding high levels of self efficacy, optimistic explanatory style, pessimistic explanatory style, learning goal orientation, self enhancing performance goal orientation, self defeating performance goal orientation, and value regarding PMT. For these seven

subscales, low scores indicate lower levels on these seven motivational resources.

The remaining two subscales (implicit theories and self schemas) are essentially dichotomized scales. A high implicit theory score indicates parents may have more of an entity theorist orientation whereas a low implicit theory score suggests more of an incremental theorist orientation. Similarly, a high score on self schemas items indicates a parent who is schematic whereas a low score indicates a parent who is aschematic. These two subtypes are phrased in a positive fashion based on arguments posed in previous research (Chiu et al., 1997; Hong et al., 1997).

Items from each of the nine subscales are randomly distributed throughout the scale to reduce the potential for any further biased responding such as selecting the same types of responses for clustered similar items. Several motivational aspects are likely to be present simultaneously with varying degrees of intensity and /or even struggling for dominance. If parent responses within a particular subgroup of motivational aspects are inconsistent, the response pattern is said to be nonconvergent and will not likely load onto the same factor. It is hypothesized that the practical application of parent motivational aspects lie in application to PMT practice and approaches and not so much for the purpose of *categorizing or labeling* parents.

Contributions towards Validity and Reliability

Validity data includes content and construct validity, (convergent and discriminant). Reliability data includes split-half reliability and test-retest reliability. The development of the PMSS is characterized by four main phases: 1) finding

evidence to support the item content and content validity; 2) administering the scale to a pilot group; 3) conducting a factor analysis of the scale; and, 4) evaluating the reliability of the scale).

Phase 1: Establishing item content:

First, the survey designer developed a comprehensive list of potential statements for inclusion in the PMSS. List items were generated by the principal investigator based upon a review of the professional literature on key motivational inner resources and values as well as clinical experiences (both described above). The 55 potential items were randomly ordered in a questionnaire (see Appendix A for Pilot Study: Pilot Survey).

Second, individual items of the PMSS were checked for agreement by the principal investigator and a professor who is an active researcher in the area of motivation. The professor identified motivational aspects with corresponding item statements in a checklist fashion (see Appendix A for Pilot Study: Agreement Among Independent Rater Responses). For this portion of the second phase, items were retained or discarded based on the following simple decision rule: a) items in which both raters agreed (100%) were retained and, b) items in which raters did not agree were discussed in order to retain an adequate sample of motivational resources. By retaining only these items in which the independent raters agreed are an adequate and representative sample of the respective motivational aspects, then the scale can be said to have support for content validity (see Appendix A for Pilot Study: Scale Items Listed by Domain). Based on these reviewers' ratings, items were revised and deleted from the scale and

the resulting 44 item scale was pilot tested (see Appendix A for Pilot Study: Final PMSS).

Phase 2: Administering the Scale to the Pilot, Treatment, and Control Groups:

This second draft was administered to the participants. The validity and reliability of the PMSS was tested on a sample of parents of children who receive services in an out-patient health clinic and/or attend public or separate school boards, each mandated by the Ministry of Health and Ministry of Education, respectively. Parents were asked to read a consent form indicating their voluntary participation in a research project prior to completing the survey (see Appendix B for Pilot Study: Consent Form). These surveys were collected by randomly surveying parents as they attended a clinic or through a mail out survey to clinic members who attended the Communication Disorders Department over the past two years.

The PMSS surveys completed by the treatment and control parents were collected during the treatment phase of the study. These surveys were independently analyzed statistically for phases 3 and 4 of the pilot project. On the basis of the interpretability of the results it was decided to pool together the surveys from both samples (see Appendix C for Decisions on Factor Dimensions).

Phase 3: Evaluating the Factor Structure of the Scale

Each of the items contributing to the respective motivational aspects were also summed for a total subscale score. Cronbach alphas were also calculated

for these subscale scores. A principal component analysis was conducted on the subscales to adjust for a smaller sample size, if necessary.

A principal components analysis was then conducted on the individual 144 PMSS items. A varimax rotation was used to determine the number of factors necessary to describe the data. Pearson correlations were used to assess the stability of the PMSS. Cronbach's alphas were calculated for the PMSS total and factor scores.

Phase 4: Evaluating Reliability of the Scale

The Reliability of the PMSS was tested through internal consistency, (coefficient alpha reliability). Alpha reliability analyses were conducted with data from the above parents already participating in therapy in the clinic or school board. Alpha reliability analyses were also conducted by randomly selecting patients with appointments throughout the clinic, to complete the questionnaire.

Test-retest reliability analysis of the PMSS was evaluated on a smaller sample, by using separate and combined responses from the treatment and control groups of the research study at the pre- and post- intervals. In this procedure, the same PMSS was administered to the same group of participants on two different occasions and then the two sets of scores were correlated to obtain sets of scores. The number of weeks between the first and second administration of the PMSS ranged from a minimum of 9 weeks to a maximum of 16 weeks. Test re-test reliability coefficients for each of the subscales, total scores, and factor scores were examined. These reliability coefficients indicate the degree of stability (consistency) in scores over time and is also referred to as

the coefficient of stability. The recommended reliability level is .80 for research purposes.

RESULTS

The mean PMSS total score was 126.32 (SD =16.33). The PMSS total scores ranged from 70 to 192. Coefficient alpha for the total items of the PMSS was .87. The subscale mean scores are presented in Table 15. These results demonstrate the ability of the PMSS to reflect variability in parent motivation and provide a heterogeneous sample for principal component analysis of the scales. Table 15 also contains an evaluation of the correlations among the subscales as well as a reliability analysis for each of the subscales which comprise the PMSS. Several subscales are significantly correlated (Table 15). The item reliabilities range from a high of .91 for the Value Subscale to a low of .32 for the Pessimistic Explanatory Style Subscale (Table 15). However, the factor structure of the PMSS did not support the nine subscales reflecting the motivational resource literature (see Appendix C for Principal Component Analysis Results for Nine Factor Solution).

The principal component analysis of the individual 144 PMSS items yielded five factors based on using a scree plot decision rule. The elbow rule in the scree plot criteria, supports extracting five factors (Figure 1). In addition, all of these factors have eigenvalues substantially greater than 1 (Table 16). All of the 144 items of the PMSS and their factor loadings are presented in Table 17. Only the items with the highest factor loadings on the five factors are presented in Table 18.

Table 15

Correlations among the motivation variables, statistical means, standard deviations, and reliability analysis of motivational aspects of the PMSS

Subscale	SE	OES	PES	LG	PG-SD	PG-SE	IMP	SCH	VAL	Total
Self Efficacy	1.00									
Optimistic Style	0.53*	1.00								
Pessimistic Style	-0.07	-0.01	1.00							
Learning Goals	0.29*	0.28*	0.05	1.00						
Perf Goals / SD	-0.14	-0.13**	0.32*	0.06	1.00					
Perf Goals / SE	0.17*	0.20*	0.26*	0.25*	0.48*	1.00				
Implicit Theories	-0.02	-0.16*	0.31*	-0.12	0.29*	0.25*	1.00			
Schematicity	0.44*	0.49*	-0.21	0.05	-0.09	0.22*	-0.01	1.00		
Values	-0.02	0.05	0.21*	0.68*	0.30*	0.33*	-0.02	-0.07	1.00	
No. of Items	6	4	2	6	5	5	3	2	11	144
Minimum Value	12	5	2	6	4	5	3	2	11	70
Maximum Value	28	19	9	30	22	23	14	10	54	192
Subscale Mean	20.21	12.60	2.96	21.91	9.36	10.03	4.98	6.28	37.97	126.32
Standard Deviation	2.75	2.46	1.28	3.84	3.49	3.43	2.16	1.85	7.99	16.33
Alpha	0.50	0.52	0.32	0.76	0.61	0.71	0.72	0.76	0.91	0.87

Note. The items are listed in Appendix A. SE = self efficacy; OES = optimistic explanatory style (attributions);

PES = pessimistic explanatory style (attribution); LG = learning goals; PGE = performance goals (self enhancing);

PGD = performance goals (self defeating); IMP = implicit theories; SCH = schematicity; VAL = values.

* $p < .001$

** $p < .01$

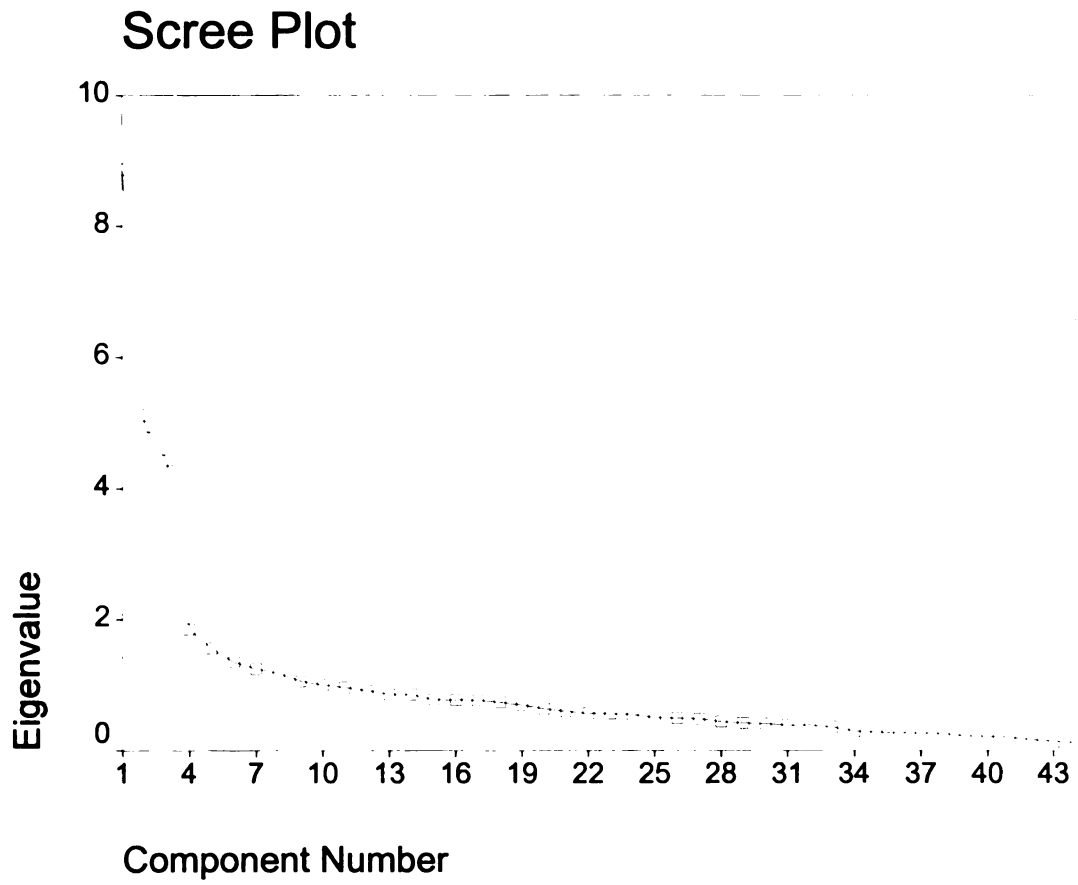


Figure 1. Scree Plot Yielding Five Factor Solution

Table 16

Eigenvalues, Percentages of Variance, and Cumulative Percentages
for Factors of the 44 – Item Parent Motivation Schema Scale (PMSS)

Factor	Eigenvalue	% of Variance	Cumulative %
One	8.872	20.164	20.164
Two	4.945	11.238	31.401
Three	4.434	10.078	41.480
Four	1.849	4.201	45.681
Five	1.556	3.537	49.218

Table 17

Summary of Item and Factor Loadings for Varimax Orthogonal Five-Factor Solution for the PMSS (N=293)

Items	Factor Loadings				
	One	Two	Three	Four	Five
7. I think that what I would learn in a parent group would be interesting.	0.843	-0.020	0.104	0.059	0.096
44. I would like what I could learn in parent groups.	0.839	-0.024	0.064	0.067	-0.034
13. I think that what I would learn in a parent group would be useful.	0.815	-0.132	0.059	-0.025	0.004
43. Involvement in parent groups would be interesting and possibly fun, as I will meet other parents in similar situations.	0.812	0.014	-0.014	0.059	-0.053
18. I will like what I am learning in these groups.	0.775	-0.076	0.015	0.030	-0.014
23. I like parent session's work I will learn from even if I make a lot of mistakes.	0.757	0.047	0.150	-0.003	-0.013
2. Involvement in parent sessions will help me learn how to handle my child's behavior and help me feel better about myself.	0.728	-0.089	-0.028	0.075	-0.055
16. Involvement in parent sessions will be helpful in improving the quality of our lives.	0.721	-0.169	-0.075	0.012	-0.180
20. Involvement in parent sessions will be useful in helping reach my goals.	0.717	-0.062	0.154	0.025	-0.051
4. It is important for me to learn what will be taught in parent groups.	0.699	-0.027	0.034	0.003	0.035
21. I will feel most successful in parent sessions when I learn something I didn't know before.	0.644	0.148	0.196	0.148	0.145
38. Understanding the parent session's work is more important to me than others looking at my behavior and approving.	0.598	0.053	-0.084	-0.225	0.009
31. I will like parent session's work best when it makes me thing.	0.573	0.216	0.300	-0.027	-0.037
37. Involvement in parent sessions will help me learn how to handle my child's behavior and others won't look down on me so much, anymore.	0.457	0.020	0.350	0.271	0.001
28. The main reason I would do my parent sessions work is because I like to learn.	0.383	0.125	0.239	0.114	-0.162
40. When my child is in one of his/her moods, I can figure out what set him/her off, and handle the situation.	-0.155	0.766	0.075	0.126	0.006
30. I am good at controlling my child's behavior and this is important to me.	-0.026	0.747	0.124	0.199	0.074

Table 17 Cont'd

39. I am good at managing my child's behavior and this is important to me.	-0.058	0.740	0.050	0.231	-0.064
11. When my child is in one of his/her moods, there is usually something that set him off but it can be handled.	-0.031	0.720	-0.107	-0.042	-0.133
8. If my child became disruptive and noisy in public places (malls, church), I feel that I know some strategies and have some ideas on what to do.	-0.104	0.697	-0.040	0.143	-0.010
5. When I really try, I can get through to my child when he or she is being most difficult.	0.034	0.641	-0.170	-0.102	-0.127
29. My child gets defying, refusing, angry because of the situation or place but can be calmed with the right approach.	0.141	0.592	0.074	-0.221	-0.072
27. I am confident that I can have my son or daughter listen to me and do their chores.	0.093	0.413	-0.276	0.188	-0.136
36. Parents feel bad when they do not do as well as other parents.	0.134	0.063	0.695	-0.003	0.052
32. When with my child in public and she/he's acting out, I am concerned about looking like a fool.	0.137	-0.064	0.644	0.067	0.163
35. When I participate in group activities, I am concerned about what others think about me.	0.054	-0.189	0.567	0.162	0.029
25. The worst thing about making mistakes at home and discussing them in groups is what other people may notice.	-0.278	-0.068	0.519	0.340	0.128
19. At home, it is important for me to avoid looking like I can't handle things. .	0.213	0.156	0.477	0.180	0.107
9. I would like to show my parent group leader, that I am better at handling behavior than the other parents.	-0.011	0.158	0.104	0.821	0.205
17. I would like to show my other relatives who are parents (my parents, siblings, cousins) that I am better at managing behavior than other parents.	0.073	0.058	0.202	0.777	0.018
6. I would like parent sessions activities that let me show how good I am at handling my child's behavior.	0.407	0.208	0.117	0.471	0.169
3. Whether my child follows directions, obeys instructions, and acts okay or not is a part of who he is. It can't be changed much.	0.053	-0.091	0.073	0.062	0.780
26. There is not much that can be done to change my child's behavior (e.g. hitting, yelling, refusing).	-0.072	-0.132	0.154	0.175	0.735
12. My child's behavior is something very basic about him/her and it can't be changed much.	-0.068	-0.032	0.048	0.049	0.702

Table 18

Factor Loadings for Varimax Orthogonal Five-Factor Solution

Items	Load
Factor 1:	
7. I think that what I would learn in a parent group would be interesting.	0.843
44. I would like what I could learn in parent groups.	0.839
13. I think that what I would learn in a parent group would be useful for me to know.	0.815
43. Involvement in parent groups would be interesting and possibly fun.	0.812
18. I will like what I am learning in these groups.	0.775
23. I like parent session's work I will learn from even if I make a lot of mistakes.	0.757
2. Involvement in parent sessions will help me learn how to handle my child's behavior.	0.728
16. Involvement in parent sessions will be helpful in improving the quality of our lives.	0.721
20. Involvement in parent sessions will be useful in helping me reach my goals.	0.717
4. It is important for me to learn what will be taught in parent groups.	0.699
21. I will feel most successful in parent sessions when I learn something I didn't know before.	0.644
38. Understanding the parent session's work is more important to me than others looking at my behavior and approving.	0.598
31. I will like parent session's work best when it makes me thing.	0.573
37. Involvement in parent sessions will help me learn how to handle my child's behavior and others won't look down on me so much, anymore.	0.457
Factor 2:	
40. When my child is in one of his/her moods, I can figure out what set him/her off, and handle the situation.	0.766
30. I am good at controlling my child's behavior and this is important to me.	0.747
39. I am good at managing my child's behavior and this is important to me.	0.740
11. When my child is in one of his/her moods, there is usually something that set him off but it can be handled.	0.720
8. If my child became disruptive and noisy in public places (malls, church), I feel that I know some strategies and have some ideas on what to do.	0.697
5. When I really try, I can get through to my child when he or she is being most difficult.	0.641
29. My child gets defying, refusing, angry because of the situation or place but can be calmed with the right approach.	0.592
27. I am confident that I can have my son or daughter listen and do their chores.	0.413
Factor 3:	
36. Parents feel bad when they do not do as well as other parents.	0.695
32. When with my child in public and she/he's acting out, I am concerned about looking like a fool.	0.644
35. When I participate in group activities, I am concerned about what others think about me.	0.567
25. The worst thing about making mistakes at home and discussing them in groups is what other people may notice.	0.519
19. At home, it is important for me to avoid looking like I can't handle things.	0.477
Factor 4:	
9. I would like to show my parent group leader, that I am better at handling behavior than the other parents.	0.821
17. I would like to show my other relatives who are parents (my parents, siblings, cousins) that I am better at managing behavior than other parents.	0.777
6. I would like parent sessions activities that let me show how good I am at handling my child's behavior.	0.471
Factor 5:	
3. Whether my child follows directions, obeys instructions, and acts okay or not is a part of who he is. It can't be changed much.	0.780
12. My child's behavior is something very basic about him/her and it can't be changed much.	0.735
26. There is not much that can be done to change my child's behavior (e.g. hitting, yelling, refusing).	0.702

Together, the five rotated factors accounted for 49.22% of the variance (Table 16). Factor 1 consisted of 10 value items and 5 learning goal items. This rotated factor containing a total of 15 items, accounted for 20.16% of the variance. Factor 2 consisted of 8 items (3 optimistic explanatory style, 3 self efficacy, and 2 schematicity) which accounted for 11.24% of the variance. Factor 3 consisted of 5 items (4 self defeating performance goals and 1 self enhancing performance goal) which accounted for 10.08% of the variance. Factor 4 consisted of 3 items (3 self enhancing performance goals) and accounting for 4.20 of the variance. Factor 5 consisted of all 3 implicit theory items accounting for 3.54% of the variance.

Chronbach's alphas for the factor structure of the PMSS vary (Table 19). The Factor 1 coefficient score is excellent (.93). Coefficient alpha for the Factor 2 score is good (.83). Coefficient alpha for the Factor 3 and 4 scores are adequate (.68 and .71, respectively). Coefficient alpha for the Factor 5 score is also adequate (.72).

Pre- and post- PMT motivational subscale measures are significant for all subscales when control and treatment groups are collapsed into total participants (Table 20). However, correlations of the motivational subscales from pre- to post- PMT are higher for the control group than for the treatment group (Table 21). Similarly, pre – and post- PMT subscale measures are significant for all motivational factors when control and treatment groups are collapsed and significant for all factors, except the implicit theory factor when viewed separately (Table 22). These results suggest greater consistency in motivational subscales

Table 19

Descriptives for Varimax Orthogonal Five-Factor Solution on all 144 items of the PMSS (n=293)

Descriptives	Factors				
	One	Two	Three	Four	Five
Number of Items	15	8	5	3	3
Minimum Values	17	12	0	2	1
Maximum Values	73	39	24	15	13
Scale Mean	53.98	27.16	11.74	5.92	4.97
Standard Deviation	10.41	5.12	3.72	2.56	2.17
Item Alpha Reliabilities	0.92	0.83	0.67	0.67	0.72
Standardized Alphas	0.93	0.83	0.68	0.71	0.72

Table 20

Correlations among Motivation Measures pre- PMT and post- PMT Program for Treatment (n=37) and Control (n=29)

Post-PMT Motivation	Pre- PMT Motivation							
	SE	OES	PES	LG	PGE	PGD	IMP	SCH
<u>PMT</u>								
SE	0.659							
OES	0.431	0.600						
PES	-0.495	-0.247	0.251					
LG	0.269	0.204	-0.0468	0.358				
PGD	0.256	0.185	-0.188	0.191	0.368			
PGE	0.054	0.178	-0.188	-0.032	0.645	0.776		
IMP	-0.180	0.169	0.268	-0.111	0.005	0.068	0.172	
SCH	-0.151	0.344	0.153	0.063	-0.007	0.177	-0.182	0.546
VAL	0.198	0.022	-0.070	0.123	0.150	-0.078	-0.237	0.025
<u>Control</u>								
SE	0.521							
OES	0.480	0.480						
PES	0.050	0.222	0.716					
LG	-0.657	0.103	-0.015	0.462				
PGD	-0.426	-0.173	-0.082	-0.377	0.326			
PGE	-0.139	0.105	0.341	-0.332	0.636	0.563		
IMP	0.007	0.013	0.267	-0.092	0.043	-0.014	0.396	
SCH	0.270	0.051	0.415	-0.295	-0.423	-0.172	-0.297	0.592
VAL	-0.287	0.045	-0.270	0.611	0.145	0.336	-0.005	-0.293
								0.694

Note. The items are listed in Appendix A.

Table 21

Correlations among Motivation Measures pre- PMT and post- PMT Program for all Participants (n=66)

Post-PMT Motivation	Pre-PMT Motivation								
	SE	OES	PES	LG	PGD	PGE	IMP	SCH	VAL
SE	0.619								
OES	0.444	0.570							
PES	-0.311	-0.117	0.372						
LG	0.219	0.186	0.053	0.467					
PGD	0.103	0.101	-0.149	0.056	0.352				
PGE	0.014	0.163	-0.058	-0.076	0.634	0.730			
IMP	-0.132	0.102	0.197	-0.168	0.026	0.010	0.254		
SCH	0.094	0.247	0.240	0.003	-0.157	0.114	-0.228	0.460	
VAL	0.055	0.049	0.003	0.443	0.107	0.110	-0.163	-0.237	0.706

Note. The items are listed in Appendix A. SE = self efficacy; OES = optimistic explanatory style (attributions); PES = pessimistic explanatory style; LG = learning goals; PGE = performance goals (self enhancing); PGD = performance goals (self defeating); IMP = implicit theories; SCH = schematicity; VAL = values.

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

Table 22

Correlations among Motivation Schema pre- PMT and post- PMT Program for Treatment (n=37) and Control (n=29)

Post Motivation	Pre-Motivation				
	LV	IMC	PGD	PGE	IT
			<u>PMT</u>		
Learning Value	0.414*				
Se/OES/Sch	0.026	0.594**			
Performance Goal/Defeating	0.037	0.263	0.510**		
Performance Goal/Enhancing	-0.139	0.221	0.531**	0.698**	
Implicit Theory	-0.296	0.074	0.117	0.187	0.267
			<u>Control</u>		
Learning Value	0.713**				
Se/OES/Sch	-0.872**	0.714**			
Performance Goal/Defeating	-0.153	-0.052	0.595*		
Performance Goal/Enhancing	0.102	0.257	0.604	0.826**	
Implicit Theory	-0.75	0.009	0.427	-0.492	0.425
			<u>Total</u>		
Learning Value	0.647**				
Se/OES/Sch	-0.235	0.582**			
Performance Goal/Defeating	0.012	0.176	0.533**		
Performance Goal/Enhancing	-0.023	0.223	0.559**	0.732**	
Implicit Theory	-0.240	0.073	0.220	-0.002	0.316*

* p < .05

** p < .01

for the control group (Table 20 and 21). In fact, test-retest reliabilities of the PMSS indicate highest reliability coefficients for the control group (Table 23). Test – retest r 's ranged from .905 for self enhancing performance goals (control group) to .421 for implicit theory (treatment group).

DISCUSSION

The results of the present pilot study indicate that the various nine motivational inner resources can be integrated into a smaller number of motivational schemas. The results also suggest that the PMSS is a psychometrically sound instrument for measuring parent motivation regarding child behavior and participation in PMT programs. Study 1 establishes the factor structure of the PMSS. This study suggests that the PMSS assesses parent motivational aspects into five principal components/factors. A reliability analysis of these factors indicates that the structure is sufficient for the five factors. The variable item reliability results likely reflect the number of items which comprise the respective subscales as well as elements of noise in the data. In future, some items from the scale may be excluded because of a lack of correlation or factor structure.

The five factors are comprised of specific motivational aspects and can be named: (1. Learning Value; 2. Internal Motivational Controls; 3. Performance Goals-Self Defeating; 4. Performance Goals- Self Enhancing; and, 5. Implicit Theory). Factor 1 consists of scale items from two motivational resources (value and learning goals) which represent parent's positive hopes and expectations. This more existential, transcendental, and idealistic factor can be labeled,

Table 23

Test-Retest Reliability Coefficients pre- PMT and post- PMT Program for Treatment (n=37) and Control (n=29)

Scale or Factor	Participants		
	Treatment	Control	Total
<u>Subscales</u>			
SE	0.771	0.609	0.743
OES	0.753	0.608	0.722
PES	0.456	0.842	0.583
LG	0.478	0.660	0.596
PGD	0.585	0.491	0.834
PGE	0.863	0.720	0.562
IMP	0.421	0.623	0.480
SCH	0.733	0.745	0.652
VAL	0.685	0.819	0.824
<u>Schema</u>			
LV	0.586	0.832	0.785
IMC	0.746	0.833	0.736
PGD	0.676	0.746	0.696
PGE	0.822	0.905	0.846
IT	0.421	0.623	0.480

** p < .01

*** p < .001

Note 1. The schema items listed are LV = Learning Value; IMC = Internal Motivational Controls; PGD = Performance Goal/Self Defeating; PGE = Performance Goal/Self Enhancing; IT = Implicit Theory.

Learning Value (LV). Factor 2 consists of items representing three motivational resources (optimistic explanatory style, self efficacy, and schematicity) which appear to represent parent's internal resources and competency. This more autonomous, independent, self-related, ownership taking factor can be labelled, Internal Motivational Controls (IMCs).

Factor 3 consists only of items pertaining to performance goals including 4 self defeating and 1 self enhancing items. These items appear to represent resources external to parent's self resources and influenced by others. This more relational, social dependent, attributing to others, less controllable factor can continue to be labelled by its original construct, Performance Goals- Self Defeating (PGD).

Factor 4 consists of only self enhancing performance goals and is also labelled by its originally construct, Performance Goals- Self Enhancing (PGE).

Factor 5 consists of all of the Implicit Theory (IT) items which directly reflect incremental and entity theorist perspectives.

The test-retest reliabilities are generally adequate to excellent and are most stable for the control group participants. The difference in the pre- and post- measures across groups may not necessarily reflect unreliability of the instrument but rather a change in the parent or the parent's situation. It is possible that some incidental motivational change may have been occurring in the treatment group parents and contributed to the weaker correlations from pre- to post- PMT in comparison to the control group parents.

The pilot study addressed the question as to whether the motivational resources formed identifiable motivational schema. These schema are grouped together to form five central schemas (LV, IMC, PGD, PGE, IT). Whether these motivational factors predict outcomes in PMT will be examined in the main study to address the following questions:

1. Do the traditionally examined predictors (severity of child behavior, psychosocial stressors, parent depression, socio-economic status, and single parent families) predict outcomes in PMT (child behavior, parent satisfaction, parent involvement)?
2. Are the individual motivational inner resources and value aspects associated with outcomes of parent management training? Specifically, questions will be asked as to whether these motivational schemas are predictive of various outcomes in parent training?
3. Do the motivational resources change over time and are they susceptible to greater change as a result of participation in a predominantly behaviorally oriented PMT?

Hypotheses:

The following specific hypotheses are offered in the main study:

1. Parents participating in PMT are likely to demonstrate better outcomes (child behavior change) in comparison to the parents in the wait list control group.
 - a) parents in the treatment group will show a larger drop in ratings of total behavior problems;
 - b) parents in the treatment group will show a larger drop in ratings of externalizing behavior problems;
 - c) parents in both groups will show no change on ratings of internalizing problems.
2. Predictors of PMT will predict outcomes regarding child behavior change and parent satisfaction as follows:
 - a) The traditionally examined predictors will continue to be predictive of outcomes.
 - b) The motivational factors will emerge among individual parents and be predictive of outcomes.
 - c) A combination of traditionally examined predictors and motivational predictors will be the most predictive of outcomes in parent training.

3. Predictors of PMT will predict outcomes regarding parent engagement, i.e. drop out rates:
 - a) The traditionally examined predictors will continue to be predictive of parent drop out outcomes.
 - b) The motivational factors will emerge among individual parents and be predictive of drop out outcomes.
 - c) A combination of traditionally examined predictors and motivational predictors will be the most predictive of drop out outcomes in PMT.
4. The individual motivation resources will also be predictive of outcomes as follows:
 - i) Parent self efficacy for parent behavior management will influence PMT outcomes:
 - a) Parents who are high in self-efficacy will likely use more cognitive strategies, persist longer, and be more consistent than parents who are not high in self efficacy. Thus, higher levels of parent self-efficacy will be associated with sustained and engaged parent involvement.
 - b) Parents with low self efficacy in the behavior management domain will be more likely to drop out of parent training.
 - ii) Parents' explanatory styles defined as pessimistic or optimistic will be related to drop out outcomes in PMT.
 - a) Parents with optimistic explanatory styles will show greater levels of parent engagement and complete the PMT program.
 - b) Parents with pessimistic explanatory styles will show lower levels of parent engagement and drop out from the PMT program.
 - iii) Parents' goal orientation will influence drop out outcomes in parent training.
 - a) Parents who demonstrate a performance goal orientation will likely focus on the adequacy of their ability, leaving them vulnerable to the helplessness response, negative affect, setting up impaired performance and translating into ultimately less positive outcomes in PMT than parents with a learning goal orientation.
 - b) Parents who demonstrate a learning goal orientation will likely focus on increasing their ability over time, predisposing them to effective strategy formation, positive affect, and sustained performance. Thus, these parents will demonstrate more positive outcomes in parent involvement.
 - iv) Parents' implicit theorist orientation is likely to be associated with drop out outcomes in PMT.

- a) Parents who score higher on the entity theorist scale are more likely to believe in a fixed social-moral reality, invest in the status quo, use more punishment and less positives, and thus, demonstrate little change from pre-, post- testing in terms of parent outcomes and are more likely to drop out.
- v) Parents who are schematic in parent training are more likely than aschematic parents to have well-developed possible selves which serve to energize and motivate strategic use of skills and abilities. Consequently, higher schematicity scores will be associated with more positive drop out outcomes.
- vi) Parents who demonstrate more valuing aspects of motivation (interest, appreciation) within the PMT sessions are more likely to be engaged in PMT group activities, complete homework assignments, and transfer learning to home situations.
 - a) Higher value, interest, and appreciation aspects of motivation will be associated with more positive outcomes on measures of parent involvement/engagement.
- vii) The expectancy x value model of motivation provides the framework for integrating parent motivation factors relevant to PMT programs. Specifically, relationships are likely between the following;
 - a) the interaction between pessimistic explanatory style and value will predict parent drop out;
 - b) the interaction between optimistic explanatory style and value will predict parent drop out.
- 5. Parents' orientations will be associated with drop out as follows:
 - a) Parents who are schematic are less likely to drop out of PMT;
 - b) Parents who are aschematic are more likely to drop out of PMT;
 - c) Parents with an entity theorist orientation will be associated with parent dropout.
 - d) Parents with an incremental theorist orientation will be associated with parent completion of PMT.
- 6. As a result of participating in PMT, parents motivational schema will change.
 - a) Parents in the treatment group are likely to show higher post test scores on self-efficacy in comparison to parents in the control group.
 - b) Parents in the treatment group are likely to show more changes on other inner motivational resources in comparison to parents in the control group.
 - c) Parents in the treatment group will show less stability among motivational aspects/resources.

Chapter 3

METHODOLOGY

Participants

Participants are parents of clinic referred children who present as requiring parent management training. The majority of referrals were made by physicians (general practitioners and pediatricians) in a health care organization. Analysis of the history of physician referrals indicates few referrals of children demonstrating “normal” patterns. In the past 2 years of physician referrals for various learning, behavior, and language disorders, 98 % were assessed to have symptoms within clinical ranges. Other participants were referred by psychological and social work staff from the local ADHD clinic and self initiated contact by phoning for an orientation session. As a result, it was impossible to determine the number of parents who had initially been referred. Of the parents who attended orientation sessions and initial assessment sessions, six of the 99 refused to participate in the research study.

Ninety-three parents with children who range in age from 4 ½ to 12 years old (at first contact) served as participants. Each parent had children enrolled in a general education, preschool, junior kindergarten to grade 8 classroom and whom the parent described as demonstrating disruptive behavior problems. Forty-six children met DSM-IV diagnostic criteria for a disruptive behavior disorder, 35 were diagnosed with a comorbid diagnoses, 7 diagnosed with another disorder, and 2 with no diagnosis

(Table 24). Detailed demographic information divided according to treatment and control groups is provided in Tables 24 and 25. Frequency tables for both parent and child characteristics by group were calculated. Descriptives were calculated for various other identifying characteristics. All parents have agreed and signed a consent form (see Appendix B for Consent Form for Participation in Research Project).

Procedures

Procedures followed three primary phases: 1) orientation interview and baseline assessment; 2) intervention; and 3) a one-month follow-up.

During Phase 1, participants came into the clinic for an initial orientation/assessment individual session. At the orientation session, the intervention study was explained to parents and they were asked if they would like to be involved. Prior to beginning the study portion of the interview, parents received information about the study and were asked to sign a consent for research form (see Appendix B). Contingent upon their written consent, parents then completed independent additional questionnaires. Although their interview and/or assessment results were not used in the data analyses, any parents who did not consent were not excluded from participating in the PMT sessions. The individual interviews and questionnaire completions took approximately 1 to 1 ½ hours to complete in the clinic. Some of the parents brought the questionnaires home and either mailed them back or returned them at the first session. As a result of this process, 8 questionnaires and survey forms were not returned.

Table 24

Demographic Characteristics of Treatment and Control Participants in PMT Study (n = 93)

Descriptive	Participants					
	Treatment		Control		Total	
	n	%	n	%	N	%
Parent gender						
Male	17	26.6	7	24.1	24	25.5
Female	47	73.4	22	75.9	69	73.4
Parent education						
Elementary	1	1.6	2	6.9	3	3.2
High School	19	29.7	13	44.8	32	34.0
College (Community)	28	43.8	10	34.5	38	40.4
University (undergraduate)	10	15.6	3	10.3	13	13.8
University (graduate)	5	7.8	1	3.4	5	5.3
Ethnicity/ Race						
Native Canadian or Inuit	13	20.3	2	6.9	15	16.0
White / Caucasian	50	78.1	26	89.7	76	80.9
Current Annual Household Income (\$)						
Under 10,000	8	12.5	2	6.9	10	3.4
10,000 – 14,999	13	20.3	5	17.2	18	6.1
15,000 – 19,999	5	7.8	5	17.2	10	3.4
20,000 – 24,999	8	12.5	2	6.9	10	3.4
25,000 – 29,999	0	0	1	3.4	1	0.3
30,000 – 34,999	0	0	1	3.4	1	0.3
35,000 – 39,999	2	3.1	4	13.8	6	2.0
40,000 – 44,999	2	3.1	1	3.4	3	1.0
45,000 – 49,999	6	9.4	1	3.4	7	2.4
50,000 – 54,999	5	7.8	3	10.3	8	2.7
55,000 – 59,999	4	6.3	0	0	4	1.4
60,000 – 69,999	4	6.3	2	6.9	6	2.0
70,000 and over	7	10.9	1	3.4	8	2.7
Low Income Cutoffs (Stats Canada)						
Low	25	39.1	12	41.4	37	12.6
High	39	60.9	16	55.2	56	19.0
Single Parent Household						
No (married, common law, etc.)	39	60.9	19	65.5	58	19.7
Yes (separated, divorced, widowed)	25	39.1	9	31	34	11.6

Note. Totals do not sum to 100% due to missing data.

a n=64 for treatment group

b n=29 for wait list control

c n=93 for total

Table 25

Demographic Characteristics of Children Whose Parents Participated in the PMT Study (n=93)

Characteristic	Participants					
	Treatment		Control		Totals	
	n	%	n	%	N	%
Child Gender						
Male	42	65.6	21	72.4	63	67
Female	22	34.4	8	24.1	30	30.9
Child Education						
Preschool	1	1.6	1	3.4	2	2.1
Junior Kindergarten	8	12.5	2	6.9	10	10.6
Senior Kindergarten	3	4.7	0	0	3	3.2
Grade 1	13	20.3	2	6.9	15	16
Grade 2	4	6.3	2	6.9	6	6.4
Grade 3	10	15.6	4	13.8	14	14.9
Grade 4	9	14.1	3	10.3	12	12.8
Grade 5	6	9.4	5	17.2	11	11.7
Grade 6	7	10.9	7	24.1	14	14.9
Grade 7	1	1.6	2	6.7	3	3.2
Grade 8	1	1.6	0	0	1	1.1
Special Education	1	1.6	1	1.6	2	2.1
Child Medication						
None	34	53.1	22	75.9	56	59.6
Ritalin	26	40.6	4	13.8	30	31.9
Other Psychotropic	4	6.3	2	6.9	6	6.4
Child Diagnosis						
None	2	3.1	0	0	2	2.1
ADHD	7	10.9	3	10.3	10	10.6
DBD-NOS	28	43.8	8	27.6	36	38.3
ADHD Comorbid with Other DBD	23	35.9	12	41.4	35	37.2
Other	3	4.7	4	13.8	7	7.5
Previous Treatments						
None	14	21.9	4	13.8	18	19.1
Psychotherapy/Counselling	13	20.3	2	6.8	15	16.8
Learning/Resource	14	21.9	9	31	23	24.5
Combined	22	34.4	12	41.4	34	37.8

Note. Values do not sum to 100% due to missing data.

Length of time between orientation interview and the first session varied because of this process.

Parents were initially randomly assigned to a treatment or wait list control group. Despite random assignment, the treatment and control groups differed in terms of specific characteristics (e.g., Ritalin use and previous psychotherapy treatment).

During Phase 2 (Intervention), participants in the PMT Treatment groups did not receive a reminder phone call about the intervention sessions. Intervention closely followed Barkley's (1997) training procedures in four, two-hour, weekly sessions and a one month follow up meeting, totaling 8 weeks.

During Phase 3 (Follow-up), PMT Treatment parents participated in a follow up booster session 1 month after termination of the initial parent management training. All treatment group participants (PMT and Control Participants) participated in post-PMT interviews 1 month after initial treatment. Control Group participants were offered parent management training sessions at this point.

Setting and Materials

An out-patient health care organization, The Group Health Centre (GHC), provided the setting and participants for the proposed study. An initial formal request was made to the Department Head of Quality Assurance who scheduled a proposal presentation to the Research and Ethics Review Board of the organization (see Appendix B for Letter Requesting Permission and Algorithm of Research and Ethics Review Committee Process).

All parent interview and training sessions took place in the same office/conference room locations throughout the same outpatient health care organization. Individual orientation interviews and assessments were conducted in an office in the Communication Disorders Department, located one building west of the Main Building. This corner office is extremely large and comfortable, next to the Psychiatry Department. When appointments overlapped and parents required extra time to complete independent questionnaires, parents were moved to one of the adjacent offices, depending upon availability. Training sessions were conducted in the Women's Health Centre Conference Room, which seats 20 people and is located in a third building just south of the Main Building. Participants had no difficulty locating free parking in the large lots at each of these clinic locations. Non-clinic members were charged a token fee (to cover the cost of photocopying and other materials). Otherwise, the individual consult/orientation and subsequent training sessions were provided without charging a fee for service. Sessions were offered in the mornings, afternoons, and evenings to accommodate parents schedules and babysitting constraints. Parents were allowed to move among groups in order to facilitate attendance, especially since several parents were employed in shift work schedules. In this fashion, several attempts were made to remove some of the barriers to treatment traditionally discussed in the PMT literature.

The Parent Management training followed the step by step procedures as detailed in *Defiant children: A clinician's manual for assessment and parent*

training (Barkley, 1997). Nine of the ten steps¹ were covered in two-hour sessions as outlined in Table 26. Parents were provided with the detailed manual handouts which summarized each of the steps covered in training as well as corresponding homework assignments, developed by the therapist. Procedures for parent training explicitly followed the parent training manual instructions with the following exceptions to treatment manual protocol:

- 1) Steps were combined in order that the parent training sessions were completed within two months rather than in ten plus weekly sessions;
- 2) Steps 3, 4, and 5 were supplemented with materials from other parent training manuals and programs (Alvord, 1973; Greenberg & Horn, 1991; Wells, 1993);
- 3) Step 8 was omitted, as noted previously;
- 4) Coffee breaks and refreshments were provided in between each step;
- 5) The majority of parents participated in small group instruction (6-8 parents) as suggested in the manual but group size varied as some were larger (10-12 parents) and some were smaller (3-4 parents) depending upon attendance dates.
- 6) Parents were required to practice newly learned skills using standard homework assignments which were collected in subsequent weeks.

Parents assigned to the Control group did not participate in parent training until follow up data had been gathered (1 month post-PMT). The particular parent training approaches/procedures to be utilized varied and were somewhat dependent upon the present study results.

Data Collection

A battery of self report questionnaires was used to study the constructs believed to be related to PMT. Data were gathered at Baseline (1-2 weeks prior

¹ Step 8: Improving School Behavior from Home: The Daily School Behavior Report Card was omitted as the study data gathering was also conducted during summer months.

Table 26

Step by Step Procedures as Detailed in Defiant Children (Barkley, 1997)

Week	Step	Title
1	I	Why Children Misbehave
	II	Pay Attention!
2	III	Increasing Compliance and Independent Play
	IV	When Praise is Not Enough: Poker Chips and Points
3	V	Time Out! And other Disciplinary Methods
	VI	Extending Time Out to Other Misbehavior
4	VII	Anticipating Problems: Managing Children in Public Places
	IX	Handling Future Behavior Problems
8	X	Booster Session and One Month Follow-up Meeting

to training), Pre-PMT (at the first PMT session), Post-PMT (at the last PMT session), and Post-PMT (1 month after training) as indicated.

Traditionally Examined Predictors:

Information regarding traditionally examined predictors was collected at baseline session as part of the evaluation process for the initial intake interview and assessment. Parents completed a general information sheet to assess marital status, socio-economic status (SES), and number of psychosocial stressor predictors. Marital status was coded as 0 for single parent households and 1 for two parent households.

Hollingshead and Redlich's two factor index (1958), which utilizes educational and occupational attainment in its formula, was used to reflect socioeconomic status level (SES). Socioeconomic status was also designated as low income or high income based on a formula published by Statistics Canada (1998). This latter formula is current and utilizes various factors (household income and number of members supported by this income) to estimate low income cutoffs (LICO). Thus, SES as a predictor was used as a dichotomous (LICO) and continuous variable (Hollingshead 2 Factor Index) due to the very different nature of both measures (see Appendix E for Methods of Calculating SES).

Parent depression was derived through total scores on the Beck Depression Inventory –2nd Edition (BDI-II). The *BDI-II* is a self-report scale of 21 items assessing level of depression in clinical and normal participants. Each item contains 4 statements about a particular symptom of depression and are

arranged in increasing severity. Parents select the statement that best describes their affect over the previous two week span. Internal consistency of the BDI-II is high as the coefficient alpha for outpatients and students was .92 and .93, respectively (Beck, Steer, & Brown, 1996). Evidence of the convergent and discriminant validity of the BDI-II indicates a positive correlation (.71) with depression on the Revised Hamilton Psychiatric Rating Scale for Depression and robust discriminant validity between depression and anxiety (.47) using the Revised Hamilton Anxiety Scale (Beck et al., 1996).

Severity of child behavior was derived through parent responses on the Home Situations Questionnaire (HSQ). The *HSQ* is a rating scale which provides a measure of child behavior in 14 contexts, specific to home and public settings. Behaviors are rated according to whether children have problems in any of those situations and according to how severe on a scale of 1 to 9 (where 1-mild, 9-severe). A total number count and mean severity score is calculated. Gender and age based norms are available for this scale and can be used to interpret the individual child's severity of behavior in comparison to peers. The HSQ is reported to have satisfactory test-retest reliability and to correlate significantly with other parent completed rating scales (Barkley, 1990).

Information from the interview and questionnaires was used to gather demographic information and summarized in the Participant Section as well as in table format (Tables 24 and 25). Data were gathered from each individual participant (including both parents if involved) for each predictor and subsequently analyzed.

Parent Motivational Aspects/ Schema

No published measures were found in the literature regarding parent motivation and PMT. Thus, the PMSS was developed specifically for this project. Parent information on motivational aspects was gathered through the administration of the PMSS, which is an adaptation of 44 domain specific questionnaire items taken from the research literature on motivation (see Appendix A for Parent Motivation Schema Scale). The content validity of the PMSS was attempted through inter-rater judgements and a factor analysis procedure on the pilot sample. A content validity index was computed using the approach by Waltz, Strickland, and Lenz (1991). Based on the raters' judgements, the original 55 items were maintained, revised, or deleted from the scale. The resulting 44 items in the scale were pilot tested on 200 parents of children attending a health care organization, community agency, and/or school system. Support for the reliability of the PMSS was demonstrated through internal consistency via Cronbach's alpha (on both the pilot and study samples) and test-retest reliability (on the study groups i.e., treatment and control groups). This scale was administered both pre- and post- PMT.

Parents were asked to rate their motivation in two domain specific areas: a) regarding participation in the PMT intervention; and, b) motivational aspects concerning their child's disruptive behavior on a 5-point scale from *not true of me at all* (1) to *extremely true of me* (5). Individual items of the PMSS which reflect nine motivational aspects, were grouped into nine subscales, respectively. The *self efficacy* subscale

assesses parent concern with how well or poorly people judge or believe that they will perform on a task give their skills and a variety of circumstances (Bandura, 1997, p.37). A sample item from this subscale is *"If my child became disruptive and noisy in public places (malls, church), I feel assured that I know some techniques to redirect him or her quickly."*

The *optimistic explanatory style* and *pessimistic explanatory style* subscales assess attributional aspects of motivation. For example, an optimistic explanatory style involves attributing child misbehavior to 1) external, 2) unstable, 3) controllable dimensions while a pessimistic explanatory style involves attributing child misbehavior to 1) internal, 2) stable, and 3) uncontrollable dimensions. Sample items from these subscales are, *"when my child is in one of his/her moods, there is usually something that set him off but can be handled"* and *"my child's behavior is mostly biological, a big part of his/her personality, and sometimes, we're lucky to get through one of his/her temper tantrums."*, respectively.

The *learning goals* subscale assesses parent approach to PMT and child management challenges as the desire to increase competence and improve skill. A sample item from this scale includes, *"I like parent training work I'll learn from even if I make a lot of mistakes."* The *performance goals-self enhancing* subscale assesses the levels parents strive to demonstrate superior abilities, do better than others, or outperform others (Skaalvik, 1997). A sample item is, *"I would like parent training activities that let me show how good I am at managing behavior"*. The *performance*

goals-self defeating subscale assesses the level parents strive to avoid looking stupid and being negatively judged by others (Skaalvik, 1997). A sample here involves, "*When interacting with my child in public places, I am concerned not to make a fool of myself.*"

A short subscale assessed whether parents were entity or incremental theorists according to *implicit theories*. According to implicit theory definitions (Brophy, 1998; Hong et al., 1997; Levy et al., 1998), parents who are entity theorists view their child's behavior as a fixed entity which cannot be changed and over which they have no control. Those parents who are incremental theorists view their child's behavior as responsive to their management effort. All of the sample items, measure level of entity theory orientation, with low scores implying parents may hold an incremental theory. A sample item illustrates this point: "*my child's behavior is something very basic about him/her and it can't be changed much.*" Parents with scores of 7 or higher were deemed entity theorists while parents with scores less than 7 were deemed incremental theorists.

An even shorter subscale assesses parent *schematicity* which involves parent recognition that they have a particular ability in handling child behavior and belief that this ability is important (Cross & Markus, 1994). The items used to identify schematic and aschematic parents were summed to arrive at a total schematicity/ self schema score. For further analysis of parent engagement measured by drop-out or program completion, parents with scores of 5 or above on these items were

classified as schematic. Parents with scores of less than 5 were classified as aschematic. All other parents who do not clearly fall into schematic or aschematic categories were not selected at this level of analysis.

Several items comprise the *value* subscale which is a relatively new aspect and consideration in motivational research. A sample item of this scale is, "*involvement in PMT will be helpful in improving the quality of our lives.*"

Each of these subscale items is summed to be used in select data analysis. In addition, the implicit theory and schematicity items are converted into categorical variables as described above.

A principal component analysis of the PMSS yielded five factors. Thus, the nine subscales were not supported by the factor analysis. When the five factor solution was produced, the orthogonal factors were labelled according to their respective factor loadings. Factor 1 was labelled Learning Value because it consisted of only learning goals and value items. Factor 2 was labelled Internal Motivational Controls because it consisted of self efficacy, optimistic explanatory style, and schematicity items. Factors 3, 4, and 5 consisted of the original motivational aspects and retained the names of Performance Goals-Self Defeating, Performance Goals-Self Enhancing, and Implicit Theory.

Outcomes

The following measures are organized according to PMT outcome categories.

Child Behavior Changes

Pre-, Post-, and Long-term outcome measures regarding changes in child behavior were based on information from the Child Behavior Checklist (CBCL/4-18) (Achenbach, 1991). The CBCL data were obtained from one parent of each child participant. Parents rate their child's behavior on 118 problem behavior items where 0 = *not true as far as you know*, 1 = *somewhat or sometimes true*, 2 = *very true or often true*. The CBCL/ 4-18 provides raw scores which are converted to normalized T-scores and percentiles grouped on three scales (Total Problems, Internalizing, and Externalizing) and 8 syndrome scales. Reliability and validity data are well established and detailed in the manual (Achenbach, 1991). For instance, reliability information from the manual indicates that test-retest coefficients for the Behavior Problem scales are high (.95) and also high for the Social Competence Scale (.99) (Achenbach, 1991). Child behavior change scores were calculated by subtracting post-CBCL t-scores from pre-CBCL t-scores for each respective scale (Total, Internalizing, and Externalizing Problems). Long term child behavior change scores were calculated by subtracting long-term CBCL t-scores from pre-CBCL scores.

Parent Satisfaction

Post- outcome measures regarding parent satisfaction were based on information from *the Therapy Attitude Inventory* (TAI)(Eyberg, 1993). The TAI is a brief consumer satisfaction measure of parent training, parent-child treatments, and family therapy with established psychometric evidence of reliability and validity (Brestan et al., 1999). Support for internal consistency of the TAI was

provided by Cronbach's alpha coefficients of .91 (excellent) and a stability coefficient over 4-months of .85 (high). Evidence of external validity (construct validity) was demonstrated through positive correlations (.36 to .49) between scores on the TAI and a) the Eyberg Child Behavior Inventory, and b) observations of behavioral compliance (Brestan et al., 1999). A principal component analysis on the TAI items yields two factors: 1) a satisfaction with outcome factor which represents parent satisfaction with child behavior changes and 2) a satisfaction with process factor which represents parent satisfaction with the components of treatment, including parenting skills taught and general approach to treatment (Table 27) (Brestan et al., 1999).

The 10 items of the TAI reflect satisfaction with parenting skills learned, child behavior changes, and the type of program used, which are all derived to reflect goals of parent-child treatments (Brestan et al., 1999). Parents rate items on a scale from 1 (no satisfaction) to 5 (maximum satisfaction) and yield a total score between 10 and 50.

Parent Engagement

A final outcome measure involved estimates of parent engagement and parent disengagement. Information for parent engagement characterization was based upon an exposure measure 1) number of hours attended in all sessions; 2) number of homework assignments completed, and 3) number of participants who dropped out and did not complete the program. The latter was further differentiated according to point of drop off as pre-PMT, pari-PMT, post-PMT, long term-PMT. Given the smaller sample size and lower statistical power,

Table 27

Factor loadings on the Therapy Attitude Inventory (TAI).

Item Content	Factor 1	Factor 2
1. Learned useful techniques for discipling	0.39	<i>0.72</i>
2. Learned useful techniques for teaching	0.11	<i>0.87</i>
3. Status of relationship with child	<i>0.81</i>	0.34
4. Ability to discipline child	<i>0.80</i>	0.32
5. Major behavior problems of child	<i>0.82</i>	0.33
6. Child's noncompliance to commands	<i>0.85</i>	0.29
7. General progress of child	<i>0.83</i>	0.33
8. Problems unrelated to child	0.31	<i>0.69</i>
9. Type program used to improve child behavior	<i>0.72</i>	0.15
10. General feeling about the program	0.39	<i>0.57</i>

Note. Numbers in italic represent strongest factor loadings for each item.
(adapted from Eyberg & Brestan, 1999)

engagement was analyzed by dropout while attendance and homework completion measures were summarized in demographic information.

Design and Analysis

The present study was a longitudinal design consisting of three types of variables: traditionally examined predictors, motivational predictors, and outcomes in PMT. The focus of the present longitudinal study was to examine the relationship among traditional predictors (single parenthood, severity of child behavior, parent depression, SES, and number of psychosocial stressors) and potential novel predictors (parent motivation aspects) on three categories of outcomes in parent training (changes in child behavior, parent satisfaction, and parent engagement).

Descriptive statistics and displays were calculated before formal analyses. Initially, several analyses comparing the treatment and control groups were performed using the individual CBCL pre- and post- t-scores for each scale as well as behavior change scores, in order to establish any treatment effects. Several other analyses were performed to test the several hypotheses of the current study (Table 28).

Analysis I: Treatment Effects

To test the hypothesis that parents in PMT would demonstrate better outcomes, (greater child behavior change) in comparison to parents in the wait list control group, the first analysis consisted of a 2 X 2 X 3 factorial design with repeated measures. The 2 groups (treatment and control) by the two time points (pre- and post-) by the 3 CBCL Scales

Table 28

Summary of Specific Hypotheses (abbreviated), Measures, and Analyses

Hypothesis	Abbreviated Description	Measure		Analysis
		Pre-	Post-	
I	Treatment effects: Treatment versus control parents	CBCL	CBCL	2*3*3 Factorial Anova
II	Continuous outcome variables will be predicted by continuous predictors	CBCL TAI	CBCL* TAI	
	a. TEP predict child behavior change and parent satisfaction	HSQ Stress Checklist BDI-II Hollingshead Index		canonical correlation
	b. Motivation schema predict child behavior and parent satisfaction	PMSS		canonical correlation
	c. combination of both types of predictors predict child behavior and parent satisfaction	same as a. & b. above		canonical correlation
III	Discrete outcome variable (drop out) will be predicted by continuous predictors	count of treatment participants	count of treatment participants	
	a. TEP predict drop out	HSQ Stress Checklist BDI-II LICO SPF		discriminant function
	b. Motivation schema predict parent drop out	PMSS factor totals		discriminant function
	c. combination of both types of predictors predict drop out	same as a. & b. above		discriminant function
IV	Individual motivational resources predict drop out	PMSS subscales count of treatment participants	count of treatment participants	logistic regression
V	Parents' theoretical orientations are associated with drop out	PMSS schematicity subscale implicit theory subscale count of treatment participants	count of treatment participants	chi-square analysis
VI	Parents who participate in PMT experience a change in motivational schema and/or subscales	PMSS factor totals subscales	PMSS factor totals subscales	pair-wise t-test

(Total, Internalizing, Externalizing) were compared in a two way analysis of variance. For the purpose of brevity, all tests for normality and equality of variance were met unless otherwise specified in the results. The appropriate post hoc analyses (A Bonferroni post hoc test) was conducted based on an assumption of equal variances.

Analysis II: Linear Relations Among Continuous Variables

To test the hypotheses that traditional predictors and motivational predictors would predict child behavior change and parent satisfaction with PMT, a canonical correlation was conducted in the second analysis. The canonical correlation examined the linear relationship among the continuous predictor variables both traditional (severity of child behavior, parent depression, number of stressors, SES) and motivational (the five factors) with the linear relationship among the continuous outcome variables (changes in child behavior and parent satisfaction). The appropriateness of canonical correlation techniques is well established given the multiple predictors and multiple outcomes. Basic tests of significance associated with the canonical correlation were considered and two common tools for interpretations were provided. While interpretation of loadings or standardized coefficients is the most widely used , primarily for reasons of multicollinearity among variables within sets (Levine, 1977; Thompson, 1984), standardized coefficients are described as the most useful (Rencher, 1995). The standardized coefficients remove the effects of scaling as well as provide the most information regarding the

importance of a given variable in the context of the others (Rencher, 1995).

Analysis III: Classifying According to Drop Out

The third analysis was conducted to test the hypothesis that traditional predictors and motivational predicts would be associated with parent engagement (i.e., drop out of PMT). This third statistical analysis employed a discriminant function analysis to evaluate whether the traditional predictors and/or motivational predictors were useful to screen or classify participants known to drop out of PMT (parent engagement outcome). Tests for the equality of variance, independence, and linearity were met unless otherwise specified.

The two multivariate techniques above (canonical and discriminant) were conducted to evaluate the relationships among the predictors and outcomes in PMT. As a reflection of the mutual influence of the variables on each other, it was assumed that statistical results would change if some variables were added or deleted. Interest in the current study was centered on the joint performance of the traditional and new motivational predictor variables at hand. Mechanisms were in place to conduct an evaluation and comparison involving a traditional model and new model of predictors in parent training. Thus, the two categories of predictor variables were added to each of the statistical analyses in three stages or models.

First, each multivariate statistical analyses included an analysis with the traditional predictors in the model. Second, statistical analysis used the motivational predictors in the new model. This indicated the maximum possible change on outcomes by manipulating new predictors. Third, each statistical procedure used both the traditional and motivational predictors in a combined model which indicated a more realistic appraisal of possible change on outcomes. These three models (traditional, motivational, and combined) were compared for each multivariate statistical procedure to test the third, fourth, and fifth hypotheses (Table 28).

Analysis IV: Using Motivational Subscales to Classify According to Drop Out

The fourth analysis tested the hypothesis that individual motivational resources would be predictive of PMT outcomes. This fourth statistical analysis employed a logistic regression running the discrete category outcome variable (drop out versus completers) with the individual motivational resources (see Appendix D for Rationale for Using Subscales). Logistic regression was included because it 1) requires far fewer assumptions than discriminant analysis; and 2) to specifically evaluates for any interaction effects among the motivational predictors.

Analysis V: Univariate Examination of Discrete Variables

The fifth analysis tested the hypothesis that parent orientation (schematic versus aschematic and entity versus incremental) would be associated with drop out. A series of chi-square analyses were also

conducted among the drop out outcome variable of the PMT study and the parents' schematicity and implicit theory orientations, respectively, and among other categorical traditional predictors (single parenthood, low income cutoff). As well, analyses were also conducted for drop out and other parent or child descriptors. The Chi-Square Two Way Test for Association was computed to determine whether or not any of the two paired variables were independent of each other (Horvath, 1981).

Analysis VI: Change in Parents' Motivational Schema

Finally, the sixth analysis tested the hypothesis that parents' motivational schema and individual resources would show greater change for the treatment group participants than for the control group participants. A series of t-tests were conducted to test this hypothesis.

Table 28 summarizes the specific hypotheses (abbreviated) with measures used and analyses employed. An alpha level of .05 was used for all statistical tests. A Bonferroni adjustment was considered and employed when multiple statistical tests were conducted.

Chapter 4

RESULTS

Analysis I: Treatment Effects

The results of the descriptive information and Factorial Anova test the hypothesis that treatment group parents would demonstrate better outcomes. The mean CBCL scores for each group (treatment and control), each time point (pre-, post-, long term-), and each scale (Total, Internalizing, and Externalizing problems) are summarized in Table 29. T-scores greater than 65 are indicative of clinically significant behavior problems. Treatment group behavior scales indicate a decline in average behavior problems over pre-, post-, and long term-PMT for all scales. In fact, behavior for the treatment group participants had improved from clinically significant ranges at baseline (t-score ≥ 65) to behavior within normal limits (t-score < 60) in comparison to other children their age at one month follow up.

Control group scales indicate an increase in average behavior problems over pre- and post- time periods (Figure 2). Visual inspection of the CBCL data also suggests a slight decrease in median behavior problems for the treatment group and a slight increase for the control group, across all scales (Figure 3). Within scales, the treatment group results indicate a larger decline in total problems, smaller decline in internalizing problems, and little, if any change in externalizing problems (Figures 4, 5, and 6). The control group results indicate a

Table 29

Mean Participant Scores (Standard Deviations) on Continuous Outcome Variables

Outcome Measure	Participants			
	Treatment		Control	
	M	(sd)	M	(sd)
<u>CBC - Total Problems</u>				
Pre-PMT	65.69	9.78	64.32	12.08
Post-PMT	63.81	9.51	67.25	10.65
1mos-PMT	59.90	11.68	-----	-----
<u>CBC - Externalizing</u>				
Pre-PMT	64.77	11.00	60.93	12.29
Post-PMT	64.36	10.06	63.85	11.06
1mos-PMT	59.55	12.44	-----	-----
<u>CBC - Internalizing</u>				
Pre-PMT	60.47	10.50	60.54	11.42
Post-PMT	58.64	9.98	64.25	11.38
1mos-PMT	55.84	12.43	-----	-----
<u>Parent Satisfaction</u>				
<u>Questionnaire</u>				
Total	39.08	4.25	-----	-----
TAI1	23.00	2.67	-----	-----
TAI2	16.05	1.93	-----	-----

Note 1. Data were not obtained on wait list control group for long term results on child behavior (CBCL) and treatment satisfaction measures (TAI).

Note 2. Sample size for pre- treatment group = 64 while post and 1mos-pmt =37. Sample size for control group remained constant at 29.

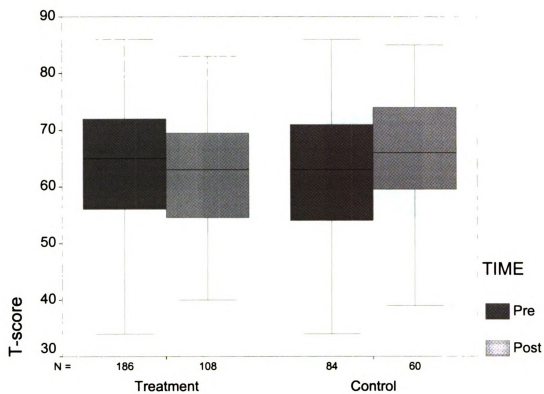


Figure 2. Pre- Post- Scores of CBCL Results

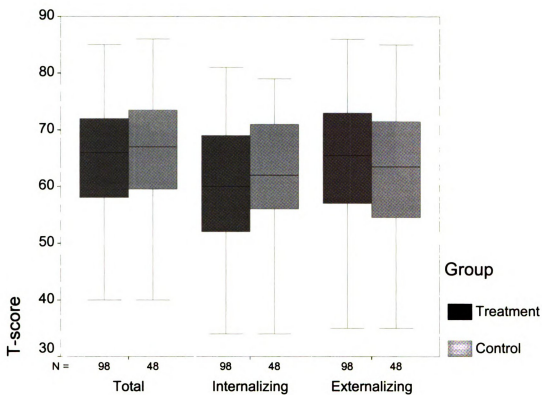


Figure 3. CBCL Results Across All Scales

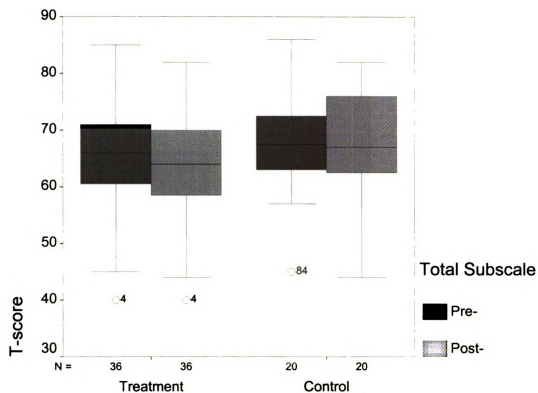


Figure 4. CBCL Total Subscale Results

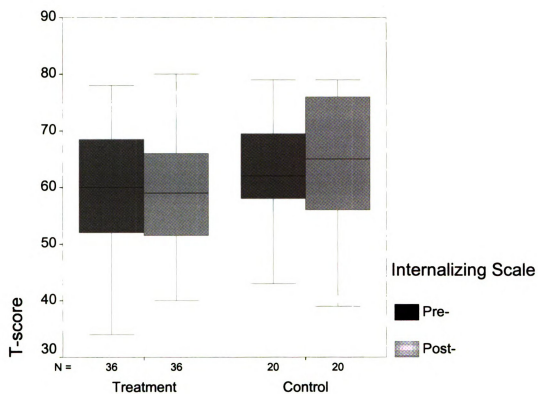


Figure 5. CBCL Internalizing Subscale Results

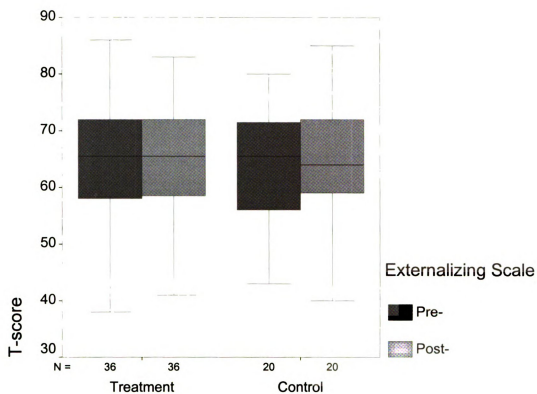


Figure 6. CBCL Externalizing Subscale Results

slight decline in total problems, increase in internalizing problems, and slight decrease in externalizing problems (Figures 4, 5, and 6).

Means and standard deviations for each of the behavior change scores are shown in Table 30. From pre- to post- PMT, the treatment group has the largest average change score for total child behavior while the control group has the smallest average change score for externalizing behaviors. The majority of changes from pre- to post- PMT, with the exception of internalizing problems, are in a positive direction suggesting a decline in child behavior problems. The control group had a relative large average change score for internalizing behaviors in a negative direction indicating a perceived increase in these child behaviors. From pre- to long term- PMT, all of the treatment group average change scores are noticeably larger across all scales indicating a decrease in perception of problem behaviors after PMT.

The first formal analysis (Factorial Anova with Repeated Measures) indicated a significant main effect for CBCL Scale, $F(2, 338) = 22.071, p < .001$, and for Group * Scale, $F(2, 338) = 7.661, p < .001$. All other main effects and interactions were not significant (Table 31). A Bonferroni comparison indicated a significant difference between the internalizing and total scales, $p < .001$, and internalizing and externalizing scales of the CBCL, $p < .001$. Figures 7 and 8 present graphic representations of the Group * Scale interaction. From visual inspection, it appears that the mean CBCL t-score relates not only to the particular scale and to the group of the participants, but also a combination of the values of those variables. Treatment group participants rate total and

Table 30

Mean Change Scores (Standard Deviations) from CBCL Measures

CBCL Scale	Participants			
	Treatment (n=37)		Control (n=29)	
	<u>M</u>	<u>(sd)</u>	<u>M</u>	<u>(sd)</u>
<u>Pre minus Post</u>				
Total	1.50	5.44	0.45	5.92
Internalizing	0.92	7.16	-1.45	5.90
Externalizing	0.47	4.89	0.25	8.03
<u>Pre minus Long Term</u>				
Total	5.58	6.51	-----	-----
Internalizing	4.77	9.13	-----	-----
Externalizing	4.94	6.57	-----	-----

Note. Long term CBCLs for control group were not administered.

Table 31

Analysis of Variance Results for Main Effects and Interaction Effects
of Group, Time Point, and Scale on Child Behavior Changes (CBCL)

Source	df	MS	F	Sig.
<u>Between Subjects</u>				
Group	1	95.066	0.251	0.617
Error 1	90	378.247		
<u>Within Subjects</u>				
Time (pre- , post-)	1	9.803	0.377	0.540
Scale (total, internal, external)	2	574.419	22.071	0.000***
Group * Time	1	28.375	1.090	0.297
Group * Scale	2	199.375	7.661	0.001***
Time * Scale	2	4.187	0.161	0.851
Group * Time * Scale	2	9.775	0.376	0.687
Error 2	338	26.026		

* $p < .05$.

** $p < .01$.

*** $p < .001$

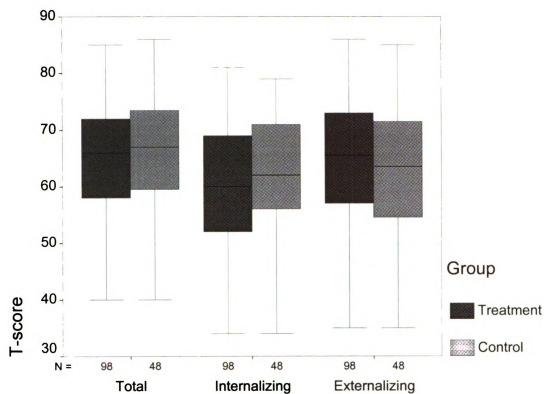


Figure 7. Boxplot Depicting Group * Scale Interaction

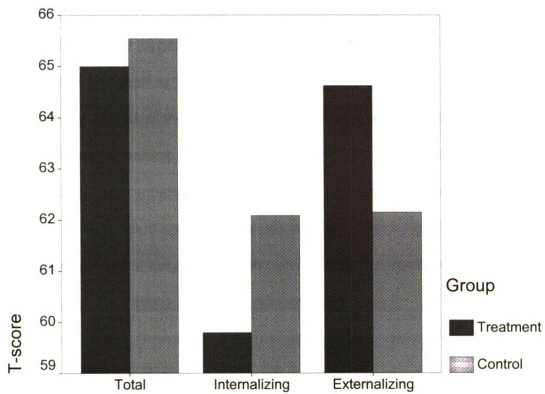


Figure 8. Bar Graph Depicting Group * Scale Interaction

externalizing behaviors with the highest scores. Control group participants rate the total scale with the highest score and rate both internalizing and externalizing problems with equivalent scores.

Thus, the results of the first analysis do not support the overall hypothesis that treatment group participants would demonstrate better outcomes (child behavior change) in comparison to control group participants. The treatment effects appear dependent upon CBCL scale and given the long term CBCL treatment group results, may also depend upon time after treatment.

Analysis II: Linear Relations Among Continuous Variables

To test the hypothesis that PMT predictors would predict child behavior change and parent satisfaction, the second analysis (canonical correlation) determined a linear relationship between the continuous data set of predictors and outcome variables across the three models.

In the traditional predictor model, only the first canonical variate accounted for a significant relationship between the two sets of variables ($r = .816$, $p < .018$). The first variate contained largest coefficients for severity of child behavior as defined by responses on the HSQ and number of psychosocial stressors in set 1 (predictors) and internalizing behavior problems (both post and long term), long term externalizing problems, and parent satisfaction with both process and outcome in set 2 (outcomes) (Table 32). It is noteworthy that maximum loadings are evident in severity of child behavior and parent depression for the first set and all child behavior scores on the second set, highlighting potential differences between interpreting standardized scores versus loadings or structure

Table 32

Correlations and Standardized Canonical Coefficients and Their Canonical Variates
in Separate Models

Variable	First Variate		Second Variate	
	Correlation	Canonical coefficient	Correlation	Canonical coefficient
<u>Traditional Model One</u>				
PREDICTORS:				
HSQ-Severity	0.972	0.995	-0.233	-0.098
Number of Stressors	0.179	-0.254	-0.868	-1.034
Parent Depression	0.468	0.154	0.247	0.567
SES	0.096	0.066	-0.396	0.151
OUTCOMES:				
Post-				
CBC-Externalizing	0.822	0.044	-0.244	0.929
CBC-Internalizing	0.852	0.984	0.184	0.021
Long-Term-				
CBC-Externalizing	0.706	0.620	-0.551	-1.914
CBC-Internalizing	0.637	-0.662	-0.030	0.827
Parent Satisfaction				
TAI-1	-0.056	0.457	0.310	0.609
TAI-2	-0.356	-0.380	-0.025	-0.219
<u>Motivational Model Two</u>				
PREDICTORS:				
1. Val, LG	0.852	0.752	-0.325	-0.255
2. SE, OES, Sch	0.575	0.354	-0.206	-0.247
3. PGE, PGD	-0.293	-0.047	-0.468	-0.292
4. PGE	-0.187	-0.238	-0.100	-0.084
5. Implicit	0.317	0.306	0.889	0.811
OUTCOMES:				
Post-				
CBC-Externalizing	0.270	0.411	0.254	1.461
CBC-Internalizing	-0.190	-0.477	0.137	-1.077
Long-Term-				
CBC-Externalizing	0.407	1.020	0.262	-0.825
CBC-Internalizing	-0.104	-0.675	0.364	0.630
Parent Satisfaction				
TAI-1	0.290	0.246	0.406	1.057
TAI-2	0.579	0.418	-0.383	-0.873

Model One $r = .816$, $p < .018$

Model Two $r = .795$, $p < .280$

coefficients. The second variate ($r = .608$, $p < .376$) contained largest coefficients on number of stressors and parent depression with externalizing problems (both post and long term), and parent satisfaction (Table 32).

In the motivational predictor model, none of the canonical variates accounted for a significant relationship ($r = .795$, $p < .280$). Researchers employ significance tests only as a minimal criteria in deciding which canonical functions to interpret as a result of the large samples required to invoke the central limit theorem and to minimize the tendency of canonical correlation to capitalize on sampling error (Thompson, 1984). Largest coefficients for the first variate included four predictors (factors 1, 2, 5, 4) with five outcomes (post and long term externalizing problems, long term internalizing problems, and parent satisfaction with outcome) (Table 32).

The combined model yielded a significant first variate ($r = .950$, $p < .016$) with maximal loadings on five predictors (number of stressors, severity of child behavior, IT, PGD, LV) and maximal loadings on two outcomes (post internalizing problems and satisfaction with process) (Table 33). The second variate ($r = .813$, $p < .511$) yielded maximal loadings on five predictors (severity of child behavior, stress, parent depression, factor 1, and factor 5) with two outcomes (externalizing and internalizing problems on the long term outcome). In comparing the three models only the traditional model and the combined models had significant canonical variates (Table 34).

As SES failed to load even moderately onto any of the previous models, it was removed in a subsequent model leaving the remaining variables. While only

Table 33

Correlations and Standardized Canonical Coefficients and Their Canonical Variates
in a Combined Model

Variable	First Variate		Second Variate	
	Correlation	Canonical coefficient	Correlation	Canonical coefficient
PREDICTORS:				
HSQ-Severity	-0.606	-0.931	-0.751	-0.641
Number of Stressors	0.036	0.760	-0.524	-0.507
Parent Depression	-0.507	-0.448	-0.110	0.312
SES	0.125	-0.208	-0.288	0.280
1.Val, LG	0.458	0.356	-0.634	-0.369
2. SE, OES, Sch	0.494	0.228	-0.166	-0.092
3. PGE, PGD	-0.211	0.438	0.109	0.089
4. PGE	0.000	-0.224	0.187	0.129
5. Implicit	0.037	0.644	-0.235	-0.361
OUTCOMES:				
Post-				
CBC-Externalizing	-0.394	0.271	-0.822	-0.019
CBC-Internalizing	-0.807	-1.127	-0.494	-0.277
Long-Term-				
CBC-Externalizing	-0.185	0.295	-0.884	-1.358
CBC-Internalizing	-0.500	0.077	-0.446	0.794
Parent Satisfaction				
TAI-1	0.110	-0.209	0.146	-0.005
TAI-2	0.591	0.531	-0.013	-0.144

$r = .950, p < .016$

Table 34

Canonical Analysis of Predictors and Outcome Variables in PMT

Variable	Standardized Canonical Coefficient					
	Traditional Model		Motivational Model		Combined Model	
	Root 1	Root 2	Root 1	Root 2	Root 1	Root 2
PREDICTORS:						
Traditional Predictors						
HSQ-Severity	0.995	-0.098	-----	-----	-0.931	-0.641
Number of Stressors	-0.254	-1.034	-----	-----	0.760	-0.507
Parent Depression	0.154	0.567	-----	-----	-0.448	0.312
SES	0.066	0.151	-----	-----	-0.208	0.280
Motivational Factors						
1.Val, LG	-----	-----	0.752	-0.255	0.356	-0.369
2. SE, OES, Sch	-----	-----	0.354	-0.247	0.228	-0.092
3. PGE, PGD	-----	-----	-0.047	-0.292	0.438	0.089
4. PGE	-----	-----	-0.238	-0.084	-0.224	0.129
5. Implicit	-----	-----	0.306	0.811	0.644	-0.361
OUTCOMES:						
Child Behaviour Changes						
Post-						
CBC-Externalizing	0.044	0.929	0.411	1.461	0.271	-0.019
CBC-Internalizing	0.984	0.021	-0.477	-1.077	-1.127	-0.277
Long-Term-						
CBC-Externalizing	0.620	-1.914	1.020	-0.825	0.295	-1.358
CBC-Internalizing	-0.662	0.827	-0.675	0.630	0.077	0.794
Parent Satisfaction						
TAI-1	0.457	0.609	0.246	1.057	-0.209	-0.005
TAI-2	-0.380	-0.219	0.418	-0.873	0.531	-0.144

1 Model One $\bar{r} = .816$, $p < .018$ 2 Model Two $\bar{r} = .795$, $p < .280$ 3 Combined Model $\bar{r} = .950$, $p < .016$

one of the canonical variates accounted for a significant relationship between the two sets of variables ($r = .942$, $p < .008$), the second, not significant variate ($r = .799$, $p < .382$), is also presented in Table 35. Highest loadings for the predictor set on the first variate include severity of child behavior, number of stressors, factor 5 and factor 3. All of the other variables (parent depression, factors 1, 2, and 4) also contribute to the equation with modest loadings. Highest loadings for the outcome set on the first variate include changes in child behavior on internalizing behavior problems, externalizing problems, and parent satisfaction with the program (Table 35). Highest loadings for the predictor set on the second variate include severity of child behavior, factor 5, number of stressors, factor 1, parent depression. Highest loadings for the outcome set on the second variate include long term externalizing and internalizing problems (Table 35).

Canonical variates from one set of variables are subject to change with any variations in the second set (Levine, 1984). Thus, it was decided to vary the nature of the second set. The variables in set 2 were changed by using child behavior change scores in lieu of the post and long term t-scores across scales (Tables 36 and 37). Neither of the first variates for the traditional model ($r = .684$, $p < .168$) or motivational model ($r = .782$, $p < .081$) was significant (Table 36). However, the first variate for the combined model was significant ($r = .908$, $p < .028$) (Table 38). The standardized coefficients indicate links worth identifying among the predictors and outcomes. Three of the traditional predictors (stress, severity of child behavior, and SES) and two of the motivational factors (1 and 5) are highly correlated with the first variate while one traditional (parent

Table 35

Correlations and Standardized Canonical Coefficients Between Traditional and Motivational Predictors and PMT Outcome Variables and Their Canonical Variates in a Combined Model without SES

Variable	First Variate		Second Variate	
	Correlation	Canonical coefficient	Correlation	Canonical coefficient
PREDICTORS:				
Traditional Predictors				
HSQ-Severity	-0.664	-0.985	0.695	0.561
Number of Stressors	-0.020	0.610	0.477	-0.243
Parent Depression	-0.523	-0.361	0.048	0.370
SES	----	----	----	----
Motivational Factors				
1.Val, LG	0.412	0.295	0.675	0.352
2. SE, OES, Sch	0.494	0.249	0.236	0.161
3. PGE, PGD	-0.223	0.453	-0.180	-0.056
4. PGE	0.012	-0.245	-0.194	-0.199
5. Implicit	0.050	0.583	0.321	0.379
OUTCOMES:				
Child Behaviour				
Post-				
CBC-Externalizing	-0.464	0.315	0.777	0.160
CBC-Internalizing	-0.854	-1.184	0.408	0.093
Long-Term-				
CBC-Externalizing	-0.256	0.178	0.863	1.343
CBC-Internalizing	-0.535	0.133	0.403	-0.793
Parent Satisfaction				
TAI-1	0.164	-0.134	-0.035	0.164
TAI-2	0.585	0.468	0.056	0.078

$r = .942$, $p < .008$

Table 36

Correlations, Standardized Canonical Coefficients and Their Canonical Variates in Traditional and Motivational Models

Variable	First Variate		Second Variate	
	Correlation	Canonical coefficient	Correlation	Canonical coefficient
<u>Traditional Model One</u>				
PREDICTORS:				
HSQ-Severity	-0.059	-0.410	0.464	0.652
Number of Stressors	0.871	1.172	0.313	0.077
Parent Depression	0.107	-0.077	-0.530	-0.728
SES	0.118	-0.315	0.688	0.418
OUTCOMES:				
Child Behaviour Changes				
Pre- Post Change Score				
CBC-Externalizing	-0.580	-0.498	0.152	0.920
CBC-Internalizing	-0.103	0.584	-0.184	-0.417
Pre- LongTerm Change Score				
CBC-Externalizing	-0.781	-0.589	-0.389	-0.550
CBC-Internalizing	-0.330	-0.122	-0.539	-0.880
Parent Satisfaction				
TAI-1	-0.437	-0.624	0.195	0.528
TAI-2	-0.006	0.267	0.035	-0.213
<u>Motivational Model Two</u>				
PREDICTORS:				
1.Val, LG	-0.724	-0.629	0.515	0.483
2. SE, OES, Sch	-0.370	-0.231	0.378	0.176
3. PGE, PGD	0.123	0.175	-0.357	-0.024
4. PGE	0.399	0.403	0.057	0.011
5. Implicit	0.506	0.547	0.825	0.818
OUTCOMES:				
Child Behaviour Changes				
Pre- Post Change Score				
CBC-Externalizing	0.561	0.663	0.449	0.484
CBC-Internalizing	0.016	-0.615	0.349	0.923
Pre- LongTerm Change Score				
CBC-Externalizing	0.669	0.377	0.093	0.135
CBC-Internalizing	0.207	0.153	-0.207	-1.417
Parent Satisfaction				
TAI-1	-0.073	0.254	0.327	0.398
TAI-2	-0.590	-0.633	0.267	0.093

Model One $r = .684$, $p < .168$

Model Two $r = .782$, $p < .081$

Table 37

Correlations, Standardized Canonical Coefficients and Their Canonical Variates in
a Combined Model

Variable	First Variate		Second Variate	
	Correlation	Canonical coefficient	Correlation	Canonical coefficient
PREDICTORS:				
HSQ-Severity	-0.237	-0.559	0.294	0.197
Number of Stressors	0.338	0.686	0.002	0.680
Parent Depression	-0.244	0.301	-0.361	-0.742
SES	0.076	-0.444	0.432	0.250
1.Val, LG	0.768	0.751	0.021	-0.505
2. SE, OES, Sch	0.395	0.099	0.239	0.292
3. PGE, PGD	-0.158	0.180	-0.216	0.393
4. PGE	-0.201	-0.271	-0.104	-0.343
5. Implicit	-0.129	0.361	0.603	0.920
OUTCOMES:				
Child Behaviour Changes				
Pre- Post Change Score				
CBC-Externalizing	-0.254	-0.307	0.253	1.181
CBC-Internalizing	0.143	0.977	-0.185	-0.537
Pre- LongTerm Change Score				
CBC-Externalizing	-0.274	-0.210	-0.259	-0.559
CBC-Internalizing	-0.476	-0.675	-0.452	-0.867
Parent Satisfaction				
TAI-1	0.021	-0.415	0.090	0.532
TAI-2	0.636	0.795	-0.081	-0.217

$r = .908, p < .028$

Table 38

Canonical Analysis of Predictors and Outcome Variables in PMT

Variable	Standardized Canonical Coefficient					
	Traditional Model		Motivational Model		Combined Model	
	Root 1	Root 2	Root 1	Root 2	Root 1	Root 2
PREDICTORS:						
Traditional Predictors						
HSQ-Severity	-0.410	0.652	-----	-----	-0.559	0.197
Number of Stressors	1.172	0.077	-----	-----	0.686	0.680
Parent Depression	-0.077	-0.728	-----	-----	0.301	-0.742
SES	-0.315	0.418	-----	-----	-0.444	0.250
Motivational Factors						
1.Val, LG	-----	-----	-0.629	0.483	0.751	-0.505
2. SE, OES, Sch	-----	-----	-0.231	0.176	0.099	0.292
3. PGE, PGD	-----	-----	0.175	-0.024	0.180	0.393
4. PGE	-----	-----	0.403	0.011	-0.271	-0.343
5. Implicit	-----	-----	0.547	0.818	0.361	0.920
OUTCOMES:						
Child Behaviour Changes						
Pre- minus Post-						
CBC-Externalizing	-0.498	0.920	0.663	0.484	-0.307	1.181
CBC-Internalizing	0.584	-0.417	-0.615	0.923	0.977	-0.537
Pre- minus Long-Term-						
CBC-Externalizing	-0.589	-0.550	0.377	0.135	-0.210	-0.559
CBC-Internalizing	-0.122	-0.880	0.153	-1.417	-0.675	-0.867
Parent Satisfaction						
TAI-1	-0.624	0.528	0.254	0.398	-0.415	0.532
TAI-2	0.267	-0.213	-0.633	0.093	0.795	-0.217

1 Model One $r = .684$, $p < .168$ 2 Model Two $r = .782$, $p < .081$ 3 Combined Model $r = .908$, $p < .028$

depression) and motivational predictor (factor 4) are moderately correlated.

Within the second set, both internalized behavior change scores (post and long term-) as well as both parent satisfaction factors are highly correlated with the first variate. Thus, in comparing the three models only the combined model yielded a significant canonical variate (Table 38).

The results of the second analysis support Hypothesis 2c that a combination of traditionally examined and motivational predictors would be most predictive of outcomes in PMT but do not provide support for Hypotheses 2a and 2b that models of traditional predictors and motivational predictors, respectively, would predict outcomes.

Analysis III: Classifying According to Drop Out

To test the hypothesis that PMT predictors would predict parent engagement, the third analysis (discriminant function analysis) described a linear combination of the predictor variables that best separated groups according to point of drop, i.e., at orientation (pre-PMT), mid-way through the PMT program (pari-PMT), or after long term follow up (completers).

Table 39 contains group means and standard deviations for traditional predictors and motivational predictors. Note that the orientation drop out group had higher mean scores on number of stressors, parent depression, and Hollingshead SES than the other two groups. Also note that higher Hollingshead Index scores actually reflect lower SES. The proportion of single parent families was also higher for the orientation drop out group, next highest for the midway drop out group, and lowest for the completer group. The proportion of low income

Table 39

Means and Standard Deviations of Predictor Variables as a Function of PMT Drop Out Point

Predictor Variable	Point of Drop Outs					
	Pre-PMT		Pari-PMT		Completers	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
<u>Traditional Predictors</u>						
HSQ-Severity	4.49	1.58	4.56	2.24	4.55	2.21
Number of Stressors	4.44	2.10	3.32	2.29	2.77	2.28
Parent Depression	16.06	12.15	13.50	10.10	11.34	10.41
SES	51.69	15.23	45.00	13.37	43.49	14.94
Single Parent Family	0.50	0.52	0.38	0.52	0.29	0.46
Low Income Cutoff	0.38	0.50	0.88	0.35	0.74	0.44
<u>Motivational Predictors</u>						
1.Val, LG	0.18	1.09	0.52	0.86	0.40	0.70
2. SE, OES, Sch	-0.28	1.05	-0.74	0.98	-0.67	0.93
3. PGE, PGD	-0.05	1.22	-0.45	1.01	-0.63	1.00
4. PGE	0.09	1.35	0.17	1.10	-0.22	0.89
5. Implicit	-0.03	1.18	-0.07	0.67	0.22	1.31

Note 1. Single Parent Family is coded 0 for no (married, step-parent, common-law, etc.) and 1 for yes (single) and Low Income Cutoff is coded 0 for low and 1 for high.

Thus, the mean of these variables is the proportion of cases with a value of 1.

Note 2. Motivational predictors are standardized factor scores, z-scores with a mean of 0 and standard deviation of 1.

was highest for orientation drop outs and next highest for completers. The midpoint drop out group had the lowest proportion of low income among the three groups. Among the three groups, the completer group had the lowest performance goal and the highest implicit theorist mean scores; the pari- drop out group had the lowest self efficacy/optimistic explanatory style/schematicity, lowest implicit theorist, highest value and learning, and highest self enhancing performance goal mean scores; and, the orientation drop out group had the lowest value/learning goal, highest self efficacy/optimistic explanatory style/schematicity, and highest self defeating performance goal mean scores.

Traditional Model

The measure of the degree of association between the traditional discriminant scores and the drop out groups was not significant for either the first function ($p < .125$) or the second function ($p < .676$). Correlations between the values of the functions and values of the variables indicated that low income cutoff had the highest correlation with the discriminant function (.769), number of stressors had the second largest correlation (.544), and single parent family had the third largest (-.360) in absolute value (Table 40). The latter's negative value indicates that small function values are associated with the presence of single parent families and high values are associated with non-single parent households. These results are similar to those obtained by the standardized coefficients (Tables 41 & 42).

The discriminant function for the traditional model correctly classified 64.4% of the originally grouped cases (Table 43). Of 35 parents who completed

Table 40

Predictor Variables in Discriminant Function Analysis by Traditional, Motivational, and Combined Models

Predictor Variables	Wilks's Lambda	Equivalent F(df)	Significance
<u>Traditional Predictors</u>			
HSQ-Severity	1.000	0.005	0.995
Number of Stressors	0.898	3.166	0.050 *
Parent Depression	0.964	1.061	0.353
Low Income Cutoff	0.856	4.727	0.013 *
Single Parent Family	0.962	1.092	0.343
<u>Motivational Predictors</u>			
1.Val, LG	0.981	0.489	0.616
2. SE, OES, Sch	0.966	0.900	0.413
3. PGE, PGD	0.980	0.525	0.595
4. PGE	0.975	0.655	0.524
5. Implicit	0.988	0.304	0.739
<u>Combined Model</u>			
HSQ-Severity	0.989	0.262	0.771
Number of Stressors	0.924	1.972	0.150
Parent Depression	0.937	1.162	0.209
Low Income Cutoff	0.914	2.249	0.116
Single Parent Family	0.963	0.913	0.408
1.Val, LG	0.972	0.700	0.502
2. SE, OES, Sch	0.973	0.666	0.518
3. PGE, PGD	0.979	0.520	0.598
4. PGE	0.957	1.083	0.347
5. Implicit	0.993	0.158	0.854

Note. Degrees of freedom for Traditional Model, Motivational Model, and Combined Model are F(2, 56), F (2, 51), and F (2, 48), respectively.

* p < .05

Table 41

Correlation of Predictor Variables with Discriminant Functions (Function Structure Matrix)
and Standardized Discriminant Function Coefficients

Predictor Variable	Correlation with discriminant function		Standardized discriminant function coefficients	
	Function 1	Function 2	Function 1	Function 2
<u>Traditional Predictors</u>				
HSQ-Severity	0.026	0.008	0.518	-0.063
Number of Stressors	-0.610	0.544	-0.451	0.617
Parent Depression	-0.345	0.364	-0.393	0.296
Low Income Cutoff	0.769	0.470	0.778	0.860
Single Parent Family	-0.360	0.305	0.062	0.503
<u>Motivational Predictors</u>				
1.Val, LG	-0.436	0.234	-0.493	0.271
2. SE, OES, Sch	0.612	-0.107	0.690	-0.275
3. PGE, PGD	0.464	-0.135	0.514	-0.254
4. PGE	0.344	0.759	0.118	0.857
5. Implicit	-0.245	-0.499	-0.340	-0.446
<u>Combined Predictors</u>				
HSQ-Severity	-0.055	-0.300	-0.345	-0.320
Number of Stressors	0.486	0.250	0.531	0.570
Parent Depression	0.451	-0.148	0.499	-0.172
Low Income Cutoff	-0.481	0.423	-0.316	0.553
Single Parent Family	0.345	-0.028	0.145	0.133
1.Val, LG	-0.277	0.205	-0.543	0.230
2. SE, OES, Sch	0.264	-0.223	0.204	-0.352
3. PGE, PGD	0.245	-0.151	0.119	0.005
4. PGE	0.217	0.522	0.267	0.795
5. Implicit	-0.082	-0.201	-0.050	0.171

Table 42

Correlations Between Discriminating Variables and Discriminant Functions
(Function Structure Matrix)

Variable	Function 1	Function 2
<u>Traditional Predictors</u>		
HSQ-Severity	0.026 *	0.008
Number of Stressors	-0.610 *	0.544
Parent Depression	-0.345	0.364 *
Low Income Cutoff	0.769 *	0.470
Single Parent Family	-0.360 *	0.305
<u>Motivational Factors</u>		
1.Val, LG	-0.436 *	0.234
2. SE, OES, Sch	0.612 *	-0.107
3. PGE, PGD	0.464 *	-0.135
4. PGE	0.344	0.759 *
5. Implicit	-0.245	-0.499 *
<u>Combined Model</u>		
HSQ-Severity	-0.055	-0.300 *
Number of Stressors	0.486 *	0.250
Parent Depression	0.451 *	-0.148
SES	-0.481 *	0.423
Single Parent Family	0.345 *	-0.028
1.Val, LG	-0.277 *	0.205
2. SE, OES, Sch	0.264 *	-0.223
3. PGE, PGD	0.245 *	-0.151
4. PGE	0.217	0.522 *
5. Implicit	-0.082	-0.201 *

* largest absolute correlation between each variable and any discriminant function

Table 43

Classification Analysis for Drop Out Using Traditional Predictors Only

Actual group membership	n	Predicted Group Membership					
		Orientation		Pari-PMT		Completer	
		n	%	n	%	n	%
Orientation Drop out	16	7	43.8	0	0	9	56.3
Pari-PMT Drop out	8	1	12.5	0	0	7	87.5
Completer	35	4	11.4	0	0	31	88.6

Note. Overall percentage of correctly classified cases = 64.4 % .

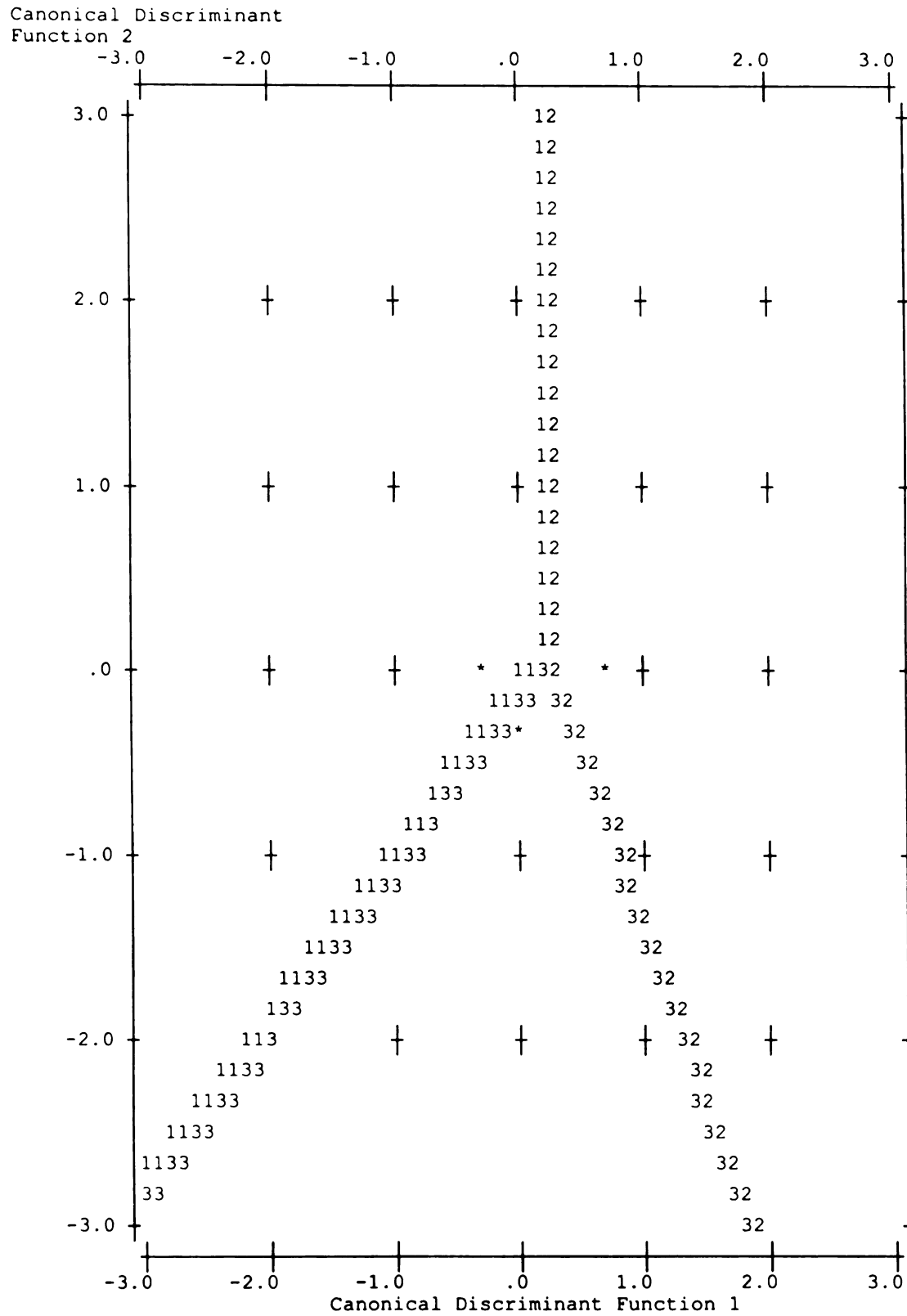
the program, 31 were predicted correctly to be members of the completer group (88.6 %), while 4 were assigned incorrectly to the orientation drop out group (11.4 %). Seven (43.8 %) of the parents who dropped out at orientation were classified correctly while 4 (11.4 %) were misclassified as completing the program and 1 (12.5 %) was misclassified as dropping out midway through the program. Even worse, 0 (0%) of parents who dropped out mid-way through PMT were correctly classified while 1 (12.5 %) was misclassified as dropping out at orientation, and 7 (87.5 %) were misclassified as completing the program. From Figure 9, we can see the boundaries which mark off the combination of function values that result in the classification of the cases into two of the three groups, i.e., there are no boundaries for the pari-PMT drop out group.

To put these results into decision-making language, the use of the TEP model to predict PMT drop out outcomes would result in 6.8% false positives, 27.1 % false negatives, and 66.1 % true/correct.

Severity of child behavior and parent depression had the highest correlation coefficient ($r = .424$); and, low income cutoff and single parent family have the next highest correlation ($r = -.416$). Interdependencies among the variables appear to be minimal; thus, an interdependency effect on this multivariate analysis was minimal.

Motivational Model

The measure of the degree of association between the motivational discriminant scores and the drop out groups was also not significant for either the first function ($p < .292$) or the second function ($p < .157$). Correlations between



the values of the functions and values of the variables indicated that factor 2 had the highest correlation with the discriminant function (.612), factor 3 had the second largest correlation (.464), and factor 1 the third largest (-.436) in absolute value (Table 41). The latter's negative value indicates that small function values are associated with the presence of higher value and learning goals and larger values are associated with the absence of value and learning goals. These results are also similar to those obtained by the standardized coefficients (Table 42).

The discriminant function for the motivational model correctly classified 64.8% of the originally grouped cases (Table 44). Of 33 parents who completed the program, 31 were predicted correctly to be members of the completer group (93.9%), while 2 were assigned incorrectly to the orientation drop out group (6.1 %). Four (26.7%) of the parents who dropped out at orientation were classified correctly while 11 (73.3 %) were misclassified. Again, 0 (0%) of the parents who dropped out mid-way through PMT were correctly classified while 1 (16.7 %) was misclassified as dropping out at orientation, and 5 (83.3%) were misclassified as completing the program. The numbered boundaries mark off the combination of function values that result in the classification of parents into the three groups (Figure 10).

To put these results into decision-making language, the use of the motivational model to predict PMT drop out outcomes would result in 3.7% false positives, 29.6 % false negatives, and 66.7 % true.

Table 44

Classification Analysis for Drop Out Using Motivational Predictors Only

Actual group membership	Predicted Group Membership					
	Orientation			Pari-PMT		
	n	%		n	%	Completer
Orientation Drop out	15	4	26.7	0	0	11 73.3
Pari-PMT Drop out	6	1	16.7	0	0	5 83.3
Completer	33	2	6.1	0	0	31 93.9

Note. Overall percentage of correctly classified cases = 64.8 % .

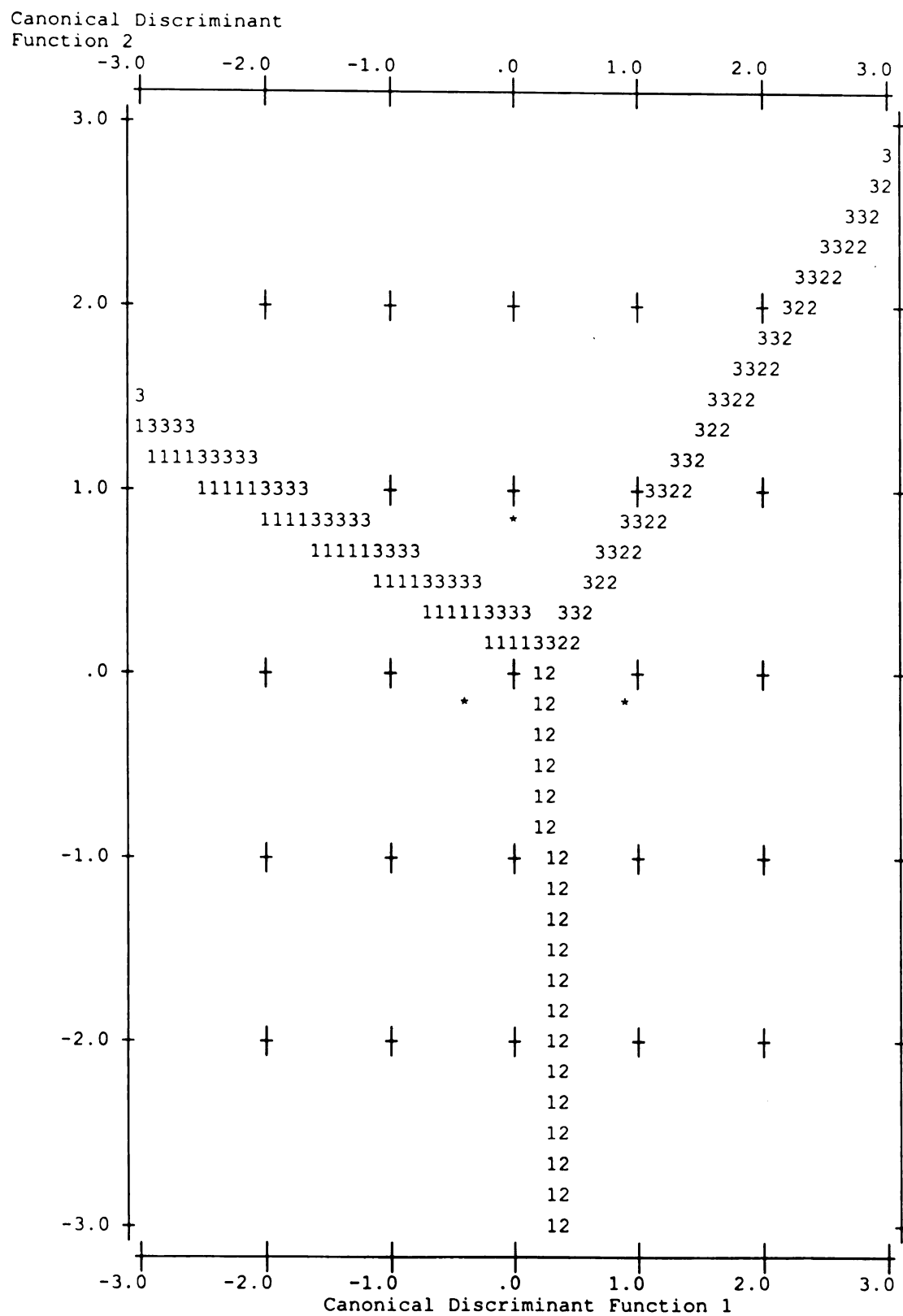


Figure 10 – Territorial Map with Motivational Model

Since factor 2 and 4 have the largest correlation coefficient (.169) interdependencies among the variables appear to be minimal; thus, an interdependency affect on this multivariate analysis was minimal. However in the motivational model, Box's M F test indicated significant results ($p < .003$), causing us to reject the null hypothesis of equal population covariance matrices and conclude that one of the assumptions of discriminant analysis was violated.

Combined Model

The measure of the degree of association between the discriminant scores and the drop out groups was also not significant for the combined model. The significance level for the first function was .678, indicating that it did not contribute substantially to group differences. Correlations between the values of the functions and values of the variables indicated that number of stressors had the highest correlation with the discriminant function (-.543), low income cutoff had the second largest correlation (-.481), and parent depression had the third largest (.451) (Table 42). These results are also similar to those obtained by the standardized coefficients (Table 41).

The discriminant function for the combined model correctly classified 62.7 % of the originally grouped cases (Table 45). Of 31 parents who completed the program, 27 were predicted correctly to be members of the completer group (77.4 %), while 3 were assigned incorrectly to the orientation drop out group (6.1 %) and 1 to the pari-PMT group (6.5 %). Five (28.6 %) of the parents who dropped out at orientation were classified correctly while 9 (64.3 %) were misclassified. Once more, 0 (0%) of parents who dropped out mid-way through

Table 45

Classification Analysis for Drop Out Using Both Traditional and Motivational Predictors in a Combined Model

Actual group membership	Predicted Group Membership					
	Orientation			Pari-PMT		
	n	%		n	%	
Orientation Drop out	14	35.7	5	0	0	9 64.3
Pari-PMT Drop out	6	16.7	1	0	0	5 83.3
Completer	31	9.7	3	1	3.2	27 87.1

Note. Overall percentage of correctly classified cases = 62.7 % .

PMT were correctly classified while 1 (28.6 %) was misclassified as dropping out at orientation, and 5 (83.3 %) were misclassified as completing the program. From Figure 11, we can see the numbered boundaries which mark off the combination of function values that result in the classification of parents into the three groups.

To put these results into decision-making language, the use of the combined model to predict PMT drop out outcomes would result in 7.8 % false positives, 27.5 % false negatives, and 64.7 % true.

Factor 3 and parent depression had the largest correlation coefficient, .325, factor 5 and single parent families had the next largest, .304, and then factor 3 and severity of child behavior, .276. Since these correlations were not particularly large, interdependencies among the variables appeared to be minimal once more; thus, an interdependency affect on this multivariate analysis was also minimal. However, Box's Test of Equality of Covariance Matrices indicated significant results ($p < .001$), causing us to reject the null hypothesis of equal population covariance matrices and conclude that one of the assumptions of discriminant analysis was violated.

The results of the third analysis do not support the hypothesis that the traditionally examined predictors, the motivational predictors, and a combination of both would predict parent engagement in PMT.

Analysis IV: Individual Motivational Resources

The fourth analysis (logistic regression) tested the hypothesis that the motivational aspect subscales would be useful in predicting parent drop out or



completion of the PMT program (See Appendix D for Rationale for Using Subscales). Table 46 provides regression coefficients and significance levels for the variables in the model. Variables with positive root values indicate that as the variable values increase, the likelihood of parents completing the program increases. For example, as self efficacy increases ($p < .0491$), the likelihood of parents completing the program increases and as pessimistic explanatory style ($p < .0010$) increases, the likelihood of parents completing the program decreases. Variables with small root values indicate the variable has a small partial contribution. For example, the low root values for optimistic explanatory style, learning goals, both performance goals, and schematicity indicate that these motivational aspects have a small partial contribution. Interaction effects indicate that the interaction between pessimistic explanatory style and value is significant ($p < .0007$).

Comparing predictions to the observed outcomes, 33 parents who completed the program were correctly predicted by the model not to dropout. Similarly, 19 parents who dropped out were correctly predicted to prematurely terminate. A total of 11 parents were incorrectly classified, 4 as drop outs and 7 as completers. Of the parents who did not drop out, i.e., completed the program, 89.19% were correctly classified. Of the parents who dropped out, 73.08 % were correctly classified. Overall, 82.54% of parents were correctly classified by the model.

The results of the fourth analysis support the hypothesis that a combination of select individual motivational resources predict parent

Table 46

Logistic Regression Predicting PMT Drop Out (n=64)

Variable	Beta	SE	Odds Ratio	Wald Statistic	Sig.
Self Efficacy	0.341	0.173	0.148	3.872	0.049 *
Optimistic Explanatory Style (OES)	1.385	1.144	0.000	1.465	0.226
Pessimistic Explanatory Style (PES)	-10.784	3.277	-0.322	10.832	0.001 ***
Learning Goal	-0.144	0.142	0.000	1.037	0.309
Performance Goal -- self defeating	0.129	0.134	0.000	0.928	0.335
Performance Goal -- self enhancing	0.179	0.130	0.000	1.901	0.168
Implicit Theory	-0.324	0.173	-0.133	3.518	0.061
Schematicity	-0.139	0.260	0.000	0.287	0.592
Value	-0.633	0.322	-0.148	3.865	0.049 *
OES * Value	-0.035	0.025	0.000	1.891	0.169
PES * Value	0.268	0.079	0.332	11.891	0.001 ***

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

engagement, i.e., drop out. Furthermore, the results also support the hypothesis that an interaction between pessimistic explanatory style and value predicts parent drop out from PMT and thus, provides support for the *expectancy X value* model of motivation.

Analysis V: Univariate Examination of Discrete Variables

The fifth analysis tested the hypothesis that two discrete motivational aspects (implicit theorist orientation and schematicity) as well as select demographic variables would be associated with drop out. This chi-square analysis identified isolated associations among predictors and the drop out outcomes. Approaching significant associations were found between point of drop out in parent training and 1) low income cutoffs (Chi-square = 8.188, df = 2, $p < .017$) and 2) early developmental milestones (Chi-square = 10.077, df = 4, $p < .039$) (Tables 47 and 48). Using a Bonferroni adjustment ($p < .004$), however, indicates that these associations are not significant. All other chi-square analyses also revealed insignificant results (Table 49).

The results of the fifth analysis do not support the hypothesis that parent implicit theorist orientation predicts parent drop out. The results also do not support the hypothesis that parents schematicity predicts drop out. However, the results do support the hypothesis that select demographic variables may be associated with drop out.

Table 47

Prevalence (%) of Statistics Canada Income Cutoffs within Points of Drop Out

Cutoff	Point of Drop Out			Chi-Square	p
	No (n = 37)	Pre- (n = 18)	Pari- (n = 9)		
Low	29.7	66.7	22.2	8.188	0.017
High	70.3	33.3	77.8		

* p < .004 (with Bonferroni adjustment)

Table 48

Prevalence (%) of Early Developmental Milestones within Points of Drop Out

Cutoff	Point of Drop Out			Chi-Square	p
	No (n = 37)	Pre- (n = 18)	Pari- (n = 9)		
within normal limits	89.2	77.8	50.0	10.077	0.039
late	8.1	11.1	50.0		
early	2.7	11.1	0.0		

* p < .004 (with Bonferroni adjustment)

Table 49

Chi-Square Analyses of Participant Characteristics within Points of Drop Out

Characteristics	Chi-Square	df	p
Parent Education	7.088	8	0.527
Parent Ethnicity	4.348	2	0.114
Current Annual Income	29.976	20	0.070
Social Class (Hollingshead)	7.641	8	0.469
Child Medication Usage	7.901	4	0.095
Single Parent Household	1.697	2	0.428
Child Diagnosis	14.768	10	0.141
Previous Treatments	3.245	8	0.918
Schematic/Aschematic	2.839	2	0.242
Incremental/Implicit Theorist	0.307	2	0.858

* $p < .004$ (with Bonferroni adjustment)

Analysis VI: Changes in Parent Motivational Schema

To test the hypothesis that parents in the treatment group would show change in motivational resources while parents in the control group would not show change as a result of participating in PMT, a series of t-tests were conducted (Tables 50 & 51). Parents in the treatment group demonstrated significant change from pre- to post- PMSS administration on the self efficacy and approaching significance on the schematicity subscales (Table 50). Parents in the control group demonstrated no significant differences on the pre- and post- subscales. Parents in the treatment group demonstrated significant change from pre- to post- PMSS administration on the factor scales (Table 51). The results support the hypothesis that treatment group participants would show change on motivational resources but only on select motivational resources (self efficacy and possibly, schematicity). The results support the hypothesis that the control group would show no change.

Table 50

Mean Motivational Scores and T-test for Pre- and Post- Subscales by Treatment (n=37) and Control Group (n=29)

PMSS Subscale	Subscale Score				Pair-wise T-Test	Signif.
	Pre-		Post-			
	Mean	(Sd)	Mean	(Sd)		
<u>Treatment</u>						
SE	19.340	(2.45)	20.530	(2.53)	-3.282	0.003 *
OES	11.560	(2.37)	11.910	(2.90)	-0.809	0.425
PES	3.310	(1.35)	3.340	(1.00)	-0.120	0.905
LG	22.270	(3.29)	22.310	(3.62)	-0.068	0.947
PGD	10.890	(3.44)	11.030	(6.38)	-0.132	0.896
PGE	9.380	(2.95)	8.970	(3.11)	1.132	0.266
IMP	5.250	(2.17)	4.840	(1.92)	0.871	0.390
SCH	5.220	(1.52)	5.970	(1.45)	-3.000	0.005 *
VAL	42.280	(5.15)	41.310	(6.55)	0.935	0.357
<u>Control</u>						
SE	18.850	(2.34)	19.150	(2.82)	-0.433	0.673
OES	11.310	(2.36)	11.460	(2.22)	-0.237	0.817
PES	2.690	(0.85)	2.460	(0.66)	1.389	0.190
LG	19.230	(3.94)	19.150	(2.54)	0.078	0.939
PGD	11.230	(3.54)	10.150	(5.24)	0.735	0.476
PGE	8.380	(1.89)	8.310	(2.93)	0.114	0.911
IMP	5.620	(2.10)	5.770	(2.59)	-0.213	0.835
SCH	6.380	(1.71)	5.310	(1.93)	2.344	0.037
VAL	33.150	(9.51)	32.540	(10.78)	0.273	0.789

*significance criteria of .0056 (with Bonferroni adjustment)

Table 51

Mean Motivational Scores and T-test for Pre- and Post- Factors by Treatment (n=37) and Control Group (n=29)

PMSS Factor	Subscale Score				Pair-wise T-Test	Signif.
	Pre-		Post-			
	Mean	(Sd)	Mean	(Sd)		
<u>Treatment</u>						
LV	58.28	(4.71)	58.03	(4.47)	-4.669	0.869
IMC	23.56	(7.57)	26.78	(8.66)	0.166	0.000 *
PGD	11.31	(3.34)	11.61	(5.98)	-0.356	0.724
PGE	5.51	(2.33)	5.05	(2.36)	1.536	0.133
IT	5.41	(2.31)	4.81	(1.88)	1.410	0.167
<u>Control</u>						
LV	47.08	(12.22)	46.00	(12.40)	0.399	0.697
IMC	25.07	(4.65)	24.71	(5.85)	0.324	0.751
PGD	11.23	(3.90)	11.46	(6.06)	-0.170	0.868
PGE	5.43	(2.24)	4.93	(2.76)	1.202	0.251
IT	5.43	(2.14)	5.57	(2.59)	-0.213	0.834

significance criteria of .01 (with Bonferroni adjustment)

Chapter 5

DISCUSSION

Summary of Results

The study findings support several of the overall hypothesis and do not support several others. Table 52 provides a summary of these findings. A post-hoc analysis reveals that power is low for the current study. As a result, low power may be a partial explanation for the nonsignificant results (see Appendix F for Power Analysis Summary).

Hypothesis 1: Treatment Effects

The study findings do not formally support the hypothesis that treatment group participants will report improvements in child behavior in comparison to control group participants in PMT. However, the results did identify a significant main effect for the CBCL behavior scale and for the interaction between scale and group. Thus, it was established that ratings for each of the CBCL scales depend on the group variable.

Several explanations are consistent with the lack of significant results in treatment effects. Only about half of the parents who complete PMT programs, report a significant change in child behavior (Johnston, 1996). While parent management sessions typically produce changes in child behavior as rated by parents, changes do not bring children within normal limits and are considerably weaker than changes produced from medication (Hinshaw et al., 1998). PMT in combination with social skills training did not find any significant difference

Table 52

Summary of Specific Hypotheses (abbreviated), Analyses, and Decisions with Predictors

Hypothesis	Abbreviated Description	Analysis	Decision	Significant/Notable Predictors
I	Treatment effects: Treatment versus control parents	2*3*3 Factorial Anova	not supported	not applicable
II	Continuous outcome variables will be predicted by continuous predictors			
	a. TEP predict child behavior change and parent satisfaction	canonical correlation	supported	severity of behavior number of stressors
	b. Motivation schema predict child behavior and parent satisfaction	canonical correlation	not supported	none
	c. combination of both types of predictors predict child behavior and parent satisfaction	canonical correlation	supported	number of stressors severity of behavior IT PGD LV

Table 52 Cont'd

III	Discrete outcome variable (drop out) will be predicted by continuous predictors				
	a. TEP predict drop out	discriminant function	not supported	none	
	b. Motivation schema predict parent drop out	discriminant function	not supported	none	
	c. combination of both types of predictors predict drop out	discriminant function	not supported	none	
IV	Individual motivational resources predict drop out	logistic regression	supported	SE PES PES * Val	
V	Parents' theoretical orientations are associated with drop out	chi-square	not supported	not applicable	
VI	Parents who participate in PMT experience a change in motivational resources	pair-wise t-test	partially supported	SE Sch	

between parents who received training and those who did not (Finch, 1998). It was also noted that social skills training alone did not produce any significant differences between treatment and control groups (Finch, 1998). These results are surprising given the well established efficacy of PMT programs (Kazdin, 1997; Kazdin & Weisz, 1998).

PMT programs which run less than 8 weeks are generally less successful (Barkley, 1997). The current PMT may have been too short and, thus, provided limited availability and time for the parents to implement and practice the strategies and techniques discussed. In fact, the better change scores from pre- and long term CBCL scales for the treatment group, support this latter interpretation. It is also possible that parents who are high on self efficacy are likely to show better child behavior change outcomes regardless of group. Parents who are more disadvantaged on traditionally examined predictors are likely to show worse child behavior change outcomes regardless of group.

The significant scale main effect and scale by group interaction are also consistent with several explanations. The increased internalizing problem scale results among control group participants is a summary of both pre- and post-measures. It is possible that the control group experienced increased anxiety regarding the treatment over the wait time and that this increase in worry, frustration, and/or anticipation is translated to the parents' perceptions of child behavior. Parental internal states may have influenced ratings of their children. Furthermore, the high incidence of comorbidity among anxiety and ADHD and other disruptive behavior disorders (Stahl & Clarizio, 1999) is consistent with

these findings. This result may suggest that parents and children with disruptive behavior disorders may be at risk for further developing internalizing problems if left untreated. Comorbidity involving both internalizing and externalizing problems may partially explain why good outcome measures were not achieved as well as have implications for future choice of treatment (Stahl & Clarizio, 1999).

Finally, a selection bias may have been in effect in group assignment due to the small sample size and provides an alternate explanation for this difference. Parent participants in one particular group spent considerable energy and resources discussing outside factors, especially school climate, principal philosophies, and teacher practices inside the classroom and during recess. These parents firmly believed that these factors were strongly influencing their children's behavior and impacting on the efficacy of implementing new parenting skills. While acknowledging the importance of context, these comments also revealed perceptions consistent with several motivational aspects including self efficacy, pessimistic explanatory style, and incremental theories.

The high drop out rate in the current study, discussed below, may also provide a partial explanation for the differences between treatment and control groups on scale. It may be that certain participants who dropped out of the treatment group may have differed from those who stayed on some very important dimensions/characteristics.

The control group's increases in behavior problems from pre- to post-measures are diametrically contrary to the literature which consistently demonstrates drops in behavior problem rating scores as a direct result of

retesting. In school psychology intervention research involving rating forms, participants have been observed to indicate lower ratings on a second measure (Barkley, 1997). This increase is also contrary to regression towards the mean as a result of retesting.

The present results may have differed from previous research because of possible differences in wait periods for Canadian and United States clinic populations. Many of the participants from both the treatment and wait list control groups had been on an extensively long wait list due to the universal access to health care in Canada. The control group participants may have had their hopes raised due to finally being seen but then experienced increased anxieties once placed on another wait list, as noted above.

Hypotheses II, III, and IV (All Predictors and Outcomes)

Three comparisons of models (traditional, motivational, and combined predictors) were conducted for several multivariate statistical procedures. The combined models in the canonical analysis predicted significance after controlling for the traditional and motivational models, respectively, suggesting that it may be possible to make a difference in PMT outcomes by considering and eventually manipulating the more dynamic motivational predictors.

The results of the canonical correlation supports the hypothesis about the relationship between the two sets of variables for a sample of parents participating in a parent management training program. One set of variables measured traditionally examined predictors and motivational predictors and the

other set measured outcomes of PMT. The traditional predictors with the largest impact included severity of child behavior, parent depression, and number of psychosocial stressors. The motivational predictors included the five new motivational factors (LV, IMC, PGE, and IT). The outcome variables included child behavior change and parent satisfaction measures. While the results determined that motivational predictors alone were not significantly related to outcomes, weights assigned to coefficients suggest that certain predictors have more impact and loadings than other predictors on outcomes of PMT for a sample of parents at an outpatient health care organization.

Brestan et al. (1999) found that parent expression of satisfaction may be more closely linked to symptom changes during treatment than to the levels of child behavior problems after treatment as measured by absolute scales. These findings are consistent with the stronger relations in the models utilizing behavior change scores. Furthermore, correlations between parent satisfaction and behavior problem severity were not significant in previous research studies (Brestan et al., 1999).

The results of the discriminant analyses suggest that parents who are at high risk for dropping out of PMT cannot be identified early using the predictors in the current study. The discriminant function analysis failed to significantly classify group membership in the traditional predictor model, motivational predictor model, or combined model. However, classification percentages across traditional, motivational, and combined models suggested good rates for predicting completers, (88.6%, 93.9%, and 87.1%, respectively), and adequate

rates for predicting orientation drop outs (56.3%, 73.3%, and 64.3%, respectively). It is predicting this latter group and identifying most cases of the smaller group which holds the most value. For example, by identifying everyone to be completers of a PMT program, the error rate will be very small, since fewer people actually drop out. However, the results are less valuable, since the goal is to identify the drop out parents. The intent of the discriminant analysis was to identify parents to receive special, extended treatment prior to PMT.

Drop out rates are reportedly high in PMT, with estimates ranging from 25 per cent, 40-60 per cent, and 46.86 per cent, respectively (Johnston, 1996; Kazdin, et al., 1997; Wierzbicki & Pekarik, 1993). Some of the reasons for attrition and drop out have included subject geographical re-location and reduction in motivation (Peterson & Bell-Dolan, 1995) and identified social emotional disorders as at high risk (Forness & Hoagwood, 1993). Attempts at preventing drop outs through management of the more static variables included minimal payments, accommodating parent shift-work, and establishing special pretreatment techniques to establish a relationship between experimenter and participants at orientation (Peterson & Bell-Dolan, 1995). Similar attempts to prevent drop outs in the current study were not particularly successful given the high drop out rate (42%). It is possible that the high drop out rates demonstrate the need for additional treatment.

Attrition refers to important differences among participants who drop out of one group, participants who drop out of other groups, and/or participants who remain in the study (AATBS, 1995). This attrition is especially problematic in

longitudinal research studies in which the final sample is not comparable to the initial sample because of characteristics of the participants who dropped out (AATBS, 1995). Furthermore, attrition increases the probability of making a Type II error (in which no differences are found when differences exist) due to loss of power (Black & Holden, 1995).

While it was hoped that the discriminant analysis would aid in the prediction of drop outs and it did not, the results do not preclude the use of motivational strategies and techniques to prevent premature termination. Mean scores suggest lower levels of value and learning goals and higher levels of performance goals among drop out participants. Special treatment and care continues to need to be administered and can be tailored to target these motivational aspects with these parents to encourage completion of the program.

The results of the logistic regression analysis support the hypothesis that original motivational aspects predict drop out among parents involved in PMT. Self efficacy, value, and pessimistic explanatory style appeared to have the most contribution to the model. The significant interaction between pessimistic explanatory style and value also supports the hypothesis of an expectancy times value effect.

Hypothesis V (Individual Predictors)

The results of the univariate analysis (chi-square) support the hypothesis that one traditional predictor (SES) was associated with drop out of PMT but the two other motivational predictors measured (schematicity and implicit theories) were not. The fact that SES failed to be clearly associated with outcomes in

many of the other multivariate analyses suggests that SES as a predictor is not as important within the context of other factors. It is also possible that the effects of SES were masked due to associations with other variables. Finally, previous studies have noted that SES is associated with type of PMT program preferred, i.e., low SES parents prefer more behaviorally orientated programs such as *Barkley's Defiant Children* (Wood & Baker, 1999).

Hypothesis VI (Changes in Motivational Aspects due to Participation)

Some of the motivational mediators may have been implicitly influenced by the nature of the parent training program, itself. Similar to behavioral parent training interventions (Tucker et al., 1998), it is possible that the PMT intervention in the current study increased parenting self-efficacy through the following sources of information: a) mastery attainment as parents practiced newly learned skills using standard homework assignments; b) vicarious learning experiences through observing other parents and listening to group discussions; c) verbal reinforcement from other parents and the therapist. These sources of information appear to be important, inherent components of the PMT intervention and may have lead to changes in parent motivational resources. For example, the PMT program was conducted with a group of similar parents. These parents may have provided coping models in the role plays and other activities, and thus functioned as effective strategies for increasing self efficacy beliefs. The informative nature of PMT also implicitly enhances self efficacy. This provides a strong argument for including strategies which explicitly address motivating mediators. These motivational enhancing strategies can be easily included in PMT programs.

The argument that the nature of PMT itself predisposes parents to a pessimistic explanatory style can be easily countered. Granted, once their child is diagnosed / labeled with a disorder, an entire gamut of motivational resources come into play. Many programs explicitly educate parents that ADHD is neurodevelopmental and therefore sets the parent up for an internal, stable, uncontrollable explanatory style which is pessimistic but possibly, realistic. However, the behavioral manifestations of ADHD relate to similar causal dimensions relevant to the other disruptive behavior disorders, as follows. Before beginning PMT, many parents are explicitly counselled that ODD and CD are largely environmental and can be influenced by factors such as parental consistency and predictability, and monitoring and tracking of behavior, respectively (Barkley, 1997). Ultimately, this practice sets the stage for a more external, unstable, and controllable, therefore, optimistic explanatory style as well as for a more incremental theorist orientation and increasing value for the therapy. It is this latter element, value for treatment which has been indirectly examined as a barrier to treatment (Kazdin & Wassell, 1999). Perceived relevance of treatment (which was defined as the extent to which treatment was seen as relevant to the child's problems and met with parent expectations) was one of the sources of barriers which was strongly related to child behavior change (Kazdin & Wassell, 1999).

Further Comments

Overall, the traditional predictors appeared to have the largest and most significant impact on the outcomes measured in this study. Unfortunately, the

traditional predictors are primarily subject or demographic variables (Kazdin & Wassell, 1999). The traditional predictors can also be viewed as static predictors in that they represent aspects of the participants' characteristics that are predictive of outcomes but are not believed to be as readily subject to change. Several of the motivational predictors in the current study also appeared to have an impact on outcomes but not to quite as clear an extent. The motivational predictors would have been more dynamic predictive factors which reflect the present circumstances and motivation of the participant. Thus, the motivational predictors may have the potential to be more readily amenable to change.

Dynamic predictors tend to be more unreliable and may change over time. The lower reliability coefficients among the motivational aspects for the treatment group than for the control group suggests that the PMT may have been incidentally addressing some of the motivational aspects throughout the program. Because the control group did not have exposure to the PMT program at pre- and post- PMSS measurement points, their reliability estimates may be more reflective of the stability of the motivational scale. Measurements of the dynamic predictors involves a great deal of subjectivity. Any unreliability in measurement leads to underestimation of validity. Therefore, this line of reasoning implies that dynamic variables must be weaker predictors in comparison to static predictors. Because by their very nature motivational predictors are necessarily weaker and because manipulation of the traditional predictors did not enhance outcomes, arguments can still be made for the inclusion of motivational aspects in PMT.

The present study suggests that motivational aspects influence outcomes in PMT to the largest extent when traditionally examined predictors are considered. Recent evidence indicates that parent perception of few barriers to treatment acts as a protective factor for children identified as at risk for showing little behavior change because of low SES, parent psychopathology, stress, and severity of behavior (Kazdin & Wassell, 1999). Thus, the findings/ results do provide some minimal support for the main hypothesis that traditional and motivational aspects jointly predict outcomes in parent management training. Furthermore, these results provide support for recent motivational research arguments that both individual and environmental factors direct motivational energy (Maehr & Pintrich, 1999). The results highlight the potential impact that improvements in parent's motivational aspects can have on children's behavior changes, parent's satisfaction with treatments, and parent engagement. The motivational aspect results provide tentative evidence for the inclusion of motivational modules in PMT and support for further theory-testing and refinement.

Interest in the current study (with the exception of the chi-square analyses) focused on the joint performance of the set of variables at hand and reflects the mutual influence of the variables on each other. Considerable change in results was observed if some variables were added and others deleted. This change in results likely reflects reality and we want the variables to behave this way. To ask for the contribution of each variable independent of all

other variables is equivalent to requesting a univariate index that ignores the other variables (Rencher, 1995).

Limitations of the Present Study

Several methodological limitations in this intervention outcome study are acknowledged and at the same time corrective suggestions are presented. The purpose of the present section is to discuss methodology issues in the parent training intervention study. Some strategies and techniques for controlling these issues are included. The following limitations discussed include instrumentation, sampling issues, specificity, developmental considerations, treatment integrity, and reactivity.

Instrumentation

The present study focused on only a few learning outcomes and some narrowly conceptualized measures. Consideration of a broader domain of outcomes than might be typically considered in PMT programs might reveal outcomes which can be far-reaching in nature and potentially effective. The present study attempted to measure some of these but simply did not measure or capture the entire gamut of outcomes. A recent case study of two children with ADHD/ODD included behavioral observations in the home in addition to the behavior rating scales of the current study; significant drops in child behavior problems were noted on CBCL and HSQ, as well as behavioral observations using the Behavior Management Flow chart in a PMT program (Danforth, 1999). Another recent case study directly observed outcomes of parent training in a multiple baseline design and evaluated change according to inappropriate child

behavior, compliance, on-task behavior, parent-child interaction, and a parent praise measure (Greene, Kamps, Wyble, & Ellis, 1999).

Choice of specific instrumentation is related to this limitation in the present study. While one of the most popular outcome measures utilized in the treatment outcome research literature is Achenbach's Child Behavior Checklist (CBCL) and its related instruments (Drotar et al., 1995), the CBCL has many disadvantages as well as advantages. The advantages include sound psychometric properties regarding reliability and validity as an assessment of frequently presenting symptoms in children from 4-18 years of age; two large demographically diverse standardization samples (one referred and one non-referred); and ease of administration and scoring with a relatively inexpensive computer program (Drotar et al., 1995).

The CBCL, being viewed as a broad-band scale, assesses many facets of behavior. One disadvantage is that it may be that only a couple of child behavioral areas might need change. The CBCL does not single out one or two target behaviors and could mask gains made in particular areas. As for other disadvantages, the CBCL has been noted to have not only limited sensitivity to milder, more subtle behavior problems but also to have compressed all raw scores within the normal range (less than 69th percentile) and assigned them the same T-score; provides a potentially misleading assessment of Social Competence which measures selected aspects of social functioning (social adjustment) and neglects others (social performance and social skills); is biased in reporting physical symptoms by not distinguishing organic from more

emotional and stress related disorders; provides no interpretative information regarding ethnically, culturally, and racially diverse populations; and, contains much subjectivity in scoring (Drotar et al., 1995). It is important to note that these issues are probably not unique to the CBCL and likely applicable to other measurement instruments and materials used in much intervention research.

First and Way, (1995) discuss outcomes of PMT as facilitating the development of new ways of thinking, transformative learning, as well as enhancing specific parenting skills. The immediate goals of PMT are to develop very specific skills in parents (Kazdin, 1998) and thus, to basically “change” parenting behavior. No direct formal measure of parent behavior change was obtained in the current study.

In fact, informal discussion with parents who were extremely satisfied with the program, discussed gains which were not explicitly measured in the program and which may be more related to reputation than behaviour change per se. Several parents commented on *the need to separate the behavior from the child* which intuitively implicates a movement from an implicit theory orientation to an incremental theorist orientation. Several parents commented on how much they found enjoying being with their children and that it was not a stressful time to dread and find ways to avoid. The home environment had become much less stressful and amenable to positive interactions among family members. The present results suggest that given the potentially wide range of outcomes beyond mere changes in child behavior and satisfaction, and acquisition of parenting skills, therapists should consider motivational aspects more explicitly when

planning programs to create more meaningful experiences. In considering the issue of reputation versus behaviour change, it may be that reputation changes more slowly.

Finally, the current study did not provide for any check of harmful outcomes. The PMT sessions had a heavy emphasis on positive reinforcement techniques in the first two weeks and the next two weeks included a punishment contingency (e.g., time out, response cost, fines). With families who are prone to negative, violent, and/or abusive interactions, it is possible that application of punishment contingencies may be difficult (botched) and even harmful (Barkley, 2000).

Thus, the present study may have measured a specific and narrow measure of outcome. Methodological rules of thumb are described as follows: to include multiple measures of treatment outcome in all relevant domains of any life situations likely to be influenced by treatment effectiveness (Peterson & Bell-Dolan, 1995); to assess areas of outcomes beyond the child domains (social functioning, academics) and include parent domains (interactions with child, stress, and marital discord) as well as broader contexts (family, living conditions, and neighborhoods) (Kazdin, 1995); to consider the use of multiple informants even though concordance among raters can be problematic (Tarullo et al., 1995). Forness and Hoagwood (1993) recommend a multiple diagnostic approach with several instruments. These recommended practices make instrumentation a particularly salient issue in school psychology intervention research; logistically, it would make sense that with more measures there is more opportunity for

instrumentation problems coupled with more opportunity to find significant effects.

Sampling Issues

The pre-test results suggest that the treatment and control groups may have differed prior to treatment on the CBCL scale ratings and several other characteristics. This lack of group equivalence (Peterson & Bell-Dolan, 1995) may be a reflection of selection bias or the small sample size. Selection refers to systematic differences between groups at the beginning of the research study which are the result of the method used to assign subjects to treatment groups or control groups (AATBS, 1995).

In addition to systematic differences between groups another problem is having a non-representative sample of the population because some potential subjects failed to be included at all (Peterson & Bell-Dolan, 1995) and/or because some potential subjects did not sign the consent forms (Carlson, 1993; Eyberg, 1995). Based on estimates of referrals from the ADHD clinic, well over half of the parents who were referred for PMT did not initiate contact for an orientation session. Barkley (2000) reports that estimates of families failing to accept or attend parent training programs range from 30 % to 50 % or more. Thus, it continues to remain unknown how these families would fair with PMT.

Based on records from priority/wait lists of referrals from physicians in the health care clinic, all of the parents who were referred attended orientation sessions; however, these orientation sessions doubled as initial interviews for upcoming evaluations and may have biased attendance. Three parents who

attended orientation sessions refused to participate in the research component of the program. Three other parents refused to participate in PMT at all. In any case, the participants in the study were representative of the population of interest, i.e., participants who typically participate in treatment (AATBS, 1995; Peterson & Bell-Dolan, 1995). As a result, the participants in the intervention study are basically a voluntary yet true clinical sample (Peterson & Bell-Dolan, 1995). For example, participants were essentially parents of children who show some clinical symptoms, children who meet clinical diagnosis, and children who are clinically referred, and non-referred clinical cases (Peterson & Bell-Dolan, 1995).

Another systematic selection difference is the under-representation of children from diverse backgrounds and lack of inclusion of different ethnic groups in intervention research (Foster & Martinez, 1995). Forness and Hoagwood (1993) included a comprehensive review which concluded that the literature is lacking in studying ethnic differences in intervention as well as assessment. Despite the fact that the U.S. population has been becoming increasingly pluralistic, theories of child behavior continue to be based on European American culture (Foster & Martinez, 1995). The population from which this sample was drawn is not particularly diverse but representative of small northern Canadian communities. These results do not generalize to larger, metropolitan, more diverse communities. Thus, the study has limited external validity which describes the generalizability of a research study's results to other people, settings, and conditions (AATBS, 1995; Porter, 1988).

Random Assignment

Random assignment was not total and thus, problematic in the clinic. A few parents who could not attend the upcoming group due to scheduling and other difficulties, were assigned to control groups. Sometimes, random assignment was not possible because of other considerations. An apt example of practical consideration is the situation in which staff from the Children's Aid Society referred a parent with disruptive children for parenting sessions under court order and there were no other current parenting programs being offered in the community. In this case where random assignment was violated, the parent was excluded from the research data; however, it became apparent from informal conversations with CAS staff that other parents had been referred to their physicians and attended PMT under court order. However, some researchers have argued that a truly random sample where every individual in the population has an equal chance of being selected is never the case (Shulman, 1988).

Henggeler, Smith, and Schoenwald (1994) provide two general persuasive arguments to overcome resistance to random assignment by decision makers who are concerned about unfairly depriving children and parents of services. First, empirical evidence indicates that treatments for serious antisocial youths has minimal effectiveness and reviews have concluded that nothing works (Henggeler et. al., 1994). Second, random assignment could be presented as the most ethical and fair method of allocating scarce treatment resources (Henggeler et. al., 1994). While these two arguments are presented as an

“ethical imperative”, they can also be viewed as ethically questionable within the context of effective treatments and adequate resources.

When participants have been involved in previous treatments (and sometimes concurrent treatments), the results of the study cannot be generalized to situations in which people will be exposed to the treatment under investigation. It should be noted that many of these factors (especially reactivity and multiple treatment interference) can be viewed as direct threats to both internal and external validity.

Developmental Considerations

The present study chose not to consider the child's age as a factor given limited research indicating age as a predictor is also strongly associated with severity of the disorder. It may have been less limiting to shrink the age range of the children in the study. Positive results of PMT may be manifested more quickly or easily when the children are younger (ages 5 to 7) than when they are older (10-12) (Barkley, 1997). If this is true, age of the child might have become conflated with the other variables of interest. However, given the small sample size, it was neither possible to restrict the age of children included in the study nor ensure that different sample subgroups contained similar age distributions. If true that severity of child behavior is strongly associated with age, then age as a factor is a moot point. However, type of child behavior disorder was also not examined in this cross-categorical approach study. Similar arguments/justifications to this limitation are applicable. Some research on CD indicates a hardening around age 8.

Subgroups and/or Comorbidity Considerations

The present study failed to consider whether there were certain subgroups (especially subtypes of AD/HD) or comorbid conditions were related to parental drop out or other outcomes. Responsiveness to PMT may vary according to diagnosis, especially, subtype, and/or comorbidity (Barkley, 2000). A related limitation of that the present study seemed to neglect the child's condition as a moderator variable (e.g., did parents of comorbid children differ from other parents?).

Treatment Integrity

The present study contained no formal measure providing assurance of treatment integrity which is the extent that treatment is actually implemented in the manner it was intended (Black & Holden, 1995; Shapiro, 1987). Specifically, the intervention did not contain objective observation of treatment delivery and documentation of the extent to which the intervention was implemented (Deschler & Schumaker, 1994). However, the study did contain set manualized procedures which were explicitly followed. These included a) a brief video tape presentation provided a summary and overview of procedures and strategies to be discussed prior to each session; b) objectively specified interventions and handouts; and, c) maintenance of a treatment log documenting subjective assessment of participant status, participants' participation, procedures taught/discussed, and future plans for each session.

Reactivity

Reactivity is a phenomenon in which research participants respond to an independent variable in a particular way simply because they know their behavior is being observed (AATBS, 1995, p.27). Reactivity can include four types of phenomena: 1) a Hawthorne Effect; 2) Evaluation Apprehension; 3) Demand Characteristics; and , 4) Experimenter Expectancy (AATBS, 1995).

The Hawthorne effect refers to the tendency of participants to perform better because of the attention they are receiving as research participants (AATBS, 1995). Evaluation apprehension causes participants to act in ways so as to avoid negative evaluations (AATBS, 1995). Demand characteristics include cues in the environment which inform participants of the purpose of the study or suggest to them what behaviors are expected of them (AATBS, 1995). Experimenter bias occurs when an experimenter unintentionally (usually) provides participants with cues (demand characteristics) that inform them of what behavior is expected of them (AATBS, 1995). Experimenters can act in ways that do not affect the participants directly but which can bias the results of the study (AATBS, 1995). The present study included no measure to objectively evaluate the effects of any reactivity.

Pressley and Harris (1994) view sample size as the least controversial of methodological issues which should be planned in advance in the study design. Ultimately, it depends on the research question and a cost-benefit analysis of what kind of methodological strengths the experimenter prefers and what kinds of methodological weakness the experimenter will tolerate. The level of power in the

current study for detecting differences was low. Thus, it is possible that the study was not sensitive enough to detect differences which were being studied and/or the treatment was not strong enough for the statistics which are presented.

Peterson and Bell-Dolan (1995) argue that it would make more sense to view methodological issues on a continuum rather as typically dichotomous, i.e., either the study has methodological flaws or does not. Specifically, we can conclude that the current study has elements of sound design features which are attributed to the inclusion of control groups, using multiple outcome measures, and collecting follow-up data (Durlak et al., 1995). The study used parents of children from existing clinical groups rather than from the general population. The study included theory based or developmentally rooted interventions. All of these features are in diametric opposition to limitations as posed in reviews of other intervention studies (Durlak et al., 1995).

Chapter 6

SUMMARY AND IMPLICATIONS

The results speak to several of the research questions related to motivational resources. The motivational resources and value aspects formed identifiable motivational schema and several of these factors influenced outcomes but, for the most part, they did not. The motivational resources and value aspects grouped together to form five central schemas among individual parents (LV, IMC, PGE, and IT). Some of these schemas were predictive of some parent training outcomes (child behavior change and parent satisfaction with PMT). Furthermore, some of the individual motivational resources were predictive of parent engagement. Both the motivational schema and the individual motivational resources changed over time and were susceptible to greater change among treatment parents as a result of participation in a predominantly behaviorally oriented PMT. The latter suggests these resources are more readily amenable to therapeutic influence.

Implications for Theory

Motivation as a construct has largely been applied to educational theory. The current results may have implications for borrowing constructs from one setting (classroom) and transferring to another setting (clinical) and suggest these theoretical constructs are not readily transferable.

Implications for Practice

The implication for future practice is that although therapists (like teachers) can do little about an individual's experience with uncontrollable outcomes and predictors (socioeconomic status, family constellation, psychosocial stressors), they can do much regarding how individuals come to interpret and understand why those outcomes occur (Reeve, 1996).

There are numerous motivational aspects that have developed empirically validated methods to enhance academic achievement. The present study found that there are also several aspects of motivation (parent self-efficacy, schematicity, optimistic explanatory style, learning goals, performance goals, and value) which combined with traditional predictors can be successful in predicting various outcomes in parent training programs. These results suggest that proponents of parent management training programs consider diverting (or augmenting already considered) effort toward encouraging parents' inner motivational resources in order to increase the probability of successful outcomes. Furthermore, programs with primary motivational goals and strategies which focus on the motivation to learn, the intention of acquiring the knowledge or skills that activities are intended to develop, are likely to be most successful (Brophy, 1998).

The results of the present study suggest that useful heuristics/guidelines can be offered to therapists in providing a comprehensive PMT program targeted specifically at addressing, compensating for, and/or optimizing these significant motivational mediators in parent training outcomes. While some PMT programs

implicitly provide methods for enhancing motivational factors by their very nature, motivational mediated parent training would serve to make these more explicit.

Schema Mediated Parent Training may be a useful adjunct to traditional PMT approaches. While the content of materials will be very similar, participants in each treatment group will be exposed to different methods of instruction based upon a set of heuristic guidelines. These heuristic guidelines can be viewed as “*a set of rules of thumb that can be adapted to fit each situation, rather than a rigid procedure that must be followed in the same way every time*” (Newby et al., 1996, p.120).

Parent Efficacy and Outcomes in Practice

For those parents who present with low self efficacy beliefs which significantly mediates negative outcomes in PMT, explicit guidance and instruction is warranted. Future practice may consider a comprehensive program for self efficacy training, consisting of three parts (identifying component skills, measuring self-efficacy expectations, and supplying positive self-efficacy information) and using the four sources of information (performance accomplishments, vicarious experience, verbal persuasion, and physiological states) (Reeve, 1996). Borrowing the guidelines from the seven-step procedures recommended for instructors and students, PMT may also incorporate them as follows:

1. Therapist identifies component skills needed for competent performance. Instructor measures parents' self-efficacy expectations on each of those skills (possibly through using components of the PITS).
2. Therapist models each component skill.
3. Following the modeling, parents perform each component skill through role playing, and “home” work practice.

4. Individually mastered component skills are integrated into competent functioning during a simulation of the task (using various vignettes). Therapist graduates the simulations so they consist of a succession of increases in task difficulties and performance obstacles (vignettes organized in a hierarchy of problematic behavior).
5. While one parent performs the simulated task, other parents watch on the sidelines. Parents offer the performer skill-related tips and motivation-related encouragement.
6. Therapist provides additional instructive modeling, using corrective feedback as needed.
7. Therapist identifies stressful indicators and warning signs (increased heart rate, clenched jaw) and models confident demeanor and arousal regulating techniques (relaxation, imagery) to parents.

(adapted from Reeve, 1996, p. 85)

Teaching efficacy beliefs is both possible and important in that it can build strong and resilient cognitive beliefs that parents can use to counter the unpredictable, stressful, and difficult challenges of raising a child with disruptive behavior tendencies.

Efficacy beliefs vary in how strong and resistant they are to change based on the amount of information which formed them (Reeve, 1996). For example, firm efficacy beliefs are based on much, consistent information and require compelling disconfirmation (Reeve, 1996). Inconclusive efficacy beliefs are based on little, inconsistent information and easily subject to reanalysis (Reeve, 1996). It is these latter beliefs which seem more characteristic of parents whose children have disruptive behavior disorders.

Efficacy can be enhanced by the following therapist efforts in PMT:

- 1) Encouraging parents to set specific, difficult, and attainable goals;
- 2) Model and cue effective response strategies;
- 3) Provide feedback that helps students to achieve success;
- 4) Make attributional statements that help them to appreciate that they are developing their abilities by accepting challenges and applying consistent effort.

(Brophy, 1998, p.57)

Parent Personal Control Beliefs and Practice

Parents with pessimistic explanatory styles can also be explicitly taught to adapt an optimistic explanatory style in a therapy process consistent with “attributional retraining”. Attribution retraining was used to teach students to consider more adaptive attributional analysis to explain school’s aversive events (Reeve, 1996). The goal of attributional retraining programs is to learn to make internal-stable-controllable attributions for successes and external-unstable-uncontrollable attributions for failures (Reeve, 1996). This training is first accomplished by the therapist extending the range of possible attributions for failures and suggesting alternative attributions such as ineffective strategy, insufficient effort, lack of proper training or experience, high task difficulty (Reeve, 1996). Second, the therapist persuades parents to change their pessimistic attributions through three procedural techniques:

- 1) Persuasion: a parent performs a task and a therapist verbalizes the desired attribution and then attempts to convince the parent of the validity of the desired attribution;
- 2) Behavior modification: the therapist encourages parents to make attributions of ability, effort, task difficulty, and luck for failure but verbally reinforces only the unstable, uncontrollable attribution (e.g. luck); and,
- 3) Information: for example, therapists inform parents about the nature of their children’s disorders.

(adapted from Reeve, 1996, p.111)

This third avenue usually occurs outside of PMT. For example, many therapists may provide information regarding the nature of childhood disorders prior to beginning PMT and usually during assessment feedback sessions.

Parents with a learned helplessness orientation require support through two avenues: 1) changing a nonresponsive environment to a responsive one,

and 2) changing attributional style. The latter is easier and accomplished through attributional training and retraining programs discussed above. The former requires a systems approach and restructuring of the environment which is not always possible. Multisystemic treatment approaches may be more advantageous here (Henggeler, Schoenwald, Borduin, Rowland, & Cunningham, 1998). Furthermore, attributional retraining which explicitly teaches parents to attribute their successes to their ability as well as reasonable effort, and to attribute their failures to lack of information or response strategies as well as lack of effort, (Brophy, 1998) is likely to promote more positive PMT outcomes. In previous attribution retraining treatments, like with students in achievement contexts, parents could be taught the following:

1. to concentrate on the task at hand and not worry about “failing”
2. to cope with “failures” by retracing their steps to find their mistake or by analyzing the problem and finding another approach
3. to attribute their failures to insufficient effort, lack of information or use of ineffective strategies

(Brophy, 1998, p.86)

Cunningham (1990) incorporates a number of strategies in his PMT community programs which foster social learning attributions for strategy choices and child behavior. Among these strategies are the use of errorless learning, problem solving, and coping models (Johnston, 1996). Attributional retraining has been incorporated as a component of many other therapies for example, Beck's psychotherapy, Baucom and Epstein's marital therapy, Alexander and Parson's family therapy, and even Cunningham's community BPT programs (Johnston, 1996).

Learned Helplessness in Practice

Parents, like students with failure syndrome problems would benefit from therapy addressing self confidence in their abilities, strategies for coping with failures, and persistence in problem solving efforts under conditions of difficulty (Brophy, 1998). Cognitive retraining approaches which include attribution retraining, efficacy training, and strategy training involve more specific and elaborate suggestions and use a combination of methods (direct instruction, modeling with verbalized self instruction, thinking out loud, coaching, and scaffolded practice) (Brophy, 1998). Students with learned helplessness need to learn how to cope with frustration and failure rather than a steady diet of “success” (Brophy, 1998). Ditto for parents and maybe therapists, too!

Goal Theory and PMT Practice

Early, deliberate, and more systematic changes in PMT programs are required in order to affect any advantageous changes in parent goal. First and foremost, therapists need to emphasize learning goals since what appears to be most salient is the individual's perception of the goal orientation of the achievement situation (Ames & Archer, 1988). For those parents with a social orientation and excessive concern with “how their child’s behavior looks....” this is no easy task. Therapists can promote a learning orientation by emphasizing what parents can learn from PMT activities, including collaborate work where parents help one another, and treating errors or “behavioral mishaps” as natural parts of the learning process and rich material for follow up discussion (Brophy, 1998).

Dweck's work suggests several implications for classroom teachers to encourage their students: 1) to adopt incremental theories rather than entity theories of abilities; 2) to set learning goals rather than performance goals; and, 3) to adopt a mastery orientation rather than a helpless orientation (Brophy, 1998). Parallel parent management training methods for establishing the first point are illustrated through the following points:

- setting up the therapeutic environment as a learning community,
- focusing parent's attention on self improvement rather than comparison with other parents,
- making mistakes a part of learning,
- encouraging mastery through using successive approximations,
- portraying activities as opportunities to acquire and not just to display skills,
- providing appropriate feedback and comments which convey confidence in reaching goals.

(Brophy, 1998).

Issues related to self worth protection bear special mention as this appears to be an especially salient predictor of parent training outcomes. Self worth protection in the classroom is minimized through establishing the classroom as a learning community and orienting students towards learning goals through models, socialization, and instruction (Brophy, 1998). Strategies by Covington (1992), Lehtinen et al. (1995), and Brophy (1998) also suggest helping the students see how the self worth protection focus limits their performance and development.

Self Schemas, Possible Selves, and Practice

Parents who are aschematic can become schematic through discrepant feedback and elaborating on possible selves. A viable parent study would be to examine the effect of parents teaching parents on schematicity.

Value Aspects and Practice

As an initial step in PMT, parents require a rationale for engaging in the treatment and discussion of its benefits. While this is not new information, it tends to be relegated to therapist discretion, as well as experience. Few treatment manuals explicitly address the value aspects of motivation within PMT. The results of the current study suggest that value enhancement should be explicitly targeted at the orientation session prior to the start of PMT. Especially needed are strategies for helping parents come to value what they are learning for its relevance, empowerment implications, exposure to whole aspects of life, and potential quality of life application (and not just something which needs to be done and over with). PMT may focus on building within the parents some understanding of the human condition as well as tearing down some misunderstandings and some sense that they are doing the activities engaged in something worthwhile for themselves, instead of what they should be doing. This is largely related to the parent need to “buy into” goals (as noted above) and not simply buying into strategies. (Eyberg, Edwards, Boggs, & Foote, 1998) stresses the importance of presenting a clear and concise rationale at the beginning of PMT to avoid possible attrition, loss of cases before outcome and follow-up evaluations.

Furthermore, even those aspects which are already inherently valued by parents may not become as valued in PMT unless exposure is 1) scaffolded to enhance learning as well as appreciation and 2) it connects with their zone of proximal development (Brophy, 1999)

Summary

Given the significance of the findings, all of these suggestions could culminate in an extensive comprehensive program offering Schema Mediated Parenting Training (SMEPT) (Table 53). SMEPT needs to consider that to change efficacy-based helplessness, therapists need to build in parents' particular skills, competencies, and resiliency perceptions. These target change in some aspect of the parent. To change personal control-based helplessness, therapists need to consider some aspects of the environment (some of the more traditionally examined predictors such as SES, family structure) and some aspect of the parents' explanatory styles (especially if pessimistic). It is also noted that self-efficacy and personal control expectations coincide in an interdependent relationship (Reeve, 1996). The implication for future practice is that although therapists (like teachers) can do little about an individual's experience with uncontrollable outcomes and predictors (socioeconomic status, family constellation, psychosocial stressors), they can do much regarding how individuals come to interpret and understand why those outcomes occur (Reeve, 1996).

Table 53

Salient Motivational Aspects and Value Interventions as Potential SMEPT modules.

Motivational Aspect	Clinical Intervention
Self Efficacy	Verbal Persuasion Vicarious Modeling Mastery Exposure Anticipatory Stress Inoculation
Attributions	Attribution Re-training
Schematicity	Self confidence Social Support Graduated Task Assignments
Goals	Environmental structuring Goal Setting Goal clarification
Value	Value clarification Moral Discussion

Note. Value clarification sometimes involves moral judgements.

Implications For Future Research

Certainly, future studies should examine the efficacy of SMEPT. Despite the extensive amount of research conducted in parent management training, the need and potential exists for further studies examining the following issues:

1. The field is ripe for a meta analysis of predictors and outcomes in PMT;
2. Further attention to the accurate prediction of the probability of drop out would assist in determining whether resources (time, etc.) should be invested. Inaccurate prediction may lead to a waste of resources on very low risk parents or, on the other hand, failure to adequately treat high risk parents;
3. Further examination of subgroups and/or comorbidity among disruptive behavior disorders and the relationship with PMT may be warranted;
4. The idea of matching levels of treatment to the risk level of the parent for drop out and to enhance positive outcomes aspect provides a bridge between assessment, classification, and treatment;
5. Students with an emphasis on learning goals process information using deeper level strategies while students with performance goals are more likely to use surface level memorizing (Brophy, 1998). This has implications for the generalization of treatment strategies into other areas and is another area for further research;
6. Previous research showing increased resistance to therapists may have been related to attributional implications of therapist teaching in a didactic manner (implication parents lack knowledge and skill); more Socratic, cooperative, collaborative, and supportive may allow parents to continue to feel more self-efficacious while making the behavioral changes;
7. One area of study which has not been sufficiently explored is who profits from single modality treatments such as PMT or from combined treatments (Kazdin, 1997). Also, unexplored is whether certain parents profit from certain types of PMT treatments as opposed to others. It has been hypothesized that certain parents and children may be a "good fit" for a particular type of parent training program (Holden et al., 1990);
8. Clarizio et al. (1994) posed several questions related to instructional approaches and values as follows:
 Would you favor differ approaches for different students? For example, which approach would be better for those children who come from homes that have emphasized order, discipline, and

work? How about children from homes that valued openness, challenge, creativity, and spontaneity? Which of these approaches would be best if we want students to get the big "Picture"? (Clarizio et al., 1994, p. 172);

9. Future studies could examine evaluating/measuring parent zone of proximal development; few have considered parent actual abilities or intelligence;
10. The interplay between parent cognitions, affect, and behavior is an area worthy of study (Johnston, 1996). Interventions may need to be aimed at all of these components; focus on parenting as an integration of all of these;
11. Despite links between underachievement, language delays, reading disabilities, and CD, PMT research has rarely if ever included an academic skills enhancement program for parents (Webster-Stratton, 1993). Research is needed in programs which train parents to enhance and help children with their academics;
12. Programs in which parents who have been through training act as facilitators and teach parents just entering as parental educators are consistent with notions of enhancing self efficacy; parents may develop more confidence when models are more alike and result in better outcomes (Fox & Parroni Hennick, 1996);
13. Possible selves and latency measures more accurate than simple more like me, not like me responses, eg. Computer program to measure time to respond; takes away social desirability component. The latency of the response may indicate whether the item is readily accessible as part of their self concept and whether or not the descriptor is not a feature of their working schema. The speculation that schematic persons, respond faster to positive items and aschematic persons respond faster to negative items; (Cross & Markus, 1994) can be evaluated and used as a more precise measure of schematicity to see if it is in fact predictive of outcomes of parent training;
14. Assess parent satisfaction at multiple points during treatment and follow-up (future study)(Brestan et al., 1999). Answers to these questions may provide information to treatment planning and may extend to planning maintenance of treatment gains (Brestan et al., 1999);
15. Ruma et al. (1996) asked the question "which treatment works best for which children" and concluded that the question remains largely unanswered. With regard to parent training, it is hypothesized that a more productive question would be to change the question to "which mode of treatment works best with which parents?" Therapists likely adjust their treatment styles, i.e., strategies

for instruction, based on an intuitive evaluation of parents. Through interactions with parents, therapists may come to realize what parents want and to which mode of instruction they would be most responsive. It would be highly advantageous to be able to identify those parameters of successful outcomes and to adjust parent management training to capitalize on those parameters;

16. The history of Ethnotheory refers to folk perspectives on the nature of children and of parental roles in child development (Goodnow, 1995). These are described as less formal and less fully articulated, but characteristic of members in particular societies or cultures. For example, maternal beliefs about child development and parenting practices among Quebecois, Vietnamese, and Haitian mothers living in Canada varied depending upon their culture of origin (Pomerleau et al., 1991). Quebecois mothers saw children as unique competent individuals and viewed the mother's role as important in stimulating the infant. These mother with origins to France practiced encouragement of exploratory behavior and presentation of stimulating toys and activities to their children. Vietnamese mothers, in contrast emphasized formal learning activities. An important assumption of Ethnotheories is that beliefs cannot be separated from the cultural milieu (Goodnow, 1995). Ethnotheories view all members of particular cultures as possessing an underlying belief structure regarding the children's growth and development (Goodnow, 1995). Consequently, it could be hypothesized that an Ethnotheory perspective would predict that parents from similar cultures will use similar childrearing methods;
17. Notions of collective efficacy and its influence as well as culture influence on goal orientation may be another area to study. This is somewhat related to the notion that overall classroom setting, and possibly school and even community culture may play a role in students' goal orientations (Lemos, 1996);
18. Predictors of PMT outcomes regarding disruptive behavior need not be so domain specific; note, same predictors of negative outcomes for PMT designed to reduce risks and enhance protection against early substance use in children (Kosterman, Hawkins, Spoth, Haggerty, & Zhu, 1997);
19. Future research may see if multisystemic approaches decrease learned helplessness in parents;
20. The development of a teacher motivational schema scale (TMSS) may be of interest in predicting outcomes with children with behavior problems in the classroom and ultimately provide an aid in consultation based classroom management;

21. Frequent parent comments among the groups involved the lack of time to implement some of the strategies, to spend with their children, increasing demands of work, and their children's structured extra-curricular activities. Qualitative studies have dominated the PMT field. The field is also ripe for the inclusion of some ethnographic studies to further examine some of these issues.

Final Thoughts

Like some of the more complete packages integrating different theoretical traditions in mathematics (Bell & Kanevsky, 1996) and reading comprehension (Shawaker & Dembo, 1996), PMT can combine elements from motivational treatments into one comprehensive package. In fact, practice in the future creates entire possibilities for incorporating motivational modules into parent management training programs for parents of children with disruptive behavior disorders. Further experimental and new qualitative studies would be the next step to determining if enhancing parent motivation would foster more optimal outcomes.

APPENDIX A

Parent Motivational Schema Scale (PMSS)

Contents of this Appendix include the following:

1. Inter-rater Agreements on Original PMSS Items (Table A.1)
2. Scale Items Listed by Domain (Table A.2)

Table A.1

Agreement Among Independent Raters.

STATEMENTS	Expert/ Researcher Judgment	Student/ Literature Surveys	Decision
1. I am confident that I can learn the material with the other parents in education sessions.	Efficacy	Efficacy	Retain
2. Involvement in parent training will help me learn how to manage my child's behavior and help me feel better about myself.	Value	Value	Retain
3. <i>Whether my child follows directions, obeys instructions, and acts appropriately or not is deeply ingrained in his/her personality. It cannot be changed much.</i>	1. <i>Pessimistic</i> 2. <i>Implicit</i>	<i>Implicit theory</i>	<i>Retain/discuss</i>
4. It is important for me to learn what is being taught in these groups.	Value	Value	Retain
5. Making mistakes is a part of learning.	Schemati- city	Learning goal	Drop
6. When I really try, I can get through to my child when he or she is being most difficult.	Efficacy	Efficacy	Retain
7. I would like parent training activities that let me show how good I am at managing behavior.	Perform goal- Enhancing	Perform goal- enhancing	Retain
8. I think that what I would learn in a parent training class would be interesting.	Value	Value	Retain
9. If my child became disruptive and noisy in public places (malls, church), I feel assured that I know some techniques to redirect him or her quickly.	Efficacy	Efficacy	Retain
10. I would like to show my group leader, therapist, that I am better at managing behavior than the other parents.	Perform goal- enhance	Perform goal- enhancing	Retain
11. I work hard to learn.	Learning goal	Learning goal	Retain
12. By trying a different discipline method, I can significantly affect my child's behavior.	Optimistic style	Efficacy	Drop
13. When my child is in one of his/her moods, there is usually something that set him off but it can be handled.	Optimistic style	Optimistic style	Retain
14. <i>My child's behavior is something very basic about him/her and it can't be changed much.</i>	<i>Pessimistic style</i>	<i>Implicit theory</i>	<i>Discuss</i>
15. I think that what I would learn in a parent group would be useful for me to know.	Value	Value	Retain
16. At group sessions, I always try to avoid being among the poorest students/parents.	Perform goal – defeating	Perform goal- defeating	Retain
17. The therapist will try to make sure I understand the work.	Optimistic style	Learning goal	Drop
18. There is really very little I can do to insure that my child behaves appropriately.	Efficacy	Efficacy	Retain

19. Involvement in PMT will be helpful in improving the quality of our lives.	Value	Value	Retain
20. I would like to show my other relatives who are parents (my parents, siblings, cousins), that I am better at managing behavior than other parents.	Perform goal-enhancing	Perform goal-enhancing	Retain
21. I will like what I am learning in these groups.	Value	Value	Retain
22. Other parents want to know how I am doing on assignments.	?	Perform goal-enhancing	Drop
23. The therapist will want us to try new things	?	Learning goal	Drop
24. At home, it is important for me to avoid looking stupid.	Perform goal – defeating	Perform goal-defeating	Retain
25. Involvement in PMT will be useful in helping me to reach my goals.	Value	Value	Retain
26. I will feel most successful in parent training when I learn something I didn't know before.	Learning goal	Learning goal	Retain
27. If I could choose to have children, if I had the decision to make over again, I would choose parenthood.	?	Efficacy	Drop
28. <i>I really don't like to make mistakes.</i>	<i>Perform goal – defeating</i>	<i>Perform goal-enhancing</i>	<i>Discuss</i>
29. My child experiences difficulties because of his school or home environments which can be altered to suit his/her needs.	Optimistic style	Optimistic style	Retain
30. I like parent training work I will learn from even if I make a lot of mistakes.	Learning goal	Learning goal	Retain
31. I am confident that I can make the decisions that are made in our home.	Efficacy	Efficacy	Retain
32. The worst thing about making mistakes at home and discussing them in groups is what other people may notice.	Perform goal-defeating	Perform goal-defeating	Retain
33. <i>There is not much that can be done to change my child's behavioral traits (e.g. oppositional, aggressive, defiant)</i>	<i>Pessimistic style</i>	<i>Implicit theory</i>	<i>Discuss</i>
34. I am confident that I can have my son or daughter listen to me and comply when I am discussing household chores.	Efficacy	Efficacy	Retain
35. The main reason I would do my parent training homework is because I like to learn.	Learning goal	Learning goal	Retain
36. My child gets oppositional, hostile, or defiant because of situational circumstances, yet he can be appeased with appropriate discipline.	Optimistic style	Optimistic style	Retain
37. <i>I am good at controlling my child's behavior and this is important to me.</i>	<i>Efficacy</i>	<i>Schematicity</i>	<i>Discuss</i>
38. I will like parent training work best when it makes me think.	Learning goal	Learning goal	Retain
39. When interacting with my child in public places, I am concerned about making a fool of myself.	Perform goal-defeating	Perform goal-defeating	Retain
40. I would feel successful in parent training if I did	Perform	Perform	Retain

better than the other parents in the sessions.	goal-enhancing	goal-enhancing	
41. Involvement in PMT will help me learn how to manage my child's behavior and others won't look down on me so much, anymore.	Value	Value	Retain
42. <i>When I participate in group activities, I am concerned about what my peers think about me.</i>	<i>Perform goal-enhancing</i>	<i>Perform goal-defeating</i>	<i>Discuss</i>
43. <i>I work hard to get the homework assignments done</i>	<i>Learning goal</i>	<i>Perform goal-enhancing</i>	<i>Discuss</i>
44. <i>Parents feel bad when they do not do as well as others.</i>	<i>Perform goal-defeating</i>	<i>Perform goal-enhancing</i>	<i>Discuss</i>
45. Involvement in PMT will help me learn how to manage my child's behavior and have better control and power.	Value	Value	Retain
46. Understanding the parent training work is more important to me than getting evaluated (others looking at my behavior and approving).	Learning goal	Learning goal	Retain
47. <i>I am good at managing my child's behavior and this is important to me.</i>	<i>Efficacy</i>	<i>Schematicity</i>	<i>Discuss</i>
48. <i>When my child is in one of his/her moods, I can figure out what set him/her off, and handle the situation.</i>	<i>Efficacy</i>	<i>Optimistic style</i>	<i>Discuss</i>
49. <i>My child's behavior is mostly biological, and a big part of his/her personality, and sometimes we're lucky to get through one of his/her tempers.</i>	<i>Implicit theory</i>	<i>Pessimistic style</i>	<i>Discuss</i>
50. Whenever I talk about how unsuccessful homework assignments have been at home, I am most concerned about what other parents think about me.	Perform goal-defeating	Perform goal-defeating	Retain
51. <i>Only a few parents will get a lot out of this parent training.</i>	?	<i>Perform goal-enhancing</i>	<i>Drop/ Discuss</i>
52. There is little to be gained from an open, accepting, and supportive relationship with my child, especially since my child is unmanageable.	Pessimistic style	Pessimistic style	Retain
53. Involvement in PMT will be interesting and possibly fun, as I will meet other parents in similar situations.	Value	Value	Retain
54. <i>Whenever I talk in group sessions, I am occupied (I wonder) by how I am perceived by other parents.</i>	<i>Perform goal-enhancing</i>	<i>Perform goal-defeating</i>	<i>Discuss</i>
55. I would like what I could learn in parent training groups.	Value	Value	Value

Items in **bold** were dropped

Items in *italics* needed to be further discussed to arrive at a consensus to improve content sampling for each motivational resource

Note: difficulty with performance goal judgments, schematicity, and implicit theories; may be worthy of discussion in general within scale development section.

Table A.2

PMSS Items Listed by Motivational Resource

Self Efficacy	
When I really try, I can get through to my son or daughter when he or she is being most difficult.	
If my son or daughter did not remember the last time we had a "scene" about a certain house rule, I would know how to increase his or her memory the next time.	
If my child became disruptive and noisy in public places (malls, church), I feel assured that I know some techniques to redirect him or her quickly.	
By trying a different discipline method, I can significantly affect my child's behavior.	
There is really very little I can do insure that my child behaves appropriately.	
If I could choose to have children, if I had the decision to make over again, I would choose parenthood.	
I am confident that I can make the decisions that are made in our home (parent efficacy).	
I am confident that I can have my son or daughter listen to me and comply when I am discussing household chores (self-efficacy for engaging compliant behavior).	
I am confident that I can learn the material with the other parents in these sessions (collective efficacy).	
Optimistic Explanatory Style (Attributions)	
When my child is in one of his/her moods, there is usually something that set him off but can be handled.	
My child gets oppositional, hostile, or defiant because of situational circumstances, he can be appeased with appropriate discipline.	
My child experiences difficulties because of his school or home environments which can be altered to suit his/her needs.	
Pessimistic Explanatory Style (Attributions)	
My child's behavior is mostly biological, a big part of his/her personality, and sometimes, we're lucky to get through one of his/her temper tantrums.	
There is little influential relationship between my behavior and how my child behaves, especially since s/he has a hostile and defiant temperament.	
There is little to be gained from an open, accepting, and supportive relationship with my child, especially since my child is unmanageable.	

Table A.2 Cont'd

Achievement Strivings

Learning Goals

Making mistakes is a part of learning.

I work hard to learn.

The therapist makes sure I understand the work.

The therapist wants us to try new things

I will feel most successful in parent training when I learn something I didn't know before.

The main reason I am doing my parent training homework is because I like to learn.

I like parent training work best when it makes me think.

I like parent training work I'll learn from even if I make a lot of mistakes.

Understanding the parent training work is more important to me than getting evaluated (others looking at my behavior and approving).

Performance Goals

(Self-Enhancing)

I would feel successful in parent training if I did better than the other parents in the sessions.

I would like parent training activities that let me show how good I am at managing behavior.

I would like to show my group leader, therapist, that I am better at managing behavior than the other parents.

I would like to show my other relatives who are parents (my parents, siblings, cousins), that I am better at managing behavior than other parents.

Other parents want to know how I am doing on assignments.

I really don't like to make mistakes.

Only a few parents will get a lot out of this parent training.

I work hard to get the homework assignments done.

Parents feel bad when they do not do as well as others.

(Self-Defeating)

Whenever I talk in group sessions, I am occupied (I wonder) by how I am perceived by other parents.

When I participate in the group activities, I am concerned about what my peers think about me.

When interacting with my child in public places, I am concerned not to make a fool of myself.

Whenever I talk about how unsuccessful homework assignments have been at home, I am most concerned about what other parents think about me.

The worst thing about making mistakes at home and discussing them in groups is what other people may notice.

Table A.2 Cont'd

At home, it is important for me to avoid looking stupid. At group sessions, I try to avoid being among the poorest students/parents.	
	Implicit Theories
My child's behavior is something very basic about him/her and it can't be changed much. Whether my child follows directions, obeys instructions, and acts appropriately or not is deeply ingrained in his/her personality. It cannot be changed much. There is not much that can be done to change my child's behavioral traits (e.g. oppositional, aggressive, defiant)	
	Schematicity/Self Schemas
I am good at controlling my child's behavior and this is important to me. I am good at managing my child's behavior and this is important to me.	
	Value
Involvement in PMT will help me learn how to manage my child's behavior and help me feel better about myself. Involvement in PMT will help me learn how to manage my child's behavior and have better control and power. Involvement in PMT will help me learn how to manage my child's behavior and other's won't look down on me so much, anymore. Involvement in PMT will be interesting and possibly fun, as I will meet other parents in similar situations. Involvement in PMT will be useful in helping me to reach my goals. Involvement in PMT will be helpful in improving the quality of our lives. I think that what I will learning in this group will be useful for me to know. I think that what we are learning in this class is interesting. It is important for me to learn what is being taught in these groups. I like what I am learning in these groups.	

APPENDIX B

Consent Forms

CONSENT FORM FOR PARENT SURVEY

The Group Health Centre and the College of Education at Michigan State University support the practice of protection for human subjects participating in research. A brief description of the present study is as follows:

The goal of this study is to develop a new survey which can be used when working with parents in the Department of Communication Disorders as well as parents in other centres. It is necessary to establish the reliability (each question is stable) and valid (each question measures what it is supposed to measure. By completing the enclosed questionnaire, you will help me to develop a reliable and valid survey.

Your participation is voluntary. Even if you agree to participate you may withdraw at any time. You have been provided with the opportunity to ask questions about the study. Should you have more questions about the research, you have been encouraged to contact Dr. P. Avery, the chair of the Research and Ethics Board, Group Health Centre (254-4139) and/or Dr. D. Wright, the chair of the University Committee on Research Involving Human Subjects (1-517-355-2180).

All information will be reported in group format and your name will NOT be associated with research findings. Any identifying information will not be included, that is, your name will not be written on any forms.

Principle Investigator:

Anne Marie Caruso, M.A., M.B.A.
School Psychology Doctoral Candidate
Michigan State University

Project Supervisors:

Harvey Clarizio, Ph.D
Department Chair, CEPSE
Michigan State University

You indicate your voluntary agreement to participate by completing and returning this questionnaire.

CONSENT FORM FOR PARTICIPATION IN RESEARCH PROJECT

The Group Health Centre and the College of Education at Michigan State University support the practice of protection for human subjects participating in research. A brief description of the present study is as follows:

In this study, I am interested in finding out what it is that influences what works in parent behavior management sessions. I plan on looking at 1) predictors that have already been studied by other researchers and 2) parent's thinking about involvement. The eventual aim is to use these predictors to develop the best approach for working with parents and helping them help their children.

Your participation is voluntary. Even if you agree to participate you may withdraw at any time. You have been provided with the opportunity to ask questions about the study. Should you have more questions about the research, you have been encouraged to contact Dr. P. Avery, the chair of the Research and Ethics Board, Group Health Centre (254-4139) and/or Dr. D. Wright, the chair of the University Committee on Research Involving Human Subjects (1-517-355-2180).

All results will be kept strictly confidential and will be stored in your medical record file upon completion of the study. All information will be reported in group format and your name will NOT be associated with research findings. Any identifying information will not be included.

Signature of Participant: _____

Print name here: _____

Signature of Investigator Obtaining Consent: _____

Print name here: _____

Signature of Witness: _____

Print name here: _____

Principle Investigator:

Anne Marie Caruso, M.A., M.B.A.
School Psychology Doctoral Candidate
Michigan State University

Project Supervisors:

Harvey Clarizio, Ph.D
Department Chair, CEPSE
Michigan State University

Letter Requesting Permission and Algorithm of REB Process

Saturday, April 10, 1999

John Harwood
Chief Executive Officer
Group Health Centre
Sault Ste Marie, Ontario
P6B 1Y5

Dear Mr. Harwood,

Thank you for taking the time to speak with me about a potential summer research project. I am writing to request permission to conduct a study in the Group Health Centre.

In this study, I am interested in evaluating predictors of positive outcomes in parent behavior management training. I plan on looking at two broad categories of predictors (traditionally examined predictors and parent motivational resources) within the context of three categories of outcomes (changes in child behavior, parent satisfaction, and parent engagement). The eventual aim is to develop a heuristic guideline for the selection of an instructional intervention based on predictor characteristics of clients, i.e., finding the "best match" or finding the treatment approach that will maximize the benefit for parents and children.

I would like to conduct the study in four phases as detailed in an attachment. These include a 1) a scale development phase, 2) participant "recruitment" phase, 3) intervention phase, and 4) outcome evaluation phase.

Thus, I am requesting permission to conduct the study in the Group Health Centre; specifically, for you to supply the setting, materials, and participants with the understanding that parents may refuse to cooperate in the study. For your information, I will be mailing a second draft of the proposal which may still undergo a few minor revisions before meeting all members of my doctoral committee's approval.

I appreciate the opportunity and know that this project would be mutually beneficial. Outcome studies have shown parent behavior management training to be among the most efficacious treatments when working with children with behavior problems.

If it would be helpful, I would be happy to make a brief presentation about the project to any Group Health Centre staff, you deem necessary. If you would like any other information, please feel free to contact me by phone (517-8871215) or e-mail (carusoa2@pilot.msu.edu).

Again, I appreciate your time and consideration of my request and look forward to seeing you during the Research and Ethics Meeting in May.

Sincerely,

Anne Marie Caruso
Doctoral Candidate
CEPSE
Michigan State University

Phase One (Scale Development and Factor Analysis)

A scale is being developed specifically for the purposes of this study, since no one has examined motivational resources within the context of parent therapy. To ensure that each scale item content is consistent with the definition of the predictors, the content validity of the Parent Motivation Schema Scale (PMSS) is currently being established by inter-rater judgements (10 Ph.D students and the professor, in a doctoral level motivation course). The scale currently contains 58 items containing 9 aspects of motivational resources which may still further be reduced.

In order to establish a) whether or not the scale items actually do measure the 9 motivational resources and b) find whether or not they cluster together into common factors (maybe the 9 motivational resources actually group into two big Ms, much like intelligence factors group into big and little Gs), the scale needs to be administered to a large sample of parents and then statistically analyzed. Based on the factor analysis, we may find other items to eliminate which may not be necessary for the purposes of the study.

The PMSS will be administered to parents who bring their children to the Group Health Centre. A summer student will randomly ask parents if they would be willing to complete a survey and provide direction on the completion of the Parent Motivation Schema Scale. Estimated completion time is approximately 15-20 minutes. The administration will occur while parents wait in the physician waiting rooms for their appointments. All survey responses will be unsigned and unidentified. Similarly, the clinicians in the Communication Disorders Department will ask parents if they would be willing to complete the survey and provide direction during a regularly scheduled appointment with their child. Any parent can decline participation without concern.

Later the reformulated PMSS will be used to identify the predictors of outcomes in parent training (below).

Phase Two (Identifying Participants / Gathering predictor information)

This phase would involve identifying parents suitable for the study. The majority of participants will be parents of children already referred to the Communication Disorders Department for a behavior evaluation. These parents are parents of children on the waiting list for consults which has always been maintained by the appointment center.

Parents who have been referred for services to the Communication Disorders Department will be interviewed. The parent interviews should take approximately 1 hour and all information would be kept confidential. Note that these interviews are a standard part of the assessment evaluation process whether or not parents participate in the research project. After the interview, the research project will be

explained to parents and they will be asked if they would like to participate in the project. They will be assured that they will receive the same services in the department whether or not they agree to participate. If they agree to participate, they will be asked to sign a consent form for participation (see enclosed). At which point, they will be administered the Parent Motivation Schema Scale (final version).

The Information from the interviews will be used to establish the parent levels on each of the traditionally examined predictors (family constellation, socio-economic status, number of psychosocial stressors, severity of child behavior, and level parent depression, if any). The information from the PMSS will be used to establish level of parent motivational resources (self efficacy, attributions, goals, implicit theories, schematicity, and value).

All parents (including those who agreed to participate and those who did not) will be randomly assigned to an intervention or control group. Information from the parents who did not sign the consent will not be used in the study but they will still participate in the intervention phase. Control group parents will be offered parent management training services at the end of the intervention phase (approximately two months from the point of assessment). This is not in excess of past usual wait times for therapy services in the department.

Phase Three (Intervention/Treatment)

For several summers, the staff from the Communication Disorders Department have conducted several summer projects, including parent training which is designed to help parents to work with their children with behavior problems. The parent management training would begin immediately upon completion of the interviews and random assignment of parents to intervention or control groups. This phase would require a larger setting, i.e., larger rooms. Possibly the Women's Health Centre's Conference room can easily be scheduled during non-use times on a regular weekly basis (as in past summers).

Phase Four (Gathering Outcome Information)

During this final phase, outcome data will be gathered at the final parent therapy session and at the one month booster session and follow up. During the final therapy session, outcome data regarding changes in child behavior will be gathered through having parents complete a post-therapy, Child Behavior Checklist (pre-therapy measure also used as part of the assessment process). Outcome data regarding parent satisfaction will be gathered through having parents complete an evaluation form about the parent training. Finally, outcome data regarding parent engagement will be gathered through collecting parent workbooks and evaluating homework completion and attendance (in hours).

At one month follow-up (the booster session), the CBC and the Parent evaluation forms will again be re-administered. Parent workbooks will be returned.

Future Phases (Developing our own Parent Training Program)

The findings from this study should have several implications for theory as well as implications for future practice and therapeutic application. For example, if it is found that parent self efficacy has a significant effect on outcomes in parent therapy, then maximum benefit would be derived by designing parent training to include strategies and techniques on increasing parent efficacy.

A future study (maybe next summer) may consider examining the addition of motivational modules to treatment packages as something which would further increase the efficacy of parent training treatments.

APPENDIX C

Decisions on Factor Dimensions

Tables C.1, C.2, and C.3 present the results of an orthogonal Nine-Factor Solution using the PMSS. The Nine-Factor solution did not easily support the factor structure of the nine subscales of the PMSS as items did not readily group into the theoretical motivational aspects (Table C.3).

Similarly, the nonorthogonal five factor solution was not as easy to interpret and did not contain adequate reliabilities (Table C.4). The first factor in the non-orthogonal five solution contained a mix of 17 items (10 value, 5 learning goal, 1 self defeating performance goal, and 1 self enhancing performance goal items). The second factor contained 12 items: 3 optimistic explanatory style, 5 self efficacy, 1 schematicity item, 1 implicit theory, 1 pessimistic explanatory style, and 1 self defeating performance goal. The third factor contained the following 7 items: 3 self defeating performance goal, 2 self enhancing performance goal, 1 pessimistic explanatory style, and 1 schematicity. The fourth factor contained 2 implicit theory and 1 value item. The fifth factor comprised of one item (self defeating performance goal).

Due to ease of interpretation and better reliabilities for the factor scales, it was decided to use the rotated five factor solution for the subsequent data analyses.

Table C.1.

Descriptives for Varimax Orthogonal Nine-Factor Solution on all 144 items of the PMSS (n=293)

Descriptives	Factors								
	One	Two	Three	Four	Five	Six	Seven	Eight	Nine
Number of Items	15	8	5	3	3	5	2	1	2
Scale Mean	53.98	27.16	11.74	5.92	4.97	7.69	8.37	2.38	6.01
Standard Deviation	0.41	5.12	3.72	2.55	2.17	2.65	1.22	1.16	1.42
Item Alpha Reliabilities	0.92	0.83	0.67	0.67	0.72	0.59	0.50	na	-0.13
Standardized Alphas	0.93	0.83	0.68	0.71	0.72	0.61	0.50	na	-0.15

Table C.2

Eigenvalues, Percentages of Variance, and Cumulative Percentages
for Varimax Orthogonal 9 Factor Solution

Factor	Eigenvalue	% of Variance	Cumulative %
One	8.872	20.164	20.164
Two	4.945	11.238	31.401
Three	4.434	10.078	41.480
Four	1.849	4.201	45.681
Five	1.556	3.537	49.218
Six	1.349	3.067	52.285
Seven	1.243	2.826	55.111
Eight	1.18	2.683	57.793
Nine	1.061	2.411	60.205

Table C.3

Summary of Item and Factor Loadings for Varimax Orthogonal Nine-Factor Solution for the PMSS (N=293)

Item	Factor Loading
Factor 6:	
42. <i>There is little to be gained from an open, accepting, and supportive relationship with my child, especially since my child is unmanageable. (PES)</i>	0.622
15. <i>There is very little I can do to insure that my child behaves appropriately. (SE)</i>	0.527
34. <i>Involvement in parenting sessions will help me learn how to handle my child's behavior and others won't look down on me so much. (Value)</i>	0.490
41. <i>My child's behavior is mostly biological and a big part of his/her personality, and sometimes we're lucky to get through one of his temper tantrums. (PES)</i>	0.465
33. <i>I would feel successful in parent sessions if I did better than the other parents in the sessions. (PGE)</i>	0.430
Factor 7:	
10. <i>I work hard to learn. (LG)</i>	0.682
1. <i>I am confident that I can learn the material. (SE)</i>	0.669
Factor 8:	
22. <i>My child has problems because of his school or home settings; these places can be changed to suit his/her needs. (OES)</i>	0.688
Factor 9:	
14. <i>At group sessions, I would always try to avoid looking like the parent with the most problems. (PGD)</i>	0.572
24. <i>I am confident that I can make the decisions that are made in our home. (SE)</i>	-0.551

Note. Factors 1 through 5 are listed in table 18

Table C.4

Descriptives for Non-orthogonal Five-Factor Solution

Descriptives	Factor				
	One	Two	Three	Four	Five
Number of Items	17	12	7	3	1
Scale Mean	59.35	34.63	13.22	5.41	2.17
Standard Deviation	11.44	4.61	3.91	2.01	1.24
Item Alpha Reliabilities	0.91	0.58	0.68	0.42	na
Standardized Alphas	0.92	0.58	0.70	0.44	na

APPENDIX D

Logistic Regression Results Using Factor Scales in Lieu of Subscales

The factor analysis results did not support the subscales. From the previous analyses, it appears that the factor analysis does not suggest the same dimensions as the nine motivational aspect subscales. Instead there appears to be a more collapsed structure of five dimensions. Thus, logistic regression results using the factor scales instead of the subscales are presented in Table D.1.

Humphries, Ilgren, McGrath, & Montanelli (1969) present information regarding capitalizing on chance in factor analytic research. It has been argued that purification of scales sometimes reduces the predictive value of the scale.

A summary of the correlations between individual items of the PMSS and the child behavior change, parent satisfaction, and parent engagement (drop out) outcomes is presented in Table D.2. It is apparent that only a select number of items (2 value, 3 self efficacy, 1 learning goal, 2 self defeating performance goals, 1 optimistic explanatory style, 1 schematicity, and 1 pessimistic explanatory style) are significantly correlated with the outcomes of the current study.

Table D.1

Logistic Regression Predicting PMT Drop Out Using Factor Scores

Factor	Beta	SE	Odds Ratio	Wald Statistic	Sig.
Learning Value	-0.193	0.349	0.000	0.305	0.581
Internal Motivational Controls	0.256	0.304	0.000	0.709	0.400
Performance Goals-Defeating	0.165	0.285	0.000	0.334	0.563
Performance Goals-Enhancing	-0.228	0.282	0.000	0.652	0.419
Implicit Theory	-0.214	0.247	0.000	0.749	0.387

Table D.2

Means, Standard Deviations, and Correlations of Individual PMSS Items with Outcome Variables

PMSS Item	Mean	Sd	Outcome Variables						Drop Out
			CBC Change Scores			TAI			
			Total	Internalizing	Externalizing	Total	Factor 1	Factor 2	
1. SE	4.078	0.855	0.064	0.037	-0.019	0.023	-0.066	0.149	-0.036
2. Val	3.884	1.005	0.235	0.086	0.059	0.235	0.152	0.328	-0.066
3. Imp	1.954	1.067	0.049	0.102	0.127	-0.056	0.024	-0.177	-0.011
4. Val	3.977	0.915	-0.092	-0.042	-0.168	0.371*	0.266	0.455**	-0.028
5. SE	3.264	0.994	0.061	0.212	-0.200	0.337*	0.253	0.394*	0.125
6. PGE	2.644	1.398	0.191	0.242	0.194	0.043	-0.024	0.136	0.023
7. Val	4.012	1.023	-0.036	0.022	-0.116	0.175	0.075	0.284	0.148
8. SE	3.264	1.040	-0.344	-0.427*	-0.126	-0.070	-0.168	0.066	0.110
9. PGE	1.529	0.950	-0.032	-0.204	0.146	-0.227	-0.244	-0.173	0.072
10. LG	3.977	0.881	-0.425*	-0.400*	-0.313	-0.150	-0.172	-0.093	0.075
11.OES	3.012	0.964	-0.075	0.053	-0.156	0.029	-0.024	0.081	-0.050
12. Imp	1.885	1.005	0.048	0.031	0.237	-0.008	0.055	-0.093	-0.169
13. Val	4.126	0.873	-0.147	-0.068	-0.286	0.188	0.037	0.370*	0.167
14. PGD	2.172	1.278	-0.149	-0.074	-0.111	-0.062	-0.230	0.174	-0.077
15. SE	1.632	0.990	0.400*	0.280	0.521**	-0.076	-0.020	-0.131	-0.055
16. Val	3.733	1.132	-0.064	-0.176	-0.135	0.002	-0.074	0.113	0.137
17. PGE	1.586	1.041	0.099	-0.022	0.256	-0.151	-0.141	-0.178	0.063
18. Val	3.607	0.957	0.021	0.081	-0.117	0.113	0.029	0.206	0.104
19. PGD	2.563	1.246	0.135	0.080	0.077	0.354*	0.213	0.467**	0.010
20. Val	3.506	1.266	-0.090	-0.060	-0.263	0.018	-0.064	0.126	-0.035
21. LG	3.762	1.010	-0.075	-0.123	0.083	-0.071	-0.107	-0.010	0.188
22. OES	2.592	1.266	0.147	0.029	0.151	-0.090	-0.016	-0.157	-0.004
23. LG	3.590	0.977	0.068	0.141	-0.102	0.151	0.102	0.188	0.011
24. SE	3.793	0.837	-0.167	-0.089	-0.226	-0.029	0.014	-0.068	0.068

Table D.2 Cont'd

25. PGD	2.195	1.209	-0.026	-0.020	0.108	0.017	0.049	-0.042	0.035
26. Imp/PES	1.586	1.041	0.254	0.204	0.325	-0.107	-0.044	-0.168	-0.151
27. SE	3.414	0.922	-0.144	0.038	-0.356*	-0.030	-0.055	0.003	0.111
28. LG	3.023	1.239	0.145	0.131	0.186	0.081	0.034	0.119	0.010
29. OES	3.147	0.935	-0.115	0.012	-0.316	0.349*	0.387*	0.236	0.008
30. Sch	2.651	0.967	0.087	0.052	0.007	0.388*	0.353*	0.357*	-0.058
31. LG	3.349	0.788	-0.196	-0.167	-0.085	0.187	0.162	0.175	0.040
32. PGD	2.535	1.361	0.057	-0.086	0.366*	0.012	-0.042	0.085	0.109
33. PGE	1.353	0.797	-0.054	-0.226	0.136	-0.135	-0.094	-0.162	0.200
34. Val	2.174	1.257	0.137	0.170	0.035	0.078	0.063	0.067	-0.089
35. PGD	2.000	1.000	-0.190	-0.149	-0.135	-0.281	-0.250	-0.302	0.150
36. PGE	2.518	1.130	0.110	0.128	0.098	-0.206	-0.209	-0.184	-0.032
37. Val	3.094	1.240	-0.013	0.120	-0.063	-0.033	-0.060	0.004	-0.105
38. LG	3.682	1.207	-0.060	-0.031	-0.196	-0.245	-0.267	-0.157	-0.088
39. Sch	2.686	0.973	-0.207	-0.085	-0.263	0.186	0.121	0.236	-0.049
40. OES	2.816	0.883	-0.297	-0.151	-0.250	-0.052	-0.095	0.012	-0.001
41. PES/Imp	2.081	1.125	0.297	0.304	0.104	0.160	0.289	-0.032	0.071
42. PES	1.207	0.701	0.352	0.238	0.458**	-0.081	0.034	-0.220	-0.028
43. Val	3.810	0.988	0.079	0.219	-0.119	0.260	0.219	0.269	-0.033
44. Val	3.833	0.929	-0.160	0.079	-0.354	0.218	0.219	0.179	-0.036

* correlation is significant at the 0.05 level (2-tailed)

** correlation is significant at the 0.01 level (2-tailed)

Note. CBC change scores and Tai outcome variables are correlated with individual items using Pearson r correlations. Drop out outcome variables are correlated with individual items using Kendall-Tau correlations.

APPENDIX E

Method Of Calculating Socio-Economic Status

Socio-economic status (SES) was calculated according to two methods. The first involved the Hollingshead Two Factor Index and the second involved the most recent low income cutoffs from Statistics Canada.

The Hollingshead Two Factor Index (Hollingshead, 1965) has set the standard and is the most widely used in most psychological research involving PMT. The Index has been criticized for being dated and obsolete in its list of occupations. However, few better alternatives are available and its most recent update, the Hollingshead Four Factor Index uses marital status in its equation. Because the Four factor index confounds one of the predictor variables, it was decided to use the Two Factor Index as a continuous variable measure of SES.

To calculate SES according to the Hollingshead Index, two factors (occupation and education) are assigned pre-determined scores obtained from their respective scale positions. The two factors are multiplied by pre-determined weights. The weights for each factor were originally determined by multiple correlation techniques. Weights for each factor are as follows:

Table E.1

Factors and Weights used to Calculate Two Factor Index.

<u>Factor</u>	<u>Weight</u>
Occupation	7
Education	4

The Low Income Cutoffs (LICO) from Statistics Canada (1999) are more current, relevant to the population in the study, and provide a discrete measure of SES. Estimates of income are based on a sample of 35,000 households excluding households in the territories and on Indian reserves. Cut-offs were selected on the basis that families with incomes below the limits usually spend more than 54.7% of their income on food, shelter, and clothing, and are therefore considered to be living in straightened circumstances. LICOs are updated based on information from the annual *Survey of Household Spending* to reflect changes in the average proportion of family income spent on food, shelter, and clothing. As a national average, the 1998 low income cut-off is \$33,063 (rounded to the nearest dollar). Seventeen and a half per cent of the Canadian population sampled is said to be low income.

A family with income below the cutoff for its family size and urbanization classification (size of area of residence) is considered a "low income" family. Participants were coded 0 for low income or 1 for other by consulting the following table:

Table E.2

Low Income Cutoffs using Number of Persons in Family Unit and Set Size of Area of Residence (30,000 to 99,999 population).

Number of Persons	Low Income Cutoff
1	14,965
2	18,706
3	23,264
4	28,162
5	31,481
6	34,798
7 or more	38,117

If low income cutoff fell within the survey range results, participants were coded as low income.

APPENDIX F

Power Analysis Results for T-Tests

The power of a statistical test is the probability that results will be statistically significant (Cohen, 1988) or in other words, power is the probability of rejecting the null hypothesis when the null hypothesis is false. In Table E.1, power analysis results are summarized for a two-tailed, t-test for means using alpha set at .05 and alpha set at .0056 (bonferroni adjustment), respectively. Using power equals .80 as a general rule of thumb, power in this study is obviously low.

Table F.1

Post Hoc Power Analysis Results

Factors to Power	Analyses	
	One	Two
Effect Size (d) (medium)	.5	.5
Alpha	.05	.0056
Sample size n1	64	64
Sample size n2	29	29
Delta	2.4614	2.4614
Critical t (101)	1.9837	2.8310
Power	.6837	.3611

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