

Development of a questionnaire to determine change in the occupational performance of pre-school children with Autistic Spectrum Disorders receiving Occupational Therapy - Sensory Integration

**Development of a questionnaire to determine change in
the occupational performance of pre-school children with
Autistic Spectrum Disorders receiving Occupational
Therapy - Sensory Integration**

Kerry Anne Wallace

**A dissertation submitted to the Faculty of Health Sciences, University of the
Witwatersrand, for the degree Master of Science**

Johannesburg 2009

DECLARATION

I, Kerry Anne Wallace, declare that this is my own unaided work except for the help given by those listed in the acknowledgements.

Signed on this day in Cape Town

Signature

Date

WILS ETD

PRESENTATIONS IN SUPPORT OF THIS DISSERTATION

***Faculty of Health Sciences Research day, University of the Witwatersrand
August 2006***

A longitudinal study investigating the change in occupational performance of pre-school children with Autistic spectrum disorders receiving Occupational Therapy – Sensory Integration: K.A. Wallace

South Africa SAACAPAP Congress, Cape Town, September 2007

Poster Presentation: A longitudinal study investigating the change in occupational performance of pre-school children with Autistic Spectrum Disorders receiving Occupational Therapy –Sensory Integration: K.A. Wallace

PLEASE LISTEN TO MY HEART

Please listen to my heart

Please forgive these clumsy words

Just hear me from my open heart to yours

The language of my heart speaks eloquently

While my fingers grapple for the letters one at a time

My mouth has nothing to say.

- Please Listen to My Heart, Roy Bedward

"Please Listen to My Heart" triggers different responses from its readers as the lyrical words are both powerful and poignant. Yet many readers are further moved to learn that the author, Roy Bedward, age 29, from Madison, WI is an individual with autism that is non-verbal and uses facilitated communication to write.

ABSTRACT

As there are no occupation based outcome measures evaluating the effect of occupational therapy in the pre-school child with an Autism Spectrum Disorder (ASD) an Occupational Performance Questionnaire (OPQ) was developed to address this.

The OPQ was tested for content validity and reliability before a 12 month intervention study to establish construct validity and response to change in children with ASD receiving Occupational Therapy using a Sensory Integration frame of reference (OT-SI) was done.

The results of 19 subjects on the OPQ were compared with the results on two other standardised measures -the Short Sensory Profile (SSP), and Parenting Stress Index (PSI-SF) at six monthly intervals.

Convergent validity between family impact on the OPQ and the PSI-SF was moderate but for occupation performance on the OPQ and the SSP it changed from negligible to moderate over 12 months. The OPQ is responsive to change as correlations between improvements in the three outcome measures were moderate. The OPQ was found to still need attention in terms of item reliability and validity.

ACKNOWLEDGEMENTS

I wish to acknowledge the following people for the roles they have played in the completion of this study.

To the academic staff from the Departments of Occupational and Physiotherapy at the University of the Witwatersrand for their guidance, especially my two able supervisors for their patience, who gave of their time and expertise:

Denise Franzsen, for supervision, encouragement, and her role as the guiding compass in this project.

Dr. J.L. Potterton, for supervision, mentorship, and guidance with statistical analysis.

Susanne Smith Roley, my esteemed subject specialist, and mentor.

Wits OT Postgraduate group, and especially our facilitator **Dr. Rosemary Crouch**, for support.

Adj. Prof P de Witt, for permission to use the OT/ University of the Witwatersrand facilities at CMI.

Prof P. Becker for statistical assistance (Medical Research Council of South Africa).

Dr. L. Jacklin, who identified the subjects who met the inclusion criteria from CMI.

Poppy Androlaikis, the Principal at the CDC Nursery School, for support, mentorship, her sense of humour, and encouragement.

The **teachers** and **teacher's-assistants** at the CDC pre-school for their enthusiasm, support, and assistance.

The administrative staff at **Autism South Africa**, for their help and support.

My colleagues **Charlene Scheepers**, **Sue van Ryneveld**, **Ray-Anne Cook**, **Sonja Berry**, **Rene Botma**, and **Brita Wilson**: the gifted occupational therapists who diligently carried out the OT-SI for a year, and willingly laid themselves open to peer review.

My colleagues **Leaza Cowan**, **Peggy Shnaps**, **Heather Hill**, and **Charlene Scheepers**, who assisted with the validation of the OPQ questionnaire.

The **children** and their **parents**; for participating in the study so willingly, and enriching my life.

Funding for this project was provided by the **University of the Witwatersrand** and **SAISI**.

To the members of the SAISI Board for encouragement to do research and financial assistance.

My family for patience and support.

TABLE OF CONTENTS	page
DECLARATION.....	ii
PRESENTATIONS IN SUPPORT OF THIS DISSERTATION.....	iii
ABSTRACT.....	iv
ACKNOWLEDGEMENTS.....	v
TABLE OF CONTENTS	vi
LIST OF FIGURES.....	x
ABBREVIATIONS USED.....	xii
OPERATIONAL DEFINITION OF TERMS.....	xiv
Chapter 1	Error! Bookmark not defined.
INTRODUCTION.....	Error! Bookmark not defined.
1.1 Statement of the Problem.....	Error! Bookmark not defined.
1.2 Research Question.....	Error! Bookmark not defined.
1.3 Aim of the Study.....	Error! Bookmark not defined.
1.3.1 Objectives of the Study.....	Error! Bookmark not defined.
1.4 Relevance of this Study.....	Error! Bookmark not defined.
Chapter 2	Error! Bookmark not defined.
REVIEW OF LITERATURE.....	Error! Bookmark not defined.
2.1 Introduction	Error! Bookmark not defined.
2.2 Factors Affecting Occupational Performance in the Child with an Autistic Spectrum Disorder.....	Error! Bookmark not defined.
2.2.1 The relationship between Occupational Performance and Sensory Processing in the Child with Autistic Spectrum Disorder.....	Error! Bookmark not defined.
2.2.1.1 Personal Management.....	Error! Bookmark not defined.
2.2.1.2 Social Interaction.....	Error! Bookmark not defined.
2.2.1.3 Communication.....	Error! Bookmark not defined.
2.2.1.4 Play.....	Error! Bookmark not defined.
2.2.1.5 Schooling.....	Error! Bookmark not defined.
2.2.2 The relationship between Occupational Performance in the Child with Autistic Spectrum Disorder and Parent Stress.....	Error! Bookmark not defined.
2.2.2.1 Family Time	Error! Bookmark not defined.
2.2.2.2 Atypical Behaviour in the Child with Autistic Spectrum Disorder.....	Error! Bookmark not defined.
2.2.2.3 Social Support and Life Satisfaction.....	Error! Bookmark not defined.
2.2.3 Outcome Measures for Sensory Processing and Parent Stress.....	Error! Bookmark not defined.
2.2.3.1 The Short Sensory Profile (SSP).....	Error! Bookmark not defined.
2.2.3.2 Parenting Stress Index – Short Form (PSI-SF).....	Error! Bookmark not defined.
2.3 Role of the Occupational Therapist in Children with Autistic Spectrum Disorder.....	Error! Bookmark not defined.
2.3.1 Effectiveness of Occupational Therapy using a Sensory Integration Frame of Reference with Children with Autistic Spectrum Disorders.....	Error! Bookmark not defined.
2.3.1.1 Fidelity to Treatment Measure for Occupational Therapy using a Sensory Integration Frame of Reference.....	Error! Bookmark not defined.
2.3.1.2 Methodologies used in Research on Occupational Therapy using a Sensory Integration Frame of Reference.....	Error! Bookmark not defined.
2.4 Occupational Performance Outcomes	Error! Bookmark not defined.
2.4.1 Review of Occupational based Tests.....	Error! Bookmark not defined.
2.5 Conclusion	Error! Bookmark not defined.
Chapter 3	Error! Bookmark not defined.

METHODOLOGY	Error! Bookmark not defined.
3.1 The Process of Outcome Measure Development	Error! Bookmark not defined.
3.2 PART 1 Development of an Occupational Performance Questionnaire	Error! Bookmark not defined.
Step 1 Establishing the Need for the Outcome Measure, the Purpose and Intended Population	Error! Bookmark not defined.
3.2.2 Step 2 Specification of the Underlying Construct and Sub- Constructs of the Occupational Performance Questionnaire (OPQ)	Error! Bookmark not defined.
3.2.3 Step 3 Operationalisation of the Constructs and Sub-Constructs	Error! Bookmark not defined.
3.2.3.1 Face Validity	Error! Bookmark not defined.
3.2.3.2 Pilot Study 1	Error! Bookmark not defined.
3.2.4 Step 4 Format of the Outcome Measure and Identification of Items. -The Structure of the Occupational Performance Questionnaire (OPQ) (Appendix A).....	Error! Bookmark not defined.
3.3 PART 2 Establishment of Content Validity and Reliability of the Occupational Performance Questionnaire.....	Error! Bookmark not defined.
3.3.1 Step 5 Content Validity Testing of the Occupational Performance Questionnaire	Error! Bookmark not defined.
3.3.1.1 Content validity	Error! Bookmark not defined.
3.3.1.2 Pilot Study 2	Error! Bookmark not defined.
3.3.1.3 Pilot Study 3	Error! Bookmark not defined.
3.3.1.4 Changes made to the Occupational Performance questionnaire as a result of Pilot Study 2 and 3 (A:1 to A:2).....	Error! Bookmark not defined.
3.3.1.5. Review by Subject Specialist.....	Error! Bookmark not defined.
General Information.....	Error! Bookmark not defined.
Occupational Performance Areas.....	Error! Bookmark not defined.
3.3.2 Layout and Scoring	Error! Bookmark not defined.
3.3.3 Response Process	Error! Bookmark not defined.
3.3.3.1 Pilot study 4.....	Error! Bookmark not defined.
3.3.4 Step 6 Reliability Testing on the Occupational Performance Questionnaire	Error! Bookmark not defined.
3.3.4.1 Test-Retest reliability	Error! Bookmark not defined.
3.3.4.2 Pilot Study 5	Error! Bookmark not defined.
3.3.4.3 Internal Consistency	Error! Bookmark not defined.
3.3.4.4 Inter-Rater or Inter-Observer Reliability	Error! Bookmark not defined.
3.4 PART 3 Testing of the Construct Validity and Response to Change and the Sensitivity of the Occupational Performance Questionnaire	Error! Bookmark not defined.
3.4.1 Step 7 Construct Validity and Response to Change and Sensitivity of the Occupational Performance Questionnaire	Error! Bookmark not defined.
3.4.1.1 Construct Validity.....	Error! Bookmark not defined.
Convergent Validity	Error! Bookmark not defined.
3.4.1 2 Response to Change and Sensitivity	Error! Bookmark not defined.
3.4.2 Research Design	Error! Bookmark not defined.
3.4.3 Participants - Parents and their Children with Autistic Spectrum Disorder	Error! Bookmark not defined.
3.4.3.1 Parents.....	Error! Bookmark not defined.
3.4.3.2 Children with Autistic Spectrum Disorder.....	Error! Bookmark not defined.
3.4.4 Sample Size	Error! Bookmark not defined.
3.4.5 Recruitment of Occupational Therapists.....	Error! Bookmark not defined.
3.4.3 Standardisation of the Occupational Therapy using a Sensory Integration Frame of Reference (OT-SI) Intervention.....	Error! Bookmark not defined.
3.4.3.1 Evaluation of Sensory Integration Intervention.	Error! Bookmark not defined.
3.4.3.2 Therapists' Training	Error! Bookmark not defined.
3.4.3.3 Treatment administration	Error! Bookmark not defined.
3.4.3.4 The therapeutic environment	Error! Bookmark not defined.
3.4.4 Ethical Considerations	Error! Bookmark not defined.

3.4.5 Measurement Techniques	Error! Bookmark not defined.
3.4.5.1 Parenting Stress Index – Short Form (PSI-SF)	Error! Bookmark not defined.
3.4.5.2 Short Sensory Profile (SSP)	Error! Bookmark not defined.
3.4.6 Research Procedure	Error! Bookmark not defined.
3.4.7 Data Analysis	Error! Bookmark not defined.
3.4.7.1 Demographic data	Error! Bookmark not defined.
3.4.7.2 Comparison of the Outcome Measures Scores for the two Groups	Error! Bookmark not defined.
3.4.7.3 Relationship between questionnaires results over time	Error! Bookmark not defined.
3.4.7.4 Change over time	Error! Bookmark not defined.
Chapter 4	Error! Bookmark not defined.
RESULTS OF INTERVENTION STUDY	Error! Bookmark not defined.
4.1 Participants in the Study	Error! Bookmark not defined.
4.2 Demographic Information	Error! Bookmark not defined.
4.2.1 Demographic Information for the Subjects-Children with Autistic Spectrum Disorder	Error! Bookmark not defined.
4.2.2 Family Demographics	Error! Bookmark not defined.
4.2.3 Milestone Achievement	Error! Bookmark not defined.
4.3 Outcome Measures at Baseline	Error! Bookmark not defined.
4.3.1 Occupational Performance Questionnaire (OPQ)	Error! Bookmark not defined.
4.3.2 Standardised Questionnaires	Error! Bookmark not defined.
4.3.2.1 Short Sensory Profile	Error! Bookmark not defined.
4.3.2.2 Parenting Stress Index- Short Form	Error! Bookmark not defined.
4.4 Convergent Validity (Correlations between Outcome Measures)	Error! Bookmark not defined.
4.4.1 Correlation between Total Scores of the Short Sensory Profile, Parenting Stress Index and Occupational Performance Questionnaire	Error! Bookmark not defined.
4.4.2 Correlation of Sub-Constructs of the Questionnaires	Error! Bookmark not defined.
4.4.2.1 Correlation of sub-constructs Short Sensory Profile (SSP) with sub-constructs of Occupational Performance Questionnaire (OPQ)	Error! Bookmark not defined.
There does not appear to be convergence or divergence of the constructs or sub-constructs at baseline. Although it had been assumed that these constructs were related this was not the case for this sample initially (Table 4.4.2).	
4.4.2.2 Correlation of sub-constructs Parent Stress Questionnaire (PSI) with sub-constructs of Occupational Performance Questionnaire (OPQ) Family Impact	Error! Bookmark not defined.
4.5 Test Response to Change and Sensitivity	Error! Bookmark not defined.
4.5.1 Change in Questionnaire Scores over the Study Period	Error! Bookmark not defined.
4.5.1.2 Occupational Performance Questionnaire	Error! Bookmark not defined.
4.5.1.3 Change in the Sensory Profile	Error! Bookmark not defined.
4.5.1.4 Change in the Parenting Stress Index-Short Form	Error! Bookmark not defined.
4.5.2 Correlations of Change over time	Error! Bookmark not defined.
4.5.2.1 Correlations between changes in the sub-constructs of the Occupational Performance Questionnaire and other questionnaires	Error! Bookmark not defined.
4.5.2.2 Correlations between change in Parenting Stress and change in the Occupational Performance Questionnaire: Family Impact	Error! Bookmark not defined.
4.6 Conclusion	Error! Bookmark not defined.
Chapter 5	Error! Bookmark not defined.
DISCUSSION	Error! Bookmark not defined.
5.1 Study Sample and Research Design	Error! Bookmark not defined.
5.2 Development and the Uni-Dimensionality and Consequential Validity of the Occupational Performance Questionnaire	Error! Bookmark not defined.
5.3 Construct Validity of the Occupational Performance Questionnaire	Error! Bookmark not defined.
5.3.1 Sensory Processing and Occupational Performance Areas	Error! Bookmark not defined.

5.3.1.1 Personal management	Error! Bookmark not defined.
5.3.1.3 Play	Error! Bookmark not defined.
5.3.2 Parent Stress and Impact of Occupational Performance on the Family.....	Error! Bookmark not defined.
5.4 RESPONSE TO CHANGE AND SENSITIVITY OF THE OCCUPATIONAL PERFORMANCE QUESTIONNAIRE	Error! Bookmark not defined.
5.5 IMPLICATIONS AND RECOMMENDATIONS.....	Error! Bookmark not defined.
5.5 CONCLUSION	Error! Bookmark not defined.
Chapter 6	Error! Bookmark not defined.
CONCLUSION	Error! Bookmark not defined.
6.1 Generalised findings to phenomena not directly related to present research.....	Error! Bookmark not defined.
6.2 Recommendations for future studies	Error! Bookmark not defined.
REFERENCES	112
APPENDICES	
Appendix A	A-1
Appendix B	A-23
Appendix C	A-26
Appendix D	A-29
Appendix E	A-40
Appendix F	A-43
Appendix G	A-46

LIST OF FIGURES

Figure 4.5.1 Change in scores on three questionnaires over the study period **Error! Bookmark not defined.**

Figure 4.5.2 Correlation between Short Sensory Profile and Occupational Performance Questionnaire **Error! Bookmark not defined.**

Figure 4.5.3 Correlation between the Parent Stress Index and Occupational Performance Questionnaire **Error! Bookmark not defined.**

WILS ETD

LIST OF TABLES

Table 3.3.1.3 Changes made to the Occupational Performance Questionnaire	Error! Bookmark not defined.
Table 3.3.2.1 Scoring guide for the Occupational Performance Questionnaire	Error! Bookmark not defined.
Table 3.3.2.2 Scoring Guide for item 2.1	Error! Bookmark not defined.
Table 3.3.3 Changes made to Occupational Performance Questionnaire based on feedback from a supervisor and subject specialist (draft A:2 – A: 3)	Error! Bookmark not defined.
Table 3.3.4.2 Correlations for test-retest reliability.....	Error! Bookmark not defined.
Table 3.3.4.3 Occupational Performance Questionnaire: Internal reliability	Error! Bookmark not defined.
Table 3.4.7.2 Example of conversion of SSP Raw scores to “z” scores	Error! Bookmark not defined.
Table 3.7.4.3 Strength of correlation between variables	Error! Bookmark not defined.
Table 4.2.1 Demographic information for Groups 1 and 2 ..	Error! Bookmark not defined.
Table 4.2.2 Therapy received at the time of the study in Groups 1 and 2	Error! Bookmark not defined.
Table 4.2.3 Schooling at the time of the study in Groups 1 and 2	Error! Bookmark not defined.
Table 4.2.4 Demographic information of Families in Groups 1 and 2	Error! Bookmark not defined.
Table 4.2.5 Baseline milestone scores for Groups 1 and 2.	Error! Bookmark not defined.
Table 4.3.1 Baseline occupational performance for Groups 1 and 2	Error! Bookmark not defined.
Table 4.3.2 Baseline Short Sensory Profile information for Groups 1 and 2	Error! Bookmark not defined.
Table 4.3.3 Baseline Parenting Stress Index information for Groups 1 and 2	Error! Bookmark not defined.
Table 4.4.1 Correlations of individual raw scores over three assessment periods	
Table 4.4.2 Correlations at Baseline of Short Sensory Profile to the Occupational Performance Questionnaire (OPQ) sub-constructs	Error! Bookmark not defined.
Table 4.4.3 Correlations at 6 months of Short Sensory Profile to the Occupational Performance Questionnaire (OPQ) sub-constructs	Error! Bookmark not defined.
Table 4.4.4 Correlations at 12 months of Short Sensory Profile to the Occupational Performance Questionnaire (OPQ) sub-constructs	Error! Bookmark not defined.
Table 4.4.5 Correlations at Baseline, 6 months and 12 months of Parent Stress Questionnaire to the Family Impact aspect of the Occupational Performance Questionnaire (OPQ)	Error! Bookmark not defined.
Table 4.5.1 Change in OPQ and subsections over the study period	Error! Bookmark not defined.
Table 4.5.2 Depicts changes in the Sensory Profile and subsections over the study period.....	Error! Bookmark not defined.
Table 4.5.3 The changes in total parent stress and subtest scores over the study period	Error! Bookmark not defined.
Table 4.5.4 Correlation between changes in the Short Sensory Profile and changes in the sub-constructs of the Occupational Performance Questionnaire	Error! Bookmark not defined.
Table 4.5.5 Correlation between change in OPQ: Family Impact and Parenting Stress	Error! Bookmark not defined.

ABBREVIATIONS USED

ABA	Applied Behaviour Analysis
AD	Autistic Disorder
ADHD	Attention Deficit Hyperactivity Disorder
ADL	Activities of Daily Living
AGM	Annual General Meeting
AS	Asperger Syndrome
ASD	Autistic Spectrum Disorder
CA	Chronological age
CDC	Children's Disability Centre
CMI	Children's Memorial Institute for Childhood and Family Development
CNS	Central Nervous System
COPM	Canadian Occupational Performance Measure
DC	Difficult Child subscale
DISCO	Diagnostic Interview for Social and Communication Disorders
DSM IV :TR	Diagnostic and Statistical Manual of Psychiatric Disorders – Fourth Edition Text Revision
EDR	Electrodermal Reactivity
EEG	Electro-encephalograph
FIM	Functional Independence Measure
FXS	Fragile X Syndrome
HFA	High Functioning Autism
HRQL	Health-Related Quality of Life
IQ	Intelligence quotient
NDT	Neurodevelopmental Therapy
OCD	Obsessive Compulsive Disorder
OPM	Australian Occupational Performance Measure
OPQ	Occupational Performance Questionnaire
OPQ:FI	Occupational Performance Questionnaire – Family Impact
OPQ:SI	Occupational Performance Questionnaire – Social Interaction
OT	Occupational Therapy
OT-SI	Occupational Therapy using a Sensory Integration frame of reference
MA	Mental Age
MAP	Miller Assessment for Pre-schoolers
M-COPM	Modified Canadian Occupational Performance Measure
MR	Mental Retardation

Development of a questionnaire to determine change in the occupational performance of pre-school children with Autistic Spectrum Disorders receiving Occupational Therapy - Sensory Integration

OPQ	Occupational Performance Questionnaire
PD	Parental Distress
P-CDI	Parent-Child Dysfunctional Interaction
PDD	Pervasive Developmental Disorder
PDD-NOS	Pervasive Developmental Disorder- Not otherwise specified
PEDI	Pediatric Evaluation of Disability Inventory
PSI-SF	Parenting Stress Index – Short Form
RR	Retest Reliability
SAISI	South African Institute for Sensory Integration
SI	Sensory Integration
SIPT	Sensory Integration and Praxis test
SMD	Sensory Modulation disorder
SPD	Sensory Processing Disorder
SPM	Sensory Processing Measure
SSP	Short Sensory Profile
TSI	DeGangi-Berk Test of Sensory Integration
VABS-2	Vineland Adaptive Behavior Scales – second edition

OPERATIONAL DEFINITION OF TERMS

Pre-School Child

Children who have received occupational therapy intervention before the age of seven years, who have been diagnosed during the period two to seven years as having an autism spectrum disorder by a specialist medical practitioner.

Autistic Spectrum Disorders (Pervasive Developmental Disorders)

Autism is considered to be a spectrum of neurobiological disorders also known as the Pervasive Developmental Disorder group (PDD). The spectrum encompasses the diagnoses of Autism, Pervasive Developmental Disorder - not otherwise specified (PDD-NOS), Asperger syndrome; the less commonly seen Rhett syndrome, and Childhood Disintegration Disorders (American Psychiatric Association, 2001).

Autistic Disorder

- A.
 - (1) Qualitative impairment in social interaction,
 - (2) Qualitative impairments in communication,
 - (3) Restricted repetitive, stereotyped patterns of behaviour, interests and activities, (American Psychiatric Association, 2000)
 - (4) Delays in functioning in at least one of the following (social interaction, social communication with language, symbolic or imaginative play) (American Occupational Therapy Association, 2008).
- B. Restricted or abnormal functioning in social interaction, language as used in social communication or symbolic or imaginative play with onset prior to three years of age (American Psychiatric Association, 2001).
- C. The Multisystem Developmental Disorder diagnosis (MSDD) (Emde, Egger, Guedeney, Emmons, Wise & Wolkowitz, 2005) includes the following additional diagnostic criteria in the evaluation of infants and toddlers less than two years old:
 - (1) Significant dysfunction in the processing of visual, auditory, tactile proprioceptive and vestibular sensations, including hyper-reactivity and hypo-reactivity to sensory input.
 - (2) Significant dysfunction in motor planning (sequencing movements) (Emde et al. 2005).

Occupational Performance

“The act of doing and accomplishing a selected activity or occupation; resulting from the dynamic transaction between the client, the context, and the activity” (p 83) (Law, Baptiste, McColl, Polatajko & Pollack, 1990). Improving or enabling skills and patterns in occupational performance leads to engagement in occupations or activities. For the pre-school child this includes: the assessment of personal management, (toileting, sleeping, eating); social ability; constructive use of free time, which for this age group is play; and work ability, which would be participation in age-appropriate schooling (Crouch & Alers, 2005).

Play

“Any spontaneous or organized activity that provides enjoyment, entertainment, amusement, or diversion” (p 252) (Parham & Fazio, 1997). Play is a childhood occupation crucial for adaptation, well being and participation in society and is thus of primary concern to practitioners working with young children with developmental disabilities such as autism.

Occupational therapy

The practice of occupational therapy means the therapeutic use of everyday life activities (occupations) with individuals or groups for the purpose of participation in roles and situations in home, school, workplace, community, and other settings. Occupational therapy services are provided for the purpose of promoting health and wellness and to those who have or are at risk for developing an illness, injury, disease, disorder, condition, impairment, disability, activity limitation, or participation restriction. Occupational therapy addresses the physical, cognitive, psychosocial, sensory, and other aspects of performance in a variety of contexts to support engagement in everyday life activities that affect health, well-being, and quality of life (Smith-Roley, 2008; American Occupational Therapy Association, 2004).

Sensory Integration

Sensory integration is “the organization of sensation for use” (p 5) (Ayres, 2004). It is a complex set of processes in the central nervous system including modulation, perceptual and practice functions. Sensory Integration refers to a clinical frame of reference for the assessment and treatment of persons who have functional disorders in sensory processing. It originated in the work of Dr. A.J. Ayres whose clinical insights and original

research revolutionized occupational therapy practice with children (Parham & Mailloux, 1996).

Parenting Stress

Parenting a child with a chronic disability is often highly stressful. Stress is attributed to intrinsic parental issues, the extra physical and emotional demands placed on parents due to a difficult child and parent-child relationship issues (Abidin, 1995).

Quality of life

A clients' dynamic appraisal of life satisfactions (their perceptions of progress toward identified goals), self-concept (the composite of beliefs and feelings about themselves), health and functioning (including health status, self-care capabilities), and socioeconomic factors (e.g., vocation, education, income) determine quality of life (Smith-Roley, 2008; Radomski, 1995; Zhan, 1992). It is the role of occupational therapists to ensure that the larger population of at-risk children and infants, who survive in the 21st Century, will have the satisfaction of a life worth living. This implies meaning "in the stream of life" of rest, self-care, play/work and leisure. The skills required for success in the work place are founded in the nursery school and on the playground of childhood, in the social as well as the physical interactions (Yerxa, Clark, Jackson, Pierce & Zemke, 1989).

Outcomes

The outcomes are what occupational therapy actually achieves for the consumers of its services (Fuhrer, 1987). This implies the change desired by the client; and can focus on any aspect of the client's occupational performance (Kramer, McGonigel & Kaufman, 1991). Selecting types of outcomes and measures, includes but is not limited to occupational performance, adaptation, participation, prevention of occupational deprivation, parent's health and wellness, prevention of parental occupational imbalance and alienation, and preservation of quality of life (Smith-Roley, 2008).