



05-4506832



pustaka.upsi.edu.my



Perpustakaan Tuanku Bainun
Kampus Sultan Abdul Jalil Shah



PustakaTBainun



ptbupsi



MONASH University

**The impacts of parent-mediated home-based DIR/Floortime® intervention
on children with Autism Spectrum Disorder and their parents in the
Malaysian context: A preliminary mixed methods investigation**



05-4506832



pustaka.upsi.edu.my



Perpustakaan Tuanku Bainun
Kampus Sultan Abdul Jalil Shah



PustakaTBainun



ptbupsi

Iylia Dayana Shamsudin

Bachelor of Occupational Therapy (Hons)

Master of Social Science (Human Development)

A thesis submitted for the degree of Doctor of Philosophy at Monash University in 2018

Department of Occupational Therapy



05-4506832



pustaka.upsi.edu.my



Perpustakaan Tuanku Bainun
Kampus Sultan Abdul Jalil Shah



PustakaTBainun



ptbupsi



Abstract

Background: Parent-mediated interventions (PMI) are an underutilised but effective approach in improving children with autism spectrum disorder's (ASD) communication, social, self-care, play, and behavioural issues as well as promoting parents' quality of life and psychological wellbeing. The Developmental, Individual-difference, and Relationship-based (DIR)/Floortime® intervention approach is one of the PMIs often utilised with children with ASD and has been recommended to be offered to families of children with ASD by the Malaysia Ministry of Health.

Aim: The aim of this study was to investigate the impact/s of a parent-mediated home-based intervention program based on the DIR/Floortime® model on children with ASD's pretend play, child-parent interactions, parents' quality of life, psychological wellbeing and parenting competence, as well as its applicability among families of children with ASD in the Malaysian cross-cultural context. The intervention program based on the DIR/Floortime® model was introduced to Malaysian parents of children with ASD and facilitated by an occupational therapist.

Method: The study involved ten parent/s-child with ASD dyads, aged between four to nine years old from Malaysia. A mixed methods approach involving a multiple single subject research design (SSRD) was used to investigate the study's aims. Child-parent interactions were evaluated through child-parent free play sessions and the child with ASD's pretend play was measured using the Test of Pretend Play (ToPP). Parents' quality of life, parenting competence and psychological wellbeing were assessed using the Malay translated versions of the Quality of Life in Autism Questionnaire (QoLA), Parenting Sense of Competence Scale (PSOC), and Bahasa Malaysia Depression Anxiety Stress 21-items (BM DASS-21), respectively. Key informant interview (KII) with parents were conducted to collect



qualitative data exploring the applicability and utility of implementing the parent-mediated home-based DIR/Floortime® intervention on children with ASD in a Malaysian cultural context. The visual and statistical analyses of the graphical data were used to determine the DIR/Floortime® intervention's impacts on child-parent interactions, while descriptive statistics were used to evaluate the changes in children with ASD's pretend play and parents' measures. Parents' interviews were analysed using the Qualitative Content Analysis (QCA) approach.

Results: Implementation of the intervention program based on the DIR/Floortime® model resulted in improved child-parent interactions in addition to increased parental levels of self-perceived quality of life, depression, anxiety and parenting competence. Parental level of stress increased slightly at the end of the intervention. Qualitative content analysis revealed five themes with several categories describing parental perceptions of (1) DIR/Floortime® intervention, (2) challenges in implementation and engagement in DIR/Floortime®, (3) benefits and limitations of play for children with ASD, (4) improvements and changes in child and parents' abilities and skills, and (5) parents' views and suggestions about the DIR/Floortime® intervention program.

Discussion: Through the implementation of parent-mediated home-based program based on the DIR/Floortime® approach, children with ASD received a more intensive intervention which led to notable improvements in their social, communication, self-care, and play skills. These improvements had a positive impact on parents' self-reported quality of life, psychological wellbeing and parenting competency. The majority of the Malaysian families with a child with ASD enrolled in the study were able to implement the DIR/Floortime® intervention as required, however, they encountered some challenges. To achieve maximum success, the parent participants received continuous professional supports via coaching, feedback and discussion sessions during the biweekly follow-up visits with the occupational

therapist. Several improvements could be made to increase parents' efficiency in implementing the DIR/Floortime® program in a Malaysian context based on parents' suggestions, including providing parents with a semi-structured intervention manual or guidelines that explained the DIR/Floortime® program with clear examples, and increase the number of sample videos that demonstrated the implementation of DIR/Floortime® techniques that parents could view.

Conclusion: The study showed promising impacts of DIR/Floortime® intervention program on child-parent interactions, children's pretend play, parents' quality of life, parents' psychological wellbeing and parenting competence. The continued use of the DIR/Floortime® model in Malaysia is recommended along with further research that examines its effectiveness and feasibility in Malaysian contexts. Through this study, a parent-mediated home-based program based on the principles of the DIR/Floortime® model was shown to be applicable to practice among families of children with ASD in the Malaysian context.




















Table of Contents











| | |
|--|-------|
| Abstract | ii |
| Declaration | v |
| Acknowledgments | vi |
| Table of Contents | vii |
| List of Tables | xvii |
| List of Figures | xxi |
| List of Acronyms | xxv |
| List of Symbols | xxxii |
| List of Appendices | xxxii |
| Chapter 1 | 1 |
| Introduction | 1 |
| Chapter 2 | 5 |
| Literature review | 5 |
| 2.1 Introduction | 5 |
| 2.2 Children development | 6 |
| 2.2.1 Cognitive development | 6 |
| 2.2.2 Language development | 9 |
| 2.2.3 Social emotional development | 10 |
| 2.2.4 Children development and play | 14 |
| 2.3 Play | 15 |
| 2.3.1 Definition and characteristics of play | 15 |



| | | |
|-------|---|----|
| 2.3.2 | Play theories | 17 |
| 2.3.3 | The types of play and development of play | 19 |
| 2.3.4 | The importance of play | 24 |
| 2.3.5 | Play Assessments | 25 |
| 2.4 | Autism Spectrum Disorder (ASD) | 28 |
| 2.4.1 | Characteristics, severity level and prevalence of ASD | 28 |
| 2.4.2 | Play of children with ASD | 36 |
| 2.4.3 | ASD and pretend play | 37 |
| 2.4.4 | ASD and theory of mind | 39 |
| 2.5 | Parents of children with Autism Spectrum Disorder (ASD) | 42 |
| 2.5.1 | Impacts of Autism Spectrum Disorder (ASD) on parents of children with ASD | 42 |
| 2.5.2 | Support systems | 43 |
| 2.5.3 | Family and siblings | 44 |
| 2.5.4 | Financial burden | 46 |
| 2.5.5 | Health | 48 |
| 2.5.6 | Assessment tools | 50 |
| 2.6 | Developmental, Individual-difference, Relationship-based (DIR) Model | 56 |
| 2.6.1 | Foundations of Developmental, Individual-difference, Relationship-based (DIR) Model | 56 |
| 2.6.2 | Floortime® approach | 63 |
| 2.6.3 | Assessment method of the DIR/Floortime® intervention approach | 66 |

| | | |
|---|--|-----|
|  05-4506832  pustaka.upsi.edu.my  Perpustakaan Tuanku Bainun Kampus Sultan Abdul Jalil Shah  PustakaTBainun  ptbupsi | | |
| 2.6.4 | Effectiveness of DIR/Floortime® intervention approach | 67 |
| 2.6.5 | Parent-child interactions | 76 |
| 2.7 | Theoretical Foundations and Practice Models | 78 |
| 2.7.1 | The Canadian Model of Occupational Performance and Engagement (CMOP-E) | 78 |
| 2.7.2 | The International Classification of Functioning, Disability and Health (ICF) | 80 |
| 2.7.3 | Ecological System Theory / Bioecological theory | 82 |
| 2.7.4 | Application of theories and models in present study | 85 |
| 2.8 | Proposed methodology | 95 |
| 2.8.1 | Single-subject research | 96 |
| 2.8.2 | Single-subject research designs | 97 |
|  05-4506832  pustaka.upsi.edu.my  Perpustakaan Tuanku Bainun Kampus Sultan Abdul Jalil Shah  PustakaTBainun  ptbupsi | | |
| 2.8.3 | Collection of data in single-subject research | 103 |
| 2.8.4 | Data reporting in single-subject research | 104 |
| 2.8.5 | Analysis of single-subject data | 104 |
| 2.9 | Autism in the Malaysian context | 108 |
| Chapter 3 | | 114 |
| Methodology | | 114 |
| 3.1 | Introduction | 114 |
| 3.2 | Design | 114 |
| 3.2.1 | A-B Design | 115 |
| 3.2.2 | Participants | 116 |
| 3.2.3 | Sample size | 120 |
|  05-4506832  pustaka.upsi.edu.my  Perpustakaan Tuanku Bainun Kampus Sultan Abdul Jalil Shah  PustakaTBainun  ptbupsi | | ix |

| | | |
|-------|---|-----|
| 3.2.4 | Recruitment of participant | 120 |
| 3.3 | Instrumentation | 121 |
| 3.3.1 | Instruments used with children with ASD | 122 |
| 3.3.2 | Instruments for parents of children with ASD | 125 |
| 3.3.3 | Effectiveness of DIR/Floortime® intervention approach using frequency of Circles of Communication (CoC) | 134 |
| 3.4 | Translation and adaptation of QoLA and PSOC into Malay language | 134 |
| 3.4.1 | Step 1: Forward-translation from English into Malay language | 135 |
| 3.4.2 | Step 2: Pilot testing and review process with native Malay speakers | 136 |
| 3.4.3 | Step 3: Translation and cultural equivalences testing via expert committee discussion | 138 |
| 3.4.4 | Step 4: Blind back-translation from Malay into English | 139 |
| 3.4.5 | Step 5: Translation equivalence testing via review and evaluation of the back-translated version | 139 |
| 3.5 | Adaptation process of Test of Pretend Play (ToPP) | 146 |
| 3.6 | Intervention program | 150 |
| 3.6.1 | Parents' training stage | 151 |
| 3.6.2 | Home-based intervention stage | 154 |
| 3.7 | Procedure | 156 |
| 3.7.1 | Step 1: Assessment translation and validation | 156 |
| 3.7.2 | Step 2: Test of Pretend Play's (ToPP) adaptation | 158 |
| 3.7.3 | Step 3: Ethical application and considerations | 159 |

| | | |
|---|---|-----|
|  05-4506832  pustaka.upsi.edu.my  Perpustakaan Tuanku Bainun Kampus Sultan Abdul Jalil Shah  PustakaTBainun  ptbupsi | | 160 |
| 3.7.4 | Step 4: Recruitment of participants | |
| 3.7.5 | Step 5: Pre-intervention phase | 162 |
| 3.7.6 | Step 6: Intervention phase – the training of parents’ program | 164 |
| 3.7.7 | Step 7: Intervention phase – parent-implemented home-based intervention program | 165 |
| 3.7.8 | Step 8: Post-intervention phase | 167 |
| 3.8 | Data Collection | 168 |
| 3.8.1 | Quantitative data collection | 168 |
| 3.8.2 | Qualitative data collection | 170 |
| 3.9 | Data Analysis | 171 |
| 3.9.1 | Quantitative data analysis | 171 |
|  05-4506832  pustaka.upsi.edu.my  Perpustakaan Tuanku Bainun Kampus Sultan Abdul Jalil Shah  PustakaTBainun  ptbupsi | | 174 |
| 3.9.2 | Qualitative data analysis | |
| 3.10 | Research rigour | 180 |
| 3.11 | Summary | 182 |
| Chapter 4 | | 183 |
| Results – Quantitative data | | 183 |
| 4.1 | Introduction | 183 |
| 4.2 | DIR/Floortime® home-based intervention program | 184 |
| 4.3 | Study participants | 185 |
| 4.3.1 | Cases included in data analysis | 185 |
| 4.4 | Data analysis | 188 |
| 4.5 | Results | 189 |

| | | |
|----------------------------|---|-----|
| 4.5.1 | Inter-rater reliability analysis of the frequencies of CoCs | 190 |
| 4.5.2 | Demographic characteristics | 191 |
| 4.5.3 | Hours of DIR/Floortime® engagement at home for all cases | 192 |
| 4.5.4 | Case 1 | 192 |
| 4.5.5 | Case 2 | 221 |
| 4.5.6 | Case 3 | 240 |
| 4.6 | Summary of quantitative results for all cases | 267 |
| 4.6.1 | Summary of visual analysis of the frequencies of Circle of Communication (CoC) | 267 |
| 4.6.2 | Summary of statistical analysis of the frequencies of Circle of Communication (CoC) | 272 |
| 4.6.3 | Summary of parent participants' Quality of Life in Autism (QoLA) scores | 275 |
| 4.6.4 | Summary of parent participants' Depression Anxiety Stress 21 (DASS-21) scores | 278 |
| 4.6.5 | Summary of parent participants' Parental Sense of Competence (PSOC) scores | 282 |
| 4.6.6 | Summary of children with ASD participants' Test of Pretend Play (ToPP) scores | 284 |
| Chapter 5 | | 286 |
| Results – Qualitative data | | 286 |
| 5.1 | Introduction | 286 |

5.2 Semi-structured interview with parents of children with Autism Spectrum Disorder

(ASD) 286

5.3 Qualitative content analysis 287

5.4 Establishing rigour in the data analysis process 287

5.4.1 Credibility 288

5.4.2 Dependability and confirmability 291

5.5 Themes 292

5.5.1 Theme one – Parental perceptions on DIR/Floortime® intervention approach 292

5.5.2 Theme two – Challenges in implementation of and engagement in
DIR/Floortime® 310

5.5.3 Theme three – Parents' perceptions on their child's play: Benefits and

5.6 Limitations 320

5.5.4 Theme four – Improvements and changes in children and parents' abilities and
skills 322

5.5.5 Theme five – Parental views and suggestions about DIR/Floortime®
intervention program 350

Chapter 6 360

Discussion 360

6.1 Introduction 360

6.2 DIR/Floortime® – Is it beneficial? 360

6.2.1 Impact of the DIR/Floortime® home-based intervention on child-parent
interactions 361

| | | |
|-------|--|-----|
| 6.2.2 | Impact of the DIR/Floortime® home-based intervention on parents' quality of life, wellbeing and sense of competence | 372 |
| 6.2.3 | Indirect impact of the DIR/Floortime® home-based intervention based on parents' reports: parental improved knowledge and skills | 386 |
| 6.2.4 | Impact of the DIR/Floortime® home-based intervention on children with ASD's pretend play | 392 |
| 6.2.5 | Indirect impact of the DIR/Floortime® home-based intervention based on parents' reports: children with ASD improved skills, behaviour and expression of positive emotion | 407 |
| 6.2.6 | Summary of the benefits of the DIR/Floortime® home-based intervention | 414 |
| 6.2.7 | Theoretical contextualisation of the study's findings | 415 |
| 6.3 | DIR/Floortime® – Is it practical? | 421 |
| 6.3.1 | Time requirements of engaging in the DIR/Floortime® sessions at home with children with ASD | 421 |
| 6.3.3 | Cultural applicability, resources and cost to practice DIR/Floortime® | 430 |
| 6.4 | DIR/Floortime® in Malaysia: What's next? | 433 |
| 6.4.1 | Resources | 434 |
| 6.4.2 | DIR/Floortime® intervention provider | 437 |
| 6.4.3 | DIR/Floortime® intervention approach training | 439 |
| 6.4.4 | Financial | 441 |
| 6.4.5 | Organisational support | 443 |
| 6.4.6 | Sociocultural appropriateness of the DIR/Floortime® intervention | 444 |

| | |
|--|-----|
| 6.5 Conclusion | 445 |
| Chapter 7 | 447 |
| Conclusion | 447 |
| 7.1 Introduction | 447 |
| 7.2 Strengths and limitations of the study | 447 |
| 7.2.1 Methodological quality issues consideration related to single-subject design (SSD) | 450 |
| 7.3 Recommendations for future research | 453 |
| 7.4 Implications for occupational therapy practice | 455 |
| References | 457 |
| Appendices | 515 |
| Appendix 1 | 515 |
| Appendix 2 | 516 |
| Appendix 3 | 518 |
| Appendix 4 | 523 |
| Appendix 5 | 524 |
| Appendix 6 | 525 |
| Appendix 7 | 537 |
| Appendix 8 | 539 |
| Appendix 9 | 540 |
| Appendix 10 | 542 |
| Appendix 11 | 549 |

| | | | | |
|---|--|---|---|--|
|  05-4506832 |  pustaka.upsi.edu.my |  Perpustakaan Tuanku Bainun Kampus Sultan Abdul Jalil Shah |  PustakaTBainun |  ptbupsi |
| Appendix 12 | | | | 552 |
| Appendix 13 | | | | 553 |
| Appendix 14 | | | | 555 |
| Appendix 15 | | | | 556 |
| Appendix 16 | | | | 560 |



| Tables | Pages |
|---|-------|
| 2.1 The sequence of language development | 11 |
| 2.2 The development of emotional expressiveness and understanding | 13 |
| 2.3 Development of sensorimotor play and types of play associated in each sub-stage | 20 |
| 2.4 The development of object play and types of play in each stage | 21 |
| 2.5 The development of symbolic play | 22 |
| 2.6 The development and categories of social play | 23 |
| 2.7 Play assessment tools | 29 |
| 2.8 Severity level for ASD | 34 |
| 2.9 Functional emotional developmental capacities | 58 |
| 2.10 Outcome patterns of DIR / Floortime model approach intervention | 68 |
| 3.1 Quality of Life in Autism Questionnaire (QoLA) items | 127 |
| 3.2 BM DASS-21 Items | 131 |
| 3.3 Parenting Sense of Competence Scale (PSOC) items | 132 |
| 3.4 Original English QoLA and Malay version of QoLA | 142 |
| 3.5 Original English PSOC and Malay version of PSOC | 145 |
| 3.6 Original and adapted ToPP set of toys and materials | 151 |
| 4.1 List of participants | 187 |
| 4.2 Inter-rater agreement analysis | 190 |



| | | |
|------|---|-----|
| 4.3 | Demographic characteristics of parent (left) and child with ASD (right) participants | 191 |
| 4.4 | Time spent engaging in DIR/Floortime® at home per week (minutes) | 192 |
| 4.5 | Hours of engagement in the DIR/Floortime® intervention per week for Case 1 | 195 |
| 4.6 | Statistical analyses of parent-initiated directive communication between Mrs. A and Child A | 208 |
| 4.7 | Statistical analyses of parent-initiated directive communication between Mr. A and Child A | 209 |
| 4.8 | Statistical analyses of parent-initiated non-directive communication between Mrs. A and Child A | 210 |
| 4.9 | Statistical analyses of parent-initiated non-directive communication between Mr. A and Child A | 210 |
| 4.10 | Statistical analyses of child-initiated directive communication between Child A and Mrs. A | 211 |
| 4.11 | Statistical analyses of child-initiated directive communication between Child A and Mr. A | 211 |
| 4.12 | Statistical analyses of child-initiated non-directive communication between Child A and Mrs. A | 212 |
| 4.13 | Statistical analyses of child-initiated non-directive communication between Child A and Mr. A | 213 |
| 4.14 | ToPP scores of Child A | 218 |
| 4.15 | Hours of engagement in DIR/Floortime® intervention per week for Case 2 | 227 |

| | | |
|------|---|-----|
| 4.16 | Statistical analyses of parent-initiated directive communication between Mrs. B and Child B | 233 |
| 4.17 | Statistical analyses of parent-initiated non-directive communication between Mrs. B and Child B | 234 |
| 4.18 | Statistical analyses of child-initiated non-directive communication between Child B and Mrs. B | 235 |
| 4.19 | Hours of engagement in DIR/Floortime® intervention per week for Case 3 | 246 |
| 4.20 | Statistical analyses of parent-initiated directive communication between Mrs. C and Child C | 256 |
| 4.21 | Statistical analyses of parent-initiated directive communication between Mr. C and Child C | 256 |
| 4.22 | Statistical analyses of parent-initiated non-directive communication between Mrs. C and Child C | 257 |
| 4.23 | Statistical analyses of parent-initiated non-directive communication between Mr. C and Child C | 257 |
| 4.24 | Statistical analyses of child-initiated non-directive communication between Child C and Mrs. C | 258 |
| 4.25 | Statistical analyses of child-initiated non-directive communication between Child C and Mr. C | 258 |
| 4.26 | ToPP scores of Child C | 264 |
| 4.27 | Summary of visual analysis of average CoC frequencies for all participants | 268 |
| 4.28 | Summary of statistical analysis of average CoC frequencies for all participants | 273 |
| 4.29 | Parents' depression subscale scores and severity level | 278 |



05-4506832



pustaka.upsi.edu.my



Perpustakaan Tuanku Bainun
Kampus Sultan Abdul Jalil Shah



PustakaTBainun



ptbupsi

| | | |
|------|--|-----|
| 4.30 | Parents' anxiety subscale scores and severity level | 280 |
| 4.31 | Parents' stress subscale scores and severity level | 281 |
| 4.32 | ToPP scores of child with ASD participants | 285 |
| 6.1 | Number of participants observed during each data collection phase for each type of pretend play | 394 |
| 7.1 | Romeiser-Logan et al.'s (2008) single subject design review criteria applied to the current study | 451 |



05-4506832



pustaka.upsi.edu.my



Perpustakaan Tuanku Bainun
Kampus Sultan Abdul Jalil Shah



PustakaTBainun



ptbupsi



05-4506832



pustaka.upsi.edu.my



Perpustakaan Tuanku Bainun
Kampus Sultan Abdul Jalil Shah



PustakaTBainun



ptbupsi



List of Figures

| Figures | Pages |
|---|-------|
| 2.1 The Canadian Model of Occupational Performance-Engagement (CMOP-E) and trans-sectional view of the CMOP-E | 77 |
| 2.2 Interactions between the components of International Classification of Functioning, Disability and Health (ICF) | 80 |
| 2.3 The Bioecological Model | 82 |
| 3.1 Schematic of the proposed research design | 113 |
| 3.2 Translation and adaptation process | 137 |
| 3.3 Adapted ToPP version's dolls and teddy | 148 |
| 3.4 The materials for Item II.4 (left) and the original layout for Item II.4 (right) | 149 |
| 3.5 Layout for Item II.4 – seesaw play | 150 |
| 3.6 Six functional developmental levels based on DIR model | 153 |
| 3.7 Schematic of the intervention phase | 157 |
| 3.8 Study procedure | 158 |
| 4.1 Average Circle of Communication (CoC) frequencies for both Mrs. A and Mr. A with Child A across seven sessions | 197 |
| 4.2 Parent-initiated directive communication between Mrs. A and Child A | 198 |
| 4.3 Parent-initiated directive communication between Mr. A and Child A | 199 |
| 4.4 Standard deviation bands analysis results for parent-initiated directive communication for Case 1 | 200 |
| 4.5 Parent-initiated non-directive between Mrs. A and Child A | 201 |



| | | |
|------|---|-----|
| 4.6 | Parent-initiated non-directive communication between Mr. A and Child A | 202 |
| 4.7 | Standard deviation bands analysis results for parent-initiated non-directive communication for Case 1 | 203 |
| 4.8 | Child-initiated directive communication between Child A with Mrs. A | 204 |
| 4.9 | Child-initiated directive communication between Child A with Mr. A | 205 |
| 4.10 | Child-initiated non-directive communication between Child A and Mrs. A | 206 |
| 4.11 | Child-initiated non-directive communication between Child A and Mr. A | 207 |
| 4.12 | Standard deviation bands analysis results for child-initiated non-directive communication for Case 1 | 207 |
| 4.13 | QoLA scores for Mrs. A and Mr. A | 214 |
| 4.14 | BM DASS-21 subscales scores of Mrs. A and Mr. A | 215 |
| 4.15 | PSOC subscale scores for Mrs. A and Mr. A | 217 |
| 4.16 | Average Circle of Communication (CoC) frequency between Mrs. B and Child B across seven sessions | 227 |
| 4.17 | Parent-initiated directive communication between Mrs. B and Child B | 228 |
| 4.18 | Standard deviation bands analysis results for parent-initiated directive communication for Case 2 | 229 |
| 4.19 | Parent-initiated non-directive communication between Mrs. B and Child B | 230 |
| 4.20 | Standard deviation bands analysis result for parent-initiated non-directive communication for Case 2 | 231 |

| | | |
|------|--|-----|
| 4.21 | Child-initiated non-directive communication between Child B and Mrs. B | 232 |
| 4.22 | Standard deviation bands analysis result of child-initiated non-directive communication for Case 2 | 233 |
| 4.23 | QoLA scores for Mrs. B | 236 |
| 4.24 | BM DASS-21 subscales score of Mrs. B | 237 |
| 4.25 | PSOC scores of Mrs. B | 239 |
| 4.26 | Average Circle of Communication (CoC) frequency between Mrs. C and Mr. C and Child C across seven sessions | 247 |
| 4.27 | Parent-initiated directive communication between Mrs. C and Child C | 248 |
| 4.28 | Parent-initiated directive communication between Mr. C and Child C | 248 |
| 4.29 | Standard deviation bands analysis results for parent-initiated directive communication for Case 3 | 249 |
| 4.30 | Parent-initiated non-directive communication between Mrs. C and Child C | 250 |
| 4.31 | Parent-initiated non-directive communication between Mr. C and Child C | 251 |
| 4.32 | Standard deviation bands analysis results for parent-initiated non-directive communication for Case 3 | 252 |
| 4.33 | Child-initiated non-directive communication between Child C and Mrs. C | 253 |
| 4.34 | Child-initiated non-directive communication between Child C and Mr. C | 254 |
| 4.35 | Standard deviation bands analysis results for child-initiated non-directive communication for Case 3 | 255 |

| | | |
|------|---|-----|
| 4.36 | QoLA scores for Mrs. C and Mr. C | 259 |
| 4.37 | BM DASS-21 subscales scores of Mrs. C and Mr. C | 261 |
| 4.38 | PSOC scores of Mrs. C and Mr. C | 263 |
| 4.39 | QoLA Part A scores of parent participants | 276 |
| 4.40 | QoLA Part B scores of parent participants | 277 |
| 4.41 | Efficacy subscale scores of parent participants | 283 |
| 4.42 | Satisfaction subscale scores of parent participants | 284 |
| 5.1 | Triangulation process | 290 |
| 5.2 | Example of the triangulation process | 290 |



List of Acronyms

| | |
|------------|--|
| AAA | Assigning absent attribute |
| AJOT | American Journal of Occupational Therapy |
| ANZSCO | Australian and New Zealand Standard Classification of Occupations |
| ASD | Autism Spectrum Disorder |
| AUD | Australian Dollars |
| APA | American Psychiatric Association |
| BM DASS-21 | Bahasa Malaysia Depression Anxiety Stress Scale-21 |
| BM-PSOC | Bahasa Malaysia translated version of Parental Sense of Competence |
| BM-QoLA | Bahasa Malaysia translated version of Quality of Life in Autism |
| CAOT | Canadian Association of Occupational Therapy |
| CarerQoL | Care-related quality of life instrument |
| CBR | Community-based rehabilitation |
| CEM | Caregiver Education Module |
| CES-D | Centre for Epidemiologic Studies Depression Scale |
| ChIPPA | Child-Initiated Pretend Play Assessment |
| CI-D | Child-initiated directive communication |
| CI-ND | Child-initiated non-directive communication |
| CMM | Caregiver-Mediated Module |
| CMOP-E | Canadian Model of Occupational Performance-Engagement |
| CoC | Circle of communication |



| | |
|---------|--|
| CPG | Clinical Practice Guidelines |
| DASS-21 | Depression Anxiety Stress Scale-21 |
| DASS-42 | Depression Anxiety Stress Scale-42 |
| DC | Difficult Child |
| DIR | Developmental, Individual-differences and Relationship-based |
| DIR-FCD | Developmental, Individual differences and Relationship- Foundational Capacities for Development |
| DSM-5 | Diagnostic and Statistical Manual of Mental Disorders, Fifth edition |
| EPU | Economic Planning Unit |
| FDL | Functional developmental level |
| FEAS | Functional Emotional Assessment Scale |
| FEDQ | Functional Emotional Development Questionnaire |
| FTP | Floortime play |
| GDD | Global developmental delay |
| Hrs. | Hours |
| IAO | Imagining absent object |
| ICC | Intra-class correlation |
| ICDL | Interdisciplinary Council on Developmental and Learning Disorders |
| ICF | International Classification of Functioning, Disability and Health |
| ImPACT | Improving Parents As Communication Teachers |
| IQR | Inter-quartile range |