LEABHARLANN CHOLÁISTE NA TRÍONÓIDE, BAILE ÁTHA CLIATH | TRINITY COLLEGE LIBRARY DUBLIN
Ollscoil Átha Cliath | The University of Dublin

Terms and Conditions of Use of Digitised Theses from Trinity College Library Dublin

Copyright statement

All material supplied by Trinity College Library is protected by copyright (under the Copyright and Related Rights Act, 2000 as amended) and other relevant Intellectual Property Rights. By accessing and using a Digitised Thesis from Trinity College Library you acknowledge that all Intellectual Property Rights in any Works supplied are the sole and exclusive property of the copyright and/or other IPR holder. Specific copyright holders may not be explicitly identified. Use of materials from other sources within a thesis should not be construed as a claim over them.

A non-exclusive, non-transferable licence is hereby granted to those using or reproducing, in whole or in part, the material for valid purposes, providing the copyright owners are acknowledged using the normal conventions. Where specific permission to use material is required, this is identified and such permission must be sought from the copyright holder or agency cited.

Liability statement

By using a Digitised Thesis, I accept that Trinity College Dublin bears no legal responsibility for the accuracy, legality or comprehensiveness of materials contained within the thesis, and that Trinity College Dublin accepts no liability for indirect, consequential, or incidental, damages or losses arising from use of the thesis for whatever reason. Information located in a thesis may be subject to specific use constraints, details of which may not be explicitly described. It is the responsibility of potential and actual users to be aware of such constraints and to abide by them. By making use of material from a digitised thesis, you accept these copyright and disclaimer provisions. Where it is brought to the attention of Trinity College Library that there may be a breach of copyright or other restraint, it is the policy to withdraw or take down access to a thesis while the issue is being resolved.

Access Agreement

By using a Digitised Thesis from Trinity College Library you are bound by the following Terms & Conditions. Please read them carefully.

I have read and I understand the following statement: All material supplied via a Digitised Thesis from Trinity College Library is protected by copyright and other intellectual property rights, and duplication or sale of all or part of any of a thesis is not permitted, except that material may be duplicated by you for your research use or for educational purposes in electronic or print form providing the copyright owners are acknowledged using the normal conventions. You must obtain permission for any other use. Electronic or print copies may not be offered, whether for sale or otherwise to anyone. This copy has been supplied on the understanding that it is copyright material and that no quotation from the thesis may be published without proper acknowledgement.

Title: Play/Leisure Interests of Dublin Children and their current and earlier motor proficiency.

Submitted for Ph.D.

Year: 2003.

TRINITY COLLEGE

By: Siobhan Margaret Mary Mac Cobb.

TRINITY COLLEGE
23 JUN 2004
LIBRARY DUBLIN
THOSIS
8019
1536

Declaration.

This thesis has not been submitted previously as an exercise for a degree at this or any other university.

This work is entirely my own.

The Library may lend or copy this thesis upon request.

Signed: _____

Summary.

A distinguishing attribute of play and leisure as contrasted with other occupations such as self care or work, is the importance of self direction, choice and the personal freedom to engage or disengage to whatever extent one wishes. In reality, even with his play and leisure pursuits the child can be restricted by lack of time, lack of tools and resources, lack of space or lack of skill. Adults (particularly mothers) and their values about play are significant in allowing play to happen. There is little reported in the literature on studies carried out in Ireland on the provision of space, time, resources and adult support for children's play. There are many theories put forward to explain why children play. A recurrent theme in occupational therapy literature on play is 'Doing, being and becoming through meaningful occupations (Fidler & Fidler, 1978; Wilcock, 1993: Kielhofner, 1995). Other themes are the child's search for mastery through play (Reilly 1974), and the enjoyment of challenging oneself and achieving 'flow' as in Csikszentmihalyi (1993). On the other hand, sometimes children are involved in the experience of play just for fun and enjoyment, and to share this experience with others. "The same occupation may have a myriad of different meanings depending upon the goal of the individual, the environmental context, or mood." (Yerxa et al 1990, p.9).

There are assumptions that children learn skills through playing and in the area of motor proficiency, there are relationships proposed between types of play chosen and sensory/ motor skill development such as Bundy's proposal that children play what they are 'good' at (Bundy, 1991); that children seek mastery and have an urge for competence and that this is reflected in their choice of play/leisure interest (White, 1971, Reilly 1974); and there is a commonly held assumption that 'practice makes perfect'. However assessing motor ability might not be a straight forward as it appears, and although all children born in Ireland are screened in perinatal and infant stages, these assessments may not have good predictive ability for later motor proficiency in middle childhood. In addition, there is little descriptive data on the types of physically active play sought by Irish children, and information on their motor proficiency.

This study sets out to describe the range of interests and preferences related to play and leisure of the sample of children from the Dublin Child Development Study (DCDS) as reported by children and their mothers; to describe the children's motor proficiency as measured by the Bruininks Oseretsky Test of Motor Proficiency (BOTMP)

(Bruininks,1978), and to identify any relationship between motor proficiency and reported play/leisure preferences; and to examine data gathered aged 8/ 9 years and the perinatal and infant data gathered in the Dublin Child Development Study, with a view to establishing the predictive value of earlier measures.

The methodology used in order to achieve these aims was comprised of four data gathering tools; and the analysis of previously gathered perinatal and infant data from the Dublin Child Development Study. The data gathering tools were; questionnaires with mothers regarding their child's leisure interests and play, and their role in it; questionnaires with the study children regarding play/leisure activities and enjoyment factors; the completion by the mothers of the study children of The Play Preference Questionnaire (P.Q.) (Finegan et al.1991); and The Bruininks Oseretsky Test of Motor Proficiency (BOTMP) was administered to the study children. In addition, the perinatal and infant data from the Dublin Child Development Study (Greene et al, 1995; Nugent et al, 1996; Wieczorek-Deering et al., 1991) namely birth-weight, and scores on; Apgar (1953); the Neonatal Behavioural Assessment Scale (NBAS)(Brazelton, 1984) and the Bayley Infant Scales (Bayley,1969) were tested for their predictive value of continuity of motor proficiency. Eighty four mothers and their first born children were involved in the study, which was carried out in the wider Dublin area during 1994/5.

The results show that most children enjoyed a variety of types of physically active, pretend and social play and specific leisure interests. They were well supported by their mothers, and had frequent contacts with extended family members. Gender differences were noted in choice of play mates, play places and activities. The construct validity of the PQ factor groupings was queried, and it was considered as a limited measure of gender differences in play preferences. Most children were physically active in their play and associations between physical active play choices and motor proficiency as measured by the BOTMP are not always clearly supported. However, some motor skills in those who choose a skilled leisure activity such as football and Irish dancing were better than those who did not. The validity of the BOTMP composite grouping into gross and fine motor skills was not supported by this study, and this concurs with the study by Tabitiania et al (1995).

There was little predictive value in the results of peri-natal and infant motor measures when compared to the BOTMP at age 8 years.

Acknowledgements.

I would like to thank the children and their mothers for their contribution, without whom this study would not be possible. Their efforts and insights are greatly appreciated.

I would like to thank the Dublin Child Development Study, especially Prof. Sheila Greene, Psychology Dept. University of Dublin, Trinity College for facilitating the study.

I would like to acknowledge the contribution of my supervisor, Dr. Paul O'Mahony, School of Occupational Therapy, Trinity College, Dublin for his advice and expertise.

Library staff in University of Dublin libraries especially in the School of Occupational Therapy library, and in the Educational Resource Library in St Patrick's College of Education were invaluable.

Thank you to my work colleagues for their support over the time span of this project.

A special acknowledgement is due to my husband and family for their support and endurance. Perhaps now we will have more time to play.

Table of Contents. Page no.

Chapter 1. Introduction

Background and Rationale for the Study. 14
The Dublin Child Development Study. 18
Aim of The Play Study. 19
The Play Study Sample. 20
Limitations. 21

Chapter 2. Literature Review.

Introduction. 23
Occupation as a Trans-formative Process. 24
Theoretical Approaches to Play. 26
Defining Play. 28
Characteristics of Play. 29
Explanations of Play. 31
Play in Evolution and Culture. 35
Occupational Therapy Theories and Play. 36
Patterns of Play and Leisure in Middle Childhood. 45
The Measurement of Play in Middle Childhood. 53
The Measurement of Gender Differences in Play. 54

The Development of Motor Proficiency. 55
Developmental Coordination Disorder. 59
Gender Differences in Motor Ability in Middle Childhood. 60
Measurement of Motor Ability in Children. 61
Frequently Used Measures of Neonatal and Infant Motor Status. 63
The Bruininks-Oseretsky Test of Motor Proficiency (BOTMP). 65
The Predictive Value of Early Childhood Assessments. 66

Childhood In Ireland In the 1990s. 69

The Economic and Social Climate during 1994 and 1995. 70

Summary of Literature Review. 71

Chapter 3. Methodology.

Introduction. 73

Data Measures Employed in This Study. 74

Rationale for Selected Methods. 74

Using Self- Report with Children. 75

Rationale for Using The BOTMP. 77

The Play Activity Questionnaire. 80

Assessment of The Predictive Value of Earlier Measures. 82

The Development and Application of Measures. 82

Development of The Mother's Questionnaire. 83

Development of Children's Questionnaire. 86

Accessing the Study Participants. 88

Gathering the BOTMP Data. 89

Using the Play Activity Questionnaire. 91

Perinatal and Infant Data. 92

Location and Time Frame of Data Gathering. 93

Response Rates for the Four Data Measures. 93

Data Cleaning. 94

Data Analysis. 96

Critique of the Methodology. 97

Chapter Four. Results.

Introduction. 100

Time available for leisure and play. 100

Results of Questionnaire with Mothers of Children Regarding their Play and Leisure Interests. 102

Demographic and Housing Information. 103

Putting Forward a Working Definition of Leisure in the Interview. 107
What The Child Does With Leisure Time. 108
Categories of Play and Leisure Interests. 109
Questions 5 to 33. Non Social Leisure. TV, Tapes, & Computers. 114
Control by Mothers of Child's T.V. and Video Viewing. 119
Reading For Pleasure. 122
Video Games and Computer Use. 125
Buying things for child to play with. 127
Availability and Use of Leisure Resources. 128
Unstructured Leisure Time Spent Outside the Home. 137
With Whom Does the Child Play When Not at School. 138
Spending Time With Adults. 143
Knowing With Whom the Child is Playing. 153
Where Child Spends Time. 154
Boredom. 158
Amount of Assistance Needed In Organising Own Leisure Time. 161
Mothers' Opinion on Importance of Child Having Leisure Time. 161
Framework of Values of Play/Leisure : Mothers' Comments. 162
How Much It Matters How Leisure Time is Spent. 166
How Well Spent is Child's Leisure Time. 168
Mothers' Perceived Role re Children's Leisure Time and Play? 169
Summary. 171

Chapter 5. Results of Interviews with Children Regarding their Play and Leisure Interests.

Introduction. 175
Section 1. What the Children Do? 176
Comparison of Children's and Mothers' Reports. 178
Children's Most Frequently Reported Enjoyment Factor related to Their Play and Leisure Pursuits. 179

Watching Television. 180

Reading for Pleasure. 183

Video/computer Games. 186

Making Things. 190

Making Stories, Songs and Rhymes. 196

Physically Active Leisure Interests. 198

Board Games. 204

Pretend Games. 206

Care of Pets and Plants. 211

Section 2. Where Children Like to Play. 213

Section 3. With Whom Children Like to Play. 214

Frequency of Playing with Preferred Person. 215

Spending Time With Adults. 217

Being Bored. 219

Satisfaction With How Time Is Spent. 222

Summary. 223

Chapter 6. Results of the Play Activity Questionnaire and the Bruininks-Oseretsky Test of Motor Proficiency For This Sample of Dublin Children.

Introduction 224

The Play Activity Questionnaire. 224

Methodology. 226

Presentation of Results. 226

Summary Statistics for Each PQ Item. 227

Comparison Between Results : Dublin and Canadian Samples. 237

The Four Play Factors. 239

Gender Differences in the Dublin Sample. 241

The BOTMP. 242

Data Collection. 243
Limitations of Study Sample. 244
Age Distribution of Sample. 245
Differences Related to Arm and Leg Preference. 246
The Sub-test and Composite Scores. 247
Analysis of the BOTMP Scores. 248
Gender Differences in Sub-test Scores. 251
Summary. 255

Chapter 7. Analysis of the Intra and Inter Relationships of The Play Activity Questionnaire, The BOTMP and Selected Interview Data.

Introduction. 257
Analysis of the Validity of the PQ. 257
Interrelationship Between BOTMP Sub-test /Composite Scores. 263
PQ Results and the BOTMP Results. 269
Correlations Between BOTMP and PQ Data. 278
The BOTMP and Questionnaire Data. 284
Construction Play, Arts and Crafts and BOTMP Scores. 286
Visual Motor Control and Play Preferences. 286
T.V. Viewing and Differences in BOTMP Scores. 287
Enjoyment Factors. 288
Summary. 288

Chapter 8.

Predictive Value of Earlier Measures of Motor Ability.

Introduction. 289
Difficulties With Prediction. 289
The Sample. 291
Measures and Procedures. 291
Longitudinal Data. 294
Multivariate Analysis. 296
Conclusion. 296

Chapter 9. Discussion

Introduction. 300

The Relationship Between Play Activities and Motor Proficiency. 301

The Validity and Value of The Play Activity Questionnaire. 308

Estimating and Predicting Continuity in Motor Ability. 310

An Irish Example of Satisfied Players and the Context in Which It Is Supported. 314

Gender Differences. 315

Rationale for Preferences. 318

Mothers Perceptions and Roles In Supporting Play. 319

Social Involvement. 322

Boredom. 323

Play and Leisure Resources Policy Making. 324

Conclusion 327

Limitations of the Study. 328

Recommendations. 329

List of References. 332

Appendices

Appendix 1. Mother's Questionnaire. 348

Appendix 2. Child's Questionnaire. 358

Appendix 3. BOTMP Individual Record Form. 372

Appendix 4. Play Activity Questionnaire. 378

Letter of Permission to use PQ. 380

Appendix 5. Letters of invitation to mothers. 381

LIST OF TABLES **Page. No.**

Chapter 2. The Literature Review.

Table 2.1. Takata's Play Epochs. 46

Chapter 3. Methodology.

Table 3. 1. Summary Table of Response Rates for The Four Data Sets. 93

Chapter 4. Results of Questionnaires With Mothers.

Table 4.1. Number of Adults Living in the Household. 103

Table 4.2. (Q. 76) Number of Children in the Household. 104

Table 4.3. (Q. 80) Employment Status of Mothers and Fathers. 105

Table 4.4. (Q. 87) No. of Bedrooms in Home. 106

Table 4.5. Summary: Play Places Available Directly Outside of Child's Home. 106

Table 4.6. Summary of Frequency of Mothers' Reported Play and Leisure Activities by Category and Gender. 112

Table 4.7. Rank Order of Categories of Leisure Activities For Boys and Girls. 113

Table 4.8. No. of Hours Watching T.V. : All Children. 114

Table 4.9. No. of Hours Watching T.V. : Boys. 114

Table 4.10. No of Hours Watching T.V. : Girls. 114

Table 4.11. Watching T.V. and Video in Friend's House. 115

Table 4.12. Most Frequently Mentioned T.V. Programmes by Gender. 116

Table 4.13. (Q10) Rank Order 1 to 4 of Frequency of Mention by Mothers of Videos Watched by Boys and Girls. 117

Table 4.14. (Q14) Type of Control by Mother of Child's Television Viewing by Gender. 119

Table 4.15. Percentage of Mothers Who Control T.V. Viewing. 120

Table 4.16. (Q.14) Control by Mother of Child's Video Viewing. 120

Table 4.17. (Q.15) With Whom Does the Child Watch Television. 121

Table 4.18. (Q.23) Frequency of Reported Listening to Tapes at Home. 122

Table 4.19. (Q. 24) Reading Books and Gender Difference. 123

Table 4.20. (Q. 24) Frequency Table Books and Gender. 123
Table 4.21. Summary Table of Frequency of Reading by Gender. 124
Table 4.22. (Q.28) Playing Video Games. 125
Table 4.23. (Q.28) Frequency of Children PlayingVideo Games. 125
Table 4.24. (Q. 31) Computer Use. 126
Table 4.25. (Q.32) Computer Use Frequency Week-day by Gender.126
Table 4.26. Computer Use Frequency during Holidays by Gender. 127
Table 4.27. Frequency Table: Rationale for Buying Things. 127
Table 4.28. (Q. 34) Rank Order Items Recently Bought. 128
Table 4.29. (Q. 36 a to x) Summary Table Leisure Resources and Their Use by Child. 130
Table 4.30. (Q.37) Transport Options: Accessing Resources. 134
Table 4.31. (Q.39) Organised Leisure Activities and Participation by Gender. 134
Table 4.32. (Q.39) Organised Activity Frequency of Participation. 136
Table 4.33. (Q.47) Numbers of Friends When Not in School. 139
Table 4.34. (Q.47) Gender of Friends. 139
Table 4.35. (Q.50) How Often Does Child Play With Friends. 141
Table 4.36. (Q.51) Availability of Friends. 141
Table 4.37 (Q.52) Approval of Choice of Friends. Gender Difference. 142
Table 4.38. Frequency of Mother Deciding With Whom Child Plays. 142
Table 4.39. (Q.55) Summary Table. Spending Leisure Related Time With Adults. 143
Table 4.40. (Q.55) Category of Activity Shared with Mothers. 145
Table 4.41. (Q.55) Category of Activity Shared with Fathers. 145
Table 4.42. (Q.55) Category of Activity With Grandmothers. 145
Table 4.43. (Q.55) Category of Activity Shared with Grandfathers. 146
Table 4.44. (Q.55) Category of Activity Shared with Additional Adult Relative. 146
Table 4.45. (Q.55) Category of Activity Shared with Non- Relative Adult. 146
Table 4.46. (Q.56) Frequency of Time Spent with Mother. 148

Table 4.47. (Q.56) Mother's Time Alone With Child. 150
Table 4.48. (Q.56) Mother In Company of Child and Others. 150
Table 4.49 (Q.57) No. of Hours Spent in Each Other's Company. 151
Table 4.50. (Q.58) Activities Shared by Mother and Child. 152
Table 4.51. (Q.59) Knowing With Whom the Child Is Playing. 153
Table 4.52. (Q.60) How Do You Know With Whom Child Plays. 154
Table 4.53. (Q.61) Where Child Spends Time on Own in Home. 155
Table 4.54. (Q.62) Summary Table. Where Does Child Spend Time With Friends. 155
Table 4.55. (Q.64) Mothers' Knowledge of Where Child Is When Outside of Home. 156
Table 4.56. (Q.65) How Mothers Know Where Child Is When Outside Home. 157
Table 4.57. (Q.66) Mothers' Reported Frequency of Child Getting Bored. 158
Table 4.58. (Q68) What Mother Does When Child Is Bored. Gender Difference. 160
Table 4.59. (Q.69) Amount of Assistance needed In Organising Own Leisure Time. 161
Table 4.60. (Q.70) Mothers' Opinion on Importance of Child Having Leisure Time. 162
Table 4.61. Framework of Values of Play/Leisure From the Mothers' Comments. 163
Table 4.62. (Q.71) How Much Does It matter How Leisure Time Is Spent. 167
Table 4.63 (Q.72) Mothers' Opinion on How Well Spent Is Child's Leisure Time. 168
Table 4.64. (Q.73) Anything You Wished Your Child Did Less. 168
Table 4.65. (Q.73) Is there Anything You Wished Your Child Did More. 169

Chapter 5. Results of Interviews With Children Regarding Their Play and Leisure Interests.

Table 5.1. Summary Table of Categories of Play/Leisure Activities Reported By Children. 170
Table 5.2. Comparison of Children's and Mothers' Reports. 178
Table 5.3. Children's Most Frequently Reported Enjoyment Factor Related to their Play and Leisure Pursuits. 179
Table 5.4. Merged categories of Frequency of Listening to Audio-Tapes. 182
Table 5.5 Merged Categories of Frequency of Reading for Pleasure. 183
Table 5.6. What Children Say They Read. 184
Table 5.7. Where Children Get their Books. 185
Table 5.8. What Children Say They Enjoy About Reading. 186
Table 5.9. Merged Categories of Reported Frequency of Playing Video Games by Children. 188
Table 5.10. Children's Reports of Frequency of Use of Computers. 189
Table 5.11. Making Things. Bits and Pieces. 191
Table 5.12. Making Things. Sewing and Knitting. 192
Table 5.13. Frequency of Painting/Colouring. 193
Table 5.14. Making Things. Baking and Cooking. 194
Table 5.15. Children's Reported Frequency of Playing Football. 198
Table 5.16. Children's Reported Frequency of Riding a Bicycle. 201
Table 5.17. Reported Frequency of Playing Running Games. 202
Table 5.18. Children's Reported Participation in Organised Sport. 203
Table 5. 19. Frequency of Playing Most Popular Board Games. 205
Table 5.20. What Happens If You Loose? 206
Table 5.21. Types of Pretend Games Played. 207
Table 5.22. Frequency of Playing Pretend Games. 208
Table 5.23. Children's Use of Figurines. 210
Table 5.24. Type of Pets. 211
Table 5.25. What Would Like to Do that You Don't Do Now. 212
Table 5.26. Where Children Enjoy Playing The Most. 213
Table 5.27. Frequency of Playing in Preferred Place. 214
Table 5.28. How Often Children Get to Play With Preferred Person. 215

Table 5.29. If You Didn't Have Anybody to Play With. 216
Table 5.30. Summary Table. The Adults With Whom Children Enjoy Spending Time. 217
Table 5.31. What Children Enjoy Doing Together With Adults. 218
Table 5.32. Frequency of Getting Bored. 219
Table 5.33. Children's and Mothers' Reports of What Happens When Children Tell Someone That They are Bored. 221

Chapter 6. Results of the Play Activity Questionnaire and the BOTMP.

Table 6.1. Item 1. My Child Likes Arts and Crafts. 227
Table 6.2. Item 2. In Comparison With Other children The Same Age, My Child Throws a Ball.. 227
Table 6.3. Item 3. I Rate My Child's Physical Activity Level During Play as.. 228
Table 6.4. Item 4. My Child Likes Fantasy Play. 228
Table 6.5. Item 5. My Child Likes to Wrestle and Rough and Tumble with Friends. 229
Table 6.6. Item 6. My Child Enjoys Running and Jumping. 230
Table 6.7. Item 7. When Playing With A Group of Friends, My Child Is Highly Active and Vigorous. 230
Table 6.8. Item 8. My Child prefers to Play With Active, Boisterous Friends. 231
Table 6.9. Item 9. When Playing Active Games, My Child Likes to Shout and Yell. 232
Table 6.10. Item 10. My Child Likes to Play Stick Games. 232
Table 6.11. Item 11. My Child Likes Games Involving Body Contact. 233
Table 6.12. Item 12. My Child Likes to Play Ball Games. 234
Table 6.13. Item 13. My Child Is Physically Courageous and Daring. 234
Table 6.14. Item 14. At The Playground, My Child Is Active and Adventurous On the Monkey Bars and Climbing Apparatus. 235

Table 6.15. Item 15. My Child Likes to Sit and Do Quiet Table –top Activities. 236
Table 6.16. Summary Statistics D C D S and PQ Test Results. 237
Table 6.17. The 4 Play Factors in The PQ. 240
Table 6.18. Age Distribution of Children (BOTMP). 246
Table 6.19. Arm and Leg Preferences for Children. 247
Table 6.20. Sub-test Standard Scores. Examiner's Manual. 248
Table 6.21. BOTMP Scores. 249
Table 6.22. Summary Table of Standard Scores for Sub-tests and Composite Scores. 250
Table 6.23. Summary Table of Gender Differences in Standard Scores for Sub-tests and Composite Scores. 252

Chapter 7. Analysis of the Intra and Inter Relationships of the PPQ, the BOTMP Results, and Selected Interview Data.

Table 7.1. Pearson Product Moment Correlations: 15 PQ Items. 259
Table 7.2. Correlations: Active and Adventurous PQ Items. 260
Table 7.3. Correlations for PQ Athletic Play Items. 261
Table 7.4. Correlations for PQ Items in Rough and Tumble Factor. 261
Table 7.5. Correlations For PQ Quiet Factor. 262
Table 7.6. Correlation Matrix for The BOTMP Sub-tests. 264
Table 7.7. Factor Matrix of the BOTMP. 267
Table 7.8. Rotated Component Matrix. 268
Table 7.9. BOTMP Scores and PQ Item 1 Liking Arts and Crafts x 2 Groups. 270
Table 7.10. BOTMP Scores and PQ Item 3 Physical Activity Level During Play. 271
Table 7.11. Significant Differences on BOTMP Sub-test Between Groups Defined by PQ Item 5 Ratings. 274
Table 7.12. Correlations Between BOTMP Sub-test Items and All PQ Items. 279
Table 7.13. Correlations Between BOTMP Sub-test Items and Selected PQ Items. 280

Chapter 8. Predictive Value of Earlier Measures of Motor Ability.

Table 8.1. BOTMP Scores. 294

Table 8.2. BOTMP Correlations With Infant Measures. 295

Table 8.3. Comparison of Infant Measures for the Impaired and Non Impaired According to BOTMP Composite Scores. 297

CHAPTER 1. INTRODUCTION

Background and Rationale for The Study.

"I am immersed in my world as a living body and have no other way of being or doing. It is not the mind and will that energize hands, but rather the use of hands that enliven the mind and will." (Kielhofner, 1995 p. 165)

Kielhofner in his article "A Mediation on the Use of Hands" (1995) rejects the theme of mind-body unity which he claims has been accepted as fundamental to occupational therapy, and instead argues for a view of "the lived body as a locus of intelligence, intentionality, adaptiveness and experience" (p.153) . He rejects the common sense view of a world which is 'out there' and that is accessed through one's senses and actions. He puts forward the view that it is the body which gives the world texture, colour, sound, flavour and odour. It is the body which seeks and finds particular meaning in the world. Through our actions we create situations in which the world is manifest to us as a response to our intentions. The world we perceive is always on the other end of something we are doing with our bodies.

"All performance thus emanates from the subjective body and is founded on experience. Without experience as the goal and the instruction, we cannot know how to perform. Experience is not just something that happens because one thinks and acts; it is the formula by which one thinks and acts" (Kielhofner 1995, p.160).

One's bodily state of development or refinement therefore must have some huge impact on the 'lived bodily experience'. But the 'being' only 'becomes' by 'doing' such as in actively interacting with one's environment through occupation, we can't be or become without the doing. The theme of 'becoming' through occupation occurs again and again in occupational therapy literature (Fidler and Fidler, 1978; Kielhofner, 1995; Wilcock, 1993). Occupation and development are considered to be interrelated, with occupation both a facilitator and a product of development (Kielhofner 1992). Play which is considered by many to be the major occupation of childhood in the Western world, provides opportunities for 'doing' and 'becoming'. All of this is mediated through the body, hence the state of the body in terms of its ability surely influences the development of the child.

From a more 'objective' and biomedical perspective, child development studies have concluded that the play activities have been found to provide children with opportunities to develop skill and competence in physical, intellectual and social activities (Reilly, 1974; Kielhofner & Barris,1984; Morrison, Bundy, Fisher 1991). Modern motor control theories are now arguing that rather than being pre-coded in the brain, the necessary information for movement is created in the situation in which the environment, biomechanics of the body, and the intention being pursued together create dynamic conditions within which the information for successful movement emerges (Fogel &Thelen 1987; Schmidt, 1991). Furthermore, human development is not just a product of genetic inheritance. Through evolution of the human species, skills have been learned through experience and passed on to others as part of the culture of the group. Experiences happen in a context of values, meanings and roles, not only does the child learn these actions or skills, but also by 'doing' the child becomes encultured into his family and society. This learning and development could be considered as much a product of the social and cultural environment as genetically inherited factors. Socio-cultural factors which influence the use of time and occupations (such as by supporting engagement in or avoidance of certain occupations) may also be a determinant of development (Kielhofner 1992).

There are many theories put forward to explain why children play, including drive theories, such as Freud's view on play as allowing the child to deal with otherwise painful curbs to the 'id' (the disorganised reality-denying, pleasure seeking side of our personalities). Through play, the child reverses the original role of passive and anxious victim of psychic events by becoming active and masterful. Play is an attempt to achieve dominance over the experience of reality and preserve some illusion of omnipotence. According to Freud, a child's joy in play is in the restoration of an experience of control (Freud, 1920, p35).

A recurrent theme in occupational therapy literature on play is the child's 'inner drive' or search for mastery through play (Reilly 1974), and another is the enjoyment of challenging oneself and improving one's ability as in Csikszentmihalyi (1993). "Play as an appreciative construct, is conceptualised as a curiosity-based phenomenon that explores outer reality through playful interaction with the environment and, in this process, the rules or the tools of mastery are fashioned. Man begins his adventurous response into the unknown by searching for the rules of sensory motor mastery in the play of childhood. He

incorporates the rules of role behaviour in the symbolic play of pre-adolescence. The rules of profit and loss are absorbed in the competitive and cooperative games of adolescence. The rules learned in the pure play of childhood are exercised in the risk taking behaviour of craftsmanship and sportsmanship" (Reilly, 1974 p.16). From studying people's experiences in activity Csikszentmihalyi (1993) considered that a person was more likely to develop abilities further, have higher self worth, and increase overall happiness when he or she finds enjoyment in occupations which challenge abilities. It could be expected then that those who play more of a certain type of activity should be more skilful and proficient in underlying skills, as in 'practice makes perfect'. Or perhaps it is that in seeking challenge the child chooses activities in which he/she is not proficient, in an attempt to master the challenge, resulting in those who are not very proficient demonstrating a higher preference for a particular type of play activity.

But these views of 'mastery' as a reason for play may be a reflection of a Western cultural value system of individual achievement, and may highlight a cultural focus on 'product' rather than a 'process'. Perhaps sometimes children are involved in the experience of play just for fun and enjoyment, and /or perhaps to share this experience with others. Indeed the meaning and reason may change related to the occasion, the time and social context, and the personal physiological and emotional status. "The same occupation may have a myriad of different meanings depending upon the goal of the individual, the environmental context, or mood." (Yerxa et al 1990, p.9). There is much literature on play particularly in early childhood, however there is very little recorded on what older children actually do with their leisure time, and what they enjoy about it.

From the 'lived body' perspective that considers all actions or occupations as bodily experience it would be difficult to analyse activities into the traditional categories of 'motor, sensory, cognitive, interpersonal and intra-personal'. However an argument can be made that occupations can be categorised in some fashion which reflects the predominant and distinguishing demands of the activity on the person, hence the term 'motor' activities which imply a predominance of physical demands. There is an assumption that engagement in a particular type of activity (such as motor activities) will promote development, and that those who do so will be better in terms of motor skill. However there is very little reported in the literature on the relationships of play/leisure interest and motor development in middle childhood.

Theoretically, the distinguishing attribute of play and leisure as contrasted with other occupations such as self care or work, is the importance of self direction and choice and the personal freedom to engage or disengage to what ever extent one wishes. In reality, even with his play and leisure pursuits the child can be restricted by lack of time, lack of tools and resources, lack of space or lack of skill. Adults (particularly mothers) and their values about play are significant in allowing play to happen. There is little reported in the literature on studies carried out in Ireland on the provision of space, time, resources and adult support for children's play.

With regard to the position of children in Irish society at the time of the study, Hayes (2002) notes that "a protectionist welfare approach dominates, an approach where children have been perceived as dependents in need of protection or as problems in need of solutions. Children are seen as primarily the responsibility of parents and the State offers only limited support to parents in their parenting role. While this may afford some support to certain children and families it shows a limited recognition of children as a group with rights of equal value to those of adults. Policies have been developed without any explicit consideration of their impact on children: children are a powerless, statistically invisible group" (p. 73). Allowing children to make decisions on their use of time, space and materials as in allowing and supporting children in their play, reflects a more active and self-determining perspective of the child. As regards places to play, these too were dependent on family provision. As Webb (1997) reported in *Grounds for Play*, 46 % of local authorities did not as a matter of policy, provide playground facilities. In 1992, Ireland ratified the United Nations Convention of the Rights of the Child (UNCRC) (UN General Assembly, 1989). These rights include opportunities to be involved in cultural, recreational and leisure activities, but very little is known on what it is that Irish children do or enjoy doing, and how the macro society supports or impedes these activities. Article 31 of the UNCRC (1989) states that "States Parties recognise the right of the child to rest and leisure, to engage in play and recreational activities appropriate to the age of the child and to participate freely in cultural life and the arts". As Benson notes "Without serious attention to that Article, children simply cannot become the sort of children who embody the ideals of the UN Convention" (1991 p.67). However in the first national report on the UNCRC publication by the Department of Foreign Affairs (1996, p. 94-96), in the section dealing with "Leisure, Recreation and Cultural Activities", there is not even one mention

of the word 'play'. Instead the section deals with sport policy, swimming pools, youth affairs, Arts Council, National Gallery, National Museum, and The Ark (a new arts centre for children in Dublin). Children's rights to play appear to have been overlooked. In the light of the absence of other data regarding Irish children this is not surprising. "The task of reviewing the experiences of Irish children is difficult because of the limited statistical data available on them as a specific group. There is no annual report published that brings together general details about Irish children" (Hayes, 2002).

With regard to the development of motor proficiency in children in Ireland at the time of the study, other than early screening for the passing of basic milestones, and a general physical examination including height measurement in early school years, motor proficiency did not appear to be a focus for either health or educational service provision. Those with significant disability were referred for special services in segregated facilities available in major population areas. Although children, parents and teachers may have been aware of those with coordination disorders and clumsiness, there was little opportunity for formal recognition of the impact of these problems, or assistance in overcoming them. To this date (October 2003) there are no occupational therapists employed in mainstream schools by the Department of Education. Some health board funded occupational therapists are beginning to offer inputs to assist children with less obvious motor proficiency difficulties.

The Dublin Child Development Study is a longitudinal study which started in 1985 (Greene et al, 1995; Nugent et al, 1996; Wieczorek-Deering et al., 1991). The aims of the Dublin Child Development Study (DCDS) were to relate a variety of perinatal measures of familial, parental, environmental and child variables to later outcomes for the child. This study was located in the Psychology Department, University of Dublin, Trinity College.
The study participants were all primiparous women attending a public antenatal clinic at a large Dublin maternity hospital. The criteria for inclusion of women in this study were: (i) first pregnancy (ii) no sign of health risk to baby or mother; and (iii) aged between 14 and 38 years. The original sample set was limited to 200; 100 of these were married and 100 were unmarried. Women were approached consecutively until there were 100 in each marital category. The refusal rate was approximately 5%. The age range was 14 – 38 years (M = 22.5). The modal social class (MacGreil, 1977) was 1V or skilled manual. This categorisation of social class was based on educational and occupational levels according

to MacGreil's adaptation of the Hollingshead method of classification of socio-economic status. The breakdown of the sample in terms of highest educational level achieved was as follows: 27% had left secondary school without a qualification, 31% had intermediate or Junior Certificate (an examination taken at 15/16 years, 32% had Leaving Certificate (equivalent to high school graduation in the U.S.A.) and 10% had non-degree third level education. The infants were all born by vaginal delivery at term (gestational age ranged from 38 to 41 weeks).

This author's study was planned in a way that could make use of the DCDS data in so far as the children from the DCDS were the participants in the surveys on play. Although not the main focus of the study, it was opportunistic to examine the perinatal and infant data in relation to their potential for predicting motor proficiency in middle childhood. Data sets of particular interest were namely birth-weight, Apgar (1953), Neonatal Behavioural Assessment Scale (NBAS)(Brazelton, 1984) and the Bayley Infant Scales (Bayley, 1969). The plan was to draw on and add to the DCDS database thereby providing a unique study opportunity with an Irish population of children now in middle childhood, as well as their mothers. Not only was it possible to collect data on play and leisure interests, but it was also possible to test the predictive value of the earlier measures in the light of motor proficiency measured at 8 years 6 months. Concurrent data on play activities, leisure interests and preferences were collected by survey methods. Motor proficiency data as assessed by a standardised measure were thus available for analysis of relationships with play preferences, and in addition, the predictive ability of the above perinatal and infant measures could now be tested in the light of the motor proficiency measured in middle childhood.

Aim of The Current Study.

This study examines the play and leisure interests of Irish 8 and 9 year old children, associated with motor proficiency data gathered using a variety of tools during the years 1994/1995 from mothers and children.

The main aims of this study were to:

1. Describe the range of interests and preferences related to play and leisure of the sample of children from the Dublin Child Development Study (DCDS) as reported by children and their mothers.

2. Describe the children's motor proficiency as measured by the Bruininks Oseretsky Test of Motor Proficiency (BOTMP) (Bruininks,1978), and to identify any relationship between motor proficiency and reported play/leisure preferences.
3. Identify relationships (such as the continuity of motor proficiency) between data gathered aged 8/ 9 years, and previous perinatal and infant data gathered in the Dublin Child Development Study, with a view to establishing the predictive value of earlier measures.

In order to achieve these aims four data gathering tools were used. In the analysis these data were related to previously gathered perinatal and infant data from the Dublin Child Development Study. The following four sets of new data were gathered in this study.

1. Questionnaire data from mothers, regarding their child's leisure interests and play, and their role in it.
2. Questionnaire data from the children regarding their play activities and leisure preferences.
3. The Play Preference Questionnaire designed by Finegan, Niccols, Zacher, and Hood (1991) completed by the mothers.
4. The Bruininks Oseretsky Test of Motor Proficiency (BOTMP) was administered to the study children.

The perinatal and infant data from the Dublin Child Development Study (Greene et al, 1995; Nugent et al, 1996; Wieczorek-Deering et al., 1991) namely birth-weight, and scores on the following measures: Apgar (1953); the Neonatal Behavioural Assessment Scale (NBAS)(Brazelton, 1984) and the Bayley Infant Scales (Bayley,1969) were examined particularly in respect of their ability to predict continuity of motor proficiency of the children from infancy and early childhood to about 8 years.

The Study Sample.

The Dublin Child Development Study (DCDS) as reported earlier is a longitudinal study which was started in 1985. The original sample set was limited to 200. For various reasons, including the adoption of 26 babies, the death of 6 babies in the perinatal period, relocation outside the Dublin area, and lack of interest in continued participation in the DCDS, by 1994, the study participant mailing list numbers had reduced to 111. These were invited to participate in this author's study on play and leisure interests. Clearly this is not a random sample, as it comprises a sample of committed study participants, who

were non-randomly chosen initially from a public health service, with the specific criteria on health status and age. It involved only first-born children. However they form a relatively cohesive socio-economic and cultural group living as they do in the greater Dublin area.

Limitations.

The study of play presents its own difficulties as play is often about the experience of the player. Behaviours can be noted by others but their meaning is difficult to define. Reflecting and explaining experience may be beyond the capacity of 8 years old children, but reporting on their behaviours is not, nor is the giving of their opinions (Sturgess, Rodger, & Ozanne, 2002). Methodological issues related to the strengths and weakness of both quantitive and qualitative methods were recognised, and decisions were made in favour of a primarily descriptive study which would gather information from a relatively large and unique sample of children and their mothers. A study with this sample size was not intended to be an in-depth exploration of the meaning of play to the participants.

The study sample is far from a random one. It has to be acknowledged that the experiences of first born children may be different to others born in a later birth order (Sulloway, 1996). However the study participants from the DCDS provided a unique opportunity to gather data on motor proficiency that could then be analysed in the light of earlier perinatal and infant data.

All data were gathered in the familiar surroundings of the children's home. This was considered the best location for the interviews with mothers and children, but the lack of standardisation of the environment in which the BOTMP data was gathered may have influenced the results achieved. Running speed and agility tests were carried out-of-doors on streets or footpaths. The children's table top activities were carried out using adult sized kitchen/dining furniture. However the benefit of this home setting was that children were generally at their ease and contributed well, and the interviews with their mothers fitted in with their other responsibilities, and facilitated their participation.

The length of time taken to collect the four data sets from such a sample size, due in some part to the limited availability of busy children who lived in a wide spread geographic area, may have contributed to the attrition of participants from some aspects of the study.

The combination of methodologies employed allowed evaluation of the measurement tools, the BOTMP and the PQ, and the earlier perinatal and infant measures. With regard to the interviews, although the literature at the time of the study did not support children's self report as a valid or reliable methodology, the study children were interviewed, but were not the only source of information. A full description of play and leisure interests was made possible by including interviews with the mothers, and by their completion of the PQ.

There is a tendency to explain play by single perspectives such as 'drive theories' (White, 1971; Reilly, 1974; Ayres 1979). Stages of children's play have been categorised in a similar fashion such as Piaget's 'sensory/motor', 'symbolic', and 'games with rules' (1962) with little supporting evidence. The results of this study contribute to this discussion. They permit examination of assumptions such as that 'practice makes perfect'; that children seek out physical challenge only in areas in that they have ability and skill; and that in middle childhood their play is characterised by motivation for 'competency' and skill acquisition. There is little evidence to support these assumptions reported in the literature.

It is standard practice in the Western world that infants and young children are assessed for developmental (including motor) delays, yet little is reported on the predictive value of these early assessments for continuity in motor proficiency. If there are relationships between experience and development, there are few reports describing the experiences such as physical play and leisure interests and their association with motor ability in healthy children. Yet a whole industry of intervention/therapy exists promoting practice and experience for the atypical child.

This study is unique in that its population is part of a longitudinal study, that it has a focus on the play and leisure interests of healthy children, that motor proficiency of Irish children is assessed, that their play preferences and interests are identified by a triad of data sources, and that the combined data sets allow for unique exploration of relationships between play and motor proficiency in middle childhood, and the predictive value of early measures of motor ability.

CHAPTER 2. LITERATURE REVIEW.

Introduction .

"Play is a child's way of learning and an outlet for his innate need of activity. It is his business or career. In it he engages himself with the same attitude and energy that we engage ourselves in our regular work. For each child it is a serious undertaking not to be confused with diversion or idle use of time. Play is not folly. It is purposeful activity." (Alessandrini, 1949, p.9) Although the terminology may have changed in time from 'activity to 'occupation', and from 'purposeful' to 'meaningful' occupation, this core concept expressed by Alessandrini, (an occupational therapist director of a children's recreation service in a New York hospital) is fundamentally the same. Play is a significant and primary occupation of children in the western world. There are many diverse perspectives from many disciplines that concern themselves with play and its contribution to human development. The literature is vast. The purpose of this chapter is to give an overview of the literature on play, including aspects such as the reported purposes of play, its definition, its measurement and its relevance in child development. The literature on acquisition and measurement of motor skill is also explored, as is the predictive value of neonatal and infant motor assessment.

The format of this review is limited to: (1) Theoretical approaches to play; (2) International perspectives on the patterns of play and leisure interests as described in studies of children in middle childhood; (3) The role of motor proficiency in biasing or in specializing play preferences; and (4) The continuity of motor proficiency into middle childhood as assessed in neonatal and infant measures. A predominant perspective on play as the primary occupation of children forms the basis of this literature review.

Although play was written about by some in the late 1800s, it was really only from the mid 1900s that play became a topic for study and publication, and in the 1990s the development of occupational science literature has refocused on play as a topic for study. "Because play is a major category of occupation, it is an important area for research within occupational science. In the research that has been done and that currently is in progress, play is studied by observing it as it occurs in natural environments and by garnering information from people regarding their experiences and perceptions of play, so as to provide a description of naturally occurring patterns of play. This in turn, is expected to lead to new insights that have the potential to restructure clinical practice" (Parham &

Primeau, 1997). Since describing the context in which play occurs is important, this literature review also briefly describes the economic and social situation in Ireland in the mid 1990s.

Occupation as a Trans-formative Process.

Belief in the ability to enhance lifelong human development through occupation is one of the core tenets of occupational therapists (Hasselkus,1998). The active process of occupation enables humans to develop as individuals, and as members of society, it is the means for learning, organizing our lives, discovering meaning and exercising control (Townsend,1997, p.19). Palmer's (2000) exhortation to 'Let your life speak' through occupations, and Christiansen (1999) declaration of the 'selfing' that occurs through occupation is continuing the theme of 'becoming' through occupation variously expressed as transformation, differentiation, development, and self actualization in the occupational therapy literature (Fidler & Fidler, 1978; Kielhofner, 1995; Wilcock, 1993; Wilcock 1998).

"I believe occupation and human development are bound together, and that life span meaningful occupation as an element of developmental well-being appears to be an absolutely universal phenomenon – worldwide, across all cultures, among all people. Human beings thrive and develop through their occupational endeavors. It is impossible to envision life span development occurring without occupation. To understand the relationship of occupation and life span development better and better is a quintessential goal (perhaps even *the* quintessential goal) for occupational therapy researchers" (Hasselkus, 2002, p.66).

Hasselkus in explaining the concept of the primacy of the experience of doing rather than just its product, refers to a text by Morphy regarding the Australian indigenous people's art. Morphy informs the reader that, " Much Aboriginal art was (and is) indeed largely invisible and not collectable. It is frequently produced in the context of rituals, is often intended to be ephemeral and may even be deliberately destroyed during the course of the ceremony or allowed to disappear naturally within a few days of its completion" (Morphy, 1998, p.23). To the indigenous people, the act of producing is as important or more important than the finished product or object. Art is seen as an experience of connection to the ancestral beings, to the Dreamtime, to kinship ties, and to clanship and regional identity. In a similar way, doing, being and becoming are all part of the process of living

and it is through the experience of occupation that we make a life for and of ourselves (Hasselkus,2002). Taking a phenomenological view of the child and play, the child is seen as a self-interpreting being, who is not born predefined, but becomes defined in the course of living a life. The things and the objects of the world are never separate from the person's experience of them (Breytspraak, 1984); only through a self that is experiencing the offerings of the world do our lives have coherence. Day after day, season after season, the child engages in transformative occupational encounters through his/her various occupations. It is in the domain of play that he has most choice, deciding what to play or not to play in response to his needs, or wishes and the environmental resources available to him. As play is considered one of the major occupations of childhood, hence playing can be viewed as a major trans-formative process through which 'selfhood' emerges. Hence studies which describe children's play in terms of what they do, are also describing the children's context for 'being' and for 'becoming'.

Many disciplines including psychologists, social scientists, anthropologists, and occupational therapists have studied play, and are now recognising the complex integrative and adaptive experiences offered to the child through play. This adaptation and integration happens in biological, psychological, social and cultural spheres (Reilly 1974). There is a vast literature proposing theories and models for explaining play (Rubin et al 1983).

" No one can deny that this is the century of play - at any rate in the technologically advanced societies. A huge toy industry has developed, playgrounds have been built, play groups and play centres set up, and play now forms an important part of primary education. In fact, the impression is sometimes given that if only children played more, or if only adults played more with children, there would be few educational or emotional problems left to solve" (Tizard,1977 p199). Tizard explains why play has recently assumed such an important position in our society is a result of increased affluence that in turn has led to a more prolonged childhood. "Most of us believe that children have a special right to be happy. And for children happiness involves the opportunity and the freedom to play" (Tizzard, 1977, p. 199).

Theoretical Perspectives on Play.

Since the nineteenth century, the theories of Froebal (1826), Piaget (1962), Vygotsky (1967), Erikson (1977), Gesell (1934), Bruner (1976) and others have contributed to the concept that play is a significant force in the child's cognitive, social, language and personal development. The writings of Froebel (1826) who first fully developed the theory that children learn through play, are suffused with romanticism and mysticism. Froebel viewed life as a unity between God, man and nature. He saw the child as innately good, and urged, 'Come let us live with our children.' He believed that the first seven years of life were the most important in shaping future development. Froebal argued that the purpose of education was to enable man to give expression to his inner drive, divine nature, as it developed through each stage of childhood; and he regarded play as the highest level of child development. His argument that 'play is child's work', with the emphasis that the child himself 'knows' when he is ready to learn, and the belief that the early years are of crucial importance in development has influenced the modern nursery school movement. However the kindergartens founded by his followers were a far cry from modern nursery schools. Stress was laid on group marching, dancing and singing, which allowed the child both to express himself and act jointly with his peers. Although Froebal stressed the importance of play, he did not advocate the provision of 'free play' in the modern sense; instead, playful activities were organised by the teacher, so as to channel the child's spontaneous energies into orderly behaviour, and to adjust him to peer and adult requirements.

Freud did not develop an articulated theory of play himself, but his psycho-dynamic thinking was applied to play by others. Rubin et al (1983) summarise Freud's various references to play as expanded by his followers as that play served two functions for children. One was wish fulfilment, that is the desire to be big and powerful or, simply, be someone else; and secondly, to master traumatic events by taking an active role instead of the real life passive role of 'victim'. Erikson (1963) used the mastery component of Freud's theory of play to address ego development and the coping effects of play for children. Erikson's theoretical emphasis is on understanding normal ego development, and this orientation is reflected in his treatment of play as aiding the adaptive resolutions of the social and biological spheres of functioning, by creating 'model situations in which aspects of the past are re-lived, the present represented and renewed, and the future anticipated' (Erikson, 1977, p.44). In addition he explored concepts of mastery,

competence and resolution of psycho-sexual conflicts through play. His ideas led to the development of play therapy which has become nearly a standard clinical practice. Indeed, play has become an accepted method for psychiatric diagnosis or assessment of children's emotional status (Goodman & Sours, 1967).

Another important influence was Gesell (1934), with his emphasis on the role of maturation. He assembled scientific evidence to substantiate and popularise the doctrine that walking and running, jumping and climbing, throwing and balancing, threading beads and drawing - each is tried and attained in its turn. Children do not have to be taught to do these things. They do them with passion and delight, if given room and opportunity. The teacher's role is not to teach, but to observe the children, and that by giving them things to do and to play with, their skills and abilities will unfold.

Piaget (1962) applied his theories on child development to play. According to his theory, intellectual adaptations result from an equilibrium between the process of assimilation and accommodation. Through play, children incorporate events, situations, and objects into their existing way of thinking. In his view, initial learning is adaptation, but play serves to consolidate this by incorporating old skills into new ones, or by smoothing the new performance, or perhaps by separating the essential core of a skill from its non-essential variations. He considered that the child's play behaviour reflects his level of development. He categorised play into 'practice play', 'symbolic play', and 'games -with- rules', as counterparts of sensorimotor, pre-operational, and concrete operational intelligence. To date, Piaget's theory, for the most part, has stimulated descriptive studies on end product or performance, rather than studies of process, however his theories have promoted the view of children's play as a natural by-product of adaptive intelligence. In Piaget's view play is not the origin of novel problem-solving efforts, rather it is a joyous exercising of existing cognitive abilities in an active way. Sutton-Smith (1967) held an opposite view, in which play was an important source or vehicle for creative problem solving, and an important source of innovation in culture because of its creative potential.

Vygotsky (1967) was concerned with the development and functioning of higher mental processes. He applied a Marxist viewpoint, that the higher mental processes are formed socially and are transmitted culturally in the life span of an individual; biological dispositions are superseded quickly by cultural forces. Man gains ascendancy over nature

through the use of tools. The practical activity of labour through the use of tools occurs within a system of social relationships. These relationships determine the form and purpose of this activity. According to Vygotsky (1978), mental structures are constructed from the use of tools and signs. It is through play the child learns the use of tools to solve practical problems, and also learns to use signs. The process of playing was perceived as actually promoting cognitive growth, not just reflecting it. Vygotsky viewed play as creating the child's 'zone of proximal development', this is the child's highest level of performance, comparable to that achieved with the assistance of a teaching adult. He offered a strong theoretical basis for viewing pretend play as having a central role in the acquisition of language and problem solving. Unfortunately he died aged 33, and much of his research was either not published or not translated from Russian. Many of the above theoretical concepts have been accepted without a solid basis of research findings, and with very few dissenters. Two notable opponents of these ideas are Montessori (1973), and Schlosberg, (1947) and both these writers considered play to be trivial or developmentally irrelevant.

Play is a difficult topic to define, there are many definitions of play, and it would appear that children's play differs depending on their age, and is greatly influenced by their physical and social environment. All of these factors make the study of play difficult.

Defining Play.

Caillois (1961) speculated that the word 'play' is merely a trap, encouraging by its seeming generality a notion that these disparate forms of behaviour were in any way related.

Historical evidence clearly shows that play is a phenomon stretching across a knowledge spectrum which includes biology, psychology, sociology and anthropology. Because it is multidimensional it requires interdisciplinary explanation (Reilly, 1974). Unfortunately no such definition exists. Some authors, particularly psychologists, have reduced play to a one dimensional activity for the purpose of studying such aspects as cognitive development, problem solving, language, or social development. It may be useful to compare any definition used for the purpose of such a study to Huizinga's characteristics of play (1947), and perhaps Piaget's criteria to distinguish play from non-play activities (1962). Huizinga has been described as ' the philosopher of play' (Bax, 1977) and listed the following as the most important characteristics of play.

Characteristics of Play. (Huizinga, 1947)

1. Voluntary

First and foremost all play is a voluntary activity. Play to order is no longer play, it could at best be but a forcible imitation of it.

2. Distinctness.

Play is distinct from ordinary life, or 'real life'. Play, as every child knows is 'only pretending or only for fun'. But it is not true to say therefore, that it is not serious.

3. Disinterestedness.

This quality of disinterestedness of play, is similar to the concept that play is not 'goal-directed' as used by other authors. Huizinga writes that play has its place in a sphere superior to the strictly biological processes of nutrition, reproduction or self preservation, and that it is unconnected with the immediate satisfaction or wants of biological function or needs.

4. Order.

Play demands order, absolute and supreme. The least deviation from it 'spoils the game', robs it of its character and makes it worthless. There is often tension in play which Huizinga suggests rises from anxieties about the extent to which other people involved in the game will maintain the rules.

Piaget's (1962) main criteria to distinguish play from non-ludic activities are that the activity: (1) is an end in itself; (2) it is spontaneous; (3) it is an activity for pleasure; (4) it has a relative lack of organisation ; (5) it is characterised by freedom from conflicts; (6) and is over-motivated. Piaget's fourth and fifth categories differ from Huizinga's insistence on play being rule bound, and that this is often tension provoking. Certainly, in games such as football or board games with clearly stated rules, breaking these rules can cause great tension. Playing co-operatively can be quite difficult and tension provoking and can demand great organization.

Bax (1977) summarises a definition of play: 'It is a voluntary activity or occupation executed within certain fixed limits of time and place according to rules freely accepted but absolutely binding, having its aim in itself and accompanied by a feeling of tension, joy and the consciousness that it is different from ordinary life' (p.3).

Garvey's (1977) interest is in play and language. In her view, the essence of play with language is being non-literal. She defines play as a non-literal orientation towards some resource and compares her definition to that of Reynolds (1972) as having identified play as behaviour in the 'simulative mode'. For example playful fighting may appear like fighting but the motivation is different. Any behaviour pattern can be executed in the simulative mode. That mode of acting 'uncouples' the behaviour pattern from its normal motivations, antecedents, and consequences. Play is a subjective state. She considers that observing and distinguishing play from non-play behaviour may be difficult. She identifies several characteristics. The first being the relation of the behaviour to the context or situation. A familiar setting and playmates and a playful orientation promotes play. It is unlikely to occur in an unfamiliar place with unfamiliar people.

Her second characteristic that identifies play from non- play behaviour is the absence of signals specific to the 'real' context, such as the absence of clenched jaws or frown from a 'pretend fight'. Studies of chimpanzees describe how chimps show a play face in rough and tumble play, as do young boys and complex cues are given by the players to signal that this is 'play' and not 'for real'. 'Thus even though play is a subjective state, it is, nevertheless, available to inter-subjective communication processes that operate on interpretations of the congruity of particular behaviours with a given context' (Garvey p77).

She acknowledges that it is impossible to decide whether or not a young child is playing, if the child is not able to communicate the signal of the play mode, or indeed when he is not engaging with another person. Contrast, then is the key to the interpretation of behaviour as playful by either a participant or an observer. Certain features, including signals, order of the sequence or context of behaviours, mark the played activity as behaviour that is to be interpreted in a particular way. Thus, the possibility that play can occur depends on the availability of potentially contrasting behaviours in potentially distinct forms.

Professionals such as psychologists and educators may define and perceive play as an activity in which the individual is absorbed and creative and through which the child develops and learns. Garvey highlights the social nature of play in its earliest

manifestations, and points out that much of what can be played with derives from socially-learned and socially-based rules for the interpretation of experience. Parents may define and value play differently from psychologist and sociologists. Pary and Archer (1974) reported that play was often seen as a form of amusement which is distinct from, and indeed opposed to, work and learning. Ramsey (1988) reported that many parents had negative views on the value of play for their children. Considering that play is usually a parent and socially sanctioned behaviour it is important to report parents' perspectives on play.

Definitions that portray play in terms of context emphasise the influence of culture upon play. The role of context needs to be addressed because theoretical discussions of play often fail to recognize hidden assumptions made about its context.

"The important point however is that a general definition of play must include a description of the conditions under which play occurs, including statements about choice, interesting activities, protection from stress, and cultural sanction" (Rubin et al. 1983. p701).

Explanations of Play.

Many theories of play have been proposed, they generally fall into two groups, classical theories are those developed before the middle of the twentieth century, and modern theories as those developed since then. Rubin, Fein, and Vandenberg, (1983) organised the early, classical theories as why people play into four categories; the surplus energy theory of play; the relaxation and recreation theory; the practical theory; the recapitulation theory.

<u>The Surplus Energy Theory of Play.</u>

Friedrich von Schiller, an eighteenth century poet and philosopher (1954) defined play as "The aimless expenditure of exuberant energy." Play was the outcome of the superfluous energy that remained after the more basic needs were met through work. Young animals and children, because their survival needs were being catered for by their parents, had a surplus of energy, which was worked off through play. Spencer (1873), a British philosopher and psychologist, is credited with the expression "surplus energy". He was an instinct theorist who considered children play as an expression of the unconscious drive to meet various human needs, but as children had not seen the literal behaviour displayed by

an adult, their play was non-literal, such as the 'rough and tumble' play fight of young boys. He distinguished different forms of play as (1) the superfluous activity of the sensory- motor apparatus, (2) artistic- aesthetic play, (3) the higher coordinating powers of games, and (4) mimicry. These categories are reflected in Piaget's work (1962) and labelled as sensorimotor and symbolic representational play, games with rules, and imitation. Spencer's theory was that each category of play could be explained in terms of instinct. There is no empirical support for this view.

The Relaxation and Recreation Theories of Play.

Rubin, Fein and Vandenberg (1983) refer to Lazarus, a nineteenth century German philosopher, who suggested that play was necessary to restore the person's energy after its depletion through hard work and fatique. The most useful type of activity was one which allowed a release from the reality-based constraints of work.

The Practice Theory of Play.

Groos (1989; 1901) presented the view that children through play practiced adult activities, and that playing children were more interested in the process rather than the product. He noted that play differed with development, his first type of play was 'experimental' play, it included sensorimotor and constructive play. Its purpose was to develop self-control. The second was "socionomic" play which included rough and tumble and imitative, social and dramatic play. Its purpose was to develop interpersonal skills. He was a neo-Darwinian, and considered that play must have an adaptive purpose for it to have continued in existence in various species. Although he viewed instinct as the central driving force in development, he emphasised the importance of practice in play, and developed theories on the relationships among play, phylogeny, and intelligent behaviour.

Recapitulation Theory of Play.

Rubin, Fein and Vandenberg (1983, p. 697) explain these theories as being influenced by the application of Darwin's theories to play. Play was the ontogenic rehearsal of the phylogenic hierarchy. The games of modern humankind were viewed simply as reflections of earlier racial or epochal behaviours. For example, the hard running, accurate throwing, and club hitting in baseball were viewed as contemporary extensions of earlier hunting activities. The patterns of motor behaviour being practiced were innate. Hall suggested

that when these basic racial instincts found an outlet for expression, that they were weakened, and thus allowed more complex, higher forms of behaviour to emerge. "In summary, despite their numerous shortcomings, the four classical theories of play have had major impacts on the field as it exists today. Contemporary views can be traced readily to the classical theories." (Rubin, Fein, and Vandenberg 1983, p.697)

Recent Theories.

In recent years there have been three major threads of thought concerning play that have evolved from different points on the social science landscape. Berlyne (1960; 1966) has introduced an arousal theory of play based on behavioural learning theory. Bateson (1955; 1956) has proposed a theory of play that focuses on the communicative features of play using anthropological-systems theory. Finally, Sutton-Smith (1966; 1976) and Bruner (1972) have emphasized play as a source of behavioural variability based on a cognitive adaptation framework (Rubin et al, 1983, p.710).

Berlyne's theory (1960) concerned itself with intrinsically motivated behaviour as a response to central nervous system needs, while externally motivated behaviour is driven by tissue needs. According to Berlyne's theory, the central nervous system seeks to maintain an optimal level of arousal. When the external environment has stimulated the organism to a high level of arousal, because of novelty or uncertainty, reduction is sought through exploring the source of the arousal. This he termed 'specific exploration'. When the environment is not sufficiently stimulating, and yet the central nervous system is over aroused, the organism is driven to seek stimulation to reduce the level of arousal. This is labelled 'diverse exploration'. His core assumption was that aversive states need to be alleviated, and this motivates behaviour or activity, and in children this is observed as play. Others such as Ellis (1973), Fein (1981) and Shultz (1979) have developed other models based on arousal theories. Ayres (1972) in her exploration of the types of activity or play which children seek out , particularly those children having what she termed 'sensory integrative' dysfunction, viewed their behaviour as reflecting the drive of their central nervous system in its attempt to seek out the specific type of stimulus needed to satisfy its level of arousal.

Bateson's (1955; 1956) analysis of play was only one aspect of his theoretical work. He really considered that only sociodramatic, fantasy or symbolic activity was 'play', as his

theories involved communication and symbolism. He was particularly interested in ways that ambiguity and paradox creep into communication. By signalling 'This is play', the animal or child is signalling that the action now being engaged in no longer denotes its usual or real meaning. In order to make this statement first of all the animal or child must be aware that he is communicating, which reflects a level of consciousness of the self, and of the 'reality' and 'fantasy' of the context. Bateson, considering that cultural reality is composed of a set of trusted myths that is shared by the members of that culture, suggests that play and fantasy are the skills required to enter the imaginary world of cultural symbols. The developmental importance of play was not in the skills inadvertently learnt, but in the play itself. It was not so much that children learned about the roles they were playing, but that they learned about the process of framing and reframing roles, and the concept of roles itself.

A more recent approach to the study of play has been the development of a different conceptual and methodological definition of play as being an internal personality construct, the child's predisposition to engage in playful activities and interactions. Playfulness is understood here as a quality of a child's play that involves flexibility and spontaneity. Barnett (1991) writes in her article "The playful child: measurement of a disposition to play", "Recent thinking about children's play has begun to look at play as a predisposition the child brings to any situation or encounter rather than as an outcome of what the child does". She states that although the approach is relatively new empirically, many child development theorists have been suggesting this view of play for years. For example, the implication from both Freudian and Piagetian theories of child development is that play represents a window into the young child's mind – it is a relatively pure way of seeing the child's intrapsychic dynamics and mental structures, an excellent way of assessing the child's socioemotional and intellectual status (p. 51). She interprets that contemporary theorising about play adopts this view, that play should be defined as a psychological predisposition or set that serves to note its occurrence and to distinguish it from other genres of behaviour. Play lies within the individual as a predisposition to engage in playful encounters and activity of any kind and for any duration. These individuals with playful dispositions are said to be guided by internal motivation, an orientation toward process with self imposed goals, have a tendency to attribute their own meanings to objects or behaviours (that is, not be dominated by a stimulus), a focus on pretence and non-literality, a freedom from externally imposed rules, and active

involvement (Rubin, Fein and Vandenberg, 1983). Barnett considered that any measure of play should follow from this perspective, laying emphasis on the individual rather than the environment or physical context. However it could be argued that this perspective ignores the role of the social and cultural environment in supporting or inhibiting play or playfulness. Bundy (1991) an occupational therapist has developed a model of playfulness and has more recently designed an assessment tool (1997).

Play in Evolution and Culture.

It would appear that play does not seem to serve any immediate adaptive function. It does not appear to meet a basic physiological need, and it is quite easy to dismiss play as an unimportant psychological behaviour. However, evidence suggests that play is an important factor in the evolution of species, specifically, the evolution of humans. 'Humans are cultural animals. Unlike other animals whose adaptive freedom is dictated solely by their biological heritage, humans are endowed with a neural plasticity and sophistication that enables them to transcend purely biological constraints' (Vandenberg and Kielhofner, 1982). These authors explain the role of play in human adaptation and survival as a way of exploring changing the environment, symbols and behaviour through making tools that serve to transform not only the human's world, but the human himself.

Vandenberg and Kielhofner (1982) argue that human survival is contingent upon the adaptive response of collective mankind, and that this is man's cultural response. In biological evolution there are mechanisms such as the genetic action of D.N.A. which promotes continuity across generations, and the broadening of the genetic base through mutation which helps diversity and produces prototypes for future developments. The real test of the new biological form is through its interaction with the environment, and the resultant survival of the fittest. Applying these biological concepts to the evolution of culture, one must look for processes that encode or preserve cultural form, transmit it from one generation to the next, and create mutations or divergences for later environmental selection. In a sense, a society's genetic code is contained in its cultural tradition, which can be codified in writing, or imbedded in its oral traditions, beliefs, and rituals. These traditional practices are imitated by children, and depending on social sanctioning, the practices or behaviour may be adapted or changed by children through play. Cultural diversity is enhanced in those societies that allow for it. Adults play and act out rituals, and they too can elaborate, recombine and create new cultural forms. Not all of these are

selected for the evolutionary process, but they allow for change and adaptation (Vandenberg & Kielhofner, 1982). Humans' inherited capacity for culture demands that they become a part of the culture in order to survive. Individual survival requires acquisition of a range of cultural responses and social skills. Through play and imitation the young child learns the symbolism and social behaviours that make up these social responses, hence the vital importance of play for the individual's participation and survival within his society.

Play makes an important contribution to the development of other processes that aid survival and evolution, namely tool use and language. In all of these three phenomena, social skills, tool use, and language, 'there is an underlying similarity: the existence of rather complex means-ends relationships' (Vandenberg, 1978). For example, the tool is used for the completion of a task, in language the word is used for the expression of meaning, and in social skills, the individual's bodily movement or gesture is a way of communicating a social meaning. The development of these may share a similar process, of which play is an important factor.

"Play serves to provide cultural contexts in which behaviours can be organized toward certain meanings and purposes. The value of play is that through its imaginary or quasi-reality property it can create contexts with rules and consequences that are not seriously consequential. Because the player is free to create situations and try them out and because he can do so without fear of repercussions, play is a most efficient means of organizing the ongoing development of the child" (Vandenberg and Kielhofner, 1982).

Occupational Therapy Theories and Play.

The founders of occupational therapy in the Unites States viewed human beings in terms of their occupational nature, which encompassed a rhythmic temporal pattern and dynamic balance of work, rest, play and sleep. Aldolph Meyer (1922) referred to these as the 'big four' rhythms that helped shape the "whole of human organization" (p.641) and that these needed to be balanced so that the individual could adapt to the demands of living in a complex social world. Play and the 'spirit' of play were perceived to be as important to health as work was. Over time with various social upheavals and economic changes the boundaries blurred. The science base of reductionism undermined the confidence in activity and occupation, and more technically orientated perspectives on organising

adaptation to disability were employed. "The occupational therapist as 'play lady' became an embarrassment and if still alive at all, was hidden away in the closet" (Parham & Primeau, 1997 p.11).

Reilly, an occupational therapist educator and author of ' Play as Exploratory Learning' (1974), revived an interest in play as an appropriate and powerful medium for use by children and occupational therapists. Reilly sought to construct a comprehensive conceptual framework for the practice of occupational therapy built on a concept called "occupational behaviour", which linked play and work in a developmental continuum (Reilly 1969).

"The practical partnership of treatment and play was based on the clinical impression that play had an organizing effect upon patients who were obviously incompetent or behaviourally disorganized. The association, born of necessity, continued in occupational therapy because the mediating or midwifery role that play assumes for mastery was recognised as a fundamental truth in the world of disability. The difficulty lies in the explanation of this conviction. Why playful behaviour generates the tools of mastery, or how this methodology functions, is an enigma. Leaving play as an assumed 'good' abandons the exploitation of this phenomenon to intuition" (Reilly,1974, p. 9). And so began Reilly's attempt to provide a framework for the understanding of the self-organisation of behaviour and adaptation and achievement of mastery which emerged through engagement in occupation, with play being her main focus of study. Reilly attempted to integrate the literature on play from diverse and isolated disciplines such as anthropology, evolutionary biology, psychology, and sociology using a generally systems approach, which enabled her to organise an integrated conceptual framework. Parham and Primeau (1997) describe this "for example, rather than interpreting play as purely a regulator of neuro-physiological arousal mechanisms or as a manifestation of cognitive process (Piaget, 1951/1962), she developed a view of play in which neurologically based arousal systems gave rise to the emergence of cognitive-symbolic systems. She was convinced that play was multidimensional phenomenon; therefore, she advocated an interdisciplinary account of play as a "bio-social phenomenon".

Reilly believed that play must have an adaptive function and she hypothesised that play was a dimension of imagination that culminated from three hierarchical action systems:

the neurological subsystem, the symbolization subsystem, and the language subsystem. In this way sensory information is taking in and transformed into meaning in the form of symbols. These symbols help in developing the capacity to think and to generalize from one situation to another. However language is made up of symbolic representation of experiences and meaning gained through action on the environment. Reilly labelled these action-related symbols as "rules" referring to the mental representations for how the world and the self operated. These rules were generated in play. Thus play deals with reality as she viewed it as "processing or mastering reality" (Reilly, 1974, p.145). The capacity of the total imagination system to act was perceived to be dependent upon: "(1) the quantity of schemata already on hand and generated from experience; (2) the freedom of the system to match and weigh combinations from all subsystems and (3) the current state of readiness of the external reality to encourage and applaud new symbolic representations" (Reilly, 1974, p. 145). Drawing on arousal theories such as Berlyne (1960), Reilly (1974) put forward three stages of play development through which competencies emerge. These occur progressively during childhood and are (1) exploratory behaviour which was seen as a response to curiosity, (2) competency behaviour which was seen as a response to an innate need to meet adequately the demands of a particular situation. This is an application of White's theory of "effectance motivation" which produces "a joy in being a cause" (White,1971, p.273). Children's play is driven by their need to interact with their environment and to receive feedback from their actions on it. "I want to do this myself" reflects this attitude. Reilly considered that in this way mastery is achieved and self-confidence and self-reliance are generated (Reilly,1974). The third stage she called achievement behaviour. In this concept of achievement, there are expectations of winning and losing, and performance is compared to some standard of excellence; achievement behaviour is more extrinsically motivated than exploratory and competency behaviours. Children are perceived as competing with each other or with themselves. Conscious rather than accidental risk-taking and strategizing are part of the play activities. Danger is part of the excitement and challenge. "The hope and self confidence generated in the earlier play stages must of necessity be transformed to a state of courage. As persistence is a critical characteristic in the practice stage of competency, so courage is critical to achievement. Courage is realistic and adaptive when the skill of fragmentation functions in good order, and when the pre-established segments are present and appropriate to the risk-taking in hand. It is at this developmental point in time that the skills already present in the behaviour repertory are subject to being reorganised in the interest of winning. Under

these conditions the potential of the mind to strategize moves into realization, and man is thus enabled to move into a new position of power in his environment" (Reilly, 1974, p. 148). This perspective of man as 'master' may reflect Reilly's own time and culture, that of California in the 1970s. "He is no longer struggling with surviving. He is man controlling his environment, adapting through his capacity to strategise. He is man who has played his way gradually and safely towards the skilful mastery of his world" (Reilly 1974, p.148). Morphy's reports (1998) of aboriginal people in Australia may have a different perspective of what it is to be a man. Indeed as with most of the theories on play, they reflect a discipline specific perspective, and/or current cultural thinking at a point in time. There are very few reports in the literature of children's own accounts of their play or their rational for playing.

There are other stages or categorisations of play reported such as Piaget's classifications of practice games, symbolic games and games with rules (1951/1962). Takata who was one of Reilly's students, developed her categories of "play epochs" such as "sensorimotor", "symbolic and simple constructive", "dramatic, complex constructive, and pre-game", "game" and "recreational" epochs (1974). These give a rather general description of the types and stages of activities engaged in by children. It reflects a western cultural perspective. The pleasure children obtain from their play or what it offers to their sense of "being" will not be illuminated by such categorisations, none the less they are useful as applied by Takata to understand difficulties or deficiencies children may be experiencing in their daily life. It is interesting now almost thirty years later to read Takata's (1974) approach to a child presenting with language and social skills delay. She used a play history to identify a lack of opportunity, and then she designed a play programme (within the child's available social resources), to promote specific social skills and language development. This used a normative, activity based, and age-appropriate approach to the child's situation, which challenged the more 'technical' therapy interventions highly valued at that time. Takata and her colleagues were part of Reilly's cadre of scholars. Many of their ideas continue to be influential in contemporary practice (Parham & Primeau 1997).

The Occupational Nature of Play.

Kielhofner (1992, p.50) explains the term occupation as derived from the Latin 'occupo' which means 'to take possession, to lay hold of time and /or place'. 'The concept of place

includes both the physical and social world. Persons occupy physical space, social space, and time through action. Thus the concept of occupation refers to behaviours whereby humans, collectively and individually, make their place in the physical, temporal and social world. 'The Latin 'occupo' also refers to the investment of resources to achieve mastery. Thus another meaning of occupation is the investment or use of self in order to master one's situation.

The occupational behaviour frame of reference emerged in the 1960s under the leadership of Mary Reilly, and this formed the basis for The Model of Human Occupation (Kielhofner & Burke, 1980). This model reflects a systems view in that the human being is seen as a system whose occupational behaviour both sustains and transforms him. His innate biologically-based potentials and his experience from his occupations propel 'the human system through a trajectory of lifelong change referred to as development' (Kielhofner, 1992, p.139.) The socially established and culturally defined patterns of work, play and self-care over the life-span and the ways they influence the individual to perform, to find meaning and worth, and to change are of considerable importance to development. Play is categorised as developmentally the earliest form of occupational behaviour, and it is engaged throughout the individual's life-span. Play is a major vehicle through which the child experiences personal causation, and develops a sense that he can cause things to happen. Later on he begins to make choices, and increases his awareness of his own volitional decision making. Through play he explores and develops interests, practices roles and absorbs and reflects the value of his micro-society. The time spent in play, and the patterns of play change with the demands of adults, other time occupiers and the limitations of the environment. Habit patterns show a marked change as the child progresses through school. With increasing demands on his time the older child has to organize himself and his occupations to achieve a satisfactory balance between school work, chores and play or leisure pursuits. In middle childhood, play continues to be an important occupation.

Kielhofner's 'Mind-brain-body' performance subsystem emphasises the importance of the child himself organizing his experiences and activity. Only with his organization can his potential be activated and then developed with interaction with his human and non-human environment. This organization is central to development, and in our western culture play provides an opportunity for experience and practice to promote this organization.

"Occupational role" is a central organising concept in the occupational behaviour frame of reference. Role is conceived as "the expected pattern of behaviour associated with occupancy of a distinctive position in society", whereas occupational role is "the activity in an individual's life that contributes to society, and thereby defines the person's social worth" (Heard, 1977, p.244). This concept of occupational role is continued in the Model of Human Occupation. An individual is transformed from player to worker, home-maker, retiree, volunteer etc. In order to fulfil these roles the individual may need to develop certain skills and attitudes. Being a player is deemed a legitimate occupational role because it was seen as through this role that essential rules, habits and skills are acquired for competence in later occupational roles. Playing was seen as a means to an end. Skills of decision making and risk taking are thought of as particularly important outcomes of play that will later contribute to occupational choice and work performance (Shannon, 1974). The value of this view has been questioned by Jackson (1995) who proposed that the reliance on stereotypical roles may be detrimental to individuals who may be marginalized in society because they do not fit these stereotype roles because of their individual uniqueness and circumstance. Instead the personal vision of the individual was more important to support in finding meaning and a place in society. Bateson's view (1955, 1956) as reported earlier in this review, emphasises that it is not so much the content of the role-playing that was important, but that the child learned the concept of role playing which equipped him to engage in a social way with his world. With regard to play, as the focus shifts away from the child as player to play as occupation, its features and how it is supported or not supported by intra personal and environmental factors is becoming more predominant. The functionalist view of play, that play is important because it develops other functions such as sensory integrative, motor, social, cognitive, self-care or work skills, and that it only has value as a means to an end has predominated in the practice of occupational therapy (Parham, 1996).

Overcoming Performance Deficits Through Play.

Play as viewed from an occupational behaviour frame of reference was studied as a means of enriching basic skills or for overcoming performance deficits as in sensory integration deficits. A compatibility between sensory integration theories and an occupational behaviour perspective is rather obvious, and unsurprising as Ayres (1979) developed her theories around the same time as Reilly, and both occupational therapists were located in

Southern California. It could be expected that sensory integration deficits would impact upon the choice of play activities, and in turn the avoidance of certain activities would limit the development of sensory integration skills underpinning the play activities. Ayres always considered play and a playful approach as the most appropriate therapeutic medium for promoting sensory integration (1979). The relationship between sensory integration and play was deemed of sufficient interest that two special editions of the Sensory Integration Special Interest Section Newsletter of the American Occupational Therapy Association were devoted to this topic (Schaaf & Burke, 1992). Research by Bundy (1989), and Clifford & Bundy, (1989) was carried out to test the assumption that children with poor sensory integration are likely also to have poor play skills. Although pre-school boys did indeed differ in their level of play development as measured by Knox's Playscale (1974), with lower play scores associated with the dysfunctional group, one third of the dysfunctional group had play skills within normal expectations. However these results may indicate the difficulty in measuring the quality of play rather than its occurrence in this age group. This play scale uses rather general categories of play actions and has wide age bands. However a general conclusion was reached regarding the children's play preference, that even at this age and regardless of their sensory integrative abilities, children were found to express strong preferences for the types of play in which their skills were the strongest. In other words, most children seemed to have matched their play preferences with their abilities (Bundy, 1991). Does this reflect a narrow repertoire of play preferences, or of play experience, or an innate drive to get better at what one is already good at, and an avoidance of what one is not? Or it may be that this is what children play in this context and play other ways in another. Clearly more research is needed in this area. Bundy concludes that sensory integration clearly might influence the child's ability to play but was only one of many complex foundations for play. Bundy also concluded that improving an individual's sensory integrative functioning might not automatically improve his or her ability to play (Bundy, 1991). Not only do children with obvious and visible sensory and/or motor disabilities need additional supports to have good play experiences, there are many more with less obvious impediments to a playful life, such as the estimated 5 to 6% of the population with developmental coordination disorders (American Psychiatric Association, 1994; Henderson & Hall, 1982; Wright, Sugden, Ng & Tan, 1994). These children are more clumsy than their peers, and may be more disorganised in their approach to complex play activities.(Developmental Coordination Disorder is referred to again in this chapter in the section discussing

acquisition of motor skill.) Damon and Hart's model (1982) of self–understanding proposed that the physical and active aspects of self are the greatest areas of self-knowledge for a child in early and middle childhood. Motor difficulties are extremely obvious both to the child and his peers. Thompson, Bouffard, Watkinson, & Causgrove Dunn (1994) have reported that these children are reluctant to practice motor skill, and generally withdraw for these type of activities because of their low perceived competency in the physical domain. Hence perceived ability, and underlying sensory motor problems may affect the type of play experience sought by the child. Different drives may conflict, the drive for mastery, and the need not to be confronted by failure to achieve an acceptable standard leading to avoidance of particular types of play. Skill acquisition may be delayed or interfered with by lack of practice. The role of the occupational therapist is to provide a supportive environment for tackling difficulties that have been structured as incrementally achievable by offering the "just right challenge" (Ayres, 1974), and /or changing the environmental demands in order to promote success.

An Occupational Science Perspective.

An alternative view from this functionalist one is gaining ground in occupational science, that play is a legitimate end in itself because it is a critical element of human experience. "Play may be understood as a vehicle of meaning; it reveals what makes life worth living for an individual (Parham 1996). Thus from this perspective, play becomes a quality of life issue in the here and now. Play is health promoting, not only because it prepares for work at some later time, but also because it is an active ingredient of a healthy lifestyle in the present" (Parham & Fazio, 1997).

Occupational science is an emerging discipline that has been designed to provide a knowledge base for the practice of occupational therapy (Clark et al., 1991). Occupation is the central construct for study in occupational science. "If therapists want to understand play as occupation, they need to study play directly. This approach differs from previous research that has sought to understand occupation by studying component abilities, such as cognitive, motor or social skills, in the hope that by putting the pieces together eventually therapists will come to understand occupation" (Parham & Fazio, 1997, p. 15). Because play is a major category of occupation, it is an important area for research within occupational science. Such research involves collecting information from people about their involvement and experiences in play, and the naturally occurring patterns of play.

Csikszentmihalyi's interest was in the quality of the experience while involved in doing (1993). His stance was that of improving the quality of one's life not by thinking but through doing. "The issue is not to figure out how to be happy, satisfied, or contented; but to act in ways that will bring about those states of experience directly. Acknowledging that not all activities improve the quality of experience, the task was to become involved in doing tasks that stretched ones abilities, and that focused one's whole being in a harmonious rush of energy that lifts us out of our anxieties and boredom" (p.40). When these conditions are present the person is said to be in "flow". He considered that children through their play spontaneously enjoy flow, but that in most societies the mismatch between opportunities and abilities eventually leads to a progressive atrophy of the desire for new challenges. The challenge usually is complex in its demands and is just about doable, and fits the doers capacity, a similar concept was termed the "just right challenge" by Ayres (1979). "Having learned that boredom and worry are the norm in the family, in the school, and in their community at large, children loose their curiosity, their interest, their desire to explore new possibilities, and become used to passive entertainment. They no longer feel that they have skills that they can use. Even though passive leisure provides no joy, they see it as the only way to spend free time that is within their means" (1993, p. 41). Rathunde and Csikszentmihalyi (1991) reporting on a study on adolescent happiness and family interactions found that parents of children who experience more flow than others often treat their children differently from the way other parents treat their children. They were found to be more supportive, and at the same time more stimulating than other parents usually are. It was concluded that in such an environment children feel safe to invest attention in gradually more challenging opportunities, in other words a complex family milieu is likely to produce children at home with complexity provided by a range of challenges. His colleagues studies suggest that flow does not just improve the quality of experiences momentarily, but it also has longer term effects. Teenagers who report more flow tend to be happier, and to develop their academic talents further than peers who are in flow less often (Csikszentmihalyi et al., 1993). Parents and home environment are considered very influential in supporting flow in the young child. There might be constitutional and temperamental differences beginning to show in the first few months of a baby's life in terms of searching out new challenges, but it was considered that parental treatment can either dampen down or further encourage the infant's interests in exploring

and playing with his environment. As such parents have considerable influence in the child's future happiness experienced through doing (Csikszentmihalyi, 1993).

Another approach suggested in occupational science is that of observing the naturally occurring patterns of play. An example of such a study is Primeau's (1995) who reported on mothers and young children's shared involvement in household chores, in which the mother "scaffolded" the child's skills in learning new occupations. (Vygotsky used a similar term in his work relating to the "zone of proximal development"). In this shared activity the work/play categories were merged, and both child and mother appeared to share a meaningful experience, in addition to the child learning how to do household tasks. Primeau found what she classified as two main strategies used by parents to incorporate play into the daily household routines: strategies of segregation, in which the child's play was entirely separate activity from the parental household work, and strategies of inclusion in which the child's play is embedded in the parent's work, and the parent plays with the child who is involved in the task at hand. That this is an unpublished dissertation and the paucity of other reports on children' s play both serve to highlight the novelty of this type of study. When this author began her study in 1994 there were no such reports of the occupational nature of play as a focus of study in the occupational therapy literature.

Patterns of Play and Leisure in Middle Childhood.

International Perspectives.

Ages and Stages of Children Play.

There are stages or categorisations of play reported such as Piaget's classifications of practice games, symbolic games and games with rules (1951/1962).

Takata who was one of Reilly's students, developed her categories of play epochs (1974) (see table 1) which has been updated and re-evaluated by Bryse in the text *Play and Occupational Therapy for Children* (Parham & Fazio, 1997).

Table 2.1. Takata's Play Epochs.

Epoch	Age	Description
Sensorimotor	0 to 2 years	Play with sensations and motion during first 18 months; peek-a-boo, hide and chase, imitation of caregivers. Putting objects into containers, practicing motor skills, simple problem solving.
Symbolic and simple constructive	2 to 4 years	Symbolic play; beginning make-believe play and pretend play; experiences represented in play. Shift from solitary play to parallel play. Builds simple constructions that represent another object or situation. Climbing and running are more skilful.
Dramatic, and complex constructive, and pre-game	4 to 7 years	More social participation, shift from parallel to associative play; dramatic role play enacting child's daily experiences, social roles and fairy tales and myths. Skill demonstrated in hand dexterity. Play out-doors used for demonstrating strength and skill through dare-devil activities. Constructions are realistic, complex. Verbal humour, creates rhymes.
Game	7 to 12 years	Games with rules: fascination with rules; masters established rules and makes up new ones: concerns with peer status; friendship groups are important; interest in sports and formal groups (eg. Scouts): cooperative play. Interest in how things work, nature, crafts.
Recreational	12 to 16 years	Formal peer group orientation: teamwork and cooperation; respect for

		rules; games that challenge skills; competitive sports. Realistic constructive projects and complex manual skills.

The above play epochs give a rather general description of the types and stages of activities engaged in by children. It reflects a western cultural perspective. The pleasure children obtain from their play or what it offers to their sense of "being" will not be fully illuminated by such categorisations, none the less they are useful as a reference for general expectations of types of play related to developmental stages.

Types of Play and Leisure Activities Expected in Middle Childhood.

There is a general consensus in child development literature that middle childhood is a somewhat tranquil period of development. The child practices and refines already established physical, psychological, and social skills developed during earlier stages. Children are seen to be more rational having entered Piaget's concrete operations period. Thought can now precede and guide action, but does not ordinarily function independently of it. Children are less dependent on adults, and like to play outside of the home. "In the context of the neighborhood, school and community the child devotes an enormous amount of energy to mastery of both people and tasks" (Neville-Jan et al. 1997).

The literature puts forward the view that it is at this stage in middle childhood that children's involvement with their peers may center on shared interests and hobbies. Children may collect things and trade them. Gender segregation is striking in this age-group in almost every culture in the world (Cairns and Cairns, 1994). Gottman (1986) reported that in his study with American parents of children aged 7 to 8 that none of their children had friendships that were cross gender. Children organize themselves into clubs/gangs or friendship groups and have codes or symbols to indicate their belongingness (Neville-Jan et al. 1997). This is less observable to the outsider, as it forms part of the social relationship and friendship of the insider group. The pleasure in belonging may have more meaning for the child than the doing of the play activity, such as trading objects. Having the skills and ability to take part in group games are essential, these include social, cognitive and motor skills. The social self in the world outside the

family is being developed. Children in this age group are becoming aware of how they measure up in skill and ability level against their peers (Neville –Jan et al., 1997).

With regard to the play of middle childhood, it would be expected by Takata (1974) and Piaget (1962) that games with rules would predominate, and that pretend play has faded into the background. Takata's game play epoch lists risk taking, concerns with peer status, and an interest in how things work as in nature, crafts, and machines could be expected from children aged 7 to 12 years old (1974).

Game Playing.

" A true game is one that frees the spirit. It allows no cares but those fictitious ones engendered by the game itself. When the players commit themselves to the rhythm and incident of 'Underground Tig' or 'Witches in the Gluepots' they opt out of the ordinary world, the boundary of their existence becomes the two pavements this side of the pillar-box, their only reality the excitement of avoiding the chaser's touch" (Opie and Opie, 1977). Middle childhood would be typically associated with playing outside of the home, on the street, or in nearby fields or open spaces, under the occasional eye of watchful parents. Although the play may appear unrestricted, the games have rules that either have been made up and/or agreed by the children themselves, or if old street games are being played the rules are similar to those passed down through the generations. Opie and Opie (1969) devoted a considerable amount of their work to the description and discussion of street and playground games in Britain, and how these games were links to the past. "When children play in the street, they not only avail themselves of one of the oldest play-places in the world, they engage in some of the oldest and most interesting of games, for they are games tested and confirmed by centuries of children, who have played them and passed them on, as children continue to do, without reference to print, parliament, or adult propriety. Indeed these street games are probably the most played, least recorded, most natural games that there are" (p. 40). In street games little significance is attached to who wins or who loses, they do not require the stimulus of prizes. Opie and Opie (1969) noted that indeed children liked games in which there is a sizeable element of luck, so that individual abilities cannot be directly compared. They liked games that restart almost immediately, so that everybody is given a new chance. They liked games that move in stages, and that have to go through various routines such as using a rhyme to pick who is 'in' or 'out'. It was considered that these stages were more akin to ceremonies than

competitions, and that the children gained reassurance from the repetition, and a feeling of fellowship that comes with doing the same as everyone else.

The rule bound behaviour and the acceptance of authority and responsibility associated with games playing in this stage of development has been given great significance in terms of children's socialization. The origin of institutional order and the process of socialization are founded, according to George Herbert Mead (1934), upon the rule bound aspects of play. Mead developed role theory and was an influential figure in American social psychology. He proposed that it is through games that the social self arises. In addition to language, he proposed as important to self the behaviour of play and games. Competitive games exemplified for Piaget the advancement towards moral realism based upon one-sided respect for persons and authority, and beliefs in immutable moral laws comparable to the laws of nature. He proposed that the development of a moral sense came from the rule bound experiences of play, and that this is how the child learned to co-operate. In order to co-operate in this way the child first needed to understand the rules of motor behaviour (such as no hitting another child), rules of objects (this object is hers), and the rules of other players (that it is his turn now). Games may be categorized into games of chance as in the board game Ludo, or games of skill this could be motor, cognitive or any type of combination of skill. Strategy is seen as an essential element of games of skill. Games of skill are linked with risk taking, and encouragement to try new things. A child rearing study by Roberts and Sutton-Smith (1962) examined the relationship between games of strategy and the special requirements for obedience in American society especially from girls. He explained the boys preferences for more achievement and strategy type games than the girls as the result of enculturation. No doubt society and children's game playing may have changed somewhat since the 1960s. Although the impression is given from the literature that most of children's play in middle childhood is taken up with rule bound games, and that fantasy and imagination have faded away, this may not be true. Instead it may be that children's representations of imagination are either not shared, or that they are more 'real', as a boy playing the role of his favorite footballer in his street game of football. Daydreams are a familiar representation of imaging known to most of us, and the ability to imagine is only reaching its peak in adolescence (Singer 1986; Singer & Singer, 1990), when future plans, partners, and life roles are "tried out" in daydreams.

Rosenfeld and colleagues (1982) developed a measure of fantasy to evaluate the fantasy styles of children aged 6 to 8 years, and identified three styles; active-intellectual, dysphoric-aggressive, and fanciful-intense. McIllwraith and Schallow (1983) found a positive correlation between extensive and unmonitored television viewing and dysphorpic, hostile, ruminative fantasies. They did not find however that television viewing substituted for or replaced self produced fantasies. Fazio (1997) reports that in her work that children's own stories may have been provided with colour or impetus by television viewing including recently witnessed events on the news, but that they still made up their own stories in middle childhood, a factor she used in her work in personal effectiveness and social development with children with disabilities in mainstream schools. The stories developed by the children and therapist offered other ways of dealing with difficult situations, in an unthreatening pretend way that could then be tried out in the real world.

Television Viewing.

Of all the activities in which children engaged in middle childhood, television viewing is probably the most debated. It is seen as a major influence on their development as 98% of homes in the U.S A. have a television set, and children between the ages of 2 to 11 have been reported to watch on average 22 hours a week (American psychological Association, 1993; Fabrikant, 1996). "By the time American children are 18 years old, they have spent more time watching television than in any other activity except sleep" (Huston et al., 1990). Most of the concern is related to the content of the viewing as it is acknowledged that this influences children's social behaviour, and language skills in either a positive way (as by watching 'Sesame Street') (Huston and Wright, 1994) or in a negative manner (eg. 'The Mighty Morphin Power Rangers') (Boyatzis, 1995). Boyatzis reported seven times as many aggressive acts during subsequent free play with peers as compared to children who had not just viewed the violent programme. Another type of research involves comparing levels of aggression among children who vary in the amount of television they watch regularly. The almost universal finding is that those who watch more television are more aggressive than their low-television watching peers. This may be because those who are already aggressive choose to watch more television, or that families that allow high amounts of watching may be more likely to use patterns of discipline that will foster aggressive behaviour in their child (Bree,1998). Eron (1987) reported on a 22 year longitudinal study and found that the best predictor of a young man's aggressiveness

at age 19 was the violence of television programmes he watched when he was 8. When Eron interviewed the men aged 30, he found that those who had higher rates of TV viewing at age 8 were much more likely to have a record of serious criminal behaviour in adulthood. The pattern was the same for women, but the level of criminal offenses was far lower, just as the level of aggression was lower in girls in childhood. Eron (1991) reports on shorter longitudinal studies in Poland, Finland, Israel, and Australia that demonstrate similar links. The evidence suggests that the causality runs both ways; aggressive children prefer violent television, and the violence on television causes them to be more aggressive. However Huston and Wright say, "Television can be an ally, not an enemy for parents. Parents can use television programmes for their children's benefit just as they use books and toys" (1994, p.80). Csikszentmihalyi (1993) views excessive watching of television as a symptom of occupational deprivation and the absence of the right balance in choice or availability of meaningful activities within the child's ability level. "People seek to balance the psychic energy they have to expend with the anticipated benefits. Television viewing provides little enjoyment, but it requires also very little effort" (p.41). The lack of opportunities within the child's ability level leads to a progressive atrophy of the desire for new challenges. They loose their curiosity, their interest, their desire to explore new possibilities, and become used to passive entertainment. "They no longer perceive the many opportunities for action around them, they no longer feel that they have skills that they can use. Even passive leisure provides no joy, they see it as the only way to spend free time that is within their means" (p.41). Considering the body of literature on those young men ending up in the prison services, some of whom may have learning disabilities (Brier, 1989; O'Mahony, 2002) it is possible that the opportunities and supports for these as children in achieving success and positive self esteem through meaningful engagement in activities/occupations may have been less available than for their less aggressive peers. The literature on television watching does not report on the occupational profile of the violent and non-violent children.

Playing Outdoors in Middle Childhood.

Friends knocking on the door asking "Are you coming out to play?" typifies the type of play associated with middle childhood, that of having friends to play with outdoors. Children are finding places to play, unlike the younger child, they want to develop a play space separate from their mother and home. The Children's Research Centre in Trinity College, Dublin have published a report prepared by Webb and Associates (1999) that

examined central and local government's policy on children's play in public areas. It is one of the few Irish based studies on play in recent times. This report examines the existing provision for play in Ireland, its changing nature, promotes the need to move away from a focus on playgrounds, and suggests the requirements for the development of a comprehensive play policy. This report also provides a literature review with an emphasis on U.K. and Northern European studies.

Access to outdoor spaces and their diversity are the recurrent themes of many of the studies, which have sought to examine how children play outdoors and what they prefer. The outdoor environment is believed to offer children a continual source of raw material for creative play and greater opportunities for meeting new children and adults than is possible within the home or school (Moore and Young, 1978; Naylor, 1985). Children can impart rich meaning to landscape features and experience strong responses to it (Titman, 1994). Wheyway and Millward (1997) report that the natural elements of bushes, rocks trees, sand and water are the major factors for liking remembered outdoor spaces, and those best remembered by adults tend to be those experienced between the ages of four to ten. Where diversity is lacking, children tend to bring loose parts into their play space such as tyres, planks, rocks or even taking up paving stones (Webb, 1999). Children seek social contact with their friends through their play activity and do this by moving around their neighbourhood. Wheyway and Millward (1997) report that children remain the most frequent users of the outdoor environment and spend approximately 40% of their playtime traveling from one place to another. The majority of outdoor play is active, involving walking, running, ball games, use of wheeled vehicles and play equipment. Children do not distinguish strongly between places designated for play such as playgrounds, and other space. They interact with the whole neighbourhood and it is the diversity of the environments within the neighbourhood and the available access to them that are the most important factors for child development (Parkinson, 1985; van Andel, 1990). Webb considers the provision of equipped playgrounds as a formal recognition of our failure to provide for the needs of children in the wider environment. Research from around the world has consistently shown that when children are asked what play facilities they would like most, the answer is always sand and water, trees and bushes, long grass and hills. Last on children's list is traditional play equipment" (1999, p.17). Webb (1999) considers that children's physical health demands access to facilities that permit exercise through play. "Such issues are of major concern today as not only has a child's access to play in the

outdoor environment become curtailed, but television and computer based activities serve to distract children from playing outside. Environmental play is probably the most valuable and the most natural form of play, and teaches children more about the real world than any other form of play" (Webb, 1997, p.17)

The Measurement of Play in Middle Childhood.

Accepting that there are difficulties with defining play, these then impact on its measurement. As play may be an experience, some of which is not observable to an outsider, it may be impossible to measure when play is actually occurring, particularly in very small children. Sturgess and Ziviani (1995) in their review of existing play assessments state that a surprisingly small number of play assessments are reported, relative to the overall volume of literature devoted to play. Clark et al.(1989) and Kielhofner and Barris (1984) criticized the reliability and validity of existing play assessments. This is possibly because most assessments are observational, and therefore require substantial revision to become reliable and free of subjective bias. Using self–report with children has been viewed cautiously because of concerns about reliability and validity and other practical issues (Sturgess and Ziviani, 1995). (This is discussed in greater detail in the Methodology section as a self report interview schedule was included as one of the data gathering tools in this author's study).

Another factor affecting assessment of play is its dependence on other factors such as the context in which the play occurs such as the social group to which the child belongs. Child (1983) found in her study that social class and ethnic group had significance for the content and style of play especially in respect of imaginative play and passivity. Socio-cultural contexts are reflected in children's play, and assessment of their play skills must take this into account (Rubin et al. 1983).

Research on children's play refers to types of play and modes of play. Types of play preferences have been categorized such as 'tactile', 'imaginative', 'artistic' and 'physical' (Lee, 1973; Lucas & McKennell 1974). Finegan et al.(1991) developed their parent report measure to identify types of play preferences for children in middle childhood. (A critique of this measure is included in the Methodology chapter.) Modes of play, such as noting how children play (e.g. Sylva et al. 1980; Blurton Jones, 1972) are reports of observations of young children's play behaviour, detailing how children use materials, and how they

interact with the materials and each other. These are usually adult interpretations of children's behaviours, and cannot be presumed to fully describe the children's personal experience of partaking. As with any measure using only parents' reports of children's preferences, the child's perspective of his/her preference may not be the same as their parents. Pellegrini (1998) reported that because adults see children in differing contexts, they are likely to have differing views about the child's play. Sallis (1991) reviewed self-reports and proxy reports about the amount of physical activity performed by children and found that the adult reports were limited. However with children, the type of information suitable for gathering by self-report is restricted. Pretzlik and Sylva (1999) considered that children were not the best source of detailed descriptive information, but evaluative judgements about concepts that they understand are suitable to be gathered by self-report.

In addition to these reports on play behaviours, there are also general measures of play such as Knox's Play Scales (1974), Takata's Play Epochs (1974), and Bundy's Test of Playfulness (1991). As referred to earlier in this review, these give indications of stages of play, and age associations for types of play in western cultures.

The Measurement of Gender Differences in Play.

Most attempts to characterize the individual, social and environmental determinants of gender type play have relied on observation (Rubin et al. 1983) some of which is based on information gleaned from parents. One such parent report measure used to identify play preferences in middle childhood is the Play Questionnaire (PQ) (Finegan et al., 1991) for use with children from 4 to 12 years. This measure was developed for the purpose of distinguishing between boys' and girls' preferred activities and styles of play such as levels of physical activity; degree of boisterousness; and participation in bodily contact activities. It was designed for applications in developmental psychopathology and psycho-neuroendocrinology and in studies of normal play and sex role development (Finegan et al. 1991). It was designed to identify children's play preferences under categories of 'active and adventurous'; 'athletic'; 'rough and tumble'; and 'quiet' play, and to allow the identification of gender differences. This parent report measure was intended for completion by either parent, and it was not expected to show perfect agreement because mothers and fathers elicit and observe different play behaviours in their children (MacDonald & Parke, 1986; Ross & Taylor, 1989). In its development stage, analysis was carried out regarding the effects of gender and age, with little difference related to age

being noted. However with regard to gender, univariate F tests for gender differences indicated that boys' scores were higher than those of girls for the 'Athletic factor' and the 'Rough and Tumble' factor. Girls scores exceeded those of boys on the 'Quiet' play factor, and no gender differences was observed on the 'Active and Adventurous' play factor. The gender difference regarding 'Rough and Tumble' play is in keeping with the literature that reports such differences in both humans and animals (Beatty, 1984; Whiting & Edwards, 1973; Humphreys & Smith, 1987). The authors considered that the consistency of their results with the findings of others as reported in the literature supports the scale's content validity. That no gender difference was found in the 'Active and Adventurous' factor is explained in so far as DiPietro (1981) who observed higher levels of rough and tumble play in boys, but that girls engaged in energetic play as frequently and as vigorously as did boys, but without the body contact of 'rough and tumble'. The PQ revealed gender differences in preference by boys for 'Athletic' play, which is also supported by other self-report measures used by Sutton-Smith et al (1963) and Maccoby and Jacklin, (1974). The 'quiet' play factor indicating a preference for table-top activities, arts and crafts, and fantasy play had a gender bias in favour of girls. This too was found to be in keeping with the literature such as Sutton-Smith et al. (1963). As part of the validation process, the developers carried out a study to examine the PQ factors and their relationship to other measures such as children's gender related behaviours and use of toys (Finegan et al., 1987). However it should be considered that what was considered a 'feminine' type toy or 'feminine type' behaviour in the late 1960s and 1970s would possibly not be classified in this way in the later part of 1990s or early 2000s. Roberts and Sutton-Smith (1963) exploration of games of chance and games of strategy and gender difference in the 1960s concluded that children's play reflected a social order in which girls were expected to be obedient, responsible and controlled, whereas boys were expected to be less respectful of authority and responsibility, and were encouraged to be risk-takers. Hence it would be expected that some gender related play behaviours would reflect the social relationships and role expectations of their time to some extent, and that measures of gender differences based on norms established in previous generations have limited value.

The Development of Motor Proficiency.

Motor development results from the interaction of the child with a sympathetic environment, that is one in which innate abilities are supported and challenged, resulting

in the achievement and maintenance of motor skills. The next section of this review will examine some of the theoretical basis for the acquisition of motor skill, its measurement in childhood, and the predictive value of infant measures for continuity of motor ability into middle childhood.

Schmidt (1991) describes motor learning as "a set of processes associated with practice and experience, leading to relatively permanent changes in the capability for responding and producing skilled action". This definition highlights four aspects essential to learning: Motor learning is the process of acquiring the capability for skilled action; it results from experience or practice; is inferred, based on behaviour and is not measured directly; it produces permanent changes in behaviour (Giuffrida, 1998). Most importantly the desired outcome in motor learning is that the change in motor behaviour is *retained.*

Pedretti and Umphred (1998) describe the acquisition of motor skills in the occupational therapy treatment process as "when the patient is engaging in instruction and practice to perform motor behaviors that are beyond their present skill level. This learning is affected by many general factors such as: the arousal of the central nervous system, attention to the task, motivation of the patient, the type of memory needed (declarative versus procedural; verbal, visual, or kinesthetic), type of movement required (simple to complex), practice schedule used, type of practice chosen, type and timing of reinforcement used by the clinician, and the specific environmental context within which the task must be accomplished" (p.227). They list the stages of motor learning as skill acquisition, skill refinement and skill retention, and state the conditions which may support or inhibit motor learning in the different stages such as the type of practice, practice contexts, stages of motor learning, type and frequency of feedback (such as intrinsic and extrinsic feedback; knowledge of performance; knowledge of results; and summary feedback). Hence motor behaviour is a reflection of inputs from many complex processes including sensory systems, perceptual, cognitive, and emotional components, although much of the literature on motor learning and development is limited to sensory and perceptual and motor inputs, processes and outputs. Williams (1983) describes perceptual-motor development as being a direct manifestation of the quality of perceptual motor functioning, and is concerned with the total scope of the process of sensory decision making (influenced by stimulus reception and processing, and sensory integration), motor decision making (influenced by selection/organization of motor behaviour, long term memory, and comparator operation,

which all affect the motor /effector activity) actual movement (behaviour), and reafference (evaluation), which in turn is dependent on information feedback (such as visual, kinesthetic, tactile and auditory) (Williams, 1983). These types of description are typical of most textbooks on motor learning. Such an extreme bio-mechanical approach to motor learning might cause one to wonder how anyone could organize for himself to learn to chew, to crawl, to walk, to talk, to run about, to climb trees and ride a bicycle without the regular input from a motor learning specialist/ therapist.

Although there are several different concepts and theories in the field of motor learning, they all stress however that the learner is actively involved in the process and that there is an interaction between the learner and the environment (Giuffrida, 1998). More recent research has led to a shift away from reflex and hierarchical models of motor learning and programming towards more complex conceptualizations (Schmidt, 1988; Schmidt & Bjork, 1992). One such useful concept that supports the developmental opportunities afforded in play is that of 'contextual interference' and its explanations. The "contextual interference effect refers to the findings that practice of multiple tasks in a random but repetitive way results in depressed performance, but greater retention and transfer of learning, when compared with tasks being practiced in a 'blocked' or systematic manner (as in formalized training sessions) (Giuffrida,1998, p.563). There are several cognitive explanations for this phenomenon. Lee and Magill (1983) have suggested that practicing different tasks on each trial forces the person to reconstruct an action plan on each trial, which impairs speed of processing and actions during practice, but enhances retention of the task. Shea and Morgan (1979) have suggested that more inter-task and intra-task comparisons occur during random practice, leading to more elaborate and distinct memory representations of the tasks and better retention. Schmidt and Bjork (1992) have suggested that retention is enhanced because more memory retrieval occurs during practice with random practice schedules, and this results in better retention. Giuffrida (1998), an occupational therapist, states "This phenomenon implies that methods of practice, such as drill or rote practice, are not necessarily the most effective for learning motor skill. On the contrary, practicing a variety of tasks in a non-systematic way is more successful for learning. Therefore, the practioner may not need to make the task practice simple or easy, but rather demanding and effortful for the client. By varying the order of tasks practiced, the client becomes cognitively engaged and more effective learning can occur" (Giuffrid, p.563). Such is the motor learning context and type of experience afforded by play to the

physically engaged child. This may explain in part how it is possible that engagement in self directed occupation (which is essentially experienced through the body) promotes motor development. It is that opportunity for many responses and interactions with an enriched environment that allows the development of effective motor action. Activity and exploration dictate our ultimate movement repertoire. Epigenic factors (environmental factors or learning that act on a genome to express morphology or function) play a key role in the development of children. "It might look like play to you and me, but that kid is putting in long hours of hard work, literally learning how he or she fits into the world" (Leonard, 1998).

In more recent years some attention is being paid to the physical and social aspects of the infant's home environment as influencing motor development (Abbot and Bartlett, 1999). This perspective is compatible with Bronfenbrenner's (1979) conceptualization of the important role of family ecology in shaping overall human development. A strong relationship between the home environment and intellectual development has long been established (Bradley and Caldwell, 1976; Ramey et al., 1976; Parker et al., 1988). However relationship between home environment and infant motor development is less clear. Although both maturational and environmental factors are believed to be important, little evidence-based research exists to support this assumption (Abbott and Bartlett, 1999). A dynamic systems theory suggests that a host of subsystems, in a specific task context, contribute to motor development and that motor development is not solely reliant on neural maturation (Thelen et al., 1987). Instead changes in motor behaviour emerge from the interaction of elements from the child, the environment and the task. Dynamic systems theory proposes that changes occur during transition states, which are times in which one element within a subsystem may have changed to allow motor advancement. The notion of the emergence of universal milestones within a specified time frame is a Western idea of development (Cintas, 1988). Cross-cultural studies suggest that variability in the timing of motor development is present among infants growing up in different regions (Cintas, 1988). Super (1976) reports on the potential influence of parental expectations and care giving practices on early motor development. He administered selected items of the Bayley Scales of Infant Development (1969) once a month to a group of children in a Western Kenya farming community. Their mothers were also interviewed about their child rearing practices and expectations of motor development. His results showed that the milestones that were considered important, such as sitting, standing and

walking were acquired on average one month faster among Kenyan infants when compared to American infants. Not all motor milestones of these infants were accelerated, only those with specific value to the mothers and thus trained. Crawling was not seen to be important and no significant differences were found between the African and American children. In contrast parental expectations and care giving practices may also inhibit certain motor behaviours. In Super's study the African mothers considered that crawling would lead to danger and discouraged it. Dennis and Najarian's (1957) study of Lebanese infants in institutional care had delayed sitting because their caregivers did not place them in this position until they were ten months old.

Children growing up in poverty are more likely to have developmental problems and the manifestation of these problems tends to be more severe (Abbott and Bartlett, 1999). Poverty is a better developmental indicator for future intellectual performance than the biological risk factor sustained by the infant at birth (Broman et al., 1975). Many studies provide strong empirical evidence that poverty has a significant effect on infant cognitive development. However the relationship between the effects of poverty and infant motor development is less clear due to the small number of studies examining this issue (Abbot and Bartlett, 1999). However these authors report on a study by Fetters and Tronink who investigated low socioeconomic status infants in two groups, one exposed in utero to cocaine and the other not exposed. At 4 months of age 91% of the exposed group and 78% of the control group scored poorly enough to be considered for early intervention referral. Hence poverty was seen as associated with poor motor developmental outcomes, but this poor outcome may be more a reflection of the care giving and inter-actional relationships in the infant's home environments, rather than lack of money and resources in themselves. Hence the role of the family, social class, and cultural care-giving practices can have an influence on the availability of opportunities to develop motor skills. The acquisition of motor skills is not only dependent on central nervous system maturation, myelination and nerve conduction velocity rates.

Developmental Coordination Disorder.

Not all children achieve the same level of motor ability at the same stage (age) in their development, including those with no obvious physical impairment. Prevalence rates of 5 to 6% of children in the school going population with developmental coordination disorder (DCD) have been reported (American Psychiatric Association, 1994; Henderson & Hall,

1982; Wright, Sugden, Ng & Tan, 1994). Other studies report much higher percentages of those with dysfunction. Mild neurological dysfunction, implying not only poor motor performance but deviations in a thorough neurological examination, was found in 15% of 9 year old neonatally normal children. Marked neurological dysfunction was found in 5% of these children (Hadders-Algra et al., 1988). In addition to the motor difficulties apparent in children with DCD, the development in later childhood and adolescence of distress, heightened anxiety, low self esteem, and secondary social, academic and behavioural problems has been reported in the literature (Cantell, Smyth, & Ahonen, 1994; Gillberg & Gillberg, 1989). Damon and Hart's model (1982) of self–understanding proposed that the physical and active aspects of self are the greatest areas of self-knowledge for a child in early and middle childhood. Motor difficulties are extremely obvious both to the child and his peers. Children may be labelled by their peers and excluded from group play, factors which possibly contribute to the secondary social and emotional problems reported earlier. As reported earlier in this literature review, Shoemaker & Kalverboer, (1994) and Thompson, Bouffard, Watkinson, & Causgrove Dunn (1994) have reported that these children are reluctant to practice motor skill, and generally withdraw from these type of activities because of their low perceived competency in the physical domain. However there is little reported in the literature on the type and diversity of play preferences and leisure interests, (and to what extent these are essentially physical in nature) of children in middle childhood. Hence it would be expected that 5% to 6% of children in any general population study could have such motor difficulties that may have influenced their physical participation in play and leisure activities. As reported earlier with reference to preschool aged children with sensory integrative dysfunction, a general conclusion was reached regarding the children's play preference, that even at this age and regardless of their sensory integrative abilities, children were found to express strong preferences for the types of play in which their skills were the strongest. In other words, most children seemed to have matched their play preferences with their abilities (Bundy, 1991).

Gender Differences in Motor Ability in Middle Childhood.

By the time the child reaches middle childhood, the majority of maturational process with the central nervous system are complete. Certainly by age 8, upper limb sensori-motor development for refined movement should be evident (Nelson, 1998). Children at this age,

with practice have the ability to ride bikes, jump, climb, do refined handiwork. The sub-tests of the Bruininks-Oseretsky Test of Motor Proficiency give an indication of the types of complex skills children at this age should be able to achieve. The physical characteristics of boys and girls are very similar at this age also. In addition there are few gender specific differences in motor development in this age group. For example Cratty (1979) reports that an average 9 year old boy can run 16.5 feet per second, and an average 10 year old girls can run 17 feet per second. Thomas and French (1985) in a meta-analysis of gender differences in motor performance across age found little evidence of uniform development of gender difference. While they found a strong general tendency for gender differences to accelerate at puberty because of increase in boys' size and strength, they concluded that most pre-pubertal differences in motor performance were mainly environmentally induced. The one major exception was the area of throwing (velocity or distance) which exhibited very significant gender differences from age three and lead them to conclude that biology plays a major role in gender differences for throwing at all ages. Another complicating factor is the fact that girls have their peak growth spurt approximately two years earlier than boys (Espenschade and Eckert 1980). However some feminist theorists suggest that differences in physicality, such as girls' lack of confidence in using their bodies such as in 'throwing like a girl' are learned behaviours rather than biological (Young, 1990). A recent study by Evaldsson (2003) reports the interaction in same sex and cross-sex games and how throwing was used to adjust to diverse player configurations. It highlights that the physicality changed depending on the makeup of the group and their level of skill. Analysis of physicality such as throwing should be grounded in detailed analysis of the interaction in the specific game contexts.

Measurement of Motor Ability in Children.

Touwen (1993) in his report on longitudinal studies on motor development recognized the inherent difficulties in measuring motor development in babies and young children. One difficulty is to acknowledge that "Our concept is that the developing nervous system is equipped with properties adequate to its age. The young brain is not merely an edition of the older or adult brain, it is quantitatively and qualitatively a different brain with a proper and age–adequate operational wiring system, which is accurately tuned into the possibilities of the body in which it is located" (p.28). Every age has its own age-adequate nervous system, with an age adequate functional repertoire and also age adequate symptomatology in the case of impairment. It stands to reason that the neurological

examination technique must also be age-adequate: the newborn should be assessed with techniques different from those used for an older infant. Hence age-adequacy in assessment including in observations, elicitation and manipulation, scoring system, environmental conditions (such as light, temperature, time of day, postprandial time) and sequence of the parts of the assessment should be present.

Another difficulty is that differentiation of function is smaller in young infants than in older infants or older children. There is greater opportunity to assess the increased and more complex functions of the older infant or child. New motor performances become feasible and can be tested, for example fine manipulative ability reflecting motor skills becomes testable from about four years of age, but there are no signs which specifically herald their advent (Touwen,1993).

Another factor that makes measurement or prediction difficult with very young children is that the relationship between developing sensorimotor functions and reactions and responses, it they exist at all, are low. Such relationships are strong only in cases of abnormal development, but early signs of abnormality are not necessarily predictive of abnormal development. Only in the case of extreme brain damage, and with continuing duration of abnormality can predictions be made with any degree of accuracy (Touwen,1993). With some 'at risk' babies recovery is noted, and with others only later is deterioration observable.

Yet another issue to be taken into account is that inter-individual differences may result in often broad ranges of functional development. However intra individual and intra functional variability does not follow a fixed course. One motor function may develop very fast such as sitting up, but the next stage of function may develop slowly. Appearance of one motor function has no predictive value for the occurrence of another. There are probably a number of different neural mechanisms developing parallel to each other, which are free to interact with each other if necessary. Their eventual interconnections occur in a highly variable way. Tuowen explains this aspect of the normal variability of infancy as shown by the normal infant's repeated executions of one motor function, never being identical. It is as if the infant tries out various strategies for the execution of pheno-typically similar performances. Touwen (1993) notes that, even with medical aspects such as obstetric condition, neonatal course and interval complications being taken into

account, the statistical correlations coefficients are low, "that individual predictions are quite unfeasible" (p.31), and that non-medical factors such as social class and genetic factors are probably as important.

Motor development is dependent on many other aspects of development such as sensory integration and perception, which have their own developmental trajectory and also require experience and practice. All of these influence the observable motor skill. Touwen points out that assessments that only indicate the achievement of a function (such as stacking bricks or taking seven steps unaided) fail to note the quality of the action, the timing and sequencing of one component with another. Perhaps it is this quality of movement that gives an indication of how the young child's central nervous system is working (Touwen, 1993).

Frequently Used Measures of Neonatal and Infant Motor Status.

In spite of the above issues, most babies are routinely tested at various stages in their early years as part of a public health screening scheme to identify those requiring early intervention.

The Apgar exam (Apgar, 1953) is an objective measure of the status of the neonate and has become the standard first assessment of the newborn. The Apgar scoring system involves rating the newborn 1 and 5 minutes after birth on five criteria, heart rate, respiratory effort, muscle tone, reflex irritability and colour (eg. pink or blue) are assessed. Each criteria is assessed on a scale of 0 to 2, and contribute to a scale ranging from 0 to 10. At five minutes after birth, about 77% of newborns score between 8 and 10, 17% score between 3 and 7 and 6% score less than this.

The Brazelton Neonatal Behavioural Assessment Scale (NBAS) (Brazelton,1984) is also commonly used to assess a wide range of behaviours in the newborn that are assumed to reflect the integrity of the neonatal central nervous system. The assessment takes about 30 minutes, and it includes items in four categories: attention and social responsiveness; muscle tone and physical movement (motoric cluster); control of alertness; and physiological response to stress. It has been found useful in identifying those with neurological problems (Bree, 1998), and has proved to be an effective teaching tool for parents on how to relate/respond to their infant, and a good indicator of interactional skills present in the neonate (Pratt and Allen,1989).

The Bayley Scales of Infant Mental and Motor Development were developed as part of a large-scale longitudinal study of human development carried out by Bayley (1969) and associates at the University of California at Berkeley. It was developed with the purpose of assessing differences in rate and pattern of development over time so that those with potential problems could be identified and referred for early intervention. The scales use typical developmental items to assess mental, motor and behaviour levels of infants and toddlers aged from 3 to 30 months. The items are of increasing difficulty composed of sensory and motor skills, such as reaching for a dangling ring (at three months), or building a brick tower at 17 months. In addition to the Mental and Motor Scales, there is a thirty item Infant Behaviour Record in which the examiner rates aspects of the behaviour of the child manifested during the testing, including some aspects related to motor activity. In her Scales, Bayley attempted to identify behaviours that represent significant criteria of mental and motor development. The Motor Scale has 81 items assessing control of the body, muscular coordination, manipulatory skill and so on. The 81 items are ordered according to the age at which 50% of the children tested in the standardization process passed a given item. For example, at 6 months 50% of the children were able to sit alone for at least 30 seconds; at 14.6 months 50% were able to walk backwards; and at 28.1 months 50% were able to jump from a second step. Both the Bayley Mental and Motor Development Scales produce a normalized standard score based on the ratio of the established age norm for the highest level of performance attained by the child in testing and the child's actual chronological age. High scores indicate rapid development rather than quality of performance and low scores indicate that the child is lagging behind age appropriate levels of attainment. It is worth considering that as it was developed in the United States and in the late 1960's it may reflect to some degree, child rearing, handling practices and cultural expectations of that time, all of which may have an influence on development.

Pratt and Allen (1989), who are occupational therapists and hence work with atypical children, described the test battery as an "excellent, comprehensive, and well standardized instrument that requires some advance preparation by the assessor before clinical administration" (p. 199). They considered that, as with most standardized tests, it tends to be most reliable for the middle of the age range represented. The test uses both performance and parent reports to obtain data. Lewis and Sullivan (1985) although considering it useful for identifying infants with serious delays, considered it less useful as

a more general predictive tool to forecast later ability. Bee et al (1982) demonstrated that the typical correlation between the Bayley I.Q. scores at 12 months and at 4 years is only about .20 to .30, although statistically significant, it was not considered very robust. Abbott and Bartlett (1999 p.52) state that there is an inherent weakness in the test that "all the items are based on the final attainment of motor milestones, but that they do not capture the quality of motor performance, and the infants ability to make transition from one milestone to another" (eg. prone to sitting, or sitting to crawling).

The Bruininks-Oseretsky Test of Motor Proficiency (BOTMP).

As reported above there are many difficulties in assessing infants and young children, but it is generally accepted that those with considerable abnormal patterns of development are easy enough to identify, but with others, their difficulties may only be noticed at a later stage, perhaps into middle childhood. Fifteen percent of the 9 year old neonatally normal children in the study of Hadders-Algra et al. (1988) were found to have mild to marked neurological dysfunction. The Bruininks-Oseretsky Test of Motor Proficiency (BOTMP) is a popular and widely used (Rodger, 1994; Crawford et al, 2001) test of motor functioning for individual administration with children from four and a half to fourteen and a half years of age. In this age group especially from 8 years upwards, brain development and myelination growth is well established. Children are capable of very complex motor skills in middle childhood. Hence a test of motor skills for this age group, must include a large array of sub tests measuring discrete aspects of motor skill. The BOTMP complete battery is comprised of 46 separate items which contribute to the following subtests: Running Speed and Agility; Balance, both static and performance; Bilateral Coordination involving sequential and simultaneous coordination of upper and lower limbs; Strength; Upper Limb Coordination and visual tracking; Response Speed to a moving visual stimulus; Visual-Motor Control; and Upper Limb Speed and Dexterity. The Upper Limb Coordination subtest does not contribute to either the Gross Motor or the Fine Motor composite scores but along with these, it contributes to the Battery Composite score. The Running Speed, Balance, Bilateral Coordination and Strength subtest standard scores sum to provide a Gross Motor composite score, while Response Speed, Visual-Motor Control, and Upper Limb Speed and Dexterity subtest standard scores combine to produce a Fine Motor composite score. The manual for the BOTMP provides age adjusted standard scores for the test and its component parts. Fifty is the average on the age-

adjusted standard score for both the fine motor and gross motor areas and the complete battery and it is suggested that a score of 42 or lower on a composite score is indicative of impairment.

The BOTMP aggregates the fine motor and gross motor composite standard scores along with the upper-limb coordination subtest standard score, which relates to both the fine motor and the gross motor areas, to produce a single battery composite standard score. There is some evidence (Hattie and Edwards, 1987) that the BOTMP lacks a sound psychometric foundation for this process of aggregation. Hattie and Edwards point out that the original factor analysis by Bruininks (1978) of the standardization group found that the first derived factor, designated a 'general motor development' factor, accounted for 70% of the variance and that none of the other four lesser factors identified could be classified as a fine motor factor. On these grounds they question the division of subtests into fine motor and gross motor groups. Tabatabainia et al (1995) administered the BOTMP to 40 children aged between 4.5 and 5.5 years. They conducted a factor analysis of these data and derived a strong first factor, which they termed 'general motor proficiency' (48.3% of common variance) and a weaker second factor (15.9% of common variance), which could not be interpreted as a fine motor skills factor. They concluded that all the subtests of the BOTMP measure the general motor ability of children, without any clear distinction on the basis of fine and gross motor performance.

An interesting conclusion by Wilson et al (1995) to their study on the usefulness of the BOTMP in a clinical context was that the most useful data to note was the raw point score rather than age adjusted scores, and that these provided a useful measure of change following treatment. The sub tests likely to provide the greatest degree of discrimination between children with and without motor problems were Running Speed and Agility, Balance, Visual Motor Control and Upper Limb Speed and Dexterity, and that the sub test Response Speed was the least useful. This highlights that normative results may not be as informative or useful for the atypical child, and that screening requires analysis of more than composite scores.

The Predictive Value of Early Childhood Assessments.

With the complex issues reported above regarding the difficulties of measurement of motor ability in infants and young children (Tuowen, 1993), it is not surprising that such

tests that are used might have limited predictive ability, except for those children with significant motor difficulties. It is widely recognized that even such carefully developed and thoroughly standardized measures of infant intellectual development as the Bayley Scales do not correlate strongly with later measures of intelligence like the Stanford Binet or WISC. For example, Brooks-Gunn and Weinraub (1983) examined early studies of the predictive validity of infant scales and found that none of the correlations with later test results exceeded .50. This is not surprising given that the item content in infant scales and IQ tests is totally different. Item content reflects maturational realities and the need at younger ages to rely on straightforward and simple motor, auditory, and visual-perceptual measures for estimates of emerging intelligence. Intelligence test items by contrast assess logical reasoning, memory, verbal skills and other higher level cognitive competencies (Hynd and Willis, 1985). As Lewis and Sullivan (1985, p. 556) state "skills that could be tapped during infancy were qualitatively different from those tapped on later tests and their relationship to that construct known as intelligence was complex".

The limited predictive validity of infant scales of intellectual development also reflects the plastic, emergent nature of intellectual development and its substantial dependence on highly contingent, environmental factors. This has led some researchers to conclude that the prediction of subsequent IQ is neither an attainable nor an appropriate goal for infant assessment scales, which should rather be focused on the task of early diagnosis of developmental problems (Honzik, 1983).

While there is a substantial longitudinal research on various aspects of motor development in childhood (Kalverboer et al., 1993), there is little research relating infant measures to later pre-pubertal measures of motor performance. The measurement of the development of motor proficiency, it might be argued, is a less complex issue than the measurement of intelligence because it is not hindered to the same extent by the need to rely on qualitatively different item types in tests for infants compared with tests for older children. Items used to measure motor ability in both infancy and later childhood usually have an obvious face validity. That is to say, in tests of motor ability as opposed to intelligence, motor performance is directly observed for its self-evident and explicit motor skills related content rather than as a purported marker for the hypothetical construct, intelligence. Given this advantage, the expectation of a substantial degree of continuity in measured motor proficiency over time and even between infancy and later childhood may be

justified and Siegel (1992) provides some evidence for such continuity at least in the area of fine motor skill.

However, there are a number of theoretical and methodological difficulties that cloud the issue. In the first place infant motor scales such as the Bayley focus on the attainment of critical milestones and use a simple pass/fail assessment. In other words they focus on ability rather than skill and fail to take proper account of the quality of motor performance. Such tests favor the child who exhibits more rapid development over the child who develops more slowly but to a higher level of motor proficiency. Secondly, as Abbott and Bartlett (1999) point out, although there is little evidence-based research to support the assumption, it is widely assumed that environmental factors play an influential role in motor development as well as in intellectual development. So, opportunities for play, sport and other forms of motor performance practice, parental expectations, care-giving practices and the physical environment may have a profound influence on the child's emerging motor proficiency.

Thirdly, epigenetic development of motor abilities cannot be assumed to be a smooth, linear or incremental maturational progression. For example, it has been hypothesized that, because of differing rates of growth of limbs, muscles and muscle strength, some children go through an awkwardness stage (Tanner, 1989). This may involve temporary declines in performance level over certain areas of motor performance for some children. All of these reasons, including the insensitivity of infant scales to qualitative variation, the important role of environment in the development of motor proficiency, the possible existence of an awkwardness stage and the changing profile of gender differences in motor skill through childhood, indicate the need for caution when making the assumption that early childhood measures of motor performance will show continuity with later childhood or adult measures.

Moreover, the correlations amongst various motor development scales and between such scales and real life motor performance criteria are generally modest or low (Dunnette, 1976). This suggests that motor skills factors may be highly specific. The issue appears to be whether there is an underlying, stable, general motor competence, akin to the concept of *g* in some theories of intelligence, which can be measured and summarized in a global

figure, or whether an individual's motor performance is more correctly conceptualized as a profile of multiple, distinct skills which vary largely independently of each other.

Childhood In Ireland In the 1990s.

The final section of this literature review gives a brief description of the position of Irish children at the time of data collection as reflected by social policy and equally important for many areas its lack, and brief description of the economic climate affecting urban households during the study period. Childhood is both a biological reality and a social construct. It is defined not only by biology, but also by a particular society at a particular time in a particular way which represents the view that society has of childhood. "Historically, child development research has created a vision of development as a progression from a state of dependency – childhood – towards the preferred state of autonomy –adulthood" (Hayes, 2002). It is akin to the perspective of people with disabilities as dependent (which is seen as negative), and that their aspirations should be to be more independent (positive). Judging children's development in terms of adult constructs creates a situation whereby children are seen as less able, less reasonable and less strong than adults. Children have been characterised more by what they cannot do than in terms of what they can do (Hayes, 1993). This could be seen as similar to the traditional approach of defining and labelling a person with a disability as a deficient individual without giving due regard to the interactive context and social nature of his situation, or of valuing the benefits of diversity of perspective that this individual might bring to the community of society to which he belongs. Hayes (2002) has criticised influential theorists of the twentieth century such as Freud, Erikson and Piaget as contributing to the false ideology of the 'universal' child, with universal biological and psychological makeup following a predetermined path with achievement measured in universal milestones of development. "This approach ignores unique individuality, the complex inter-relatedness of life, the importance of social interactions and the socio-cultural context of development" (Hayes, 2002, p22). Children are embedded in their environments and they affect and are affected by them. Hayes, an Irish activist for children's rights has urged researchers to study children within the reality of their own experience as active members of a family and society, and to reject the view of the passive and dependent 'universal' child.

The task of reviewing the experiences of Irish children is difficult because of the limited statistical data available on them as a specific group, it could be said that they were the invisible 33 % of the population (Hayes, 2002). In Ireland historically, childcare has been seen as the private responsibility of the family, most particularly the responsibility of the mother. Any childcare supports that developed did so within the private or community sector. State involvement had been limited to grant support by health boards to services which provided sessional or day care to children considered 'at risk (Fahey, 1998: Gilligan, 1995; Greene, 1994). The state's role was limited to the provision of funding for schooling, most of which was offered by religious groups; social welfare support as in the payment of allowances to mothers regardless of income; and state protection for some children at risk from abuse or neglect. In general the nurturing and development of children was seen as the responsibility of families and local communities. The provision of leisure and sports facilities was primarily by voluntary bodies and national sports organisations. In 1992, Ireland ratified the U.N. Convention of the Rights of the Child, and this marked a turning point in policy approach regarding the role of the state. However it is worth noting that this ratification had little consequence for the children during the study period of 1994/5.

The Economic and Social Climate during 1994 and 1995.

The economic climate in Ireland in 1994, was beginning to move from a depressed economy to being the fastest growing economy in the European Union, with a G.N.P. of over 5% (O.E.C.D., 1995). "However domestic demand was dampened by exceptionally high and volatile domestic interest rates during the exchange rate crisis associated with currency turbulence within the EMS at the end of 1992" (O.E.C.D. 1995, p.1). This impacted on people with mortgages on their homes, who were affected by high and fluctuating interest rates, including families in this study 76% of whom owned their own homes. The rate of unemployment at 14.5 %, was an improvement on the previous year's rate of 15.5%. Public services (such as health care and education) continued to suffer from cut-backs in spending with little expectation of improvement on the economic horizon. "Despite its good growth performance, the Irish economy continues to face high levels of public debt and unemployment.... Tighter controls on public expenditure appear to be necessary in order to sustain progress." For those in employment, "Irish wages fell 4.4% relative to other O.E.C.D. countries in 1993" (O.E.C.D. 1995, p.9). In addition, Irish workers had to pay social security contributions and endured tax rates resulting in 56% of

income of the higher paid being deducted by the State. The lowest income tax rate was 27% (OECD 1995). In short the economic climate for families with young children was relatively difficult in comparison to other Western European countries, with high interest rates on mortgages, high unemployment, relatively low wages, high taxation and cut-backs in spending in public services.

However in other aspects of Irish life such as the general social context, there was a stability, and consistency. The 1991 Census (5, p 9, 1995) demonstrates that Ireland at that time was predominately Roman Catholic (91%), although those indicating the category of "no stated religion" had increased 248% since 1981. There was limited diversity in terms of religion or ethnic background. Although rising, the percentage rate of participation of women in the workforce was one of the lowest in Western Europe, with 59.6% of women aged between 35 to 44 years being engaged in home duties (1991 Census, Vol. 4, 1995,p12). Married women aged between 35 and 39 years only had a 35% rate of participation in the workforce (1991 Census, 1995,Vol. 4, p.25). The average number of persons per household (private as opposed to institutional) was 3.33 persons in the Leinster region (of which the study area was part) (1991 Census, p. 110). Although an issue for discussion and debate, divorce was not available in 1994, a Bill permitting divorce in limited circumstances was passed in 1996. Abortion was illegal in the State. In short, family life had a stable and predictable pattern to it, many mothers worked in the home. There was no "divorce", and although individuals may have had differently ordered family arrangements, for the majority, families were composed of two parents, and more than one child.

Summary of Literature Review.

This literature review has given an overview of the following aspects on play:

Theoretical approaches to play; international perspectives on the patterns of play and leisure interests as described in studies of children in middle childhood; the role of motor proficiency in biasing or in specializing play preferences; and the continuity of motor proficiency into middle childhood as assessed in neonatal and infant measures. A predominant perspective on play as the primary occupation of children informs this literature review. Children in this period of latency are seen to have moved into a stage of game play with the emergence of peers and friendships as a focus. This is the stage when

social development in the world outside the home becomes established. The 'urge for mastery' or competency is seen as a predominant drive, although this may not describe other motivations for differing forms of play or leisure interests. Through game playing children are credited with realistic self assessment in relation to their level of motor competency in comparison to their peers. Perceived lack of motor competency, which might be present in at least 5% of the population is reported to have continuing damaging effects on self esteem and participation in physical activities.

Play activities, play space and play time are reflections of social sanctioning, primarily by parents, who are seen to have considerable influence in their child's overall development. Any description of play must include some description of the context in which it occurs. Other factors such as family ecology, especially poverty, may have an influence on motor development. Motor development is not easily measured, and not all children follow a linear pattern of development. Early prediction of future ability is difficult, except perhaps in the more significantly dysfunctional child. Factors other than central nervous system maturation influence the rate of motor development, most important is the opportunities for practice and physical engagement with the world. Play as a major occupation of childhood provides a considerable opportunity for the development of motor skills.
Very little is reported in the literature on the nature of play of Irish children in middle childhood, including their engagement or preference for motor activity. There were no studies reported in the literature of the BOTMP as applied to a normative sample of Irish children.

Play when viewed as a trans-formative process allows children to "become" themselves. The "doing-being-becoming" has to be experiential and holistic, involving the senses and physical self, hence it is difficult to separate the "doing" from the "becoming", or to measure the impact of one on the other, such as in the study of play and motor development.

CHAPTER 3. METHODOLOGY.

Introduction.

Having access to the mothers and children in the Dublin Child Development Study provided a unique and valuable opportunity to gather information on children's play and leisure interests, and on their motor development. Although not a random sample, it was comprised of a relatively large number of people from a reasonably cohesive social background in terms of social class and culture. In addition, the availability of information regarding achievements on earlier measures such perinatal birth-weight, Apgar and Neonatal Behavioural Assessment Scale, and Bayley Infant Scales at 18 months, also provided an opportunity to examine the predictive value and statistical relationship of these earlier measures with respect to data gathered at the time of this study.

The involvement of around 90 mothers and children has implications for the type of methodology chosen. Play by its nature is a qualitative experience, it is also socially sanctioned by adults, and these issues would suggest a qualitative approach. However this is not possible with such a large number of participants. On the other hand, there are particular survey methods based on an initial qualitative process, which can provide useful descriptive information allowing comparison with other groups and within the group in relation to gender. In addition motor proficiency is observable and standardised batteries are widely used, although there is little reported in the literature on how Irish children score with these standardised measures.

In order to avail of the opportunities arising from access to the DCDS, this study set out to:

(1) Describe the range of interests and preferences related to play and leisure of the sample of children from the Dublin Child Development Study (DCDS) as reported by children and their mothers.

(2) Describe the children's motor proficiency as measured by the Bruininks Oseretsky Test of Motor Proficiency (BOTMP) (Bruininks, 1978), and to identify any relationship between motor proficiency and reported play/leisure preferences.

(3) Identify relationships (such as the continuity of motor proficiency) between data gathered at aged 8/ 9 years, and previous perinatal and infant data gathered in the Dublin Child Development Study, with a view to establishing the predictive value of earlier measures.

Data Measures Employed in This Study.

In order to achieve the aims of the study, four sets of data were gathered, and existing data from the Dublin Child Development Study was reviewed and analysed alongside the new BOTMP data.

The four new data sets gathered were:

5. Questionnaire with mothers, regarding their child's leisure interests and play.
6. Questionnaire with the study children regarding their play activities and leisure preferences, playmates, and what they enjoy about their play/leisure.
7. The completion by the mothers of the study children of The Play Preference Questionnaire designed by Finegan, et al. (1991)
8. The Bruininks Oseretsky Test of Motor Proficiency (BOTMP) was administered to the study children.

Rationale for the Selected Methods.

As reported in the literature review at the time of developing this research topic (circa 1993) although there was much literature on theories about children's play and the associated effects of play on development especially with those in pre-school years, there was little descriptive data on how children in middle childhood actually spent their time and in what activities they engaged. It was difficult to find any data on Irish children and their play activities. There was much debate about defining 'play'. Rubin, Fein and Vandenberg (1983) note that the important point, however, is that a general definition of play must include a description of the conditions under which play occurs, including statements about choice, interesting activities, protection from stress, and cultural sanction. So collecting data about activities should also include data about the context for play.

In the early 90s an interest in human occupation as an area of study both for health promotion and health maintenance in the broadest sense, was emerging in occupational therapy journals, and yet there was very little reported on what children actually do. A descriptive study of play and leisure interests is considered useful in

that it provides a base line against which to compare and contrast other children particularly those with disabilities. A survey method provides clear statistical information for comparison of the range of activities engaged in and the frequency of involvement with activities and playmates. The survey method allows information to be gathered on play and leisure resources and their use by children, as well as the amount of input or adult assistance required by a 'normal' group of 8 and 9 year old urban based children. A survey /interview method is appropriate for gathering information on attitudes regarding mother's evaluations of their children's leisure time use and activities.

There is an issue of who are the best informants, the children or their mothers. Primeau and Ferguson (1999) stated "Although engagement in occupation is readily observable to others, it can only be understood from the perspective of the child engaged in it" (p. 475). Actions can be observed but what actually constitutes play is in the experience of the player, so the children's description of what they did and what they enjoyed about it could be best described by themselves. However at the time of the development of this research project there was unease about the reliability of children's self report. In their review of the use of self report assessment with young children, Sturgess, et al.(2002) reported that in the early 1990s few methods of self-report were available for young children. Those available were chiefly for children over 9 years of age. The literature discussing self-report with children concentrated primarily on the seemingly insurmountable problems of reliability. However this researcher considered that children's self report was an essential but not exclusive data source for the study of play in middle childhood. Hence an interview schedule was designed specifically for the children in the Dublin Child Development Study who were aged 8 to 9 years at the time. In order to collect additional or supporting data, an interview schedule for mothers was also developed following on from qualitative interviews with 4 mothers of 7 to 9 year old boys and girls. This interview schedule/questionnaire was then used for data gathering with mothers of children in the Dublin Child Development Study.

Using Self-Report with Children.

Since the early 1990s efforts were made to develop effective ways of involving children in both research and clinical data gathering. These efforts included

identifying methodological issues specifically related to involving children, bearing in mind the underlying purpose for which the tool was designed; the reliability of children in making accurate reports; and the type of language used in children's report measures. Since the latter part of the 1990s, the literature reflected a support for the view that young children are able to provide self information that is unique and has some reliability as demonstrated by stability over time (Sturgess et al., 2002). Sturgess and Ziviani (1996) found some evidence of stability over time of 5 – 7 year old children's self reports about their play skills. Klein and Magill-Evans (1998) also reported good test-retest reliability over time (10-22 days) for a number of self-report tools. There has been evidence that the views of children are different from those of their parents, but that they are valid and stable over time, (Sturgess and Ziviani, 1996, Sturgess 1997, Bouman et al 1999). Pellegrini (1998) reported that because adults see children in differing contexts, they are likely to have differing views about the child's play. Sallis (1991) reviewed self-reports and proxy reports about the amount of physical activity performed by children and found that the adult reports were limited. However with children, the type of information suitable for gathering by self-report is restricted. Pretzlik and Sylva (1999) considered that children were not the best source of detailed descriptive information, but evaluative judgements about concepts that they understand are suitable to be gathered by self-report. They also considered that details from children about their own performance in differing environments is rarely suitable for self-report. This differs from the view of Shoemaker and Halverboer (1994) who reported on their study of children with Developmental Co-ordination Disorder, who appeared to have recognised their lack of competence and expressed low perceived competence in their physical ability. Regardless of the methodological issues, there is a more fundamental issue about self-report tools for children, such as whether it would be more practical to ask questions or seek responses to statements, and the preferred number of response options in the Likert-type scales used.

In this author's study the emphasis was placed on getting the child's opinion on what they played, and what they liked about their leisure time pursuits. It was anticipated that there might be limitations related to how much children would express in words their enjoyment or their rationale. By its nature play is something one does rather than talks about. In addition it is situational and contextual in so far as the reasons

for playing or the pleasure gained from a particular game at one time may be different from the next.

It was considered that their mothers on the other hand might be better at sharing local knowledge about play and leisure opportunities in their neighbourhood, and that they could give information regarding the support their child needed for their play or leisure engagement. Both mother and child were important, so complementary interview questionnaires were designed to collect the data. A description of both interview schedules is given below, as both had differing purposes, constraints and limitations. Acknowledging the social sanctioning of time use, this researcher was also interested in recording mothers' interest and values with regard to their child's play. Were play and leisure pursuits appreciated for their fun and relaxation potential, and as a means for personal/ social development and satisfaction? Hence questions about these more qualitative issues are included in the interviews. Although the two questionnaires collected similar data in some areas, mindful of the literature which states that children's reports differ from those of their parents (Sturgess & Ziviani, 1996), it was not intended that these similar data should be cross-checked to test for validity, or to test how much mothers knew about their child's play. Instead the results are compared, and similarities or differences used as a guide to build up a full profile of the children's play and leisure interests.

The Rationale for Using the BOTMP (Appendix 3).

The use of standardised assessments of motor functioning in children is one aspect of determining functional performance, and can be used to identify and monitor those with problems or motor delay. However it is necessary to use reliable and valid assessments (Aiken, 1985: Bonder, 1985; Law, 1987; Maurer, Barris, Bonder & Gillette, 1984 and Rosenbaum et al., 1990) and not rely on clinical judgement alone (Berk & Degangi, 1979). The Bruininks-Oseretsky Test of Motor Proficiency (BOTMP) is a popular and widely used test of motor functioning for individual administration with children from four and a half to fourteen and a half years of age (Rodger, 1994; Hattie & Edwards,1987). The BOTMP complete battery is comprised of 46 separate items which contribute to the following subtests: Running Speed and Agility; Balance, both static and performance; Bilateral Coordination involving sequential and simultaneous coordination of upper and lower limbs; Strength; Upper

Limb Coordination and visual tracking; Response Speed to a moving visual stimulus; Visual-Motor Control; and Upper Limb Speed and Dexterity. The Upper Limb Coordination subtest does not contribute to either the Gross Motor or the Fine Motor composite scores but along with these, it contributes to the Battery Composite score. The Running Speed, Balance, Bilateral Coordination and Strength subtest standard scores sum to provide a Gross Motor composite score, while Response Speed, Visual-Motor Control, and Upper Limb Speed and Dexterity subtest standard scores combine to produce a Fine Motor composite score. The manual for the BOTMP provides age adjusted standard scores for the test and its component parts. Fifty is the average on the age-adjusted standard score for both the fine motor and gross motor areas and the complete battery and it is suggested that a score of 42 or lower on a composite score is indicative of impairment.

The BOTMP aggregates the fine motor and gross motor composite standard scores along with the upper-limb coordination subtest standard score, which relates to both the fine motor and the gross motor areas, to produce a single battery composite standard score. There is some evidence (Hattie and Edwards, 1987) that the BOTMP lacks a sound psychometric foundation for this process of aggregation. It is possible to question the initial division of subtests into two separate groups yielding single numerical scores, which, it is claimed, measure gross motor and fine motor competencies. Hattie and Edwards (1987) point out that the original factor analysis by Bruininks (1978) of the standardization group found five factors, the first derived factor, designated a 'general motor development' factor, accounted for 70% of the variance and that none of the other four lesser factors identified could be classified as a fine motor factor. The other factors were labeled as: upper limb co-ordination (factor 2); balance (factor 3); strength (factor 4) and bilateral coordination (factor 5). On these grounds they question the division of subtests into fine motor and gross motor groups. Tabatabainia, Ziviani and Maas (1995) carried out a similar analysis of the BOTMP results that they had administered to 40 children. Using factor analysis, one strong underlying factor emerged, accounting for 48.3% of the common variance. It comprised of all the sub-tests of the BOTMP. The authors labeled it 'general motor proficiency'. Factor loading ranged from 0.83 for the Strength subtest to 0.54 for the Response Speed sub-test. The second factor identified by this study accounted for 15.9% of the common variance. Factor 2 was

composed of the following sub-tests: Upper Limb Speed and Dexterity; Visual Motor Control; Bilateral Coordination; and Response Speed. Although these sub-tests measured both complex and simple patterns of motor ability, the authors considered that it was apparent that the first three sub-tests that involve complex patterns of movement have a negative factor loading on this factor, while the Response Speed sub-test that required a much simpler pattern of movement, had a positive factor loading. The authors labeled this factor 'simple patterns of movement'. They concluded from their relatively small study of 40 children that the BOTMP does measure general motor ability, without any clear distinction on the basis of fine or gross motor performance, and that this is inconsistent with the presentation of the sub-tests as part of distinguishable composite groupings. In another study by Krus et al (1981), in which they performed factor analysis of the BOTMP test items, their results supported Bruinink's (1978) findings that five factors underlie the structure of the test items. Unfortunately neither study clarified Bruinink's reason for grouping the 46 BOTMP test items into their 8 different sub-tests. In spite of these issues about construct validity, both Hattie and Edwards (1987) and Tabatabainia, Ziviani and Maas (1995) have concluded that the BOTMP is a valid measure of general motor ability but that the composite groupings should be viewed with caution.

It could be expected that there would be some relationships between play preferences and motor proficiency, with possibly those who practice more physically active play scoring better on related BOTMP sub-tests, or those with low scores on particular sub-tests demonstrating an avoidance of physical play. It may also be found that with the drive to seek mastery, children might choose to practice in areas of weakness in order to master a particular skill area. The play and leisure time activity data provided by children and mothers allow some comparison and analysis of BOTMP scores and play/leisure interests. However in searching the literature for play scale/ measurements the Play Activity Questionnaire (PQ) developed by Finegan, et al. (1991) was discovered. Although it appeared to have a limited view of play, its predominant physical bias was considered useful when linked with the BOTMP. The inclusion of this PQ measure allows further statistical analysis of BOTMP sub-test scores with the mother's reports of their child's physical play preferences.

The Play Activity Questionnaire (Appendix 4).

Most reports of children's play activities and preferences are either observational or based on information gleaned from parents. One such parent report measure used to identify play preferences in middle childhood is the Play Questionnaire (Finegan et al., 1991) for use with children from 4 to 12 years. Finegan et al. (1991) developed this measure which they considered would distinguish between boys' and girls' preferred activities and styles such as levels of activity; degree of boisterousness; and participation in bodily contact activities. Their intentions were to develop a measure that would have applications in developmental psychopathology and psycho-neuroendocrinology and in studies of normal play and sex role development (Finegan et al. 1991). It was designed to identify children's play preferences under categories of 'active and adventurous'; 'athletic'; 'rough and tumble'; and 'quiet' play, and to allow the identification of gender differences. They report on three studies on the development of the Play Questionnaire (PQ). They report that inter-parent agreement was moderately high, and that PQ factor scores were unrelated to social class or nationality (Finegan et al (1991 p. 393). However sampling methods for two of these studies were far from random. In the first study focusing on item development, parents (178 mothers and only 61 fathers) of 239, 6 to 8 year old children who were visiting the Ontario Science Centre were asked to complete the then 28 (play activities) item version of the PQ 7 point scale ranging from 'not at all' to 'a great deal'. Analysis of pilot data collected on the 28 item version identified 13 items with total scale correlations less than 0.30. These items were removed and normative data for Study 1 were collected using the revised 15 item version. Factor analysis was then carried out on this data, resulting in the production of four factors. After rotation of the factor matrix, the percentage of total variance accounted for was 48.8%. The first factor labeled 'Active and Adventurous', accounted for 14.8% of the total variance. The second factor, labeled 'Rough and Tumble', accounted for 14.3% of the variance. The third factor, 'Athletic' reflected an interest in sports and accounted for 13.2% of the variance. The fourth factor, labeled 'Quiet' play explained 6.5% of the total variance (Finegan et al. 1991). Their second study was undertaken to examine the factor structure of the PQ, and to examine its psychometric properties. Again parents visiting the Ontario Science Centre were

approached, this time those with children ranging from ages 4 to 12 years. One hundred and forty four mothers and again only 59 fathers of 203 children (108 boys and 95 girls) were asked to complete the scale. The justification given for the statement regarding the PQ factor scores being unrelated to social class or nationality is explained thus: "The Ontario Science Centre attracts tourists, enabling data to be collected on children from the United States (n= 44), Britain (n = 31) Europe (n = 14), and other countries (n= 13), in addition to those from Canada (n = 103)" (Finegan et al. 1991, p. 398). The authors state that the mean score for social class was 54.47, SD = 15.27 (Blishen et al, 1987). The absolute range for this scale is 17 to 102. The inherent bias of such a sample is ignored, as is the lack of acknowledgement of the probable influence of predominantly mothers rather than 'parents' being the informants. When both parents were available and completed the questionnaire on the same child (n = 81), a moderate level of agreement was observed (r = .70). The authors acknowledge that parents are not expected to show perfect agreement, because mothers and fathers elicit and observe different play behaviours in their children (MacDonald & Parke, 1986; Ross & Taylor, 1989). The second factor analysis of the PQ essentially replicated the factors observed in the original analysis of the first study sample. Further analysis was carried out regarding the effects of gender and age, with little difference related to age being noted. However with regard to gender, univariate F tests for gender differences indicated that boys' scores were higher than those of girls for the 'Athletic' factor and the 'Rough and Tumble' factor. Girls scores exceeded those of boys on the 'Quiet' play factor, and no gender differences was observed on the 'Active and Adventurous' play factor (Finegan et al.,1991). The gender difference regarding 'Rough and Tumble' play is in keeping with the literature that reports such differences in both humans and animals (Beatty, 1984; Whiting & Edwards, 1988; Humphreys & Smith, 1987). The authors considered that the consistency of their results with the findings of others as reported in the literature supports the scale's content validity. That no gender difference was found in the 'Active and Adventurous' factor supports DiPietro's (1981) observations that girls engaged in energetic play as frequently and as vigorously as did boys, but not in body contact activity of 'rough and tumble' play. The PQ revealed gender differences with respect to boys' preference for 'Athletic' play. This finding is also supported by other self-report measures used by Sutton-Smith et al (1963) and Maccoby and Jacklin (1974). The 'quiet' play factor

indicating a preference for table-top activities, arts and crafts, and fantasy play had a gender bias in favour of girls. This too was found to be in keeping with findings in the literature such as Sutton-Smith et al.(1963). The authors of the PQ considered this as support for their scale's content validity. However, there is little explanation given regarding the content validity of the individual items that compose these four factors, some of whom could just as easily belong to another category if judged on 'face' validity, for example 'throws a ball well' belongs in the 'active and adventurous' category, whereas 'likes to play ball games' belongs in the 'athletic category'.

The third study carried out explored the stability of the PQ factor scores over time, and the relationship of these scores to other measures that may be related to children's behaviours (Finegan et al.,1987). Middle class mothers of 101, 7 year old children completed both the PQ and other measures of their child's activity levels, and gender type play preferences. In addition the children were tested for levels of aggression and gender- typed toy preference. A sub sample of mothers completed the P.Q a second time after a 5 month interval. The authors report that all PQ factors were stable over time, and that correlation matrix examination indicated that the PQ factor scores were significantly associated with scores on measures in the expected ways.

Assessment of The Predictive Value of Earlier Measures.

Having access to the perinatal and infant data from the Dublin Child Development Study provided a unique opportunity to test the predictive value of earlier measures. The following data sets were accessed and analysed with the BOTMP results: Birthweight; Apgar (1953); Neonatal Behavioural Assesment Scale (NBAS)(Brazelton, 1984); and the Bayley Infant Scales (Bayley, 1969). These measures have been described in the Literature Review, as have issues about measurement of motor ability in infants, and continuity of this into middle childhood.

The Development and Application of Measures.

Two new questionnaires, one specifically for use with mothers, the other for use with the study children, were developed. A further measure the Play Activity

Questionnaire (Finegan et al 1991) was used to ensure that data on physically active play was gathered which in turn would allow correlations and comparisons with these results of the BOTMP. The two new measures and their use is described below. The results of the longitudinal peirnatal and infant data from the Dublin Child Development Study were analysed with respect to their predictive value in relation to the BOTMP results.

Development of The Mother's Questionnaire (Appendix 1).

Part of the work of this study involved the development of a questionnaire for use with mothers of children in a specific context. Hence the questionnaire for mothers was developed following a qualitative enquiry with 4 mothers of 7 to 9 year old children (two boys, two girls), in their own homes, in suburbs of Dublin. Qualitative methods have been used extensively in anthropology and sociology to gather data for detailed descriptions of situations, events, people and observed behaviours (Edgerton & Langness, 1974; Lawless, et al.,1983; Spradley & McCurdy, 1972; Spradley, 1979). An approach used by anthropologists and phenomenological sociologists called an Emic Study (Berlin, 1970) was used in this qualitative enquiry. This Emic interview was an attempt by the researcher to shed her own biases derived from her professional culture of occupational therapy, and to understand how mothers talked about their child's occupations. This enquiry centred on the question "Tell me about what (child's name) does when he is not in school or sleeping". Then using the words and concepts expressed by the mother, the researcher then asked the next question or sought clarification, "You mentioned she does Irish Dancing, tell me about that." It was out of these interviews that the framework for the questionnaire involving questions about "what", "with whom", "where" etc. emerged. It was also clear from these qualitative interviews that the word "play" did not describe all the occupations engaged in by the children in this age group. Leisure interests, such as going to Irish Dancing classes, and visiting relatives were also presented as occupations as distinct from 'play'. The format of this Emic approach appeared to make it easy for the mothers to talk with confidence in their own way, and in their own time, which influenced the design of the subsequent questionnaire. Open-ended initial questions were used, which then moved to more specific and factual ones about the activities or topics already raised in the opening questions. The method yielded not only the range of activities and occupations participated in by the

children, but also gave the language and the framework for further, more quantitative questioning. When the draft questionnaire was developed, it was piloted with the same mothers, plus two others, to check if the questions were effective in generating the required information, and to check that the language was appropriate. The questionnaire was designed to ensure that all areas of play and leisure interests were included. Modifications were made following feedback.

The purpose of this questionnaire was to find out:

1. What did the individual child do, when, where and with whom?
2. What play/ leisure resources were in the individual child's locality, as defined by the mother?
3. What action (if any) did the mother perceive herself as doing in order to support her child's play and leisure activities.
4. What value or importance did the mother place on her child's leisure-time activities and play; and what was her satisfaction level with how the child spent his/her time.

To collect these data on individual children in a manner, which would allow for the description of the sample as a whole, and which would allow for possible differences such as in gender to be identified and related to other aspects of the study. Attention was paid to the design of both structure and content of the questionnaire.

Structure of the Questionnaire.

The interviews were planned to be carried out by one interviewer only, the researcher who was an experienced interviewer. It was expected that this would contribute to the consistency of the process. In an attempt to limit possible bias or measurement error particularly with the opened-ended questions, attention was paid to the structure and lay out of the questionnaire and the sequencing and grouping of themes. The questionnaire was designed in blocks of questions composed of open and fixed choice questions on themes such as where, with whom, and when the child likes to play. In addition to help focus both people involved in the interview, it allowed for checking the internal consistency of the answers during the interview. For example an activity might not be reported in answer to the first series of questions, but the more specific questions as those about organised leisure activities

could generate additional information. This could then be added to the list of play interests. Each answer was coded and keyed on to the spreadsheet by the interviewer/researcher, and the blocks of answers could be visually scanned for anomalies in terms of expected pattern of response. With regard to the open-ended questions, these too were grouped and note taking space was left on the interview sheet. Lists of responses and comments were drawn up and these were used for reference. The 'open' sections of all the questionnaires were then reviewed at a separate sitting when all the interviews were completed. The responses were then categorised and post coded. The results were keyed onto the EXCEL spreadsheet.
The content of the questionnaire roughly focused on 'what' 'how' 'with whom' and 'when' the child played and included questions regarding the mother's role in supporting the child's play. The questionnaire started with an open question 'What does (child's name) do during his leisure time?; followed by a slightly more focused question 'What does she play?', followed by 'What does she play with?' and then to further encourage the reporting of a full range of leisure activities question 4 asked specifically about hobbies, interests, visits, care of pets helping in the house and other activities. These first four questions were to draw out the understanding of this child's leisure time and play activities, and the focused questions which followed in the 'What' section clarified and detailed information about what the child did. Included also were some questions concerning the mother's influence or control over some of these activities such as watching T.V. Included in the 'What' section were some 'with whom' questions as it was considered the appropriate time to ask such questions as with whom does the child watch television. Concluding the 'What' section there were questions about the mother's approach to buying things for the child to play with. The next section in the mother's questionnaire was about leisure/play facilities in the area, their use by the child, and the child's organised leisure activities including where, with whom the child went, and costs. A question on knowing what the child does when playing outside the home was also asked in this section.

The 'With Whom' group of questions followed this. Questions were asked about how playing with friends is organised, how often the child gets to play with friends, and who makes decisions about with whom the child plays. Detailed questions about spending time with adults were included in this section, as it appeared from the qualitative study that visiting or being visited by extended family members was a

regular and frequent event. Specific questions about what the mother and child do together were also asked.

The 'Where' block of questions was short as more details were asked of the children. There then followed questions about the child's boredom level and the mother's response to it. Included in this were questions about how much assistance the mother considered that the child needs to organise leisure time, and questions about how the mother values the child's leisure time, and her own role in it. The final section was structured around demographic details in order to set the context in which the child played in terms of numbers in the household, employment status of both parents, general income, housing as in having a front and back garden or living on a quiet street.

Development of Children's Questionnaire (Appendix 2).

Interviewing children was considered to be an essential aspect of the study on play and leisure interests. The purpose of the interview with the children was to find out from them how they spend their leisure time, what they enjoyed, with whom and where they played, and their satisfaction with how they spend their time. The content was developed from qualitative discussions with 4 individuals, 2 boys and 2 girls, about their play and leisure interests. Prompts such as 'When you come home from school what happens?' ' What do you like to play?' and 'What else do you like to do?' and 'Who do you like to play with most?'. The results of this process formed the basis of the content, focus and the language used in the questionnaire .

In an attempt to ensure that the child understood that it was his or her opinion that was of value, open ended questions were used initially to encourage as full an exploration as possible of all the activities the child engaged in. All answers were written down in note form, which was intended to support the view that there was no right or wrong answer. Themes were blocked to help keep the child's focus. This questionnaire was similar in some topic areas to the mother's questionnaire, but different from the mothers' questionnaire in that it sought to find out more about the child's opinions and perspective. It was anticipated that questioning might pose problems for an eight year old, especially about the topic of 'play', which children might 'just do' without having to explain to others. Information obvious to the child

might be difficult to communicate to the interviewer or vice-versa. Therefore the structuring of the interview was planned to allow both interviewer and interviewee find some common ground related to the topic of play and leisure and the parameters of the information and opinions sought. Hence open and closed types of questioning were used, and the flow of the questioning was flexible to allow the interviewer to note information as it might be offered. Although the questions were organised in thematic blocks of 'What'; 'Where'; and 'With Whom', if the child was responding to question 3 (how do you play with..?) and the child talked about pretend play, the questions on pretend play (58 to 66) could then be asked and answered. During the introduction a definition of play and leisure time was explained to the child and it was emphasised that what was of interest was what the child liked to do. It was also made clear to the children that there were no right or wrong answers, lest the child thought that the interview might be a quiz or test. The first six questions were open-ended to allow the child establish a frame of reference for further questions, and to highlight that it was indeed the child's personal account which was of interest to the researcher.

It was hoped that the children would be able to make explicit what it was that they enjoyed, although having fun is usually an experience shared by children rather than talked about. The questions about enjoyment were open-ended, and answers were post coded and categorised for presentation in the results. These open-ended questions were inter-spaced with closed questions with pre-set fixed categories. It was expected that these questions would be more easily answered.

However it was appreciated that questions referring to 'how often' with categories such as 'every day', 'most days' and 'some days' might cause difficulty. These were explained as to the children as 'every day' means including Saturday and Sunday, and that 'most days' means four to six days a week, 'some days' means three days a week and 'not often' means one or two days a week.

It was anticipated that some children would be less talkative, and that they might not answer all the questions asked, especially questions such as 'What is it that you enjoy about...' As it was important that the child should not be embarrassed into making any answer, it was decided that if the child did not answer, after a pause the next topic

would be introduced. The number of non-responses to questions about 'what is it that you enjoy about..' are included in the results.

Section 1. What Does the Child Do?

The first six questions were asked to elicit from the child a description of the types of play and leisure activities engaged in. They were asked in an open-ended manner. The first question was "What do you do when not at school?" All reported activities were noted and later post-coded. The note-taking was also a part of the strategy to give confidence that anything the child said was valid and useful. Reported activities were then coded in a similar manner to the play activities reported by mothers with categories such as 'non-social', 'construction', 'physically active' etc. Question 3 asked "How do you play with..." these answers helped clarify the type of play activities reported in the earlier question, and helped with coding them into categories, with definitions that were mutually exclusive. The categories are explained in the Results chapter along with the data presentation. Most of the questions asked of the children were in the 'What' section which included asking for preferences and enjoyment factors. Questions about watching television, listening to music, reading books, playing computer or video games, making things, making up stories/ songs, playing ball games, going to organised leisure activities, playing board games (winning and loosing), playing pretend games, care of plants or pets were specifically asked. The 'Where' section was short being limited to 'where do you enjoy playing the most'; and 'Do you get a chance to play there very often?. The 'With Whom' section included questions about spending time with adults similar to the questions asked of the mothers. The children were also asked what they enjoyed about that. Finally they were asked questions about having no one to play with and about being bored. The interview concluded with the child being asked if they were happy with how they spend their leisure time, being invited to add anything else or ask the interviewer questions, and being thanked for making their contribution to the study.

Accessing the Study Participants.

Mothers and children who formed the Dublin Child Development Study were invited to participate. A mailing list of 111 addresses was supplied from the DCDS data base. All children had a code/ identification number and these were subsequently used . Of

the 111 addresses, three were located outside the study area in counties Cork, Galway and Wexford. These were excluded. A letter of introduction and invitation with a scheduled time for a visit was sent to 108 addresses. A phone number was includes if the mother preferred to cancel or change the timing of the visit. (See appendix 5 for copy of letter). If no phone call was received, visits were then made. If there was no reply an electoral register was checked to see if this was the correct address. Twenty – two of the addresses were no longer valid. Some of these were grandparents addresses, 13 new addresses were located and contacted by letter. Two mothers phoned and asked to be excluded from the study. Following the first attempted visit, if there was no contact from the up to date address, a second letter was sent, and a second visit made. If no reply was received this was then classified as a non-response. From the 99 correct addresses contacted, 2 withdrew, and 13 were classified as non-respondents. This gives a response rate of 87% and an initial participation rate of 85%.

Gathering the BOTMP Data.

As reported in the literature, the Bruininks-Oseretsky Test of Motor Proficiency (BOTMP) (Bruininks, 1978) is an individually administered test that assesses motor functioning in children from 4.5 years to 14.5 years of age. The complete battery, with eight sub-tests comprising of 46 separate items provides an index of motor proficiency as well as separate measures of both gross and fine motor skills. The eight sub-tests are; Running Speed and Agility; Balance (both static and performance); Bilateral Co-ordination involving sequential and simultaneous co-ordination of upper and lower limbs; Strength involving arm and shoulder strength; abdominal strength and leg strength; Upper Limb Co-ordination and visual tracking; Response Speed to a moving visual stimulus; Visual-motor Control; and Upper Limb Speed and Dexterity. The test was designed to both screen and assess motor proficiency. It is well known, and widely used in the assessment of motor proficiency (Rodger,1994; Crawford et al., 2001). No reports in the literature were available on how Irish children score with this assessment. In addition to documenting the achievements in motor proficiency as assessed by the BOTMP, this researcher was interested in possible associations between motor proficiency and play and leisure activities (as reported in the data analysis section of this chapter). Issues about the validity of the grouping of the sub- tests into gross and fine motor

composite scores (as discussed in the Literature Review) was not seen as an impediment as the individual sub-tests themselves appeared at face validity level to measure skill areas underpinning different types of play, such as ball games or craft activities. Sub-test data are also correlated with the results of the Play Activity Questionnaire, rather than with composite group data.

Some of the children did not wish to be assessed, (or their mothers did not wish them to be assessed). Two mothers said at the time of the play interview that they did not think that their child would enjoy the experience, and that the child was nervous of tests, and was not good at catching balls and sports. They declined the offer to be assessed. Four others declined the offer when the assessor phoned to make arrangements. Hay and Missiuna (1998) reported that children with perceived low levels of self-efficacy about their motor skills were found to have characteristics that are typical of children with developmental co-ordination disorder. So it may be that at least some of the children who excluded themselves from the study did not rate themselves highly on motor skills, or the enjoyment of physical activity. The possible effects of their exclusion from the sample should be borne in mind. Other than general encouragement and explanation about the contents and purpose of the BOTMP, children were not coerced into participation. This further limits the extent the results of this non-random sample can be generalised.

Another possible reason for non-participation in the BOTMP. was that the length of time between the interview (on play and play preference) and the date for assessment of motor proficiency. It may be that this delay was too long, and that the child no longer wanted to participate.

Geographical Clustering.

From a test administration perspective, a senior occupational therapist was employed to arrange the motor proficiency assessment. She set about doing this in a geographical cluster approach. The areas in which the children lived were quite scattered, and included counties Dublin, Kildare, and Wicklow. As is clear from the data on play and leisure preferences, getting three children available on any one Saturday, or two children available after school, proved quite difficult. If the first appointment was not possible for all, then those who were available were assessed, it

would be some time later until the assessor was back in that geographical area again. When this was presented as a problem, a second assessor was engaged to target a particular geographical area, such as west Dublin, and take children as and when they were individually available.

General Procedure for Administering the BOTMP.

The test was administered in the homes of 75 children (response rate of 89%). It is acknowledged that each home situation was different, and therefore non-standardised. The assessment items used were from the standardised BOTMP pack. The use of two chairs and a kitchen/dining table were provided by the child's mother. It should be noted that the running speed and agility test, which involved running 15 yards, was carried out of doors in conditions that varied with the weather.

The mean age at the time of testing was eight years six months.

Using the The Play Activity Questionnaire (PQ) (Appendix 4).

The PQ is composed of a 15 item Likert scale questionnaire, with four conceptual play factors: Active and Adventurous; Athletic; Rough and Tumble; and Quiet play The range on the Likert scale is from 1 to 7, with 1 indicating 'not at all', 4 indicating ' an average amount', and 7 indicating 'a great deal'. In this study each mother was asked to tick each of the 15 items along the scoring line from 1 to 7. Fathers were not included. Some minor adjustments were made to the language as in Question 4; playing 'store' was replaced with playing 'shop', and the word 'skits' was removed. Question 5 was changed from 'rough house' to 'rough and tumble'. The games mentioned in Question 10 were changed to 'hurling' rather than 'ringuette' or 'floor hockey'. The games mentioned in Question 11 had 'hockey' removed and 'football' (meaning any type such as Gaelic or Rugby) included.

The rationale for including the PQ in this study was threefold; as an method to ensure that information regarding physically active play preferences was gathered from the study population; to allow examination of the correlation of the BOTMP scores with the different physical play preferences identified by the PQ; and to apply

the PQ to a different cultural group as with boys and girls from the Dublin Child Development Study.

Administration of the PQ.

At the time of the Play and Leisure Interests interviews each mother was given the questionnaire to complete by herself. Sometimes because of pressure of time this was not completed during the child's interview. The mother was then asked to return the completed questionnaire to the interviewer on her return visit to meet the child; or to give it to the BOTMP assessor. Sixty six questionnaires (78.5%) were returned. One questionnaire was completed on one side of the page only with data for items 7 to 15 missing, so for these items the number was 65.

Perinatal and Infant Data.

As reported earlier in the Introduction chapter, children and their mothers were from the Dublin Child Development Study which started in 1985. The following data sets were accessed; Birthweight; Apgar (1953); Neonatal Behavioural Assesment Scale (NBAS)(Brazelton, 1984); and the Bayley Infant Scales (Bayley, 1969). Longitudinal analysis of the relationships between perinatal measures such (as birth-weight, Apgar and the motoric cluster of the Neonatal Behavioural Assessment Scale) and 18 months measures of the Bayley Motor Infant Scales and the BOTMP focused on sub-tests scores. All assessments were carried out by trained personnel. The Apgar exam was administered by the doctor attending the birth, The Brazelton Neonatal Behavioural Assessment Scale was administered by two staff nurses and two psychologists. This study on predictive ability focuses solely on the motoric cluster items which assess the infant's general tone-predominant tone; motor maturity; pull to sit, in which the infant's automatic grasp of the examiner's forefinger is used to pull him or her into a sitting position; defensive movements; and activity level, both spontaneous and elicited, during the whole observation. The scale was administered in the hospital on the third day after birth and again in the home 21 days after birth.

The Bayley Scales were administered by a clinical psychologist, trained in their use, and assessment was carried out in a standardized setting in the Psychology Department of Trinity College, Dublin. In this author's study relationships between

these infant measures and the results of the BOTMP at approximately 8 years six months were established and the predictive value of the earlier measures are reported in Chapter 8.

Location and Time Frame of Data Gathering.

Other than the perinatal and infant data, all the data were gathered in the children's own home, unless requested in another's home such as a grandparent's. Mothers were sometimes interviewed separately from their study children, usually while the child was at school. Younger children were often present and wanted to be involved. Often three visits to the house were necessary, one to interview the mother, another to interview the study child, and a visit to carry out the BOTMP. Homes are not standardised assessment locations, therefore interview length and assessment time taken up with the BOTMP varied from home to home. Carrying out the interviews involved over 4,000 miles of driving.

Interviews and assessment were carried out in all weathers and all times of year, over an 18 month period during 1994 to 1995, with most of the interviews carried out within a twelve month period. A considerable amount of effort was exerted in trying to fit in with the individual time and distance requirements to access the children and their mothers. Children lived in Counties Meath, Dublin, Wicklow and Kildare. On school days children were only sometimes available after 3pm. Many had extra curricular activities twice or three times a week, including visiting relatives. Church Holy Days and school holidays were used as the most efficient time to get access to the mother and child. However, particularly in the first spring period in 1994, from February to May, many of the children or their mothers were involved in preparation for First Holy Communion, which involved choir practice after school, and shopping for outfits for themselves and siblings. This interfered with availability for interview and assessment, and made it more difficult to plan efficient use of journeys and driving time. Most visits were on weekdays and completed by 5.30 p.m. so as to minimise the interference in the household routine. Mothers were offered Saturday, or later timed week-day visits if it suited, but very few mothers wished for this.

Response Rates for the Four Data Measures.

Of those who agreed to take part, not all participants completed all four data sets for various reasons, including the time gap between the interviews and the participating in the BOTMP. The logistic demands and consequences of organising the study in such a large geographical area and the children's limited availability have been reported earlier.

Table 3. 1. Summary Table of Response Rates for Four Data Sets.

Data Method	No.s Invited	% Response	Completed
Mothers Interviewed	99	86 (87%)	84 (85%)
Children Interviewed	84	82 (97.6%)	82 (97.6%)
BOTMP	84	84 (100%)	66 (78.5%)
PQQues'aire	84	84 (100%)	66 (78.5%)

Non-Respondents/Non Completion.

Seventy-five children took part in the BOTMP compared to 82 who had contributed to the play and leisure data interviews. Of the 75 who did take part, not all children completed all the sub-tests, for example 11 did not complete the Running Speed sub-test as their mothers did not want them running outside in the rain. Occasionally a child did not want to complete a sub-test, for example he/she cried and /or said it was 'too hard'. With the absence of these sub-test scores, composite scores could not be computed for these children, therefore it is worth noting the count for each data set, as it varies. Unfortunately the children who did not complete all the sub-test were a loss to the data set, particularly as some of these individuals had inconsistent levels of scoring in the completed sub-tests.

As reported earlier, six of the children did not wish to be assessed, (or their mothers did not wish them to be assessed). The possible effects of their exclusion should be borne in mind.

Data Cleaning.

In conducting this study it was recognised that errors in processing data prior to analysis could cause distortion of research findings. The amount of error in recording, coding, and keying information typical in the data sets of scientific studies has been estimated at 4% to 7% (Hampel, Ronchetti, Rosseeuw, & Stahel, 1986). In a study of 21 psychological data sets that had been checked by researchers and were considered ready for analysis, on subsequent inspection only one was found to be free from processing errors (Rosenthal, 1978). Each time data are transferred from one location to another or another format to another, errors can occur. In an ideal situation data should be collected and processed in one intervention straight into a computer, thereby minimising possible error that can occur at the measurement stage; the coding stage; and the keying stage. There were inherent dangers in the methodology chosen in this particular study, in terms of errors in measurement, coding and inputting with four different data sets, and with four people involved in data gathering or processing.

Strategies to minimise error were employed specific to each data gathering tool. The questionnaires were designed in themes or blocks of questions composed of open and fixed choice questions such as where, with whom, when the child likes to play. In addition to helping focus the interview, it allowed for checking the internal consistency of the answers in the process of the interview, and also left a written record for coding. Each questionnaire was coded and keyed in to the spreadsheet by the interviewer/researcher, and the blocks of answers could be visually scanned for anomalies in terms of expected pattern of response.

EXCEL spread-sheets were used for all the data and then these were imported into DataDesk. With regard to the open-ended questions, these too were grouped and note taking space was left on the interview sheet. Lists of responses and comments were drawn up and these were used for reference. The 'open' sections of all the questionnaires were then reviewed at a separate sitting when all the interviews were completed. It was hoped that by working with the more open questions separately from the easier processed data that full attention and rigour would be paid, hence minimising error.

With regard to the BOTMP it was accepted that there were obvious dangers in applying a standardized measure in non-standardized environments especially with the use of adult sized furniture for eight and nine year old children. The two assessors were experienced community occupational therapists, one had been in private practice for a number of years, hence they were used to working in non-standardised settings, and used to assessments. Raw scores were recorded at the time of assessment and these were later converted into standard scores following age appropriate tables. As at least three age bands were involved this required attention. These conversions were routinely checked by the research assistant who inputted the BOTMP data. This research assistant (a recent occupational therapy graduate) had knowledge and interest in motor development and noted any anomalies in terms of difference in achievement on sub-test scores. These were referred for review to the researcher. The assessor was contacted if it was not a clerical error. The note taking at the end of the BOTMP form often explained the anomalies (such as the child could not do this test at the first attempt and started crying and the subtest item was not completed). As a further error check, a random sample of ten cases were selected and all scores recomputed, including a review of the point scoring for the paper and pencil tests included in the assessment form.

The PQ questionnaire was a simple 15 item Likert scale with a range of 1 to 7. This was the easiest data set to input and process. Visual scanning of the spreadsheet quickly identified impossible scores, and extreme scores that could then be checked. Once spreadsheets were imported into DataDesk, marginal frequencies in all the data sets could be identified and either classified as impossible or highly suspect. In these cases the scores were checked against the child's file. As this was primarily a descriptive study, cross tabulations such as for frequency and gender were calculated for most of the data. These were first checked for inconsistencies and errors, before analysis.

Data Inputting.

With four data gathering measures, a considerable amount of data were generated. The results of the standardised measures such as the BOTMP and the PQ were inputted by a research assistant. The questionnaires were rather complex, being made up of fixed choice responses and 'open' questions. These data were processed and

inputted by the researcher. The responses to the open-ended questions in the two questionnaires required post coding. All data were coded and entered into EXCEL spread sheets and subsequently imported into Datadesk and SPSSX statistical packages for analysis.

Data Analysis.

The Questionnaires.

In relation to the two questionnaires, these data are primarily descriptive in nature. A description is given of the family composition, and physical nature of the household, play and leisure resources in the area. In addition, types of play activities were categorised, as were leisure time activities spent with adults. Information from the children's perspective such as why they enjoyed their play; availability of friends to play with, and their satisfaction with how they spent their time was also gathered and described in statistical terms. More qualitative data regarding the mothers' evaluations regarding their children's play and their role in it is also presented. Comparisons between groups, particularly related to gender were made through mean score, percentage scores and some correlations.

The BOTMP Data Analysis.

The sample was described in terms of age distribution, gender, arm and leg preference, and sub-test and composite scores. The construct validity of composite groupings of subtest scores was analysed by correlations and factor analysis. Comparisons were made between groups related to play activities as identified in the questionnaires and BOTMP scores. Mini-case studies relating some children's play activities and achievement of the BOTMP are also presented.

The Play Activity Questionnaire Data Analysis.

Summary statistics for the 15 items were presented and gender differences reported. Correlations between the items and the four groupings were obtained. Correlations between the PQ items and the BOTMP scores were examined.

The Perinatal and Infant Data.

As reported earlier in this chapter, perinatal and infant data measuring motor development and the BOTMP data were analysed for predictive value. Correlations

between earlier measures and sub-test and composite BOTMP scores are established. Comparisons between mean scores of those in the BOTMP 'average' and above groupings and those below 'average' are made in relation to their earlier scores achieved.

Critique of the Methodology.

The results of this study need to be interpreted in the context of the sample limitations. It is acknowledged that the participants were not a random sample. They were children of parents who had remained involved with the Dublin Child Development Study for approximately eight years, and may be different from those who left the study. They are also not representative in terms of social class, as only mothers who attended one Dublin public maternity service were invited to participate. They are also first-born children and, as reported, experiences are influenced by birth order. However this was relatively homogeneous sample in terms of social class, ethnicity and birth order. It is not intended that the results should be generalised to the wider population, or outside this particular time frame of 1994/ 1995. There has been much social and economic change since the data were gathered.

This lack of randomisation should be borne in mind particularly with reference to the BOTMP. The sampling plan for the BOTMP. as detailed in the examiner's manual (Bruininks, 1978) reports on its multistage stratified sampling procedures based on the 1970 U.S. census which was to allow for representation within strata of age, gender, race and community size, and geographic region. There is no mention of informed consent or the possibility of withdrawing from the testing programme, so it is assumed that the random sample within the stratification included children who did not feel good about their physical ability or who may have been 'clumsy'. The only children not included in the sampling were those with 'severe physical impairments'. Any substitution that was made was to meet the requirements for representitiveness in gender and race. In contrast, the study carried out by this author is a non-random sample, and as reported earlier some children exercised their choice to be excluded. Four mothers declined the invitation fom the BOTMP assessor and two others declined at interview explaining that their child did not like testing and/or were no good at ball games. This may have removed some of the less able from the

data set. Prevalence estimates obtained internationally consistently indicate that about 5% to 6% of the school aged population may be affected by "developmental co-ordination disorder"(DCD) (Gubbay, 1975; Henderson &Hall, 1982; Wright, Sugden, Ng & Tan, 1994). Children with these difficulties may have a reluctance to practice motor skills, and generally have reduced motivation to participate in physical activities and often have low perceived competence in the physical domain (Schoemaker & Kalverboer, 1994; Thompson, Bouffard, Watkinson, & Causgrove Dunn, 1994). As reported earlier some of the children excluded themselves from this author's study, some of these may have had developmental co-ordination difficulties.

Each data gathering measure could be criticised for it's lack of standardization, and/or the lack of standardized setting in which it was applied. There was no test-retest on any of the measures, and no inter-rater reliability review of the scoring of the BOTMP. However all of the data gatherers were Occupational Therapists with at least 10 years experience at the time of data gathering. Only one interviewer conducted the interviews. Two others carried out the BOTMP assessments. The combination of the various data sets provided descriptive data for statistical analysis of play and leisure preferences, and their relationships to motor proficiency; and allowed examination of the predictive validity of perinatal and infant data on motor skill continuity into middle childhood.

CHAPTER FOUR : RESULTS OF MOTHER'S QUESTIONNAIRE.

Introduction.

The aim of the study and the methodologies employed have been described in the previous chapter. As four measures generated a considerable amount of data, the results are presented in chapters 4,5, 6, and 7. In addition, the perinatal and infant data gathered previously from mothers and children in the 'Dublin Child Development Study' have been examined in relation to the BOTMP results, and this is presented in its own chapter format.

The Methodology section has already described the initial sampling methods used for participating in the Dublin Child Development Study. The results presented in this report are related only to those remaining in the study who were invited to participate, and cannot be applied to the other study participants who were not located, or to those who did not wish to be involved. The results should not be generalised to the general population. The data were gathered during 1994 and 1995 in the greater Dublin area. Reference to the economic and social climate during this period has already been made in the literature view. In order to put the child's play and leisure activities and interest in some context, demographic data were collected from individual mothers related to income, housing and family size. This information is included in this chapter.

Time available for leisure and play:

The society to which the child belongs basically structures the use of time and space. Within these constraints the child has opportunities to use time and space himself to a greater degree during play and leisure activities, than during school activities. All the children in this study attended primary school. A report by the International Association for Educational Advancement, as referred to by the 1994 OECD Economic Survey (1995, p. 80) states that in Ireland the length of the school year was 173 days, and the length of the school day was 323 minutes (5.5 hours approx.). This was the second shortest in the OECD area of representation, in the world's 29 most developed countries. This time is usually taken from 9.00am to 2.30pm. on those 173 school days, resulting in 192 days (52.6%) "school-free" days per year. Time taken with homework reduces the time available for play/leisure pursuits. It is difficult to find reports in the literature of studies carried out with Irish children on the subject of homework. However, a study carried out with 12 year old Irish boys in 1987, reported 80% of the study sample of 20, spent between 15 to 60 minutes on homework (Conway, 1987 p.110). In another study by the

Educational Research Centre (2000, p.76), with 3,764 Irish, 11 year old children, a very wide time band for homework is reported, in which 87% of parents expected that their child would spend between half an hour and two hours on homework. The children in this author's study were aged between 8 and nine years at the time, and it would be reasonable to accept that homework demands would be considerably less than 11 year olds. A non-random sample of five teachers of this age group were asked by this author to estimate the amount of time that it would take children to complete homework. The time taken was dependent on each child's organisation and application but could range from 20 to 40 minutes.

A question was asked in the questionnaire to mothers about the child's responsibilities regarding household duties in order to ascertain if this was a considerable time -consuming activity. There is no data available in the literature on the amount of time spent in self-care, for this age group in this culture, other than the time spent in sleeping, which may vary with individual needs, but may be around ten hours each night (Durand, 1998, p.5) for an eight year old child. For the purpose of this study, it was estimated that self-care in this age group required dressing, washing and eating, which has been estimated by a non random sample of 6 mothers, as ranging from 70 to 100 minutes each day. In summary, allowing for the length of the school day and shortness of the school year, homework, and self care activities, it would appear that for this age group, a considerable amount of time appeared to be available for leisure and play, perhaps 4 hours on a school day, and 6 to 8 hours on those 192 'school-free days'.

Results of Questionnaire with Mothers of Children Regarding their Play and Leisure Interests.

Introduction.

There are many ways of collecting data, however there are particular issues about collecting data on the topic of play, and collecting data from and about children. These issues have been discussed in the Methodology section. It was decided that a mother's report on her child's play and leisure interest and activities was one useful method of data collection, as long as the child also had an opportunity to share their information and perspective. As mentioned in the Methodology section, a questionnaire completed by interview by individual mothers in their own home reporting their perspective of their child's play, was the preferred method. Mothers were also asked to complete a standardised questionnaire on play preference, developed by Finegan et al. (1991). This is reported on in a separate results chapter.

The administration of the questionnaire.

From the 108 names and addresses in the Leinster region, of children who participated in the last data collection process when the children were aged 5 years, (3 years previous to this study), 21 addresses had changed, 13 new addresses were located, and 84 mothers were eventually interviewed. This was a participation rate of 85%.

The questionnaire was carried out in an interview format with mothers in their own homes, sometimes in the presence of children and sometimes alone. The shortest interview lasted 15 minutes. The longest lasted one hour, and most were completed in about twenty five minutes. The content of the questionnaire included questions on what the child did in his leisure time, where and with whom it was spent; and some general information on leisure facilities perceived to be in the child's locality. Questions were also asked about the mother's opinions about the way in which the child spent leisure-time, and her role in how this time was spent.

As it related to factors that might affect the child's opportunity for play, some basic demographic data was also sought about family size, housing, and financial context in which the child lived. (See copy of questionnaire in Appendix 1) This information was not

sought until the end of the interview, as it might have been perceived as not relevant if asked earlier on. However these results are presented here and they describe part of the context in which the children lived and played.

Demographic and Housing Information: (Questions 75 to 88).

In order to describe some of the social and physical contexts in which the children played and lived, information was gathered regarding the number, and relationship of adults and children living in each home, as was information on the general weekly income, and type of house lived in. The last section in the Mother's Questionnaire posed these questions.

Ages of the Study Children:

As explained in the methodology chapter, the children had become part of the Dublin Child Development Study from birth, their mothers having agreed to take part prior to their birth. The data gathering process of interviewing mothers and children and administering the BOTMP took over one year. At the time of the mothers' interviews the ages of the children ranged from 7 years 9 months to 9 years 5 months, with a mean age of 8 years 3 months, and a median age of 8 years 1 month. The standard deviation was 4.52 months. There was no statistically significant difference between boys and girls with regard to age (t-test statistic = -0.3896 w/ 73 df p = 0.698).

Table 4. 1. Number of Adults Living in the Household.

No. of Adults	Boys n = 42	Girls n = 42	All n = 84
1	2	6	8 (9.5%)
2	36	36	72 (85.71%)
4	4	0	4 (4.7%)

More than eighty five percent of boys and girls in the study lived in households with two adults, 9.5% lived with one adult, and almost 5 % lived with four adults. For the most part relationships of adults to the study child were parental, or extended family. One child and her mother shared a house with a non-related adult who was a tenant. Two children did not live with their mothers, both were cared for primarily by grandmothers, with uncles or aunts also living in the household. Seventy seven lived with "fathers" in the household, not all of whom were genetic or legal fathers. One mother and child lived in the mother's family home with her brothers.

Ages and numbers of other children living in the household are factors that might have some impact on the study child in terms of possibilities for playing and leisure pursuits. Siblings might aid or hinder play. Parental resources in terms of time, effort and finances may have to be shared. Very young children may distract the parent from supervision of the oldest child and this might be a welcome freedom or may reduce support or encouragement at times when the older child needs some assistance with play or leisure time activities. The data gathered on numbers and ages of children did not set out to explore this possible impact, but intended to describe the numbers and ages of other children in the household, and the general living space available in the home which sets the context for play opportunities and resources.

Table 4. 2 (Q 76) Numbers of Children in the Household.

No. of Children in Household	No. and % of Households
One child	9 (10.71%)
Two Children	41 (48.8%)
Three Children	26 (30.95%)
Four Children	8 (9.5%)

Almost as many households had four children (9.5%) as had one child (10.71%).
Almost 49% of households had two children, and approximately 40% had three or more children.
Ages of the second child in the household ranged from six months to a step-sibling aged fifteen years. One other study child lived with a 14 year old aunt. All other study children were the eldest child in the family. Seventy five children had siblings (89%), 44 siblings were aged 5 years or older. Thirty four (41%) study children had at least a second sibling (3 children in the household) whose ages ranged from 6 weeks to six years. Eight (9.5%) of the study children had a third sibling whose ages ranged from two months to two years.
The marital status of mothers were as follows: 72 were married, 5 were separated, and 7 were single (unmarried) at the time of the study. Divorce was not available in Ireland at the time of this study.

Information about the employment status of mother and fathers was gathered. The economic context in Dublin at the time of the study circa 1994 was one of high

unemployment (14%), high inflation, high interest rates, and a general sense of economic depression, as referred to in the introduction to this chapter (OECD1995).

Table 4.3 (Q80) Employment Status of Mothers and "Fathers" *

Employment	Mothers n = 84	*Fathers n = 77
Unavailable for employment (at home)	47 (55.9%)	0
Full time waged	17 (20%)	63 (82%)
Part time worker	13 (15.5%)	8 (10.4%)
Seasonal worker	6 (7%)	0
Unemployed	1 (1.19%)	6 (7.8%)

*This covers "fathers" (males who were so classified by the mothers in the study, not necessarily all of these were the study child's genetic or legal father) who lived with the study child. Some separated fathers were employed and contributed to financially supporting the family. These are not included in this table. Their financial contribution is included in the data re income (Q.81).

Question 81 asked about the total usual take-home pay from employment in the household. There were 83 respondents. The mean take home pay was £204.72 per week. The median was £200.00, and the range was £0.00 to £450.00. The standard deviation was £98.80.

Question 82 asked the respondents to give details of income from State benefits, other than "Children's Allowance", which all mothers were entitled to for each child. Sixty four mothers (77%) reported that their households received no other allowances. Nineteen (23%) received allowances ranging from £27.00 to £160.00 per week depending on individual circumstances. Some of these allowances were for unemployed persons (8), others allowances were State contributions towards housing. Question 83 asked for a report on "other income", but other than occasional contributions from absent fathers no household reported a regular income other than from employment and State benefits.

Question 84 was used to gather information about the type of housing whether house or "flat" (apartment) etc., and question 85 gathered information about ownership of that home. Questions 86 to 88 collected information on facilities in terms of play space such as front or back garden and yard; the number of bedrooms in the household; and whether the road was perceived by the mother to be "busy" or "quiet" with traffic usage.

Seventy nine (94%) of the study children lived in houses, and five (6%) lived in "flats" or apartments, two of these were on the ground floor, 2 others were one floor up, and another child lived two floors up from ground level. Sixty four (76%) of these homes were owned by the child's parent(s). One child's house was owned by the child's grandparent. Nineteen (22.6%) children lived in rented accommodation, 14 of these being rented from a Local Authority, and 5 were rented from private landlords.

From the initial interviews and piloting of the questionnaire, bedrooms were likely to be a play place, therefore a question was asked about the number of bedrooms in the household.

Table 4. 4. (Q 87) No. of Bedrooms in Home.

1 bedroom	2 bedrooms	3 bedrooms	4 bedrooms
1 (1%)	9 (11%)	68 (81%)	6 (7%)

Eighty eight percent of children lived in either a three or four bed-roomed household. Playing in bedrooms was reported for 20 (47.6%) of boys, and 22 (52.4%) of girls.
With regard to having a front garden in which to play, 77 (92%) of mothers stated that they had; 94% (79) also reported having a back garden in which their child could play; 83% (70) reported having a hard surface area to play on such as a yard or driveway to the front of the house, 17% (14) did not. Eighty six percent (71) had a similar surface in their back garden, and 14% did not. Hard surface areas are useful when the garden is wet and muddy. It would appear that most children had an outdoor place to play within the security of their own territory/ garden. A question was also asked about the traffic on the road outside the child's house, as it may be a factor in being allowed to play outdoors. Fifty eight percent (49) mothers reported that they considered their road to be a quiet road from a traffic point of view, and 42% (35) considered that their road was busy. Note that in answer to question 47, mothers reported that when spending time with friends, 76% of boys and 59.5% of girls were reported as playing on the street, even though 42% of mothers reported their road to be 'busy'.

Table 4. 5. Summary: Play Places Available Directly Outside of Child's Home.

Front garden	Front: hard surface area	Back garden	Back: hard surface area	Quiet traffic.
77 (92%)	70 (83%)	79 (94%)	71 (86%)	49 (58%)

From mothers' reports it appeared that children had some variety in places to play, both indoor and outdoor, even within the parameters of being seen from the house.

Summary of Demographic Information of the Families of Study Children.

Information was gathered about the household composition, income and general space as these may impact on play and available resources. Almost 86% of children lived in households with two adults; 87% had a least one sibling. Ninety four percent lived in houses, 88% were 3 or 4 bed-roomed, with only 6% living in 'flats' or apartments. Ninety four percent had back gardens, 83% had a hard surface area in their front garden, 92% had front gardens in which to play. Seventy six percent of boys and 59.5% of girls were reported as playing on the street, although 42% of mothers considered their road to be 'busy'. Fifty seven percent of mothers did not work outside the home at all. Only 20% worked full time, and a further 20% either worked part time or in a seasonal capacity. Almost 92 % of children (77) had "fathers", only 63 of these were in full time employment or 75% of households. For those working, the mean weekly take-home pay per household was £204.72. The range of income earned was from £0 to £450.00. Many families were functioning with considerable financial constraints. As reported above, the economic climate in Dublin at the time of this study was stressful, with fluctuating interest rates which affected house owners, and severe restrictions in public spending such as in health and education. The unemployment rate was 14%.

Putting Forward a Working Definition of Leisure in the Interview.

The questionnaire with the mothers began with an introduction including a working definition of leisure time, "being time other than when eating, sleeping and at school". The first question was an open question, "What does (the child's name) do during his /her leisure time?" The second question was similar "What does she/he play?" and the third question, "What does she play with?" All three questions were asked to generate the whole picture for each individual child (as perceived by the child's mother) in terms of leisure time and play. "Leisure time" and "play" were terms used in an attempt to be inclusive of all activities. In question 4, mothers were asked more specifically for activity related information, such as the child's hobbies, interests, social and family visits, care of pets/ plants which might not have come to mind if only asked "what does your child play?"

"Does the child help in the house?" was asked to ascertain if the child was involved in any significant time-consuming manner in household duties, which might limit the time available for play. Questions 1 to 4 were intended to set the parameters of what was understood to be leisure time and play activities. Most of the other questions in the questionnaire referred back to the activities mentioned in response to these initial questions, asking for more specific data, about where, with whom, and how often. If a new activity was mentioned further on in the interview, it was added into the responses given in questions 1 to 4. The results of questions 1 to 4 are presented here, with explanations as how the answers were coded and categorised. With reference to the rest of the questionnaire, where relevant, the data gathered is presented as grouped from a number of questions such as with questions 1 to 4. General sub-section headings such as What, With Whom, Where are also used to help organise the results.

What The Child Does With Leisure Time. (Questions 1,2,3, and 4.)
The first four questions were posed to elicit responses in an open manner and to encourage the mother to consider the full range of her child's play and leisure interests. Any mention of any activity was accepted in an open manner. If the activity was unclear to the researcher, the mother was invited to describe or explain the activity or game. There was no limit to the amount of detail or mentions of activities. Answering this part of the questionnaire took as long as the mother wanted in describing or explaining what her child did. It formed the reference point for many of the more specific questions further on in the questionnaire.

Responses to these first four questions are presented in this report in two forms, the first is the list of play/ leisure activities reported. The following is the list of activities from which the categories were formed. It demonstrated a wide range of activities engaged in. It was not intended to indicate how often the children engage, or their preferences, but to indicate the range of play and leisure activities. The list of activities mentioned by mothers is presented by gender of child.

The types of leisure activities mentioned by mothers of boys were:
Reading, football, tennis, hurling, basketball, rugby, skipping, climbing trees, making huts, being a club member, swimming, playing with 'Turtles', 'GI Joe' or 'Action Man' and 'Wrestlers' and 'Gladiators' and 'Jungle animals', computers, watching T.V. running,

playing 'war', 'hide and seek', 'spying', 'kick the can', Lego, playing with toy cars and trucks, guns, board games, drawing and colouring, making things, playing 'shop', dinosaurs, dressing up, skateboarding, playing darts, snooker, playing drums, recorder, violin, doing karate or other martial arts, going on bicycle, writing, doing crosswords, 'trick-acting', going shopping, to the zoo, to the community centre, to choir, speech and drama, and cub scouts.

The types of leisure activities mentioned by mothers of girls were:
Irish dancing, playing 'Barbies', chatting/talking with friends, playing with the baby, knitting and sewing, making and selling jewellery, playing 'school', 'post office', 'mammies and daddies', 'house', 'credit union'; making Jig-saws, watching videos, playing tapes, singing, disco dancing, going on roller skates, playing with dolls and dolls house, making things, clay modelling, running and jumping, going to Brownies, ballet, Taekwando, horse riding, minding pet, growing things, putting on concerts and plays, writing poetry, playing keyboard and tin whistle, spending time with father.

The Generation of Categories of Play and Leisure Interests.

The purpose of this part of the study was to describe what children do with their play and leisure time. Play and leisure activities were perceived as ends in themselves, as meaningful activities, and as part of daily life. In order to generate a list of descriptors of play and leisure activities, an eclectic approach to terminology was applied. Taxonomies such as used by Piaget (1962), Garvey (1990), Parten (1932) and Takata (1974) tend to emphasise observable behaviours, and these were used to provide descriptive terms.

Initially the activities were listed, and were then coded into similar themes such as 'pretend games' like playing 'shop', 'mammies and daddies', physically active play such as running, bike riding etc. From the themes generated from the list of mentioned activities, a classification of separate categories of the types of activities was developed. Each category is distinguished by some unique feature and is different from others in this regard. The categories generated of the types of play and leisure interest reported by mothers are as follows:

Non-social play;
Physically active play;
Pretend play;

Construction play;

Attending classes or adult formally organised leisure activity;

The care of pets, or plants;

Social play;

Helping in the house;

Visits to relatives.

Post-coded Description of Categories of Play and Leisure Activities.

Non -Social Play such as reading, watching television, or playing with the computer. No other person was required, either real or imaginary.

Construction Play. This category involves making or building such as playing with Lego, doing craft activities, or making things.

Class/ Organised Activity. This is a time-tabled and structured activity. It requires adult involvement and organisation. Examples of this are going to "Scouts", taking drama, music or dance classes, going to sports practice or matches.

Pretend Play. Objects and toys are used by the child to play roles or characters or give action to the game as designed by the child. Pretend games can be played alone or with others. "Barbies", "Action Man", playing "mammies and daddies" belong to this category of pretend play.

Physically Active Play. This category is distinguished by the amount of physical activity required or focussed on, such as playing football, skate-boarding, going out on bicycle. This play is organised by children.

Social Play. Types of activities which cannot be engaged in without the participation of others have been categorised as social play. Activities such as board games, or being a member of a "club/gang" are in this category. Most forms of play could be seen as social, especially pretend play involving others, or sport. However the age group 7 to 12 is associated in the literature with interests in games with rules, and with managing one's friendships and relationships away from adult supervision. This category of 'social play' was intended to identify the type of activity where the rules of social organisation are made or agreed, and are controlled by the children.

Care of Pets or Plants. Caring for a pet or interest in growing plants is different from other types of leisure interests.

Visits to Others. From the qualitative interviews in the pilot study, visits to extended family members, especially grandmothers and cousins were frequently mentioned as happening in leisure time. Hence this was included in the questionnaire.

Helping in the House. This category was intended to indicate if the children were involved in household duties, so as to give some indication of expected role of child, and also identify if carrying out chores was interfering in the time available for play. Unlike early childhood during which helping in the house can be a shared play activity with one's mother, by age 8 it would more likely be seem as a family responsibility, particularly as the study children were the first born, and most had younger siblings.

The list of activities reported have been categorised in the following table, along with the chi-squared statistic for gender differences. All mothers reported that their child engaged in the non-social category of activity. These activities include activities where no other person was required, real or imaginary, such as reading, watching television or playing with computers. It was anticipated that this would be a popular activity, so more detailed information was sought in the next section of the questionnaire. The only gender difference with statistical significance was in the physically active play category. Boys' mothers mention more physically active play.

Table 4. 6 Summary of frequency of mothers' reported play and leisure activities by category and gender.

Play Category	Boys n =42	Girls n = 42	All n = 84	Chi-squared
Non-Social	Yes 42 (100%)	Yes 42 (100%)	Yes 84 (100%)	
Construction	Yes 13 (31%) No 29 (69%)	Yes 21 (50%) No 21 (50%)	Yes 34 (40.5%No 50 (59.5%)	3.162, 1df, p=0.0754 n.s
Physical Active	Yes 37 (88%) No 5 (12%)	Yes 29 (69%) No 13 (31%)	Yes 66 (78.5%) No 24 (21.5%)	4.525,1df, p=0.0334 **SIG**
Class/Organise	Yes 29 (69%) No 13 (31%)	Yes 31 (74%) No 11 (26%)	Yes 60 (71.4%) No 24 (28.6%)	2.333,1df, p=0.6291 n.s.
Pretend	Yes 23 (55%) No 19 (45%)	Yes 29 (69%) No 13 (31%)	Yes 52 (62%) No 32 (38%)	1.817,1df, p=0.1776 n.s.
Care of Pet/Plant	Yes 17 (40.5%) No 25 (59.5%)	Yes 15 (36%) No 27 (64%)	Yes 32 (38%) No 52 (62%)	0.2919,1df, p=0.6532 n.s.
Social	Yes 11 (26%) No 31 (74%)	Yes 10 (24%) No 32 (76%)	Yes 21 (25%) No 63 (75%)	0.06349,1df, p=0.8011 n.s.
Visits	Yes 35 (83%) No 7 (17%)	Yes 37 (88%) No 5 (12%)	Yes 72 (86%) No 12 (14%)	0.3889, 1df, p=0.5329 n.s.
Helps in House	Yes 23 (55%) No 19 (45%)	Yes 20 (48%) No 22 (52%)	Yes 43 (51%) No 41 (49%)	0.4288,1df p=0.5126 n.s.

Going on visits was reported by 86% of mothers. Further information on this was gathered in further questions. Both boys (69%) and girls (74%) were reported as participating in leisure classes or organised activities such as football practice or 'Cubs'.

Table 4. 7. Rank Order of Categories Leisure Activities for Boys and Girls.

Activity Category	Rank Order Boys	Rank Order Girls
Non-Social	1 (100%)	1 (100%)
Physically Active	2 (88%)	4 (69%)
Visits	3 (83%)	2 (88%)
Class/Organised	4 (69%)	3 (74%)
Pretend	5 (55%)	4 (69%)
Helps in House	5 (55%)	5 (48%)
Care of Pet/Plants	6 (40.5%)	6 (36%)
Social	7 (26%)	7 (24%)

The category of 'social play' such as board games, or games with a strong emphasis on rules did not appear to be frequently reported (25%). This category also includes having a 'club' or 'gang' in which the rules of social organisation are made by the children. The literature reports that games with rules are typical of play for children aged 7 to 12 years (Parten 1932; Takata, 1974; Piaget, 1962) It is the category least mentioned by the mothers in this study. However the emphasis on rules may not be that obvious to an observer. Also, rule-making might be part of the setting up of other types of play such as pretend play, or physically active games. Once the rules are established the focus of the play might change to getting on with the play.

All of these were first-born children and most had siblings, hence were in the role of eldest in the household. The information regarding helping in the house was interesting in that it indicates that more boys (23, or 55%) than girls (20 or 48%) help in the house. The difference is not statistically significant. The type of help appeared to be "mind the baby, while I put out the washing", rather than daily routine chores. It was concluded that "helping in the house" did not take up a significant amount of the child's time, and once school assigned home-work was complete the children were basically available to engage in leisure time activities. Not all of this time was "free", as noted from the above table 86% of children go visiting regularly. (More detailed information is captured further on in the interview.) In addition, it was indicated at this stage of the interview that 71% of children go to an organised class or sports session, at least once weekly which also places

restrictions on "free" time. More detailed information on this organised time is reported on later indicating an even higher percent of participation in organised leisure activities.

Questions 5 to 33. Non Social Leisure. TV, Tapes, Computer Use

All of the children had a television in the home, all but two had a radio, 89% had a video player, and 94% had a tape deck. All those who had a television watched it regularly. However 99% of mothers who had a video player stated that their children watched irregularly, mostly for a "treat", and the video tapes watched were always of the child and "family" type. Bearing in mind that the data was collected in 1994/95, public unease regarding the "Jamie Bulger" case was still current. (Two eleven year old boys were found guilty of murdering a two year old boy in the U.K. Apparently they both had access to adult horror and murder videos.) Many mothers mentioned their concerns about what children watched, particularly videos.

Table 4. 8 No of Hours Watching T.V All Children N=84

	Mean	Median	Std. Dev.	Range
Weekday	1.94	2	.85	4.5
Weekend	2.97	3	1.37	8
Holidays	2.49	2	1.36	8

Table 4. 9. No of Hours Watching T.V Boys N=42

	Mean	Median	Std. Dev.	Range
Weekday	2	2	.76	4
Weekend	3	3	1.21	4
Holidays	2.54	2	1.24	5.5

Table 4. 10. No of Hours Watching T.V Girls N=42

	Mean	Median	Std. Dev.	Range
Weekday	1.87	1.5	.93	4.5
Weekend	2.88	3	1.5	8
Holidays	2.44	2	1.49	8

Children were reported as spending around two hours a day watching television, and spent more than this at weekends and holidays. Paired t-tests were carried out and a statistically significant difference was found between weekday and weekend length of viewing ($p = 0.0001$), and between weekend and holiday length of viewing ($p = 0.001$). Pooled t-tests were carried out to see if there was a gender difference in length of viewing for the three categories of weekday ($p = 0.4650$), weekend ($p = 0.5555$) and holidays ($p = 0.7215$), and no statistically significant difference was found. Accepting that children spend time in the houses of friends, questions were also asked about television and video viewing there. From mothers' reports, watching T.V or videos in a friend's house was not a popular activity with over 80% of mothers reporting that their child does not watch television or videos in their friend's house.

Table 4. 11. Watching T.V. and Video in Friend's House.

		Boys n =42	Girls n= 42	N = 84
T.V	Yes	7 (17%)	8 (19%)	15 (18%)
	No	35 (84%)	34 (80%)	69 (82%)
Video	Yes	7 (17%)	6 (14%)	13 (15%)
	No	35 (83%)	36 (86%)	71 (85%)

What do children watch? (Q 9, 10, 11)

The purpose of these questions. 9, 10 and 11 was to identify the type of television programmes and videos watched by this sample of children. The answers to questions 10 and 11 have been combined, as few children watched videos outside of their own home. For the purpose of this study the category of 'children's programme' is used when the main intended audience is children. The category of 'family' is used if the programme is screened before 9.00pm., and 'adult' if the programme is shown after this time. The 'teen' category is used for videos certified by the censor as suitable for viewing by 12 and 15 years olds. Children may also have been present in the room when other programmes such as the 'News' were being screened. This was not explored with either the mothers or children. The questions 9,10,11 were intended to elicit information about the programmes actively chosen for viewing. The data is presented here by gender. All of the programmes are screened before 9pm.

Boys Watch on T.V.

Boys Watch on T.V.

Batman, Beetlejuice, Home and Away, Neighbours, The Bill, Top Gear, Anamaniacs, Star Trek, Tiny Toones, Crystal Maze, Gladiators, Cartoons, Childrens' Breakfast Childrens' Channel, Family films, Brookside, Saved by the Bell, Casper the Friendly Ghost, The D.J.Cat Show, Eastenders, Coronation Street, Den T.V., Action Stories, Crypton Factor, Games Master, Power Rangers, Baywatch, Rimini Riddle, Nature/ wildlife programmes, Where's Wally, Fun Factory, Head to Head, Farthing Wood, Run Away Bay, Football, Snooker, Minder, Quantum Leap, Wrestling, Noel's House Party, Captain Scarlet, Thunderbirds, Cosby Show, Game Shows, Lyrics Board, Quiz programmes, Superman, Hanger 17, Dinosaurs, Winning Streak, Sonic the Hedgehog, The Simpsons, Disney programmes, Sport, Dr. Quinn Medicine Woman, Turtles, Fair City, Hearts of the West, Home Improvements.

Girls Watch on T.V.

Den T.V., Nature programmes, Neighbours, Home and Away, Coronation Street, Star Trek, Anamaniacs, Brisco County, Hypnotic Experience, Gladiators, You've Been Framed, Eastenders, Noel Edmund's House Party, Power Rangers, Fair City, Brookside, Country Practice, Saved By The Bell, Cartoons, Childrens' Channel, Crystal Maze, E. Street, Sweet Valley Junior High, All in the Mind, The D.J. Cat Show, Mr. Bean, Saturday A.M Childrens' programmes, Bay Watch, How Do You Do, Around the World in 80 secs., The Famous Five, Sonic the Hedgehog, Cosby Show, The French Prince of Belair, The Bill, Fraggle Rock, Heart-Beat, Disney films, Anna Lee, Red Dwarf, Quantum Leap, Dr. Who, Pugwall, Wrestling, Football, Hanger 17, Farthing Wood, Beverly Hill 9020, Flintstones, Nanny, Lyrics Board, Adams Family, Jimmy's Special Babies, Going Live.

Table 4. 12. (Q 9,10,11) Most Frequently Mentioned T.V. Programmes by Gender.

Boys Frequency of Mention.		**Girls** Frequency of Mention.	
1. Cartoons	30	1. Cartoons	26
2. Crystal Maze	22	2. Coronation St.	15
3. Den T.V	11	3. Den T.V.	11
4. Nature/wildlife	10	Crystal Maze	11
5. The Bill	8	5. Home and Away	9

Brief Description of Favourite programmes.

"Crystal Maze" is a challenge game show, requiring physical, perceptual, intellectual skill from team members in order to retrieve tokens which buy time in a capsule into which cash notes are blown. The setting is lavish, using dark and enclosed rooms in a castle or dungeon, and the challengers have a limited time to retrieve the token. Failure to do so in time results in a team member being locked in. It is made in the United Kingdom.

"Den T.V." is an afternoon programme for and about children, consisting of cartoons, children's drama, competitions, conversations between presenters and puppet characters, and birthday greetings. It is Irish made, and lasts for about three hours, with different segments of the time aimed at different age groups from pre-school children to early teens.

"The Bill" is a U.K. drama programme about a police station and its officers, their relationships and the daily routines of uniformed and detective police men and women. It is usually shown between 8 and 9 p.m., once a week during a season.

"Coronation Street" is the longest running "soap opera" in the world. It concerns itself with the life and trials of various residents of the street, including the publican, grocer, cafe and factory staff. Although some children and teenage characters are involved, it is primarily adult characters. It has been produced in the U.K. for almost thirty years. It is shown on U.K and Irish networks. It is shown around 7.30 pm. two or three times a week, all year.

"Home and Away" is a sunny Australian "soap opera'. Most of the characters are teenagers, and much of the content is about school, parents and friendships. It is shown on U.K. and Irish networks around tea-time (6 pm), it lasts twenty five minutes.

Videos Watched By Children as Reported by Mothers.

Boys.

Gremlins, Muppets Christmas Carol, Batman, Aladdin, Mrs Doubtfire, Cartoons, Back to the Future, Ghost-Busters, Big, Karate Kid, Musicals, Adventure films, Mr. Bean, Jungle Book, Turtles, Uncle Buck, Honey I Shrunk the Kids, Honey I Blew Up the Kids, Home Alone, All Dogs Go to Heaven, Defenders of the Earth, Bigfoot and The Hendersons,

Gummy Bears, Beethoven, Walt Disney Films, Hulk Hogan, Captain Plannet, He Man, Arnold Schwartzenager, Sleeping Beauty, Problem Child, Through the Dragon's Eye, Dennis, E.T., Jumping Jack Flash, Rambo, Childrens' videos (under 15 cert.) Jurasic Park, Flipper, Bambie, Indiania Jones, Robin Hood, Superman, Captain Hook, Snow White, Thomas the Tank Engine, Science Fiction films, Never Ending Story, Chitty Chitty Bang Bang, Ernest Saves Christmas, Adams Family.

Girls.

Cartoons, Nature films, Addams Family, Jurassic Park, Beauty and the Beast, Musicals, Science Fiction, Comedy, The Body Guard, Gremlins, Mary Poppins, Sound of Music, Annie, Michael Jackson, Cinderella, Jungle Book, Sleeping Beauty, Dirty Dancing, The Lion King, Walt Disney films, My Girl, Three Men and a Little Lady, Beetle Juice, Secret Animals, Little Women, Winnie the Pooh, Overboard, Aladdin, Big, Home Alone, Karate Kid, Turtles, Comedy videos, Kindergarten Cop, Children's films taped from T.V., Honey I Blew Up the Kid, Honey I Shrunk the Kids, Snow White, Never Ending Story, Take That, Death Becomes Her, Forever Young, Irish Dancing videos, Peter Pan, Who Framed Roger Rabbit, Free Willy, The Flintstones, Oliver, The Blues Brothers.

Categories of Videos.

All of the above videos could be classified as childrens' or family videos, with the exception of Rambo and "RoboCop" (with over 15 years cert.). No further analysis of categories is considered useful for the purpose of this study.

Most of the videos mentioned are children's films in cartoon form made by Walt Disney studios. Many of these are musicals. The following frequency table lists the most frequently mentioned.

Table 4. 13. (Q10) Rank order 1 to 4 of Frequency of Mention by Mothers of Videos Watched by Boys and Girls.

Boys.		**Girls.**	
1. Home Alone	8	Beauty and the Beast	10
2. Walt Disney	6	Cinderella, other Walt Disney	13
3. Mrs. Doubtfire	5	Cartoons	4
4. The Turtles	4	Home alone	4
Adventure films	4		

Brief Description of Favourite Videos.

"Home Alone" is an adventure film for children, the central character is an eleven year old boy who is inadvertently left behind when his family go on holidays. By saving his home from robbers, and aiding in their capture, he becomes a positive, capable confident and respected family member.

"Mrs. Doubtfire" is a comedy of a divorced father disguising himself as a woman house-keeper so as to care for his children.

Walt Disney Studios produce children's and family films, both animated and non-animated. The animated films usually have songs, or singing parts for the main characters. Films are marketed as Walt Disney, hence the reference to the "brand name" by the mothers. 'The Turtles' series of animated adventure films centres on teenage warriors and a female news reporter protecting New York against 'evil-doers'. There are also shorter cartoon "Turtle" stories shown on television. Turtle figurines have also been heavily marketed, and are mentioned as play things by both mothers and children in this study.

Control by Mothers of Child's T.V. and Video Viewing.

Question 14 asked mothers about the types of control or regulation of television and video viewing. Mothers were asked to indicate one category only which best described their approach. Categories offered to indicate type of control were as follows; "control of content only"; "control of length of time"; "time of viewing"; " Other control". The following table presents the results.

Table 4. 14. (Q14) Type of Control By Mother of Child's Television Viewing by Gender.

Type of Control	Boys N= 42	Girls = 42	N = 84
Content only	17 (40%)	9 (21%)	26 (31%)
Content + Length of Time	10 (24%)	9 (21%)	19 (23%)
Content and Time of Viewing	5 (12%)	12 (29%)	17 (20%)
All 3 above	2 (5%)	2 (5%)	4 (5%)

No statistically significant association between gender of child and type of control was found.

Table 4. 15. Summary of Percentage of Mothers Who Control T.V. Viewing.

Summary	Boys	Girls	All
Yes Control	34 (81%)	32 (76%)	66 (79%)
No Control	8 (19%)	10 (24%)	18 (21%)

Chi square = 0.2828 with 1df. p = 0.5949.

Similar questions were asked about watching videos. As previously mentioned, videos were reported to be watched "not regularly", and usually as a treat or for a special occasion. Thirteen percent (11) of the children do not have or don't bother to use a video machine. The mothers of boys indicated more control of video watching (89%) than mothers of girls (75%), but this was found to be not statistically significant.

Table 4. 16. (Q14) Control by Mother of Child's Video Viewing.

Category	**Boys 42**	**Girls 42**	**All 84**
Don't have or use a Video	5 (12%)	6 (14%)	11 (13%)
Control of Content only	28 (76%)	19 (52.78%)	47 (64.38%)
Control of Content + Length of Time	3 (8.11%)	4 (11.11%)	7 (9.56%)
Control of Content and Time of Viewing	2 (5.4%)	4 (11.11%)	6 (8.22%)
Don't Control	4 (9.52%)	9 (21.4%)	13 (15.5%)

Mothers were asked with whom does child watch television. Category options were: with "siblings"; with "friends"; with "adults". Ten mothers reported that their child either did

not have a sibling, or that the sibling was too young to sit and watch the television programmes that interested the "study" child.

The following is a summary table. *Note this refers to data re the 74 children who had a sibling old enough to watch programmes. Other categories refer to all 84 children.

Table 4. 17. (Q15) With Whom Does the Child Watch Television?

With Whom	Mostly	Sometimes	Seldom/Never
*Siblings	1 (1.35%)	47 (63.5%)	26 (35.1%)
Friends	0 (0%)	5 (5.95%)	79 (94%)
Adults	1 (1%)	17 (20.23%)	66 (79%)

Interestingly, 94% of mothers reported that their child seldom or never watched television with friends. Their time with friends was more active and inter-active. Seventy nine percent of mothers reported that their child seldom or never watched television with adults. Hence "family" viewing does not appear to be an activity with this age group. The time of viewing and the type of programme preferred by this age group might not be of much interest to adults.

Questions 16, and 17 asked mothers if they preferred that their child watched more, less or the same amount of television and videos. As videos were generally viewed irregularly only one mother would prefer that her child watched less. With regard to television, 80% of mothers were happy with the amount of time spent, and 20% would prefer less time spent. No mother wanted her child to spend any more time watching. Even though girls tend to watch slightly less television, 26% of girls' mothers wanted less television viewing, with only 14% of mothers of boys. However there was no statistically significant gender association (Chi-squared = 1.844 with 1 df, p = 0.1745)

Listening to the Radio and Playing tapes. (Q 18 to Q 23)

It was reported that 49 (58%) of children listened to the radio, with more girls (27 or 64%) than boys (22 or 52%) having an interest in this activity, but this difference is not statistically significant (Chi-squared, p = 0.2685). Of the 65 children who listened, 44 of these listened to music, with only 16 children listening to general "talk" programmes. Of the 44 children who listened to music, 25 (56%) of these were girls and 19 (44%) were boys. Only 21 (25%) children listened as frequently as "most" or "every day".

With regard to listening to tapes, 90% of girls play tapes at home, and the other 10% play tapes elsewhere. 64% of boys play tapes at home, and 34% of mothers reported that their son played them "elsewhere". "Elsewhere" includes in a friend's house or in the family car. Only 2% of boys were reported as not playing tapes at all. Twenty seven (32%) of the children were reported as listening to stories on tape. Music was listened to otherwise.

Table 4. 18. (Q23) Frequency of Reported Listening to Tapes at Home.

How Often	Boys n = 42	Girls n= 42	All n = 84
Every day	2 (4.76%	1 (2.38%)	3 (3.57%)
Most days	4 (9.52%)	10 (23.8%)	14 (16.7%)
Some days	19 (45.2%)	24 (57.1%)	43 (51.2%)
Not often	2 (4.76%)	3 (7.14%)	5 (5.95%)
Never	15 (35.7%)	4 (9.52%)	19 (22.6%)

Reading For Pleasure. (Questions 24,25,26,27)

Mothers were asked about their child's interest in reading books and comics for pleasure rather than for meeting school requirements. It would be expected that by age eight children would be competent readers of age appropriate books. Some books for this age group have pictures, and use at least 14 point print size. More able readers can manage smaller print, with more text and less pictures.

Books.

Eighty seven percent of mothers reported that their study child read books for pleasure. Thirteen percent of the study children were reported as not reading for pleasure. There is a gender difference. Of the 11 (13%) who do not read, 9 of these are boys. Only 2 of the 42 girls were reported as not reading books for pleasure.

Table 4. 19. (Q24) Reading Books and Gender Difference.

Read for Pleasure	**All n = 84**	**Boys n = 42**	**Girls n = 42**
Yes	73 (87%)	33 (78%)	40 (95%)
No	11 (13%)	9 (21%)	2 (5%)

Chi-squared = 5.126 with 1df p = 0.0236.

A statistically significant association was found between boys and girls with regard to reading for pleasure with more girls enjoying reading.

In addition to a statistically significant gender difference in the activity itself, with more girls preferring to read, girls were reported as reading more often than boys. Thirty one percent of boys either 'never' read or 'not often' read for pleasure, with only 7% of girls' mothers indicating these categories.

Table 4. 20. (Q.24) Frequency Table of Reading Books for Boys and Girls.

(% greater than .5 is rounded up)

How Often	Boys n = 42	Girls n = 42	All n = 84
I hour + every day	2 (5%)	8 (19%)	10 (12%)
Every day	7 (17%)	18 (43%)	25 (30%)
Most days	9 (21%)	5 (12%)	14 (17%)
Some days	11 (26%)	8 (19%)	19 (23%)
Not often	4 (10%)	1 (2%)	5 (6%)
Never	9 (21%)	2 (5%)	11 (13%)

Two boys read more than one hour a day as compared to 8 girls. A combination of these percentages with the 'every day' readers demonstrates that 26 (62%) girls are daily readers, with only 9 (22%) boys reported as daily readers.

Table 4. 21. Summary Table of Frequency of Reading by Gender

Frequency	Boys	Girls	All
Most/every day	18 (42.9%)	31 (73.8%)	49 (58.3%)
Some/ less often	24 (57.1%)	11 (26.2%)	35 (41.7%)

Chi-squared = 8.278 with 1df p = 0.0040

There is a statistically significant association between boys and girls in reported frequency of reading books. These differences in reading as a leisure preference are noteworthy. The

type of books read also differed related to gender (Q 25). The following is a brief summary of types of books mentioned as being read by boys and girls.

Boys

Nature (5 mentions), science, encyclopaedias, football books and annuals (all mentioned 4 times each) are factual and informative. There were 5 mentions of Roal Dahl and 4 mentions of Enid Blyton as authors read by the children. Adventure stories were also mentioned 4 times.

Girls.

Only two mothers mentioned that girls read encyclopaedias, no science or nature books were mentioned. The most frequently mentioned was Roal Dahl as author (14 times), and Enid Blyton (11). Children's stories (10) and Disney and Ladybird stories were mentioned 8 times; poetry was mentioned twice. In brief the girls read stories more than boys who seemed to prefer information retrieval in a 'dip in' style of book.

Comics.

Only 33% (28) of all children were reported as readers of comics, 40% (17) of boys and 26% (11) of girls. There was no statistically significant difference (Chi-squared = 1.929 with 1 df $p = 0.1649$). The boys read the "Beano", "Dandy", football magazines, and "Bugs" (a children's magazine about insects). The few girls that did read comics mentioned "Rosie and Jim", (a magazine about the adventures of two puppets on a canal boat), "Smash Hits" (a pop music magazine) the comics in the Sunday newspaper, and one girl read the "Beano".

Video Games and Computer Use.

Video games and computer games were being marketed as setting a "desirable" trend in children's leisure in the early to mid 1990s. Home computer use by adults had not yet reached a stage of popularity. Most adults had little or no computer experience. In a subtle way these games were being marketed as beneficial or "educational", in that they could encourage computer contact in children which might lead to technological competence in their adult working life.

Reflecting this apparent trend and expected interest in video games and computers, questions were asked of mothers about the use child made of computers, and frequency of playing video or computer games (questions 28 to 32).

Table 4. 22. (Q. 28) Does the Child Play Video Games.

Video games	Boys n = 42	Girls n = 42	All n = 84
Yes	37 (88%)	22 (52.3%)	59 (70%)
No	5 (12.2%)	20 (47.7%)	25 (30.2%)

Chi-squared = 12.37 with 1df p = 0.0004. SIG

A statistically significant association between gender and playing video games was found. (p = 0.0004). Almost 70% of all children were reported as playing video games, but with 88% of boys, and 52% of girls doing so.

Table 4. 23. (Q28) How Often Does the Child Play Video Games.

Frequency	Boys (42)	Girls (42)	All (84)
Every day	8 (19%)	3 (7.14%)	11 (13.1%)
Most days	10 (23%)	4 (9.52%)	14 (16.7%)
Some days	19 (45.2%)	6 (14.3%)	25 (29.8%)
Not often/never	5 (11.9%)	29 (69%)	34 (40.5%)

Chi-squared = 28.55 with 3 df p = 0.001.

There is a statistically significant association related to gender, with boys reported as playing video games more often than girls.

Computer Use.

Over 46% of children had a computer in their home, 47.6% (20) of boys and 45% (19) of girls. Mothers were asked if their child used a computer either at home or elsewhere. Over 46.% of children have the use of one at home, 15.58% use one elsewhere, this includes a friend's house or in school (8%). In essence, 62% of the children have some access to a computer, and 38% did not. There was no statistically significant difference found in gender and computer access (p = 0.826). Considering the expense involved, and the financial circumstances of many of the families, an unexpectedly high percentage of children had access to computers.

Mothers were asked to indicate the purpose for which their child made most use of the computer, was it (indicate one only) 'play games', 'write/spell', 'do maths (sums)' or 'other'.

Table 4. 24. Computer Use. (Q31)

Type of Use	Boys (25)	Girls (24)	All (49)
Play games	15 (60%)	8 (33.3%)	23
Maths/spell/write	10 (40%)	16 (66.7%)	26

Chi-squared = 3.496 with 1df p = 0.0615.

Although there is a difference in between boys and girls in their use of computers, it was not found to be statistically significant at the 0.05 level. Children who had access to a computer played games as well as spelling (writing lists of words), writing (sentences) and doing 'sums' (maths).

Mothers were asked about the pattern of computer use, and whether it differed during weekdays, and holidays.

Table 4. 25. (Q32) Computer Use Frequency Week-day x Gender.

Frequency	Boys n = 42	Girls n = 42	All n = 84
Every/most days	11 (25.6%)	2 (4.76%)	13 (15.3%)
Some days	6 (14%)	9 (21.4%)	15 (17.6%)
Not often/never	25 (60.4%)	31 (73.8%)	56 (67.1%)

W/day Chi-squared = 7.259 with 2df p = 0.0265 **SIG.**

A statistically significant association was found with frequency of computer use, with boys using computers more often on weekdays than girls. However only 13 (15.3%) of children use a computer every day or "most days" (four out of seven days). The majority, 56 (67.1%) of the children were reported in the 'not often' or 'never' category. Only 5 children from the study population of 84 used the computer more than one hour each day, 4 of these were boys. Lest the children were restricted in their available time to use the computers, a similar question was asked about time during holidays. Very similar results were reported.

Table 4. 26. Computer use Frequency during x Gender. Holidays

Frequency	Boys n = 42	Girls n = 42	All n = 84
Every/most days	12 (27.9%)	2 (4.76%)	14 (16.5%)
Some days	5 (11.6)	9 (21.4%)	14 (16.5%)
Not often/never	25 (60.5%)	31 (31.4%)	56 (67.1%)

Chi-squared = 8.714 with 2 df p = 0.0128 **SIG.**

There were similar patterns of use with boys having a greater preference than girls. However even during holiday time when it is assumed that more time is available, less than 17% of children were reported as using computers every day. It could be concluded that at the time of this data collection (1994/'95) computer use was not a major occupier of time for this study group.

Buying things for child to play with. (Questions 33,34,35.)

Mothers were asked to put in first preference their rationale for buying things for their child. The options were "It's what child wants", "Not expensive", "Will last", "Educational", and "Other".

Table 4. 27. Frequency Table: Rationale for Buying Things for Child.

The Rationale	All n = 84
What child wants	59 (70%)
Not expensive	4 (4.76%)
Will last	13 (15.5%)
Educational	6 (7%)
Other	2 (2.4%)

Mothers were then asked to list the items last purchased for the child. This demonstrates variety, but can be easily related to the play and leisure interests reported earlier reflecting gender differences. The last things bought and the frequency of their mention was as follows for boys:

Table 4. 28. (Q. 34) Rank Order Items recently bought for child by mother.

Rank Order	Boys: Frequency of mention		Girls: Frequency of Mention	
1.	Computer games related	10	Markers/paper/craft	12
2.	Football gear	5	"Barbie" related	7
3.	Bicycle	4	Music related	6
4	Books	4	Books	5

When mothers were asked how they decided what to buy, 94% reported that it was "what the child wants".

Play and Leisure Resources Outside of the Home. (Q 36)

By eight years of age influences and opportunities outside the home can be expected to play a significant part in the child's social development and provide learning opportunities for developing relationships with people other than family, in a way developing a "public" self. Recreation and leisure activities provide opportunities for learning about social roles such as peer group membership roles and responsibilities; how to deal with conflict, negotiate solutions to problems, and generally explore and understand rules and behaviours related to "fair play" in the world outside the family. From the literature, such as Mead (1934), Reilly (1974), Robinson (1977) it was expected that children of this age would be beginning to; (a) explore games with rules, (b) be interested social group membership outside of the family such as provided by "clubs" such as 'scouts', or making their own 'gang', and also (c) wish to explore more formal or structured leisure interests such as sports, dance, music, in order to master skills.

Questions 36 to 46 asked about resources and leisure opportunities in the child's wider environment from the mother's perspective. The questions were about places to play, organised clubs such as 'scouts', and classes and organised leisure opportunities available and used by the child. Data are presented here for the whole group, and only some aspects are examined for gender differences, if it seemed appropriate.

Leisure and Play Facilities near the child's home.

One of the most basic prerequisites for play outside the home is a place. Generally it would be expected in this culture that children aged eight years play outdoors without the

presence of an adult, but none-the-less close to adult supervision. Expectations of the study group about this acceptable distance and supervision were recorded. Mothers were asked about availability of a grass and hard surface area for the child's play. Ninety-five percent (80) of the mothers reported the availability of a grassy play space, with 80% of children using this space to play. Eighty nine percent (75) reported the availability of a hard surface play space, with 82% (69) of children using it. Most children (63%) did not have a purpose built playground available nearby. They used gardens, paths, yards, driveways and roads on which to play. Almost 35% (29) of mothers reported that their children had an indoor place to play such as a community hall or privately funded play centre nearby. The privately operated play centres were described to mothers by using local brand names such as 'Fun Factory' when the question was being asked. Interestingly, there was a statistically significant gender related difference. Fifty percent of mothers of boys, considered that there was such a facility, but only 19% of mothers of girls (Chi-squared = 8.9 with 1 df $p = 0.0029$). In terms of use of this indoor play centre, 45% of mothers of boys used this, and only 14% of mothers of girls (Chi-squared = 9.624 with 1 df $p = 0.0019$). Perhaps the general 'rough and tumble' nature of the play experiences offered by such facilities may have been perceived by the mothers as relevant to boys, and hence were seen as being in the boys' geographical area. Mothers were asked about the availability and use of leisure centres. Such leisure centres offer indoor sports such as basketball, football and children's physical fitness programmes, holiday sports camps etc. Thirty percent of mothers reported that their children had nearby 'leisure centres' (either local authority or privately funded). Only 21% of children made use of such a facility. There was no statistically significant difference either in perceived availability or use related to gender. Other leisure resources are listed in the following tables, and include classes offered outside school hours. Mothers were asked to indicate 'yes' or 'no' to each part of the question from (a) to (x). (Chi-squared results were computed only when the number in each category was at least 5 and only noted on the table when statistically significant difference at 0.05 level is reached.)

Table 4. 29. (Q 36, a to x). Summary Table. Leisure Resources and Their Use by Child.

Name of Resource	Availability	Use by Children.
Football Club. Socer, GAA	All 64% (54) Boys 85.7% (36) Girls 43% (18) Chi-squared = 16.8 with 1 df p = 0.0001**SIG**	All 21% (18) Boys 35.7% (15) Girls 7.1% (3) Chi-squared = 10.18 with 1df p = 0.0014 **SIG**
Hurling Club	All 36.9% (31) Boys 50% (21) Girls 23.8% (10) Chi-squared = 6.186 with 1 df p = 0.0129 **SIG**	All 8.33% (7) Boys 9.52% (4) Girls 7.14% (3)
Athletics	All 32% (27) Boys 40.5% (17) Girls 23.8% (10)	All 4.71 % (4) Boys 9.3 % (4) Girls 0% (0)
Golf/ Pitch & Putt	All 38% (32) Boys 47.6% (20) Girls 28.6% (12)	All 3.57% (3) Boys 4.76% (2) Girls 2.38% (1)
Tennis	All 26.2 % (22) Boys 28.6% (12) Girls 23.8% (10)	All 5.95% (5) Boys 0% (0) Girls 11.9% (5) Chi-squared = 5.316 with 1 df p = 0.0211 **SIG**
Boxing	All 9.52% (8) Boys 9.52% (4) Girls 9.52% (4)	All 4.76% (4) Boys 2.38% (1) Girls 7.14% (3)
Swimming Pool	All 77.4% (65) Boys 81% (34) Girls 73.8% (31)	All 56% (47) Boys 54.8% (23) Girls 57% (24)
Other Sports clubs	All 13% (11) Boys 14.3% (6)	All 9.53% (8) Boys 7.14% (3)

	Girls 11.9% (5)	Girls 11.9% (5)
Nature Field/River/Sea	All 81% (68) Boys 81% (34) Girls 81% (34)	All 72.6% (61) Boys 73.8% (31) Girls 71.4% (30)
Club. Scouts/ Brownies	All 76% (64) Boys 85.7% (36) Girls 66.7% (28) Chi –square = 4.2 with 1 df p = 0.0404 **SIG**	All 25% (21) Boys 26.2% (11) Girls 23.8% (10)
Summer Project	All 73.8% (62) Boys 73.8% (31) Girls 73.8% (31)	All 40.5% (34) Boys 38.1% (16) Girls 42.9% (18)
Class Speech & Drama	All 45.2% (38) Boys 50% (21) Girls 40.5% (17)	All 32% (27) Boys 26.2% (11) Girls 38.1% (16)
Class Arts and Crafts	All 32% (27) Boys 28.6% (12) Girls 35.7% (15)	All 20% (17) Boys 16% (7) Girls 24% (24)
Class Music	All 35.7% (30) Boys 35.7% (15) Girls 35.7% (15)	All 21.4% (18) Boys 14.3% (6) Girls 28.6% (12)
Class Dancing	All 66.7% (56) Boys 50% (21) Girls 83.3% (35) Chi-squared = 10.5 with 1df p = 0.0012 **SIG**	All 29.8% (25) Boys 7.14% (3) Girls 52.4% (22) Chi-squared = 20.56 with 1 df p = 0.0001 **SIG**
Class Swimming	All 63% (53) Boys 73.8% (31) Girls 52.4% (22) Chi-squared = 4.141 with 1 df p = 0.0419 **SIG**	All 39.3% (33) Boys 47.6% (20) Girls 31% (13)
Class Gymnastics	All 7.14% (6) Boys 4.76% (2) Girls 9.52% (4)	All 3.57% (3) Boys 2.38% (1) Girls 4.76% (2)

Class Languages	All 8.33% (7) Boys 11.9% (5) Girls 4.76% (2)	All 4.76% (4) Boys 7.14% (3) Girls 2.38% (1)
Other Class(Martial Arts)	All 20.28% Boys 23.78% (10) Girls 16.68% (8)	All 15% (13) Boys 17% (7) Girls 14% (6)

"Other classes" question generated an unexpected interest in martial arts with no gender differences; 15% (13) of children go to Karate, Judo or Taekwando weekly classes. These classes are often held in a community hall or other rented space. Students compete and get credit for their success. This is demonstrated in the various classification of belt colours used when wearing martial arts uniform.

The presence or absence of gender differences in the following activities is discussed below. These activities of interest are; football; hurling; athletics; tennis; arts and crafts; dancing class; music classes; and swimming classes.

Football.

Sixty four percent of mothers reported on the availability of a football club for children in their area; 36% of boys used this with only 7% of girls. The gender association with regard to use by child was statistically significant. ($p= 0.0001$).

Hurling.

It would appear that hurling is not perceived as an interest in this geographic region of Ireland, although there was a statistically significant difference between mothers of boys and mothers of girls in their perception of available facilities. Camogie is the version of the game played by girls and women. It may be that it is perceived as more suitable in terms of skill demands or availability for older children. Only 4 boys and 3 girls in this study sample were reported as playing the game. Hurling is a very popular sport in other counties such as Tipperary, Clare, Kilkenny.

Athletics.

Four boys and no girls were involved in athletics. This seems remarkably low considering the profile on T.V. given to athletics, and the Community Games network in most parts of Ireland. Perhaps the age profile of this study group was too young to perceive involvement as relevant.

Tennis.

Only five girls and no boys were involved in tennis.

Arts and Crafts.

Seven boys and 10 girls participated in classes. A greater interest in girls in such activities might have been expected, but no statistically significant association with gender either in perceived availability or class participation, was found.

Dancing.

This interest was mostly in "Irish" dancing. This study pre-dates the "Riverdance" revival of Irish dancing. Sixty seven percent of mothers reported the availability of dance classes, 7% (3) of boys took part, and 52% (22) of girls. Irish dancing was a very popular leisure pursuit. Only 2 girls went to Ballet.

Music.

Thirty six percent (30) of mothers reported that music classes were available in their area; 18 (21%) children availed of the classes (14% (6) boys and 28.5% (12) of girls). The gender association was not statistically significant. Classes for playing tin whistle, drums, piano and violin were mentioned.

Swimming.

It was considered that the greater Dublin area would not have a good supply of public swimming pools, yet 77% of mothers considered that there was a pool available in their area (80% of mothers of boys and 73% of mothers of girls). Seventy four percent of mothers of boys reported that swimming classes were available for their child. This contrasts with 52% of mothers of girls. This is a statistically significant gender association in perceived availability. Perhaps mothers of boys look further afield in the desire for swimming opportunities. However in regard to use or uptake, there was no statistically significant difference, 48% of boys took swimming lessons, and 31% of girls.

It is interesting to note the range between perceived availability of facilities/resources. For It may be that mothers tune into facilities/resources on a 'need to know' basis or it may be that mothers and children share information within their child's friendship group and

friends accompany each other. Bearing in mind that playmates tended to be of the same gender this may have influenced the information available to mothers about other resources in their area. There is also difference in knowing about availability and use of the resource, for example 76% of mothers perceived "Scouts" or "Brownies" to be available, yet only 25% of children participated in these activities. In contrast, 18% of mothers considered martial arts classes to be available, and 17% availed of them. This may indicate that some resources were actively sought with the child's interest in mind.

Question 37 asked about transport available for the child to access leisure resources bearing in mind that for any distance out of the child's immediate area, most children have to be accompanied, and that other siblings have to be considered.

The most frequently used option was the use of the family car (55%), followed by 38% of children using a bus.

Table 4. 30. (Q.37) Transport Options: Accessing Leisure Resources.

Public Bus	Private Bus	Train/Dart	Cycle	Family Car	Other Car
32 (38%)	2 (2.34%)	0	0	46 (55%)	3 (3.6%)

Having explored the resources available, more specific information was gathered about the child's current interests, where the child went, with whom, and who made the decision, and the cost per session or class. Question 38 asked if the child had any organised leisure activity, 32 (76%) of mothers of boys reported in the 'Yes' category as did 34 (81%) of girl's mothers. There was no statistically significant association related to gender of the child ($p = 0.5949$). The following tables present this data on the types of activities engaged in and gender differences are noted on the table. (Some children went to more than one activity.)

Table 4. 31. (Q.39) Organised Leisure Activities and Participation by Gender.

Activity.	Boys	Girls	All
Dance	3 (7.14%)	22 (52.4%)	25 (29.8%) Chi-squared = 20.56 w/ 1df p = 0.001 **SIG**
Drama	8 (19%)	8 (19%)	16 (19%)
Gymnastics	0	1 (2.3%)	1 (1%)
Music	5 (12%)	7 (15%)	12 (14%)
Swimming	19 (45%)	17 (40%)	36 (43%)
Sports	18 (42.9%)	9 (21.4%)	32 (27%) Chi-=4.421 w/ 1 df, p = 0.0355 **SIG**
Other	20 (48%)	15 (36%)	35 (41.6%)

"Other" included martial arts, (13 children) such as Karate, Judo and Taekwando, and going to "Scouts" and "Brownies". School Choir was an additional activity not previously mentioned.

When Question 43 asked if there was any activity not mentioned such as membership of an organisation, club, choir or sports team, an additional 12 mothers stated that their child was a member of the school choir, some practised during school hours, others stayed on late after school. Adding these 12 to the 12 previously partaking in organised music sessions, this brings the total number to 24 (28.6%). This choir singing was in preparation for their First Holy Communion ceremony, which usually happens in May for children in 2nd class (aged seven and a half to eight years approx.) In fact "Holy Communion" was a feature in both mother and child's life at this time. Choir sessions were reported by some mothers as being held twice a week after school. In addition, it impacted on time use of both mother and study child. Anecdotal reports gave the impression that during any school holiday or "Holy" days from February to May mothers were using this out-of-school time to go to town to get Holy Communion outfits, not just for the child but the whole family.

In summary, 81% of children participate in an organised activity at least once weekly. A comparison was made between mothers who are in paid employment outside the home and those who are not, and their children's participation in organised activity. Of the 48 mothers who are not in paid employment outside the home, 38 children have an organised leisure activity, 10 do not (20.8 %). Of the 17 mothers who work fulltime outside the home, 4 do not have an activity (23.5%), of the 13 mothers who work part-time, 3 do not go to organised activities (23%). Six mothers work outside the home in a seasonal capacity, one of whose children does not go to an organised activity (16.7%). There was no statistically significant association related to employment status and participation in organised leisure activities (Chi-squared = 0.1565 with 3 df p = 0.9843). The participation rate in organised activities reflects a time commitment on behalf of the mothers and also financial implications. Some children go more often than once a week, and others have more than one organised activity, for example a girl might do Irish dancing and "speech and drama". Table 22 demonstrates the frequency of participation.

Table 4. 32. (Q39) Organised Activity Frequency of Participation.

Times Weekly	**n = 84**	**Percent**
Once Weekly	13	15.5%
Twice Weekly	22	26%
Three Times	21	25%
Four Times	8	9.5%
Five Times	4	5%
Do not participate	16	19%

Fifty five (65%) children participate more than once a week, with 12 (14%) children participating four and more times. This must make demands in terms of adult support, and sibling compliance. It also has implications for "free" time available for self -organised or self -directed play and leisure.

In terms of distance from home, 35 (42%) of mothers said that activities were 'nearby' as defined by the mother, 22 (26%) said they were a 'moderate distance' away, and 11 (13%) considered that they travelled a 'good distance' to reach the resource.

When asked **with whom the children went,** 10 (11.9%) went on their own. This was usually to football practice organised on a green within a few hundred yards walk.

Fourteen children (16.6%) went with their mother and siblings, a similar number went only with their mother, 24 (28.6%) went with their father and family. This was often to the swimming pool. Three (3.6%) waited on after school for sessions such as tin whistle or basketball, and were collected later.

Decision Makers.

Of those who went to organised leisure activities, thirty nine (57%) children were reported as being the decision-maker regarding participation. Thirteen (19%) mothers acted alone in making the decision, for another 11 (16%) both mother and child made the decision, and for 5 children (7%) their father had decided that the child should do the activity.

Cost.

The mean cost per session was £2.27. The range was from 50p for football practice to £8.00 for a music lesson. Irish dancing cost £1.50 to £2.00. Considering the frequency of participation and the financial limitations of the family budget (documented above) this was a considerable financial outlay on one child.

Previous Activities.

Sixty three percent of children had tried out and given up previous activities. These were the same list such as ballroom dancing, swimming, art and craft etc. Most of the reasons for giving up the activity were loss of interest, sometimes the time of sessions clashed with other interests, and some children found the activity too difficult or got hurt.

More Activities? (Q. 44)

When asked "Would you like your child to do more organised activities?" 63% (53) answered yes, 29 mothers of boys and 24 mothers of girls. No statistically significant gender association was found. 12 mothers wanted more swimming, and others wanted more art, music, drama and sports. "Cubs" or "Girl Guides" were also sought.

The section dealing with organised leisure activities documents a considerable commitment by both children and mothers in this study group to participation in organised leisure activities. Children, by regular contact with the activity are no doubt being "encultured" in some way into the values, attitudes and discipline of their chosen activities, and children were learning to socialise in an activity appropriate way with children outside of their immediate family and geographic area, and were possibly improving their level of skill. With 81% of children in this study partaking in an organised activity it could be stated that it was perceived as the "thing to do" for both

child and parents. It was certainly not without cost to the parents in terms of time, input, finance and a general commitment to widening the leisure and social experiences of the child.

Unstructured Leisure Time Spent Outside the Home.

Playing outside the home in child structured activities is more in keeping with the general expectations of "playing" in common understanding of the term. More detailed questions about the nature of this play were asked of the children, but mothers were also asked about where the child played, how often and with whom. First, it was important to ascertain if the mothers in the study considered that they knew what their child was doing when outside the home.

In question 45, mothers were asked if they knew what their child was doing when playing outside the home. The fixed categories on offer were; "All of time", "Most times" and "Sometimes", and "Seldom". Fifty six percent (47) of mothers said that they knew "all of the time" what their child was playing at, 40% (34) said that they knew "most of the time", 2 mothers said that they "sometimes" knew. None answered "seldom". No statistically significant difference was found between mothers of boys and mothers of girls. The issue of giving socially desirable answers was not tested. These answers could be interpreted as a reflection of the mothers' expectations that responsible mothers should know where their child was, rather than a factual account of their own knowing.

Question 46 asked mothers 'how do you (or minder) know', 64% (54) of mothers said that they can see the child out the window of the house, 36% (30) said they knew because their child tells them. These responses might be interpreted more as an indication of "ground rules" in relation to knowing what child is doing when outside the home. Some mothers reported going into the front room, others going upstairs to look out to check on the child. Question 64 (reported later) asked mothers about knowing where their child is when outside the home, the results suggests a limit or boundary to the places children were allowed to play, which appeared to be that of keeping within a visible distance from the child's house.

With Whom Does the Child Play When Not at School? (Q 47 to 60)

Social development requires that children interact with others. This section of the questionnaire asked questions about the availability of others to play or spend time with, both children and adults. Mothers were asked about numbers and gender of friends, and siblings. In the child's questionnaire more specific questions were asked about playmate preferences.

Table 4. 33. Numbers of Friends When Not in School. (Q 47)

Number of Friends	All n = 84	Boys n = 42	Girls n = 42
No friends	3 (3.57%)	2 (4.7%)	1 (2.38%)
One friend	18 (22.2%)	4 (19%)	14 (34%)
2 or 3 friends	48 (59.3%)	23 (57.5%)	25 (61%)
4 or more friends	15 (18.5%)	13 (32.5%)	2 (4.88%)

Of those who were reported as having friends, a statistically significant association was found between girls and boys and number of friends. (Chi-squared = 13.7 with 2df p = 0.0011.) More girls have one or two friends. Boys tend to play with larger numbers of friends. This may be something to do with the nature of the different types of play, or a difference in preference for inter-personal relationships. Physically active play as preferred by boys requires or benefits from numbers of children, whereas pretend play really requires a lot of consensus about rules, roles and "modus operandi". The inter-personal relationships for playing "mammies and daddies" are different than those required for playing football on the street.

Mothers were asked about the gender of the child's friends. Three children had no friends, friends, 2 (4.76%) boys and 1 (1.38%) girl. These were omitted from the table.The following table presents this data.

Table 4. 34. Q 47. Gender of Friends.

Gender Played With	Boys (40)	Girls (41)
Same gender	31 (73.8%)	34 (81%)
Opposite only	4 (9.52%)	2 (4.76%)
Mixed gender	5 (11.9%)	5 (11.9%)

For the most part boys played with only boys (73.8%) and girls played with only girls (81%); 4 boys played with all girls, and 2 girls played with all boys. An equal number of 5 played with mixed gender friends.

Ages of friends were ascertained, 73.6% of the first mentioned friends were aged 7 to 9 years. The mean age was 7.6 years, and a median of 8. Of the 75% who mentioned having a second friend, 62% of the second mentioned friends were aged 7 to 9. Only 37% had a third friend, and these tended to be older, aged 8, 9,and 10. Although it was notable in individual interviews that some children played with much younger children 4 and 5, others played with 13 and 14 year olds, most children played with children within about a year's range of their own age.

Question 47. As the presence of siblings might have an influence on play, a question was asked about ages and numbers of siblings. Almost 87% (73) had at least one sibling, 46 of these children had a sibling aged at least 5 years, by which time most children would be able to play co-operatively; 35 (41.7%) children had at least a second sibling, aged from six weeks to 6 years, and 8 children had a third sibling aged from three months to three years. Having young children in the house can have an impact on the older child's opportunity to play without intrusion of the younger ones. Some play activities such as craft-work, Lego, or board games require time and a place free of intrusion of younger children. Parental assistance might be needed to support older children in getting appropriate time and opportunities for such play. In one interview the study child did very little playing or leisure activity inside his home because he said anytime he took out his Lego or colouring pencils this little sister kept wanting to join in and "wrecked everything". However in other households it appeared that time and opportunity was organised by the mother so that this type of play could happen. It takes active management to facilitate play with mixed age groups, especially with under three year olds.

Opportunity to play with friends (when not in school) can be influenced by proximity of the friend's homes. Mothers were asked where her child's friends lived in terms of distance as in seen from the house, being five minutes walk away, or is it further away.
As reported earlier, 3 children did not have a friend, of the rest, 59 (72.8%) had friends whose homes could be seen from the house; 14 children (17%) had friends who lived 5

minutes walk away, and 8 children (10%) had friends who lived further away. Having friends living close by might facilitate the child in organising his own play. Mothers were asked about the general way in which their child made arrangements for playing with friends (Q49). Half of the children (50%) were reported as calling to the friend's house, 18 (21.4%) take turns visiting each others house, 11 (13%) make arrangements with parents permission, and 6 (7%) "goes outside and see who turns up". Less than 5% have other methods. So most children in this study are independent in being able to make their own arrangements with friends. This supports a perspective of independent and socially competent children who can organise their own play time with friends.

Question 50 asked mothers how often the child plays with friends. Categories of 'every day', 'most days', ' three days a week', and ' less often' were given and the question was asked for weekdays, weekends and school holiday time.

Table 4. 35. How Often Does Child Play With Friends. (Q. 50)

	Every day	Most days	3 days per wk	Less often
Weekday	35 (42%)	30 (36%)	8 (10%)	8 (10%)
Weekend	36 (42.8%)	27 (32%)	N/a	16 (19%)
Sch. Hols	41 (48.8%)	25 (29.7%)	7 (8.3%)	8 (9.5%)

Three children had no friends.

Less than half the children get to play with friends every day, even during school holidays.

Question 51 asked mothers " Does child have someone to play with when s/he wants?

Table 4. 36. Q 51 . Availability of Friends.

Availability	Boys N = 42	Girls N = 42	Total N = 84
Always	10 (23.8%)	4 (28.6%)	14 (16.7%)
Mostly	26 (61.9%)	23 (54.8%)	49 (58%)
Sometime or less	6 (14.3%)	15 (35.7%)	21 (25%)

Chi-squared = 6.612 with 2 df . p = 0.0367 SIG

There is a statistically significant gender association in availability of friends for play. Thirty five percent of (15) girls were reported as 'only sometimes' or less frequently having friends available for play; 14.3% (6) boys were in this category. Of the 14 children who "always have someone to play with", 10 of these are boys, which may be to do with the more general and less specific requirements for their play, such as playing football on

the street. Also boys were reported earlier as having as having more friends than girls, so this improves the likelihood of someone being available.

In question 52, mothers were asked if they approved of their child's choice of friends. There were 5 possible categories for answers, only 4 were used. Three mothers reported that this question did not apply to their child as s/he had no friends. The following table presents the data and gender differences. There was no statistically significant gender association found (p = 0.0632).

Table 4. 37. (Q.52) Do you approve of his/her choice of friends? Gender difference.

Approve	**Boys n = 41**	**Girls n = 41**	**All n = 81**
Of All	20 (49%)	31 (76%)	51 (62 %)
Of Most	14 (34 %)	6 (15 %)	20 (24 %)
Of Some/none	6 (15 %)	4 (10 %)	10 (12 %)

(Chi-squared = 5.523 with 2 df p = 0.0632)

Eighty six percent (71) of mothers were happy with all or most of their child's choice of friends. This may be that the mothers consider it their child's prerogative. This was explored further in the following two questions.

Q 53. Mothers were asked about their deciding with whom the child plays. There were 5 possible categories of answer. Only 4 were used.

Table 4. 38. Frequency of Mother Deciding With Whom Child Plays?

Frequency	**All N = 84**
Always	1 (1.19%)
Some of time	6 (7.14%)
Occasionally	18 (21.4%)
Never	59 (70.2%)

Most mothers (70%) never decide with whom the child plays, and only one mother 'always' decides.

Question 54 asked "What do you do if your child plays with someone of whom you disapprove?" Of the 84 mothers in this study only 20 (24%) stated that they had experienced this situation. Eleven of these were mothers of boys and nine were mothers of girls. The other 64 mothers said that the situation did not arise.

The comments from the 20 mothers who stated that they had experienced the situation could be summarised as follows: A 'directive' response such as telling the child not to play with other (14 responses); a 'non-directive' response such as doing nothing (4 responses); a 'facilitative' response such as talking with the child and helping him/her deal with other child (2 responses).

Spending Time With Adults.

From the qualitative study from which the questionnaire developed, it was clear that spending time with adults from a wider circle than just parents appeared to be a frequent activity. Hence the section on spending time with adults was included. The list of adults was comprised of mother, father, grandmother, grandfather, other adult relative which allowed mention of uncles or aunts, and "other adult" which was intended to include non related adults. It is acknowledged that some children might have two sets of grandparents, the data for "grandmother" was for both grandmothers if they featured in the activity pattern of the child's life. Questions numbered 55 to 58 were about the child's time spent with adults and the type of activities they share. The following table combines this data. (The data relating to the children who did not have such an adult eg. a father or grandfather are included, but for chi-squared analysis were in a separate category resulting in two columns and three (category) rows, hence results give 2 degrees of freedom).

Table 4. 39. Q. 55. Summary Table. Spending Leisure Related Time With Adults.

Spends time with	Boys n = 42	Girls n = 42	All n = 84
Mother	42 (100%)	42 (100%)	84 (100%)
Father	37 (88.1%)	40 (95.2%)	77 (91.7%) Chi-s = 2.2317, 2 df, p = 0.314
Grandmother	38 (90.5%)	32 (76.2%)	70 (83.3%) Chi-s = 3.114 2df, p = 0.2107
Grandfather	26 (61.9%)	31 (73.8%)	57 (67.9%) Chi-s = 3.439 2df, p = 0.1792

No statistically significant association between gender and time spent with various adults was found. It is noted that not all children spend time with their fathers. Two boys were reported as not having a father. Five other children, 3 boys and 2 girls had fathers but did not spend time with them. Data on family composition are presented earlier in this report. At the time of the study, 72 mothers were married, 5 were separated, 7 were single or unmarried at the time of the study. Some mothers shared a home with men who were not biological 'fathers' of the study child. As these data were offered but not requested in this study, they are not included here. Ninety percent of boys were reported as spending leisure time with their grandmothers and 76% of girls. Ten children (11.9%) were reported as not having a grandmother. Only 4 children who had grandmothers were reported as not spending time with them. To a lesser extent grandfathers were listed as adults with whom the child spent leisure related time. Perhaps reflecting the shorter life expectancy of men, 21 children (25%) were reported as not having a grandfather. Of those who had, only 6 children (two boys and four girls) did not spend time with them. In addition 48 (57%) of children were reported as spending time with other relatives.
Open-ended questioning was used to elicit information on what the child and adult did together. The mother was asked "Tell me about what do you do together?" Mothers were also asked "What does.... Do with his father?" and then similar questions about the child and grandmother, grandfather, additional adult relative, and other adults. The mothers' reports of activities were interpreted by the interviewer as typical of the type of activity, rather than an exhaustive list of any activity ever carried out by the stated adult with the child. These activities are acknowledged to be as reported by the mothers in this study. These data are not presented here as a statement of "fact", but as the mothers' perceptions of shared activities between the children in the study and other adults.

When all the responses were listed, they were post-coded into the following categories: 1= "Indoor leisure and company keeping". This category covers shared relaxation time such as watching television together, playing board-games, chatting, helping bake or making things together. 2 = "Outdoor pursuits", such as walking, going on outings, fishing, doing sports, and swimming (even if in indoor pool). These are more physically demanding than for example outings to the cinema, and are more infrequent rather than routine. The purpose was to do something enjoyable and active together. Category no. 3 = "Accompanying", such as going to the shops, to school, or to Irish dancing, during which time the child and adult are in each other's company. In this way the functional day to day

routines rather than assigned "quality time" was used as a way of spending time together. Category no. 4 was a combination of activities 1 and 3 above. This was used when mothers reported a combination of indoor leisure and company keeping plus going to more routine or functional outings such as shopping, going to school or extra curricular activities. In scoring the questionnaire, only one category (1, 2, 3,or 4) was assigned. Answers related to spending time with adults were post-coded in these categories also.

The following series of tables presents the data for activities shared by the child and the listed adults.

Table 4. 40. Q. 55. Category of Activity Shared with Mothers.

Category	Boys n = 42	Girls n = 42	All n = 84
1 Indoor leisure	6 (14.3%)	4 (9.52%)	10 (11.9%)
2 Outdoor pursuits	2 (4.76%)	0	2 (2.38%)
3 Accompanying	2 (4.76%)	0	2 (2.38%)
4 Combin.1 and 3	32 (76.1%)	38 (90.4%)	70 (83.3%)

Chi square with 3 df p = 0.225. ns

For most children (83%) the time spent with their mother was in the combination category of indoor leisure, company keeping and accompanying.

Table 4. 41. Category of Activity with Father.

Category of Activity	Boys n = 42 3 (7%) no act. with father	Girls n = 42 2 (4.7%) no act. with father	All n = 84 5 (5.95%) no act with father
1 Indoor leisure	2 (4.76%)	5 (11.9%)	7 (8.33%)
2 Outdoor pursuits	32 (76%)	31 (73.8%)	63 (75%)
3 Accompanying	0	0	0
4 Comb. 1 and 3	5 (11.9%)	4 (9.5%)	9 (10.7%)

Chi square with 3 df p = 0.656. ns.

In contrast to the time spent with mothers, 75% of fathers were reported as spending time in outdoor leisure pursuits with both boys and girls.

Table 4. 42. Category of Activity shared with Grandmother/s.

Category of Activity	Boys n = 42 5 (11.9%) no act	Girls n = 42 9 (21.4%) no act	All n = 84 14 (16.7%) no act

	with grandmother	with grandmother	with grandmother
1 Indoor Leisure	20 (47.6%)	23 (54.8%)	43 (51.2%)
2Outdoor pursuits	10 (23.8%)	4 (9.52%)	14 (16.7%)
3 Accompanying	0	1 (2.38%)	1 (2.38%)
4 Comb of 1 and 3	7 (16.7%)	5 (11.9%)	12 (14.3%)

Chi-squared 3 df p = 0.261. ns.

There was no gender difference in the type of activity shared by grandmothers with children. However grandmothers were reported as spending more time in outdoor pursuits than mothers.

Table 4. 43. Category of Activity Shared with Grandfather/s.

Category of Activity	Boys n = 42 11 (26.2%) no act with grandfather	Girls n = 42 11 (26.2%) no act. with grandfather	All n = 84 22 (26.2%) no act. with grandfather
1 Indoor leisure	15 (35.7%)	17 (40.5%)	32 (38.1%)
2 Outdoor pursuits	11 (26.2%)	7 (16.7%)	18 (21.4%)
3 Accompanying	0	1 (2.38%)	1 (1.19%)
4. Comb 1 and 3	5 (11.9%)	6 (14.3%)	11 (13.1%)

Chi-squared with 3df p = 0.739. ns.

Although a greater number of boys were reported as engaging with grandfathers in outdoor pursuits, no statistically significant gender association was found.

Table 4. 44. Category of Activity Shared with Additional Adult Relative.

Category Activity	Boys n = 42 21 (50%) no act.	Girls n = 42 18 (43%) no act.	All n = 84 39 (46%) no act.
1. Indoor leisure	8 (19%)	12 (28.6%)	20 (23.8%)
2 Outdoor pursuits	10 (23.8%)	4 (9.52%)	14 (16.7%)
3 Accompanying	0	1 (2.38%)	1 (1.19%)
4 Comb. 1 and 3	3 (7.14)	7 (16.68%)	10 (11.89%)

Chi-squared with 3df p= 0.251.

Table 4.45. Category of Activity Shared With Non-Relative Adult.

Category of	Boys n = 42	Girls n = 42	All n = 84

Activity	36 (85.7%) no act. With n-r Adult	30 (71.4%) no act. with n-r Adult	66 (78.6%) no act. with n-r Adult
1 Indoor leisure	3 (7.1%)	7 (16.7%)	10 (11.9%)
2 Outdoor pursuits	2 (4.76%)	2 (4.76%)	4 (4.76%)
3 Accompanying	0	0	0
4 Comb 1 and 3	1 (2.38%)	3 (7.14%)	4 (4.76%)

Chi-squared with 3df p= 0.369.

The lack of involvement with non-relative adults was less than expected.

No statistically significant association was found between child's gender and the type of activity engaged in with adults. Eighty two percent of mothers in the study described the type of activity they share with their child as being typically that of indoor leisure and company keeping, and accompanying the child, such as to school, shopping on visits or to extra-curricular activities. Only 10.7% of fathers were reported by mothers as doing this combination type of activity. Two fathers in the study were the main care-takers, one, as well as working full-time, cared for his wife who was severely disabled. In the other household, the wife was the main earner. In terms of availability of fathers, as reported earlier in this report in the section on demographic data, 7 children did not share a home with their fathers. Six (7.8%) of fathers were unemployed, and 8 (10.4%) were employed part-time at the time of the study. For fathers, the activity category with the highest report was "outdoor pursuits", 63 fathers (75%) were reported by mothers as being involved with the child in this type of activity. Category number 3, "accompanying" was not mentioned by any mother in the study as describing the type of shared activity between father and child.

Eighty three percent of children (70) were reported to have some activity shared with grandmothers. Fifty one percent of mothers reported that grandmothers were involved in category 1 activities, (indoor leisure and company keeping) and 16.7% (14) were involved in category 2, outdoor leisure pursuits. Grandfathers were involved with 62 of the children (74%), interestingly in 38% of reports, the type of typical activity was category 1, (indoor leisure and company keeping), which is very different to fathers activity; and 21% was of category 2 (outdoor pursuits). This might reflect that grandfathers were adapting their shared activities to possible age or health related physical limitations.

"Other adult relative" was often an aunt or uncle, with whom 45 (54%) of mothers reported that their child spent time. Almost 24% of reports were in category 1 (indoor leisure and company keeping", only 16.7% (14) were in category 2, which relates to outing and active outdoor pursuits. This is the same percentage as grandmothers and less than the reported 21% for grandfathers. Almost 12% (10) of children were reported as sharing category 4 (a combination of indoor leisure and accompanying). Only 18 mothers reported that their child was involved with a non- related adult for leisure activities. The next section of results deals with the frequency of time for shared activities spent with adults.

Mothers were asked to report on how often the child spent time with the listed adults. These responses were then post-coded into "each day", "more than once a week", "less frequently", and "no time spent" categories. The data from question 56 is presented here, but more detailed information about the mother and child shared time and activities was gathered by questions 57 and 58.

Table 4. 46. (Q.56) Frequency of Time Spent with Mother.

Frequency	Boys n = 42	Girls n = 42	All n = 42
Each day	40 (95.2%)	42 (100%)	82 (97.6%)
More than 1/7	1 (2.38%)	0	1 (1.19%)
Less often	1 (2.38%)	0	1 (1.19%)

Frequency of time Spent with Father. Q56.

No time spent	4 (9.52%)	2 (4.76%)	6 (7.14%)
Each day	35 (83.3%)	33 (78.6%)	68 (81%)
More than 1/7	2 (4.76%)	6 (14.3%)	8 (9.52%)
Less often	1 (2.38%)	1 (2.38%)	2 (2.38%)

Frequency of Time Spent with Grandmother. Q56.

No time spent	4 (9.52%)	8 (19%)	12 (14.3%)
Each day	6 (14.3%)	5 (11.9%)	11 (13.1%)
More than 1/7	29 (69%)	28 (66.7%)	57 (67.9%)
Less often	3 (7.14%)	1 (2.38%)	4 (4.7%)

Frequency of Time Spent with Grandfather. Q 56.

No time spent	14 (33.3%)	11 (26.2%)	25 (29.8%)
Every day	4 (9.52%)	5 (11.9%)	9 (10.7%)
More than 1/7	21 (50%)	25 (59.5%)	46 (54.8%)

Less often	3 (7.14%)	1 (2.38%)	4 (4.76%)

Frequency of Time Spent With Other Adult Relative. Q 56.

No time spent	19 (45.2%)	14 (33.3%)	33 (39.3%)
Every day	5 (11.9%)	3 (7.14%)	8 (9.52%)
More than 1/7	16 (38.1%)	21 (50%)	37 (44%)
Less often	2 (4.76%)	4 (9.52%)	6 (7.14%)

Frequency of Time Spent With Other Adult. Q 56.

No time spent	42 (100%)	40 (95%)	82 (97.6%)
More than 1/7	0	2 (4.76%)	2 (2.38%)

As would be expected, almost 98% of children spend time with their mothers each day. Eighty one percent of children were reported as spending time with their fathers each day. 6 children (7.14%) were reported as not spending any time with their fathers at all. This might reflect that in the initial sample of the "Dublin Child Development Study" a number of mothers were unmarried at the time of their pregnancy.

Grandmothers were reported as spending time with 86% of the study children, and almost 68% of children spend time with their grandmother more than once per week. The percentages for children spending time with grandfathers is less than for grandmothers, with 70% of children having contact. However almost 55% of children spend time with their grandfather more than once a week, and 10.7% see their grandfather each day. Perhaps some grandfathers are still working, and the child/grandmother visits might be made in the afternoons. However for most the children in the study, an inter-generational experience seemed to be available and actively supported.

With regard to spending time with other adult relatives, (mentioned by mothers as aunts and uncles) 60% of children were reported as having contact, with 44% of children having this more than once per week, and almost 10% having shared time every day. This might suggest contact between the parents of the study children and their own family of origin, and also possible opportunities for the children to meet with cousins. Cousins were mentioned as play-mates by some mothers in their interviews, this is noted elsewhere in this report. With regard to spending time with non-relative adults, in response to question

55, ("Who does the child spend time with") 66 (78.6%) of mothers reported that this does not happen with their child. However when details of the time spent with other adults was sought in question 56, an even higher number 82 (97.6%) children were reported as not spending leisure time with non-relative adults. It could be concluded that the extended family provides adult company for the children in this study, rather than non-related adults.

Question 56 was; "Do you spend time alone with child/ Do you spend time in the company of child and others?" There were two parts to this question. The data presented in the next table relates to spending time alone with the child. The categories 1 to 4 were coded as follows. "Less than one-hour each day", "One to two hours daily", "Several hours daily", and "not each day".

Table 4. 47. Q. 56. Mother's Time Alone with Child.

Time category	Boys n = 42	Girls n = 42	All n = 84
Not each day	8 (19%)	2 (4.76%)	10 (11.9%)
Less than 1 hr daily	30 (71.4%)	32 (76.2%)	62 (73.8%)
1 hr to 2 hrs daily	2 (4.76%)	3 (7.14%)	5 (5.95%)
Several hrs daily	2 (4.76%)	5 (11.9%)	7 (8.33%)

Chi-squared 3df p = 0.1611.

Considering that most children (88%) had at least one sibling, it is perhaps surprising that only 11.9% of mothers do not spend time alone with the study child each day. Most mothers (73.8%) spend some time alone each day with their first born child. Of mothers who did not work outside the home, 77% spent less than 1 hour daily alone with their child, compared to 70% of mothers who worked full time. Of mothers who worked part time, 61.5% spent less than 1 hour daily alone with their child.

However 88% of study children had siblings, so it was likely that the study child would be spending shared time with their mothers also.

With regard to the question, "Do you spend time in company of study child with others?", The categories were post-coded.

Table 4. 48. (Q 56) Mother in Company of Child and Others.

Time category	Boys n = 42	Girls n = 42	All n = 84
Not each day	0	3 (7.14%)	3 (3.57%)
Less than 2 /24	3 (7.14%)	1 (2.38%)	4 (4.76%)
2 to 3 hrs daily	16 (38%)	9 (21.4%)	25 (29.8%)
3 to 4 hours daily	21 (50%)	28 (66.7%)	49 (58.3%)
4 to 6 hours daily	2 (4.76%)	1 (2.38%)	3 (3.57%)

Chi-squared 7.293 with 4 df . p = 0.1212

For 58.3% of children, mothers reported that they spent three to four hours daily in the child and others' company. Another 30% reported that they spend two to three hours in company with the child and others. The 66.7% (32) of mothers who were not employed outside the home reported spending 3 to 4 hours each day in their 'child and others' company, compared to 47% (8) of the mothers who work full time outside the home, and 46% (6) of the mothers who work part-time, and 50% (3) of the mothers who work in a seasonal capacity. However 23% of mothers who are not in paid employment reported spending 2 to 3 hours a day in their 'child's and others' company, compared to 29% of mothers who worked full time, and 54% of mothers who worked part-time outside the home. Question 57 asked mothers to report on the number of hours they spent in child's company (even with others) at weekends, and during school holidays.

Table 4. 59. (Q. 57) No of Hours Spent in Each Other's Company. Week-Ends.

No. of Hours	Boys n = 42	Girls n = 42	All n = 84
2 hours and less	4 (9.52%)	1 (2.38%)	5 (5.95%)
3 or 4 hrs daily	11 (26.2%)	8 (19%)	19 (22.6%)
5 hours and more	27 (64.3%)	33 (78.6%)	60 (71.4%)

Chi-squared = 2.874 with 2df p = 0.2377

No of Hours Spent in Each Other's Company During School Holidays.

2 hours and less	4 (9.52%)	1 (2.38%)	5 (5.95%)
3 or 4 hours daily	14 (33.3%)	12 (28.6%)	26 (31%)
5 hours or more	24 (57.1%)	29 (69%)	53 (63%)

Chi-squared = 2.426 with 2df p = 0.2974

Seventy one percent of the mothers in the study reported that they spent 5 hours or more per day in their child's company during weekends, and 63% reported spending 5 hours or more in their child's company during school holidays. This might appear to be at variance

with the image which has been developed so far in the data generated from these interviews; that of the busy eight year old out on his bike, playing with friends, and actively engaging with his leisure pursuits. However the child's play might be indoors, or the child might be in and out of the house to the extent that the mother considers that the child is in her company. She might not perceive that her time was separately spent from her child. It would appear that the mothers perceived that they spend a considerable number of hours in the company of their child, particularly during weekends and holidays.

Question 58 asked mothers what did they do together with the study child. This was basically the same question asked as part of question 55 'Spending time with adults'. It was asked again to give an opportunity for elaboration. It was asked as an open -ended question. All responses were taken and listed, then coded into categories. The 5 categories are almost identical to those used for question 55. Category 1 covered such "doing together things" as talking about things and chatting together, watching television, helping with cooking, playing cards/board games, basically enjoying being in each others company and relaxing together indoors. Category 2 included more structured leisure activities such as going to outings and events, walking as a leisure activity such as in the woods, playing tennis together, going cycling etc.. having as a purpose the spending "quality time" together. Category 3 was used for activities such as accompanying each other in the more functional aspects of daily life, such as going to school, shopping, and to visit relatives. Category 4 was used when a combination of activities were reported, such as shared indoor relaxation and leisure activities in category 1 and the more functional accompanying in category 3. As the following table indicates this category is the most frequently mentioned one for describing the types of activities that the mothers in this study do with their children. Two mothers now reported that they too go on organised physically active outings with the purpose of shared enjoyment. These were assigned to Category 5, and referred to all the types of activities mentioned in the categories 1, 2 and 3.

Table 4. 50. (Q 58). Activities Shared by Mother and Child

Category	Boys n = 42	Girls n = 42	All n = 84
1. Indoor leisure and company keep.	6 (14.3%)	5 (11.9%)	11 (13.1%)
2 Outdoor pursuits	3 (7.14%)	0	3 (3.57%)
3. Accompanying	1 (2.38)	1 (2.38%)	2 (2.38%)

4. Comb of 1 and 3	32 (76.2%)	34 (81%)	66 (78.6%)
5. Categories 1,2,3	0	2 (4.76%)	2 (2.38%)

Chi-squared = 5.152 4 df p = 0.2721

There is very little difference in the reported activity pattern, between answers to this question and the similar question no. 55, with 78.6% (66) of the mothers reporting category 4 activities in question 58, and 82.1% (68) reported similar activities in the earlier question 55. With regard to the mother's employment status, 82% of mothers who work full time outside the home (14) indicated category 4, as did 77% (10) mothers who work part-time, and 83% (5) of the mothers who work in a seasonal capacity, compared to 77% (37) of mothers who do not work outside the home. Two mothers now listed a combination of activities classified as category 5. This spending time together is intimately tied up with the fabric of daily life, accompanying each other on routine journeys, sharing time while completing household tasks, watching television. There is very little apparent excitement or adventure in the nature of the activities, but the opportunities possibly provide a context for being in touch with each other and for enjoying each other's company. It appears to be a very different type of relationship to that of child and father who share more of 'category 2' activities, such as "purposeful leisure" and outdoor pursuits. The mothers reported this as the typical activity for 75% of fathers, with 0% reported as involved in accompanying, and 10.7% (9) 'category 4' activities (combination of indoor leisure and accompanying). Children appear to have the benefit of a variety of shared activities in part due to adults in the extended family who share their time, some of whom appear to have role related distinctions reflected in their shared activity patterns.

Knowing With Whom The Child Is playing.

Having identified the others involved in the child's leisure time, both adults and children, Question 59 asked "Do you (or minder) know who he/she is with when playing?" with category options of "all of the time", "most times", "sometimes", "seldom". This question was asked with the understanding that the information given might be factually true, but that it might also indicate what the mothers expected of themselves, for example that they should know all of the time, or most of the time. The information might also be seen as an indication of the extent that the child was seen as competent to look after himself in this regard. The following table presents the data. No mothers reported in the 'sometime' or 'seldom' categories.

Table 4. 51. (Q. 59). Knowing With Whom the Child is Playing.

	Boys n = 42	Girls n = 42	All n = 84
1. All of time	25 (59.5%)	37 (88.1%)	62 (73.8%)
2. Most times	17 (40.5%)	5 (11.9%)	22 (26.2%)

Chi- square = 8.868 with 1df p = 0. 0029. **SIG.**

There is a statistically significant association related to child's gender. All of the mothers reported that they know with whom their child is playing, most if not all of the time. More mothers of girls (85.7%) reported knowing "all of the time", with only 59.5% of mothers of boys reporting in this category. This difference might because the girls have a smaller circle of friends, making knowing more predictable, and they tend to play more indoors than boys, or perhaps boys are allowed more lee-way in managing this aspect of their life.

Question 60 asked "How do you (or minder) know who child is playing with?"

This was asked as an open-ended question, and the answers fell neatly into two categories, 1. "can see the child", 2. "child says or tells". The following table presents this data.

Table 4. 52. (Q 60) How do you Know With Whom Child Plays.

How Know?	Boys n = 42	Girls n = 42	All n = 84
1. Can see child	30 (71.4%)	32 (76.2%)	62 (73.8%)
2. Child tells	12 (28.6%)	10 (23.8%)	22 (26.2%)

Chi-squared 1 df p = 0.617. n.s.

Not all mothers know all of the time with whom the child is playing, particularly mothers of boys (59%), yet the two approaches reported by mothers as being used, such as the mother "seeing", or child "telling" could result in 100% knowing " all of the time" with whom the child is playing, if the mother really considered it important. It is possible that play partners might change when the child is playing outside the home. This is more probable with boys due to the larger numbers of reported friends, and the nature of the play, where changing play mates has less of an impact, for example playing "war" or football on the street. It may be that perhaps the not knowing all of the time is an indicator of independence given by the mother to the child.

Having a place to play is one of the fundamental indicators that legitimises play as an acceptable activity (Feitelson,1977). The tolerance or indeed active encouragement of children to use space for play could be seen as sanctioning play as a worthwhile activity. The use of space such as kitchens and living rooms for playing could be interpreted as

acknowledging the role of play in the younger child. Older children playing in a bedroom perhaps could be interpreted as allowing some measure of independence from supervision. Having friends in the home to play could perhaps be seen as a commitment by the parent or minder to the child's social development.

Where The Child Spends Time.

The next set of questions numbers 61 to 65 are about where the child spends his/her self-directed play /leisure time. Question no. 61 asked the mother where the child spends time when not playing with others at home. It was open-ended. All answers were taken, and then categorised into "bedroom", "sitting room", and "other". The following table presents the data.

Table 4. 53. (Q. 61) Where Child Spends Time on Own in Home.

Where	Boys n = 42	Girls n = 42	All n = 84
Bedroom	20 (47.6%)	22 (52.4%)	42 (50%)
Sitting Room	19 (45.2%)	16 (38.1%)	35 (41.7%)
*Other Room (kitchen, den)	2 (4.76%)	3 (7%)	5 (5.8%)
Never Alone	1 (2.38%)	1 (2.38%	2 (2.38%)

Chi-squared = 4.686 with 6df. p = O.584 .

Mothers were asked to report on where child spent time playing with friends by indicating yes or no to each location on a list, such as in own home, friends home own back garden, own street, and elsewhere. Chi-squared analysis was carried out for each location to test for gender associations, data are presented on the table below. The "elsewhere" category generated mentions of; in the nearby field (5); in cousins' house (2); front garden (2); park or playground (2); and other individual sites such as local library; football club; dancing class; garage; doorstep; friend's stairs; porch; yard; balcony; courtyard; and lane-way. One child never plays with friends.

Table 4. 54. (Q62) Summary Table. Where Does Child Spend Time With Friends.

Where	Yes Boys	Yes Girls	Yes All (n = 83)
Own Home	22 (53.7%)	32 (76.2%)	54 (65.1%) Chi-s= 4.634 1df p = 0.0314. **Sig**
Friend's Home	22 (53.7%)	30 (71.4%)	52 (61.7%) Chi-s= 2.8 with 1df p = 0.0943
Own Back Garden	24 (58.5%)	25 (59.5%)	49 (59%) Chi-s = 0.000836 with 1df p = 0.559
Friend's bck gdn	26 (63.4%)	24 (57.1%)	50 (60.2%) Chi-s = 0.3407 with 1df p = 0.5594
Own Street	32 (78%)	25 (59.5%)	57 (68.7%) Chi-squared = 3.31 with 1df p = 0.0689

A statistically significant association was found with girls playing more in each others' houses than boys. No other location had a statistically significant association for gender. The most mentioned site for spending time with friends for boys was "own street" (76.2%), and for girls was "own home" (76.2%). The next most mentioned for boys was "friend's back garden" (61.9%), and for girls, the next most mentioned site was "friend's house" (71.4%). Girls also play outdoors, but not as much as boys, and boys also play indoors in their friend's homes but not as much as girls. Other than the five mentions of "field", two of "park/play-ground", and one of "lane-way", all of the sites for playing are very close to or in someone's home.

Question 64 and 65 are about the mother or minder knowing where child is when playing. This question was asked to try to ascertain the expectation of knowing about the child's whereabouts, and the level of independence between the child and adult in terms of physical location. Earlier questions attempted to define the boundaries of the mother knowing what and with whom the child played. Question 64 asked the mother if she

knows where her child is when playing. The data presented in the above table indicate that the study children stay close to either their own or friend's home and perhaps might suggest that this is the distance permitted by both child and adult. The next table presents data about mothers' categories of knowing where their child is when playing outside of the home. These data apply to 82 children, one child's mother had considerable health problems which hinder her knowing, another child does not play outside the home at all.

Table 4. 55. (Q64) Mothers' Knowledge of Where Child Is When Outside of Home.

Category	Boys n = 40	Girls n = 42	All n = 82
All of Time	22 (55%)	38 (90.5%)	60 (73.2%)
Most times	18 (45%)	4 (9.52%)	22 (26.8%)

Chi – squared = 13.13 with 1df, p = 0.0003 . **SIG**

A statistically significance association was found related to gender. As can be seen on the table above, more mothers of girls know where their child is "all of the time" (90.5%) than do mothers of boys (55%). This might be because more girls play indoors either in their own or friends' houses than boys and therefore it is hard not to know where the child is. Boys tend to a greater extent to play outdoors and perhaps are less visible in this way. It might also perhaps be interpreted that mothers of girls want to know where their child is more so than mothers of boys.

Mothers were asked how they knew where their child was when playing outside the home, and the responses were coded into "can see child", and "child tells". One mother reported that her child does not play outside of the home. (Hence n = 83.)

Table 4. 56. (Q65) How Mothers Know Where Child Is When Outside Home.

Category	Boys n = 41	Girls n = 42	All n = 83
Can See Child	26 (63.4%)	33 (78.6%)	59 (71.1%)
Child Tells	15 (36.6%)	9 (21.4%)	24 (28.9%)

Chi-squared = 2.319 with 1df p = 0.1278

Question 46 posed earlier in the interview asked 'how do you (or minder) know what the child was doing' gave different results with 64% of mothers reporting in the 'can see' category, and 36 % reporting in the 'child tells' category. This may be that what the child is doing may need more explanation, than the observation of where the child is.

Reports such as this may indeed be factually correct, but perhaps should be seen more as descriptive accounts of approaches for knowing where the child is, as adopted by mothers.

(Anecdote: One mother who had been emphatic that she always knew where her child was at any given time went to locate her son for his interview, but took quite some time to find him. She apologised and explained that apparently his friends had moved their "secret den". The gang had agreed not to tell anyone of its whereabouts, including their mothers.)

Seventy one percent of the mothers reported that they knew where their child was by seeing the child. More mothers of girls reported this method (78.6%) than mothers of boys (63%). This could be related to the reports that girls in this study play either in their friend's or own home more often than boys, and are easier to know about. However 63% of mothers of boys reported that their way of knowing the whereabouts of the child is by seeing, and yet only 54.8% of mothers of boys reported that they know "all of the time". This could be interpreted as indicating that mothers of boys did not really feel the need to know all of the time where their child was. "Seeing" and the "child telling" could be successful all of the time if practised by the child and mother, and enforced. On the other hand it might be an indication of the independence of the child and separation of mother and child that not all of the mothers feel the need to know all of the time where their child is.

Boredom.

In studies on children and adolescents with disabilities, one of the notable problems or issues reported by parents is the poor ability of the handicapped child to organise his own play and leisure interests, and their dependency on their own siblings and parents for play and leisure participation (Howard, 1996; Corcoran & Cremin, 1997) It may be assumed that children can just "go out and play", but like most behaviours it has to be learned, and needs support. Vygotsky (1967) as referred to in the literature review proposed the concept of "scaffolding" the child's learning, with more able or competent doers assisting the child in overcoming the difficulties in reaching the next level of skill. Organising one's time and using it in a pleasurable and purposeful yet non-destructive way is not always easy. Boredom or lack of satisfaction with what one is doing may be part of life. Dealing with it and moving into a more pleasurable range of activities is usually possible in most leisure or free time contexts. Parents play a part in helping children learn about managing or using their leisure time for a satisfactory and socially acceptable outcome. Hence questions 66 to 69 were about the mothers opinion on their child's experience of boredom, and her role in assisting the child to organise his leisure time. Questions 70 to74 were asked to elicit the mother's attitudes to her child's play and leisure time.

Question 66 asked mothers "Does your child get bored?", answers were noted in pre-coded categories of 'several times a day', 'once a day', 'some days', 'seldom', and 'never'. This question was asked for weekdays, weekends and school holidays.

Table 4. 57.(Q. 66) Mothers' Reported Frequency of Child Getting Bored.

Weekdays	Boys n = 42	Girls n = 42	All n = 84
Several times a day	3 (3.14%)	1 (2.38%)	4 (4.76%)
Once a day	2 (4.76%)	7 (16.7%)	9 (10.7%)
Some days only	14 (33.3%)	19 (45.2%)	33 (39.3%)
Seldom	22 (52.4%)	15 (35.7%)	37 (44%)
Never	1 (2.38)	0	1 (1.19%)

Chi-squared 6.86 with 4 df p = 0.1435. n. s.

Weekends	Boys n = 42	Girls n = 42	All n = 84
Several times a day	3 (7.14%)	2 (4.76%)	5 (5.95%)
Once a day	2 (4.76%)	7 (16.7%)	9 (10.7%)
Some days only	17 (40.5%)	19 (45.2%)	36 (42.9%)
Seldom	19 (45.2%)	14 (33.3%)	33 (39.3%)
Never	1 (2.38%)	0	1 (1.19%)

Chi-squared = 4.846 with 4 df p = 0.3034. n.s.

School Holidays	Boys n = 42	Girls n = 42	All n = 84
Several time a day	3 (7.14%)	2 (4.76%)	5 (5.95%)
Once a day	2 (4.76%)	9 (21.4%)	11 (13.1%)
Some days only	17 (40.5%)	17 (40.5%)	34 (40.5%)
Seldom	19 (45.2%)	14 (33.3%)	33 (39.3%)
Never	1 (2.38%)	0	1 (1.19%)

Chi-squared = 6.412 with 4 df p = 0.1704 n.s.

From the above reports it would appear that at least 80% of children only get bored "some days" or "seldom" even during school holidays. Approximately 15 % get bored every day,

with a small number (approx. 5%) getting bored more than once a day. There was no statistically significant difference found between boys and girls. A section in the questionnaire with the children also included this question on getting bored. This is reported in the results chapter of the children's questionnaires, and comparisons are made.

Question 67 asked mothers how they knew that their child was bored. Four categories were pre-set; 'child gets disruptive'; 'child says it'; 'child sits doing nothing'; or 'other; please state'. The following is a table of the data for boys, girls and all children. The "other" behaviours are also listed with their frequency as mentioned by mothers. Sixty nine percent of mothers reported that they know that their child is bored because their child "says it" (27 boys and 31 girls). The next most reported category was 'gets disruptive' with 6 boys and 4 girls reported in this category. Two children do not get bored, the rest of the responses were distributed throughout the other categories. A chi-squared test was carried out on the 2 most reported categories (Chi-squared = 0.6176 with 1 df p = 0.4320). No statistically significant gender association was found.

The list of "other" ways or recognising boredom were as follows (all were mentioned once); 'eats'; 'puts on a face'; 'gets giddy'; 'plays snooker' or 'watches t.v.'; 'sulks'; 'follows mother around'; 'gets grumpy'; and 'looks bored'.

Mothers were then asked "What do you do?". The following 8 categories were offered; 'organise something for him to do' a directive response; 'tell him to do something' a directive response; 'give out' a punishment response; 'give him ideas as to what to do' a facilitative response; 'do something with him' a supportive response; 'do nothing' or ignore the situation, or 'other'. Mothers were invited to indicate yes/no to each category. Some mothers used more than one strategy. Chi-squared analysis was applied to the "yes"/"no" responses for each category to test for gender association in the four most frequently reported categories. The following table presents the "yes" data for each category.

Table 4. 58. (Q 68) What Mother Does When Child Is Bored. Gender difference.

Yes to following Category	Boys	Girls	Total no. of Responses.
Organise something to do	2 (4.46%)	5 (11.9%)	7 (8.33%) Chi-s = 1.403 with 1df p =0.236
Tell child do something	20 (47.6%)	21 (50%)	41 (48.8%) Chi-s = 0.0476 with 1df p = 0.827
Give out to child	8 (19%)	7 (16.7%)	15 (17.9%) Chi-s = 0.0811 with 1df p = 0.775
Give child ideas as to what to do. (Child chooses)	23 (54.8%)	24 (57.1%)	47 (56%) Chi-s = 0.043 with 1df p = 0.826
Do something with child	6 (14.3%)	8 (19%)	14 (16.7%) Chi-s = 0.342 with 1 df p = 0.558
Nothing	4 (9.52%)	1 (2.38%)	5 (5.9%)
Other various	3 (7.14%)	5 (11.9%)	8 (9.52%)

More than half of the mothers (56%) reported that they give their child ideas as to what to do when the child appears bored. This was the most frequently mentioned response. Only 5.9% of mothers "do nothing" or ignore the child. Almost 18% of mothers indicated that they respond by "giving out" to the child. The list of "other responses" was as follows; send child to own room (2) ; send him out to play (4) ; give child a hug (1); give child a slap and send to own room (1). Chi-squared was used on the five most reported categories. No statistically significant difference was found related to gender.

The Amount of Assistance the Child Needed to Organise Leisure Time.

Question 69 asked mothers about the amount of assistance the child needed to organise leisure time. The following table presents the results demonstrating no statistically significant difference between reports of mothers of boys and mothers of girls. The five categories of "Total, Considerable, Some, Little, and Very Little", were pre-set.

Table 4. 59. (Q 69) Amount of Assistance Needed In Organising Own Leisure Time.

Category	Boys n = 42	Girls n = 42	All n = 84
Total	1 (2.38%)	0	1 (1.19%)
Considerable	1 (2.38%)	0	1 (1.19%)
Some	1 (2.38%)	2 (4.76%)	3 (3.57%)
Little	7 (16.7%)	7 (1.6.7%)	14 (16.7%)
Very little	32 (76.2%)	33 (78.6%)	65 (77.4%)

There is a notable similarity between boys and girls in the reported "very little" assistance needed by mothers to help them organise their leisure time. It appears that the children are perceived as not needing help in organising their time, with 77% of mothers reporting that their child needs 'very little' help. None the less it must be remembered that these are the mothers' perspectives.

Mothers' Opinion on Importance of Child Having Leisure Time

In an attempt to find out what mothers thought about their child's leisure time, questions 70 to 74 were asked. These were a combination of fixed choice and open-ended questions. It is important to locate these answers to individual questions in the context of the whole interview. The responses to this set of questions (70 to 74) should be interpreted as part of the other 3 questions in this section. Question 70 asked "In your opinion, is it important that s/he has leisure time?" Categories of responses were fixed as "Very important, Fairly important, Important, Of little importance, Not important". Then mothers were asked "Why?" The following table presents the data to the fixed category part of the question.

Table 4. 60. (Q 70) Mothers' Opinion on Importance of Child Having Leisure Time.

How Important	Boys n = 42	Girls n = 42	All n = 84
Very important	31 (73.8%)	28 (66.7%)	59 (70.2%)
Fairly Important	10 (23.8%)	12 (28.6%)	22 (26.2%)
Important	0	2 (4.76%)	2 (2.38%)
Little importance	0	0	0
Not Important	1 (2.38%)	0	1 (1.19%)

Chi-squared analysis on the two most reported categories 'very important' and 'fairly important' showed no statistically significant gender difference in association. (Chi-

squared = 0.322 with 1df p = 0.5704). Most mothers (70%) considered that it was 'very important', and a further 26% considered it 'fairly important' that their child had leisure time.

Framework For Organizing Mothers' Values Of Children's Play/Leisure Time.

The following is a summary of the qualitative data gathered in answering the "Why" part of question 70. One mother's response, which reflected her value on play was "We moved house so that he had a place and people to play with. It's that important!". Other responses indicate that this group of mothers appears to value play and leisure activities as a necessary and beneficial aspect of living and development. Seventy eight (92%) mothers made comments as to why they thought it important that their child had leisure time. Comments were written down at time of interview, and later sorted into themes. Often more than one reason was given. This is similar to the literature related to definitions and purpose of play. Themes emerged such the classical theories on play as simply happening, and 'fills in time', with no cognitive content or function as in Slobin (1964): play allows the "necessary physical release of energy" as in Spencer, (1878) and it offers "relaxation" as in Lazarus (1883). Socio-cultural theories, and play as learning communication and socialisation were also reflected in the mothers comments, such as through play the child is 'learning how to mix' (Mead, 1934) and that it 'helps development' (Gesell, 1934, Piaget,1962). The comments from the mothers appeared disparate and unconnected at initial inspection, but having listened to the mothers, met the children, and talked about their play; and reviewed the literature; a possible framework for connecting these reported values emerged.

In terms of the perceived value of play, the framework encompasses values ranging from (1) a description of behaviour similar to the classical theories of play such as the 'surplus energy theory' (Spencer, 1878) or 'relaxation or recreation theories' (Lazarus, 1883) as necessary activity, towards (2) a perspective of valuing the benefits of play as important for the child's personal and social development (Bruner, 1972, Sutton-Smith, 1967, Bateson, 1972), both for now as a child and for the future as an adult.

From the responses of the mothers, it appeared that each child had individual and changing needs that were met by engagement in different play or leisure activities. For example, mothers' reports suggested that when school was finished, some children needed

a physical release of energy, especially boys, and their play activities reflected this. Others wanted to sit and relax watching television, or by pretend play with their friends. Then later, children then played other games, or went along to music or dance classes, or to football practice for other reasons. The variety of play as reported by mothers early on in the questionnaire, was understood to be meeting differing needs in the child, so the reasons why play/ leisure was seen to be important were many. The whole repertoire of play and leisure activities appeared to be perceived by mothers as equally valuable and necessary depending on the child's state or circumstances on a given day or period in time. The following table offers a framework for organising the mothers' comments in a thematic format.

Table 4. 61. Framework of Values of Play/Leisure From the Mothers' Comments.

Levels 1 to 5

Level 1. At a basic level, play/ leisure is a (*neutral*) necessity to "fill in his time".

Level 2. Leisure engagement can be a prevention of disruption; a channel "to stop him causing trouble, annoying other people". (*positive to prevent a negative*)

Level 3. Leisure is a necessity to restore the child's equilibrium or to ' balance out the work (school) aspect of the child's life'. Leisure activities are a release of pent up energy, perceived to be generated in the restrictive controlled school context *(a positive value, in so far as without leisure, there would be a negative consequence*).

Level 4. Knowing how to have fun and enjoy oneself is important. Without fun and freedom obtained through play/leisure, it wouldn't be a proper childhood. Also there is pleasure to be found through doing; "Its good to be doing something constructive with your hands or with your mind"(a *positive, active sense of wellbeing in 'the here and now'*).

Level 5. Engagement in leisure provides an opportunity for learning something which will assist the child in the future, especially in "being able to mix and get along with others"; or in finding talents which might suggest vocational interests for adult life (*positive for the future*).

The following are samples of the study mothers' comments. The suggested framework organises the apparently different themes as to why engagement in play and leisure pursuits is seen as valuable for their individual children. Some of the comments demonstrate the multi-purpose function of the variety of play and leisure pursuits, with more than one category of comment being made. As mentioned previously 39 mothers of

boys and 39 mothers of girls made comments (92%), some of which are presented below using the proposed five level framework. There were 42 comments from mothers of boys, and 45 from mothers of girls.

Level 1. At a basic level, play/ leisure is a (*neutral*) necessity in order to "fill in his time". 4 comments from mothers of boys, 3 from mothers of girls.

Samples.

"It fills in his time".

"He's a very active boy, he needs it."

"He's very active, he needs to be kept going.."

" He's an active child. He doesn't sit still".

"He needs to keep going.."

"It keeps his mind active".

Level 2. Leisure engagement is perceived as a prevention of a negative behaviour such as disruption (3 comments from mothers of boys, 3 from mothers of girls).

Samples.

"Idle hands do the devil's work."

"They need to be occupied, otherwise he gets disruptive".

"He won't get himself into trouble if he has decent friends to play with."

"She'd be annoyed, and in bad humour if she hadn't got her leisure time."

Level 3. Leisure is positive, it helps relaxation. It is a necessary balance to work (school). Not having leisure would be bad for the child (13 comments from mothers of boys, 8 from mothers of girls).

Samples.

"It does the mind good to unwind, relax, be free, do something".

" He needs a sense of release. It helps his development, he finds out his interests."

"Its important for himself, he can shout… do what he wants."

"By nature he is a very serious child. He enjoys his leisure time. He takes school seriously".

"So long in school, and then homework. They need time to play and relax.".

"They need their own time to forget about school, and to be children."

"Its in complete contrast to school. It gives him a chance to relax, and not be so responsible."

"She need time to herself, she likes the time to do what she wants".

Level 4. Leisure provides an opportunity for having fun and enjoyment, and pleasure. It promotes is an active sense of well-being. It gives the child a chance to be him/herself (10 comments from mothers of boys, 16 from mothers of girls).

Samples.

Personal development.

"Its her's to choose what to do."

"Its good for him to exercise his imagination."

"It helps her develop in every aspect. Her independence, and it uses up energy".

"It gives space for her as an individual, her own thoughts, her own time."

"It develops all the facets of her character, There's loads of things that she likes other than what's done in school."

"She needs to be able to make up her own mind about things. She can do what she wants herself."

Positive sense of wellbeing.

"She really enjoys what she does. She's totally involved in what she does."

"It's what he's into. His passion, his main interest in life is football."

"They are children for such a short space in time. They should enjoy it.

"Enjoyment. She really enjoys her play time."

Level 5. Leisure engagement is a positive active learning experience that helps the child learn not just for now but also for later life (12 comments from mothers of boys, 15 comments from mothers of girls).

Samples.

"They need to see the easier side of life, not just work, but to relax with friends. You need to learn that when you are a child. It will help you out in later life."

"He is mixing with others. You learn from that for the future."

"She needs to learn more 'street sense', and she needs to mix more."

"What they are doing now makes for what they will be, when older."

In addition to the values of play/leisure presented in the above, sub themes such as "leisure as a release of energy" was mentioned only by mothers of boys (6) . Leisure activities as having a value in correcting the balance (or restoring the equilibrium) of the demands of school was mentioned more by mothers of boys (6) than mothers of girls (3). The opportunity provided by play/leisure activities for the "experience of freedom, fun and enjoyment" was mentioned by both mothers of boys (7) and mothers of girls (3).

Comments related to the sub-theme of "personal development" were more often mentioned by mothers of girls (18) than mothers of boys (7). This was expressed as having several components, such as the child having an opportunity to get to know herself, her wishes, and choices and interests through play and leisure. Becoming more independent, making her own choices and taking the consequences, defining her own personal space, away from her mother, for example playing on the street or in her room, rather than in the kitchen or living room as a smaller child might. Making arrangements with her friends and organising her own time, in short "doing her own thing" was seen to be a positive outcome from play and leisure engagement. Social development such as learning to "mix" was mentioned by both mothers of boys (5) and mothers of girls (7). (This was also identified as one of the things that mothers wished that their child did more of in the responses to question 73). These are similar themes to those reported in the literature on the benefits of play.

Does it Matter how Leisure Time is Spent ?

Question 71 asked mothers "Does it matter how this time is spent?" Answers were pre-coded into the following categories: "It matters a lot"; "A fair amount"; "It matters"; "Matters a little"; "Not really". Comments were invited and noted and 30 mothers made comments.

Table 4. 62. (Q 71) How Much It Matters How Leisure Time is Spent.

It Matters	Boys n = 42	Girls n = 42	All n = 84
A lot	10 (23.8%)	13 (31%)	23 (27.4%)
A fair amount	16 (38.1%)	11 (26.2%)	27 (32.1%)
It matters	10 (23.8%)	5 (11.9%)	15 (17.9%)
A little	0	1 (2.38%)	1 (1.19%)
Not really	6 (14.3%)	12 (28.6%)	18 (21.3%)

Chi-squared 6.454 with 4df $p = 0.2645$.

At a first glance it could be interpreted that the 21.3% of mothers who considered that how their child's leisure time was spent did not matter, that they were saying that it was unimportant, or that they did not care. However, 15 mothers of boys and an equal number of mothers of girls made comments that clarified their fixed choice answer. Such comments were "As long as she is safe and happy I don't mind what she is doing." " Just as long as he is happy and not in trouble I don't mind what he is doing". In addition this

question followed on from the previous qualitative comments to the "Why?" in question 70 (Is it important that your child has leisure time and play?). It may be that the mothers perceived their child's leisure as their child's freedom to do and be as they wished within boundaries of safety, that leisure was within the child's own space, imagination, and for the child's relaxation, enjoyment and development. It was in this way that the mothers explained their comments. Other mothers qualified their choice of category with comments such as "Once he's not glued to the telly all day, it doesn't matter" or "I mind if he spends too long on the computer".

The results of the next question (72) 'Do you think his/her leisure time is spent: extremely well; very well; reasonably well; poorly; very poorly", could be interpreted as most mothers considering that their child's time was well spent anyway, that how time was spent was not a cause of concern or 'didn't matter'. The answers to question 72 could be seen as a reflection of satisfaction with the way the child spent his/her leisure time, with very few concerns expressed by mothers. Only one boy's mother reported in the 'poorly' category, another boy's mother reported in the 'very poorly' category. A chi-squared test was carried out on the other responses, and no statistically significant gender association was found.

Table 4. 63. (Q. 72) Mothers' Opinion on How Well Spent is Child's Leisure Time. (The 3 Most Frequent Responses for 82 of the 84 Children)

Category	**Boys n = 40**	Girls n = 42	**All n = 82**
Extremely well	2 (4.76%)	5 (11.9%)	7 (8.33%)
Very well	9 (21.4%)	17 (40.5%)	26 (31%)
Reasonably well	29 (69%)	20 (47.6%)	49 (58.3%)

Chi-squared = 5.355 with 2 df p = 0.0687.

Most of the responses given were in the 'reasonably well' category. Fifty two percent of mothers of girls reported that they thought that their child's leisure time was either "very well" or "extremely well" spent, and 26% of mothers of boys reported in these same categories. Sixty nine percent of mothers of boys reported that they considered that their child's leisure time was "reasonably well" spent. The mothers of the 2 boys who scored in the "poorly" or "very poorly" category expressed their concerns about the limited range of engagement the boys had with other children, and that their leisure activities were mostly computer/video games and T.V.

In question 73 mothers were asked if there was "anything you wish s/he did less of / more of?" Both aspects were coded with yes/no, and a list was made of what the mothers wanted less of or more of.

Table 4. 64. (Q73) Anything You Wished Your Child Did Less Of?

Wish less of	Boys n = 42	Girls n = 42	All n = 84
Yes	4 (9.5%)	4 (9.5%)	8 (9.5%)
No	38 (90.5%)	38 (90.5%)	76 (90.5%)

This data could be seen as a reflection of satisfaction with how the child's time is spent. Ninety percent of respondents did not wish that their child did less of something. The responses from mothers of boys and mothers of girls were exactly the same. The short list of what the mothers wished their child did less of was as follows: 3 wanted less watching of T.V; 2 wanted less homework; 1 wanted less moaning from the child, another 1 wanted less time at the computer, and 1 wanted less football. The answers to the question "anything you wish that your child did more of" are presented in the following table.

Table 4. 65. (Q 73) Is there anything you wished your child did more of?

Wish More of	Boys n = 42	Girls n = 42	All n = 84
Yes	17 (39%)	19 (45%)	36 (42.2%)
No	25 (61%)	23 (54.8%)	48 (57.8%)

Forty two percent of mothers wished that their child did more of something. The list of what mothers wished their child did 'more of' was as follows: 11 mothers wished that their child mixed more /or had a close friend; 5 others wished their child had more opportunity to learn music; 4 wanted more hobbies, and 3 wanted more sports; another 3 wanted their child to read more. One other mother wanted her child to do more homework, and another wished that her child had more imagination and used it in playing. One other mother wished that her child would sit quietly more often, another wished that she had more time to spend with her child, another wanted more organised activities, and another wanted her child to have more variety in what he did.

The sense of satisfaction in terms of viewing the child's leisure time as reasonably or well spent, is supported in that only eight mothers wanted their child to do less of something, however 36 (42%) wanted their child to do more. The broad range of "wishes" which

were readily offered, and the commitment to involving their children in organised activities referred to previously in these results, could be an indication that the mothers viewed their child's leisure as important and an area worthy of their consideration, involvement and action.

Question 74. "What do you see as your role in regards to your child's leisure time and play?"

This was the last question asked about the child's play. The answers given were examined for themes, and then categorised. Forty-one mothers of girls made comments in answering this question, and 38 mothers of boys. The answers were written down at time of interview, then transcribed into lists of comments made by mothers of boys and mothers of girls. Themes were searched for, and similarities and differences were identified in the themes reported by mothers of boys and mothers of girls. Although single themes can be found in some of the mother's responses, such as "I'm a taxi service, that's about all!" other responses reflect a multitude of roles, depending on perceived need of the child, such as "Try to get her to play and mix more. Watch less T.V. and to have a variety of interests."

The themes encompassed: ensuring safety; encouraging involvement with friends; giving space and materials; accompanying to organised classes; and giving ideas / practical help and encouragement, as in "Provide bits and pieces. Give her toilet rolls or cardboard. Show an interest."

Bringing the child to and from places for leisure pursuits was the most frequently mentioned role (11 mothers of boys and 8 mothers of girls). "Ferry him around, other than that do nothing." Another similar comment was "Bring her to her dancing three times a week and then to her 'Feiseanna' (competitions) at the weekends, and do her curls of course!" Direct involvement as in being a play-mate with the child was mentioned by only three mothers of boys and two mothers of girls.

Sample of comments reflecting a multi- purpose role perceived by mothers:

"Welcome his friends in the home. Give him space to play. Keep the peace with the younger members. Drive him places." (One mother's full comment.)

"Keep the twins away from his things. Let him have his own space. Keep an interest, like ask him 'What did you draw or make?'" (One mother's full comment.)

"Keep an eye on him. Give him ideas. Keep him busy." (One mother's full comment.)

The concept of choice and the child making his/her own decisions was mentioned more frequently by mothers of girls (5) than mothers of boys (2). One example of this is: "Act in directing her sometimes, but she has enough of her own mind to direct herself". Another mother's example of this is "Suggest things to her. I don't want to control it."

Equal numbers of mothers of boys and mothers of girls mentioned giving the child personal space (3). "Give space for her as an individual, her own thoughts, her own time." This 'giving space' could be interpreted as similar to encouraging personal choice and decision-making. This 'space' was indeed physical, as in having a place to play, but also appeared to be 'psychological' in a sense of time to oneself to do or act without having to report all thoughts and actions to the mother.

These reports with themes of encouraging involvement with friends, bringing the child to out-of -school classes, giving space and materials, and encouragement could be seen in the context of the 'accompanying role' as indicated earlier in responses to questions of what the child and mother do together.

Summary.

This chapter of results of the data generated from interviews with 84 mothers in 1994/5 gives their perspective on how their 8 year old children spent their play and leisure time, where they played, with whom they spent time, and their use of leisure resources in their communities. Data on the mothers' perceptions of the importance of play and leisure and their role in supporting their child's activities were also presented. It is clear that play and leisure are valued activities that are perceived as defining what childhood is about; making and keeping friends, being engaged with interesting activities, and finding one's own space as a person; and having fun and enjoyment.

The reports of play activities were categorised to help describe and compare play preferences. All children engaged in non-social leisure such as watching television or reading. Only 40.5% of all children engaged in construction play such as playing with Lego or making things/ craft. Almost 79% of children engaged in physically active play, with a statistically significant difference in favour of boys. Contrary to what the literature

puts forward, 62% of children were reported as playing 'pretend' games that are more usually associated with a younger age group. In spite of the expectations generated by the literature, the mothers' reports indicate that only 25% were involved in the 'social' category of play with the focus of group belongingness, and adherence to rules. But it may reflect the difficulty for an observer to know the child's main focus of play.

One of the few widely studied leisure activities of children in middle childhood is that of watching television. In this study, children were reported as spending about two hours on weekdays watching television, mostly children's programmes, much less time than that reported in the literature for American children (approx. 22 hours per week). Seventy-nine percent of mothers control what their children watch in some way.

Some gender differences in activity preferences were noted. Girls read book for pleasure more than boys, and also listen to music more often. Almost 70% of all children were reported as playing video games, with 88% of boys compared to 52% of girls. There was equal access to computers for both boys and girls. Computer use was not a major occupier of time for children in this study, with only 5 children being reported as spending more than one hour on weekdays playing computer games. Eighty-one percent of children were reported to take part in organised leisure such as Irish Dancing, football training, or swimming lessons at least once a week. Eighty six percent of children were reported as making at least once weekly visits to a relative, mostly grandparents, providing opportunities for inter-generational experiences. These visits combined with visits to organised leisure activities such as Irish dancing, may impact on their chances of playing with their friends every day. Less than half of the children get to play with their friends each day even during school holidays. Most friends live within sight of the child's home, and usually children make their own arrangements to play. Places to play inside and outside the home were recorded, with more girls than boys reported as playing inside their homes. Mostly the children played within sight of their home.

The most frequently used mode of transport for getting to organised leisure facilities was the family car (55%) but 40% of mothers reported using busses to get to and from leisure activities, usually having to take younger children along as well (87% of children in the study had at least one sibling). This demonstrates a commitment from the mother to supporting their child in their leisure interests.

In relation to unstructured time spent outside the home, only 56% of mothers reported knowing 'all of the time' what their child was doing, and 73.7% knowing with whom their child is playing 'all of the time'. A statistically significant association was found between mothers of boys and mothers of girls and knowing where their child is when outside the home, in favour of girls' mothers knowing more often. This may be because the location of girl's play, and their smaller number of friends might make it easier to know where girls were, and with whom. With regard to numbers of reported friends, there was a statistically significant difference, with more girls tending to have one or two friends, whereas boys tend to play with larger numbers. As would be expected from the literature, in terms of gender of friends, boys played mostly (73.8%) with boys and girls played mostly (81%) with girls. Seventy percent of mothers 'never' decide with whom their child plays.

Data were gathered on the time spent by the study children with adults, and the type of shared activities engaged in. With regard to spending time (weekly) with adults in addition to mothers (100%) and fathers (91%), 83% spend time with grandmothers, and 68% with grandfathers. There are differences in terms of how this time is spent related to the role of the adult, most notably the difference in shared activities between mothers and fathers with the study children.

Only 20% of mothers were reported as being in paid employment full-time outside the home, and no statistically significant association was found between those mothers who worked outside the home and others with regard to the time spent and type of activities shared with their child.

Boredom and its expression were examined. More than 80% of children were reported as getting bored as infrequently as 'some days only' or less often. Seventy-seven percent of mothers reported that that their child needed 'very little' assistance in organising their own leisure time. Seventy percent of mothers considered that it was 'very important' that their child had leisure time, and a framework of values was developed in order to categorise the qualitative comments gathered from 81 of the mothers. The values are very similar to those reported in the literature in the definitions and benefits of play. Ninety-seven percent of mothers reported that they considered that their child's leisure time was

at least in the 'reasonably well' spent category or better. With regard to the mothers perceived role in regards to her child's leisure time and play, most of the responses reflected a multi-purpose role, although some single theme were also expressed. These qualitative answers in some aspects indicated a gender difference as the needs or stage of development of boys and girls may have been perceived as different. Allowing the child space and choice, and offering support rather than direct involvement in play appeared to predominate.

Information was gathered about the household composition, income and general space as these may impact on play and available resources. Almost 86% of children live in households with two adults, 87% had a least one sibling. Ninety four percent lived in houses, 94% of which had back gardens, 83% had a hard surface area in their front garden, 92% had front gardens in which to play. Seventy-six percent of boys and 59.5% of girls were reported as playing on the street, although 42% of mothers considered their road to be 'busy'. The data gathered on family income, and the depressed condition of the Irish economic situation during the mid 1990s suggests that many families were functioning with considerable financial constraints. In spite of this time, effort and money was spent on the study children in order to facilitate and develop their leisure opportunities and play. This might perhaps reflect their mother's values on the importance of play and leisure in the child's general development, and its contribution to his/her happiness and enjoyment of childhood.

CHAPTER 5 : RESULTS OF INTERVIEWS WITH CHILDREN REGARDING THEIR PLAY AND LEISURE INTERESTS.

Introduction.

The purpose of the interview with the children was to find out from them how they spend their leisure time, what they enjoyed, with whom and where they played, and their satisfaction with how they spend their time. This questionnaire was similar in some topic areas to the mother's questionnaire, but different from the mothers' questionnaire in that it sought to find out more about the child's opinions and perspective. It was anticipated that questioning might pose problems for an eight year old, especially about the topic of 'play', which children might 'just do' without having to explain to others. It may be that information obvious to the child might be difficult to communicate to the interviewer or vice-versa. Therefore the structuring of the interview was planned to allow both interviewer and interviewee find some common ground related to the topic of play and leisure and the parameters of the information and opinions sought. Hence open and closed types of questioning were used, and the flow of the questioning was flexible to allow the interviewer to note information as it might be offered, rather than being restricted to a section by section questioning order. During the introduction a definition of play and leisure time was explained to the child that emphasised that it was what the child liked to do, and there were no right or wrong answers, lest the child thought that the interview might be a quiz or test. The first six questions were open-ended to allow the child establish a frame of reference for further questions, and to highlight that it was indeed the child's personal account which was of interest to the researcher.

It was hoped that the children would be able to make explicit what it was that they enjoyed, although having fun is usually an experience shared by children rather than talked about. The questions about enjoyment were open-ended, and answers were post coded and categorised for presentation in the results. These open-ended questions were inter-spaced with closed questions with pre-set fixed categories. It was expected that these questions would be more easily answered.

However it was appreciated that questions referring to 'how often' with categories such as 'every day', 'most days' and 'some days' might cause difficulty. These were explained as to the children as 'every day' means including Saturday and Sunday, and that 'most days'

means four to six days a week, 'some days' means three days a week and 'not often' means less.

Eighty-two children took part in the interviews, 42 boys and 40 girls. Some of the children were alone during the interview, others had an adult and/or other children present. All but one interview took place in the child's own home. The shortest interview took 12 minutes, the longest took over an hour. Most interviews took approx. 25 minutes. Sometimes the interviews were interrupted by younger siblings who wanted to be involved, so the researcher would ask them some questions and pretend to record the answers. Some children were talkative, and gave examples of how they played their favourite game, or told the stories of their favourite video. Others were less talkative, and did not answer all the questions asked, especially questions such as "What is it that you enjoy about..." The number of non-responses given to questions are included in the results.

Section 1. What Does the Child Do?

The first six questions were asked to elicit from the child a description of the types of play and leisure activities engaged in. They were asked in an open-ended manner. The first question was "What do you do when not at school?" Eighty two children responded, (42 boys and 40 girls) reporting from one to eight activities. The mean number of activities was 5.36, with the median of 5. Those activities were then coded in a similar manner to the play activities reported by mothers with categories such as 'non-social', 'construction', 'physically active' etc. Question 3 asked "How do you play with..." these answers helped clarify the type of play categories. All play category data were examined using (DataDesk) chi-squared test for differences in gender association. This table presents the 'Yes' data for each play category for boys, for girls and for all children.

Table 5. 1. (Q. 1 to 3) Summary Table of Categories of Play /Leisure Activities Reported by Children.

Category	Boys n = 42	Girls n = 40	All n = 82
Non- Social play	36 (85.7%)	32 (80%)	68 (83%) Chi-sq = 0.4725 w/1df p=0.472
Construction	8 (19%)	6 (15%)	14 (17%) Chi-sq = 0.2371 w/ 1df p = 0.626
Physically Active	36 (85.7%)	31 (77.5%)	67 (81.7%) Chi-sq =0.9249 w/1df p= 0.3362
Class/ Organised	12 (28.6%)	10 (25%)	22 (26.8%)Chi-sq = 0.133 w/1df p =0.715
Pretend play	23 (54.8%)	34 (85%)	57 (69.5%) Chi-sq = 8.839 w/ 1df p = 0.0029 **SIG**
Care of pet/plants	6 (14%)	5 (12.5%)	11 (13.4%) Chi-sq 0.056 w/ 1df p = 0.8125
Social play	16 (38%)	24 (60%)	40 (48.8%) Chi-sq = 3.935 w/ 1df p = 0.047 **SIG**
Visits to Others	5 (11.9%)	3 (7.5%)	8 (9.76%) Chi-sq = 0.451 w/ 1df p = 0.5016
Housework	3 (7.14%)	4 (10%)	7 (8.54%) Chi-sq = 0.214 w/ 1 df p = 0.6435

There are two categories with statistically significant gender associations. More girls reported 'pretend play' than boys, and 'social' play than boys. For the purpose of this study social play was defined as that which cannot be engaged in without the participation of others, where the rules of social organisation are maintained by the children, such as when belonging to a club or 'gang', or pretend play with the emphasis on social roles and interaction. Rule bound games such as board games could be classified as 'social play' also. In essence activities where the emphasis was on the social interaction of the players was defined as 'social play'.

Mothers' reports of play and leisure interests are similar in some categories, and different in others from the children's reports.

Table 5. 2. Comparison of Children's and Mothers' Reports of Type of Activity.

Category	Children All n = 82	Mothers n = 84
Non- Social play	68 (83%) *	84 (100%)
Construction	14 (17%)	34 (40.5%)
Physically Active	67 (81.7%)	66 (78.5%)
Class/ Organised	22 (26.8%)	60 (71.4 %)
Pretend play	57 (69.5%)	52 (62%)
Care of pet/plants	11 (13.4%)	32 (38%)
Social play	40 (48.8%)	21 (25%)
Visits to Others	8 (9.76%) *	72 (86%)
Housework	7 (8.54%) *	43 (51%)

- The asterix indicates that additional information was gathered in question 6.

Further questions about what the children do were asked of in Question 6 "Other than playing, can you think of anything else that you like to do?" with hobbies, interests, visits, care of pets, helping in the house, and 'other' being specifically asked about. In these responses 60 children (73%) reported making visits, 27 boys (64%) and 33 girls (82%) (Chi-squared = 3.462 with 1df $p = 0.0628$). This is closer to the mothers' reports of 86%. Making visits might not fit into the strict definition of leisure time activity as perhaps the

choice to go or not may not be always with the child. Making visits may be just part of the family routine. Further data about shared time with other family members was collected later in the interview.

Thirty seven children (45%) reported 'helping in the house', this compares to the mothers' reports of 51%. Question 7 asked about watching T.V. that is categorised as a non-social activity. All but one girl reported that they watch T.V. as a leisure time activity. Some of the differences in reports between the children and their mothers such as in going to organised classes, when only 26.8% of children reported this as an activity, compared to 71.4% of mothers, might reflect a different emphasis in definition of 'leisure time' and play.

Question 4 asked "What is it that you enjoy about...". Responses were noted and categorised. The following is a list of the 5 most frequently mentioned categories.

Table 5. 3. (Q.4) Children's Most Frequently Reported Enjoyment Factor related to Their Play and Leisure Pursuits.

Category of What is Enjoyed?	Frequency n = 82
1. Combination of factors	32 (39%)
2. It's Fun / amusement	23 (28%)
3. 'Just do'	7 (8.53%)
4. Pretend character/story	5 (6%)
5. Excitement	5 (6%)

Other reasons were mentioned. Doing something for practice or exercise was the least mentioned (1), 4 children mentioned enjoyment of 'learning new things', 3 children 'didn't know' what they enjoyed most about their play, 2 children reported that they liked 'being in charge' (for example being the teacher when playing 'school').

Question 5 asked the children "What are your favourite things to play with at the moment?" The responses were categorised into the categories of play such as 'non-social', 'construction', 'physically active', etc. The data show a spread amongst the categories. The most frequently reported type of favourite activity was going to 'organised class' with 28 (34%) of children indicating this, the second most frequently reported favourite type was 'physically active' play with 27 (32.9%), and the third most reported favourite activity

was 'non-social' activity, such as reading, playing with computer, watching T.V., and listening to music with 14 (17%) reports. 8 (10%) did not answer this question.

With regard to question 6, in addition to the data on helping in the house and visiting reported earlier, 74 children (90%) indicated that they had a hobby or interest, which had already been reported in earlier answers.

Watching Television.

Almost all (98%) of the children reported that they watched television (Q.7). One girl said that she did not. However all the children reported their preference for favourite T.V. programmes (Q.8), which were categorised into types such as 'Children's, 'Family', 'Combination of Children's and Family', and 'Adult' categories. 68% (56) children reported their favourite T.V. programmes as being in the combination category, and 31.7% (26) reported their favourite as being in the children's category. There was no statistically significant gender association. (Chi-squared = 0.0226 with 1df p = 0.8803).

Question 9 asked the children ' What do you enjoy about these programmes?' The same categories about enjoyment in play were used to organise the responses. The three most frequent categories was 'Fun/ amusement' with 35 children (45%), 'excitement' with 19 children (24%), and a 'combination' of factors with 17 children (21.8%). Seven children (9%) indicated that the story or character was what was most enjoyable. One child 'didn't know'. There was no statistically significant difference in association between boys and girls in these results. (Chi-squared = 5.219 with 3df p = 0.156)

Question 10 asked with whom do you watch T.V. Twenty four combinations of partners were recorded from the 82 responses. The most frequently mentioned viewing partner was a sibling with 27 counts. The next most frequently mentioned was siblings, mother and father, with 13 counts, friends with various combinations of siblings and mothers were reported 10 times. Watching sometimes with siblings and sometimes alone was reported 7 times, watching with cousins was mentioned 4 times. Only three children reported that they only watch T.V. alone. A similar question in greater detail was asked of mothers. In their reports siblings were the most common viewing partner (63.5%), adults were only reported by 20% of the mothers, and 94% reported that their child never watched T.V with friends. There appears to be some differences in perception regarding with whom the

children watched television. Perhaps the children's reports reflect with whom they most enjoy watching television.

Question 11 asked children would they prefer to watch more, less or the same amount of T.V., 54 (65.9%) wanted to watch the same amount, 16 (19.5%) wanted to watch less, and 12 (14.6%) wanted to watch more. There was no statistically significant difference in association between genders. (Chi-squared = 1.026 with 2 df p = 0.5987).

Question 12 asked children if they watched videos, and what were their favourite ones. One child did not answer, and 74 (90.2%) reported 'yes'. Mothers had reported that 87 % of children watched videos.

In question 13 children were asked with whom they watched videos and 18 categories of partners were identified from the 82 responses. Siblings were mentioned in various combinations 58 times and were the most frequently mentioned. Mothers were mentioned in various combinations 22 times, and fathers were mentioned 16 times as viewing partners, 7 children said they didn't watch videos, cousins were mentioned 4 times.

Question 14 asked children what did they enjoy about watching videos. Some children responded by retelling their last or favourite video story line, and from this account was teased out the factors such as excitement, funny happenings, etc. Responses were categorised into 9 categories. Twenty one (25.6%) children indicated that 'excitement' was what they enjoyed, and an equal number of 21 indicated amusement/fun. The next most reported enjoyment factor was a 'combination' of a number of factors such as amusement, excitement, funny character etc. with 13 (15.9%) indicating this. Six children (7.32%) liked the story line or characters, and an equal number responded that they 'just do'. Four children (4.88%) reported their enjoyment of new learning. Seven children did not watch videos, and one child did not answer.

Children were asked in question 15 if they would prefer to watch more, less or the same amount of videos. Fifty four (65.9%) of children wanted to watch the same amount, 24 (29.3%) wanted to watch more, and 4 (4.88%) wanted to watch less. There was no statistically significant difference in association between boys and girls. (Chi-squared = 1.193 with 2 df p = 0.5508).

Questions 16, 17, 18, and 19 were about the child's interest in listening to the radio. Forty five children (54.9%) stated that they listened, (57% of the boys and 55% of the girls). Of

those that listened, music was the most popular, with 42 children (51%) reported that they listening to music, with boys and girls in equal numbers. One child reported listening to the weather forecast, one to the news, and one to sports. When asked "what do you like best about listening to the radio?" the children answered in a similar pattern, 37 (17 boys and 20 girls) said they 'best' liked listening to music, 4 boys said they liked listening to sport, and three boys reported three other preferences. When the data was categorised into only 3 categories ('don't listen', 'listen to music', and listen to 'other') there was a statistically significant gender difference in association (Chi-squared = 7.304 with 2df p = 0.0259). In terms of frequency of reported listening in categories of 'every day', 'most days', and 'some days' only 9 children listen every day, 12 listen 'most days', and 21 listen 'some days'. There was no statistically significant difference between boys and girls.

Listening to music is usually associated with teenagers. It was thought that it would be interesting to ask this group of eight years old children about their interest. However it was noted that younger children listen to stories, 'songs' as well as music on audio tapes, so information about all three was sought in Questions 20, 21 and 22. Only three children reported that they did not listen to audio-tapes at all. Of those who listen, 59 (74.7%) children (25 boys and 34 girls) listen to songs or music on tape, 20 children (24%) listen to stories on tape, 15 of these are boys and 5 are girls. There was a statistically significant difference in association (Chi-squared = 6.361 with 1 df p = 0.0117) between boys and girls and their preferences for listening. With regard to the frequency of listening, when data was merged into 4 categories, 'every day', 'most days', 'some days' and 'not often' the following results were noted.

Table 5. 4. (Q21) Merged categories of Frequency of Listening to Audio-Tapes.

Frequency	Boys n = 40	Girls n = 40	All n = 80
Every day	1 (2.5%)	4 (10%)	5 (6.25%)
Most days	2 (5%)	6 (15%)	8 (10%)
Some days	21 (52.5%)	20 (50%)	41 (51%)
Not often/never	16 (40%)	10 (25%)	26 (32.5%)

Chi-squared = 5.209 with 3 df p = 0.1571.

Only 5 children reported listening to audio-tapes every day, four of these were girls, 51% of children reported listening as often as 'some days', and 32% as listening 'not often or never. In the results of the mothers' reports in their interviews there was a statistically significant gender related difference in association in frequency of listening to tapes (Chi-squared = 6.219 with 2 df p = 0.0446). However the children's reports did not concur. This may reflect a difference in perception. It may be that children are listening to tapes in the car whether they are playing them or not and count this as listening; or that the children and mothers differ in how they interpret the scoring scale in the questionnaires.

Children were asked what they enjoyed about listening (Q.22) and their answers were post-coded in categories. The most frequently indicated category was 'song/music' with 28 children, 15 boys and 13 girls indicating this. Thirteen children, three boys and 10 girls reported in the 'dancing' category. Seven children (1 boy and six girls) enjoyed listening to 'stories'. Other categories were 'it's fun' with 2 children; 'just do' with 4 children; 3 children said that there wasn't anything that they enjoyed; 4 children made no comment; 1 boy listened to music as he played his drums. 20 children said that they did not listen (16 boys and 4 girls).

Reading for Pleasure.

A set of questions related to reading for pleasure was asked. (Questions 23 to 27). Six boys and 6 girls reported reading more than 1 hour every day; 7 boys and 12 girls reported in the category 'every day'; 6 boys and 10 girls reported reading 'most days'; 13 boys and 10 girls reported reading 'some days', and 10 boys and 2 girls reported reading 'not often' or never. Categories were merged into 'at least most days' and 'some days and less frequent' data is presented in the following table.

Table 5. 5. (Q 23) Merged categories of Frequency of Reading for Pleasure.

Frequency	Boys n = 42	Girls n = 40	All n = 82
At least 'Most days'	19 (45%)	28 (70%)	47 (57%)
'Some days' and less	23 (54.8%)	12 (30%)	35 (42.7%)

Chi-squared = 5.135 with 1df p = 0.0235 **SIG**

These results are very similar to the mothers' reports (n = 84) in which 49 children were reported in the merged category of 'at least most days', and 35 were in the merged category of 'some days and less often' with a statistically significant gender difference in association, favouring girls as more frequent readers (Chi-squared = 8.278 with 1 df p = 0.0040)

The children were asked 'What do you read?' (Q.24). The answers were post coded into categories. 'Stories' was the most frequently reported, with girls having a preference for this category. 'Books of Knowledge' such as encyclopaedias and reference books were cited by 8 children, (seven boys and 1 girl). Five boys reported their type of book as 'annuals' or similar books with picture stories, information, and quizzes. One girl reported that she read a combination of types. As 10 children, 9 boys (21%) and 1 girl (2.5%) reported that they did not read books for pleasure note n = 72 in the following table.

Table 5. 6. (Q24) What Children Say They Read.

Category	**Boys n = 33**	**Girls n = 39**	**All n = 72**
Stories	21 (63.6%)	37 (94.9%)	58 (80.6%)
Knowledge	7 (21.2%)	1 (2.5%)	8 (11%)
Annuals	5 (15.2%)	0	5 (6.94%)
Combination	0	1 (2.5%)	1 (1.39%)

Chi-squared = 14.51 with 3df p = 0.002 **SIG**

Boys and girls differ in their reading preferences. Girls have a greater preference for stories, and some boys (21%) have a preference for 'dip into' knowledge based books such as encyclopaedias or reference books, and 15% of boys reported that they liked reading 'annuals' including sports annuals which are similar to the 'information' type of book. Children appeared to choose one type of reading material, with only 1 child reporting a combination of types of material.

Children were asked from where they got their books (Q.25) and were offered 5 sources. They were asked to answer with a 'Yes' or 'No' to each source. Two boys did not answer this question. Datadesk was used for chi-squared analysis of each of the 5 sources for gender differences. Table 5.7 presents this data.

Table 5. 7. (Q. 25) Where Children Get Their Books.

From Where	Boys n = 40	Girls n = 40	All n = 80
Buy for self	10 (25%)	20 (50%)	30 (37.5%) Chi-sq = 5.333 with 1df p = 0.0209 **SIG**
Bought by others	31 (77.5%)	37 (92.5%)	68 (85%) Chi-sq = 3.529 with 1df p = 0.0603
Borrow from friends	7 (17.5%)	7 (17.9%)	14 (17.7%) Chi-sq = 0.0002 with 1 df p = 0.9584
Borrow from public library	14 (35%)	16 (40%)	30 (37.5%) Chi-sq = 0.2133 with 1df p = 0.6442
Borrow from class library	22 (55%)	30 (75%)	52 (65%) Chi-sq = 3.516 with 1 df p = 0.080

Fifty percent of girls reported that they buy books for themselves compared with 25% of boys. This could be interpreted as a measure of the value that girls place on having books. The most popular source of getting reading material for most children (92.5% of girls and 77 % of boys), is that books are bought for them by others. This might indicate that reading is recognised as a leisure interest, and or might reflect the social desirability of encouraging reading in this age group. Borrowing from the school class library is a much more popular activity than borrowing from the public library. This shows a preference in favour of girls with 75% of them borrowing as compared to 55% of boys, but the difference is not statistically significant at the .05 level. Borrowing from friends is not a popular activity with less than 18% (7 boys and 7 girls) of children reporting that they do this.

There are many comics targeted at this age group available in local newsagents. Only 32 (39%) of children reported that they read comics, 20 boys (47.6%) and 12 girls (30%). The gender difference was not statistically significant (Chi-squared = 3.954 with 2df p = 0.1385) One boy did not answer this question. When asked what type of comic they read, 11 boys opted for such titles as 'Beano', 'Dandy', 'Batman', 'Turtles', whereas girls only cited these once, preferring 'Barbie', 'Twinkle', and pop music magazines such as 'Smash Hits' (10 mentions). Seven boys cited 'sport' magazines, and 2 mentioned 'Bugs' a science magazine. Almost 60%, 49 children said that they did not read comics. Mothers had reported that only 33% of children read comics (40% of boys and 26% of girls), with no statistically significant different gender association (Chi-squared = 1.929 with 1df p = 0.1649).

Children were asked what they enjoyed about reading (Q.27), and the answers were post coded. The three most frequently mentioned enjoyment aspects are presented in table 5.8.

Table 5. 8. (Q. 27) What Children Say They Enjoy About Reading. (Four Most Mentioned by All)

Frequency/Factor	Boys n = 42	Girls n = 40	All n = 82
1. Story /characters	10 (23.8%)	13 (32.5%)	23 (28%)
2. Learning new things	11 (26.2%)	8 (20%)	19 (23.2%)
3. Excitement	8 (19%)	6 (15%)	14 (17%)
4. Combination of factors.	3 (7%)	3 (9.5%)	6 (8%)

Five children said that they 'didn't know' what they enjoyed, another 5 said that they did not enjoy reading at all, five others cited that reading was amusing or 'fun', another 5 gave individual reasons, and two other children gave no answer.

Video/computer Games.

(Q. 28) At the time of the study video games and computer games were relatively new, and were being heavily marketed on children's television. The next set of questions was asked of children to ascertain the extent of their use by the study children. Mothers had

reported a 70% overall use of video games, with 88% of boys and only 52% of girls being reported as playing these games ($p = 0.0004$). The children's own reports presented a more extreme gender difference with 97.6% of boys (41) reporting that they played, and only 47.5% of girls (19) said that they played (Chi-squared = 26.22 with 1df $p = 0.0001$).

Question 29 asked where the child played these games. Of those who played (60 children), 80.5% (33) of the boys said that they played in their own homes, and only 19% (8) played in their friend's house. Similar results were reported for the small number of girls who played (19), with 73.7 % (14) reporting that they played in their own home, and 26% (5) played in friend's homes. (Chi –square = 0.3541 with 1df $p = 0.5518$). The difference in the mothers' and children's reports may be explained by the fact that 19% of boys reported playing video games in a friends house. Some mothers may be unaware of this. In addition the children may have considered the fact that they had played occasionally as a 'Yes' answer.

(Q.31) At the time of the interview design there was a popular concern that children were 'glued to the screen' and were watching these games for hours. Children and mothers were asked about the frequency of playing video games. Fixed categories such as 'more than one hour each day', 'every day', 'most days', 'some days', 'not often' and 'never'.Only four children, 2 boys and 2 girls reported that they played more than 1 hour every day, with another 1 boy and 1 girl reporting in the 'every day' category. These categories were merged, as were the 'not often' and 'never ' categories, and the data is presented in table 5.9.

Table 5. 9. (Q30) Merged Categories of Reported Frequency of Playing Video Games by Children.

Frequency	Boys n = 42	Girls n = 40	All n = 82
Every day	3 (7.14%)	3 (7.5%)	6 (7.32%)
Most days	14 (33.3%)	3 (7.5%)	17 (20.7%)
Some days	20 (47.6%)	9 (22.5%)	29 (35.6%)
Not often/never	5 (11.9%)	25 (62.5%)	30 (36.6%)

Chi-squared = 24.59 with 3 df p = 0.0001 **SIG.**

There is a gender difference in the frequency of playing video games. But even with regard to the boys' data, 47.6% (20) reported playing only as frequently as 'some days', and yet this activity was promoted as the 'new' and 'cool' thing to do. Mothers reported that 40% of all children were in the 'not often/never' category, and 13% were in the 'every day' category. These reports indicated a statistically significant difference related to the children's gender (p = 0.0001).

In Q. 31 children were asked what they enjoyed about video games, the answers were post coded into categories with the most frequently reported by 16 boys (38%) being 'excitement', and 5 (11.9%) indicating in the 'learning new things' category. Four boys liked the 'control' factor, 4 others 'didn't know', 2 liked 'winning', and the remainder enjoyed various other individual aspects. With regard to the girls, 22 (26.8%) didn't like anything, the remainder liked playing for diverse reasons, with 4 (10%) cited 'fun/ amusement', and 3 others (7.5%) cited 'excitement', another 3 cited 'control', and 2 cited the story/characters, 2 others cited 'don't know', and the remainder cited individual aspects of enjoyment.

The next set of questions numbered 32 to 36 asked questions about the use of computers. Only 46 children (56%) reported that they used computers for enjoyment, 24 boys (57%) and 22 girls (55%). Unlike playing video games there was no statistically significant difference related to gender. Of those who did play, 24 (29.3%) played in their own home, 10 boys and 14 girls, 14 played in school (8 boys and 6 girls), and 4 played in a friend's

house (3 boys and 1 girls). Four children played in a combination of locations. Children were asked what they did with the computers (Q.34) using the following fixed categories; Games; Writing; Paint/draw; Combination; 'Sums' (arithmetic). The most frequently reported category was 'combination' with 12 boys (28.6%) and 15 girls (37.5%) indicating this. 'Games' was the cited use with 12 boys (28.6%) and 4 girls (10%) indicating this. Two girls reported using computers for 'sums' and 1 girl for 'writing'. Table 5.10 presents data about the frequency of their use of computers.

Table 5. 10. (Q35) Children's Reports of Frequency of Use of Computers.

Frequency	Boys n = 42	Girls n = 40	All n = 82
Every day	2 (4.76%)	0	2 (2.44%)
Most days	6 (14.3%)	2 (5%)	8 (9.76%)
Some days	6 (14.3%)	9 (22.5%)	15 (18.3%)
Not Often	10 (23.8%)	11 (27.5%)	21 (25.6%)
Never	18 (42.9%)	18 (45%)	36 (43.9%)

Chi-squared = 4.602 with 4 df p = 0.3307.

Home computer use is not a major play activity for this group of children.

Children were asked what they enjoyed about computer use (Q. 36). The numbers of children who used computers on a regular basis was small so responses from only 46 children given, 24 boys and 22 girls. These responses were then post-coded. Six categories were formed including one for grouping 'other' individualised and unrelated enjoyment factors. This divergence might reflect a broad range of enjoyment factors. From an 'all children' perspective the factor which was mentioned most frequently was 'learning new things' with 11 children expressed this, 2 boys and 9 girls. This was the most frequent factor reported by girls. The next most frequent response was in the 'fun/amusement' category with 9 children (4 boys and 5 girls) indicating this. 8 children, 4 boys and 4 girls

reported the aspect of 'control' was what they enjoyed. 6 children, 5 boys and 1 girl reported the 'excitement' factor. This was the most frequently reported factor by boys. 6 children (4 boys and 2 girls)'didn't know' what they enjoyed, and a further 6 (5 boys and 1 girl) had individual explanations for their enjoyment of computer use. There was no statistically significant difference found (Chi-squared = 10.5 with 5 df $p = 0.0623$) in the overall pattern.

Making Things.

Questions 37 to 40. The next set of questions was about the children's interest in handcraft and 'making things'. Making things has planning and construction components. Creativity and problem solving can be seen in the planning and construction in both process and product. Making things could also be seen a using manual dexterity skills. However regardless of the challenge inherent in the activities, making things requires space, materials and time. These are dependent on support from parents, by providing space, materials and allowing the child time to 'make and do'. By eight years of age children's dexterity would be expected to be sufficient for them to engage in making things with basic tools and basic designs. Independent practice should be possible with occasional practical adult help. Kits and sets of pre-packaged materials were available in toy and craft shops, and were promoted for that age group by television adverts. Children of this age should have a basic sense of safety for example when using scissors, and they should know how to prepare and organise their work to prevent spillage or damage from such activities as painting and gluing. However such activity can be messy, and would still require adult approval and support. The presence of younger children might add to the challenge. From a motor and perceptual skill development perspective it was considered worthwhile to establish the interest and practice of this group of children with handcrafts and construction activities. Questions were asked about getting ideas to make things later on in the interview.

Children were asked about their involvement with a range of 'make and do' activities, and their frequency. It was expected that some activities might have a gender bias, so a wide range of activities was included including some traditionally female and male activities. The data for the 'more than one hour every day' category and the 'every day' category was merged as the numbers were very small or absent in each separate category. The data from the categories 'not often' and 'never' were merged for the same reason.

Q 37 (a) asked 'Do you make things with Lego?' Lego is potentially a sophisticated 'make and do' activity, it can range from fairly simple construction of one item to the building of complete themes such as a rocket launch pad. It also has basic robotic kits aimed at older children. Eighty two children responded, 38 (46.3%) stated that they never play with Lego, 14 boys (33.3%) and 24 girls (60%). Almost 42% said that they do 'some days' (52% of boys and 30% of girls). Only 2 boys and 2 girls said that they play 'most days', and 4 boys and 2 girls said that they made things 'every day' (Chi-squared = 6.194 with 3 df p = 0.1025). The 46% in this age group who stated that they 'never' use Lego was higher than anticipated.

(Q. 37 b) 'Play-dough' on the other hand is traditionally targeted at younger children, 3 to 6 year olds. It can be made at home or purchased commercially. The presence of younger children in many of the homes might present opportunities to continue playing with 'play-dough'. It can be very calming and absorbing to use. 60 children (76.2% of boys and 70% of girls) said that they seldom or never use play-dough. 19.5% said that they did 'some days' (7 boys and 9 girls). One girl reported using it 'most days' and 5 children reported 'every day' (3 boys and 2 girls). (Chi-squared = 1.669 with 3 df p = 0.6439).

With regard to making things with 'bits and pieces/ paper and cardboard' (37 c), categories were merged and a gender difference identified as presented in the table below.

Table 5. 11. (Q.37) Making Things. Bits and Pieces/ Paper and Cardboard.

Frequency	Boys n = 42	Girls n = 40	All n = 82
Every day	3 (7.14%)	4 (10%)	7 (8.54%)
Most days	1 (2.38%)	4 (10%)	5 (6.1%)
Some days	13 (31%)	22 (55%)	35 (42.7%)
Not often/never	25 (59.2%)	10 (25%)	35 (42.7%)

Chi-squared = 10.64 with 3 df p = 0.0138.

A statistically significant difference was found between boys and girls with more girls reporting their interest in making things with 'bits and pieces, paper and cardboard'. This is not unexpected. In the mothers' questionnaire this type of construction play was indicated, with 50% of mothers of girls reporting 'yes' in this category compared to only 31% of boys (however the p value was .0754, therefore not statistically significant.) In addition the buying of items for paper/craft was the most frequently reported 'last thing you bought for your child' from mothers of girls.

Prior to the questionnaire design, toy/ craft shops were visited and it was noted that kits such as jewellery making, sewing, braid making, model planes, plaster moulds etc were targeted at 8 to 11 year olds. The kits were highly packaged, and relatively expensive. Hence a question was included about this type of 'make and do' activity.

(Q.37 d) Fifty three children (65.4%) reported using these kits 'not often' or 'never', 73.8% of the boys (31) and 56.4% of girls (22). Twenty three children (28.4%), 8 boys and 15 girls reported that they use these kits 'some days'. Only 5 children (6.17%) with 3 boys and 2 girls reported that they use these kits 'every day'.

Although sewing/knitting and handcrafts are taught in primary school to both boys and girls, it was expected that girls would identify their interests in these more so than boys. The following table presents the data.

Table 5. 12. Q37 (e) Making things. Sewing/Knitting /Handcrafts.

Frequency	Boys n = 42	Girls n = 40	All n = 82
Every day	3 (7.14%)	4 (10.3%)	7 (8.64%)
Most days	3 (7.14%)	3 (7.69%)	6 (7.41%)
Some days	4 (9.52%)	19 (48.7%)	23 (28.4%)
Not often/never	32 (76.2%)	13 (33.3%)	45 (55.6%)

Chi-squared = 17.86 with 3 df p = 0.0005 **SIG**

A statistically significant difference was found with girls favouring use of sewing /knitting and handcrafts. 76.25 % of boys (32) reported in the merged categories of 'not often/never'. The three boys who report in the 'every day' category, and the 3 who report in the 'most days' category have unusual interests for boys. It may be that at the time of the interviews these boys were learning to knit in school, and it is challenging until one has mastered it. They may have been practising for achievement rather than having an ongoing interest in knitting as a hobby. These boys were not asked any more about their knitting than any other child.

(Q.37 f). Painting, colouring and drawing are easily accessibly activities, particularly with the availability of felt tipped pens in local supermarkets. Children were asked about their frequency of engaging in these activities. The data is presented in the following table.

Table 5. 13. Q 37 (f) Frequency of Painting/ Colouring/Drawing.

Frequency	Boys n = 42	Girls n = 40	All n = 82
Every day	7 (16.7%)	5 (12.5%)	12 (14.6%)
Most days	9 (21.4%)	12 (30%)	21 (25.6%)
Some days	16 (38.1%)	17 (42.5%)	33 (40.2%)
Not often/never	10 (23.8%)	6 (15%)	16 (19.5%)

Chi-squared = 1.744 with 3 df p = 0.6271

There is a good spread through out all the categories with the highest level of interest (40%) in the 'some days' category, and with less than 20% in the 'not often/ never' merged categories. 14% of children engage in this type of activity 'every day', and there was no statistically significant difference found between boys and girls.

Question 37 (g) asked children if and how often they make things such as in cooking and baking. It would be expected that there might be a gender difference in this choice of leisure activity. The following table presents the data.

Table 5. 14. Q. 37(g) Making Things. Baking and Cooking. Merged Categories.

Frequency	Boys n = 42	Girls n = 40	All n = 82
Every day	3 (7.14%)	2 (5%)	5 (6.1%)
Most days	2 (4.76%)	0	2 (2.44%)
Some days	8 (28.6%)	20 (50%)	28 (34.1%)
Not often/never	29 (69%)	18 (45%)	47 (57.3%)

Chi-squared = 9.874 with 3 df p = 0.0197 **SIG**

A statistically significant difference was found with more girls reporting making things in cooking or baking activities, more frequently than boys. However, only 50% of girls are involved only as frequently as 'some days' in these activities. In other non-western cultures it might be expected that eight years old girls would be more frequently involved in learning the skills of cooking and baking. Bearing in mind that only 20% of this study population of mothers worked outside the home in full-time employment, it may be presumed that most meals were prepared and cooked in the home, the frequency of children's involvement in cooking/baking as a leisure activity appears low, with only 45% of the girls and 69% of the boys in the 'not often' and 'never' category combined.

From visits to toy shops, jig-saws appeared to be an item targeted at younger children, such as 3 to 7 year olds. However jig-saws are available for older children and can offer a unique type of activity which can be completed alone or with someone else. Jig-saws pre-date television and are a rather 'old fashioned' activity. Children were asked about their interest, no child reported in the 'every day' category, but 38 children (46.3%) reported that they used jig-saws 'some days'. Twenty one of these were boys and 19 were girls. Four children (1 boy and 3 girls) reported using jig-saws 'most days', and 40 children (48.8%) 21 boys and 19 girls reported in the 'not often/never' merged category. There was no statistically significant gender difference (Chi-squared = 1.157 with 2 df p = 0.5607).

In Q.37 (h) children were asked if there was any other 'make and do' type of activity which they did, 80% reported 'no', and 16 children gave individual accounts of things which they make some days or every day (8 boys and 8 girls).

The next set of questions (Q 38 to 44) were about the creative influences on the children and from where they got their ideas to make things, including making up rhymes or songs and stories. The 'golden age of creativity' in which children exhibit highly imaginative and inventive behaviours has usually passed by age 7 (Gardner, 1982). Children reach the 'literal' stage where conformity and compliance with convention and with peers is sought. Drawings become copies rather than creations. Following the rules rather than seeking novelty is of interest. Although this age group was aged 8 years, it was decided to ask questions about creativity anyway, with a particular interest in gender differences.

Question 39 asked 'From where do you get ideas to make these things? Are the ideas from the t.v, teacher, own head, and 'other? (Answer yes/no to each category).

With regard to getting ideas from one's own head, 40 children (48.8%) said yes, 20 boys and 20 girls. Twenty three children (28 %) reported that they got ideas from the T.V. in such programmes as 'Art Attack', (7 of these were boys (16.7%) and 16 (40%) were girls). There was a statistically significant difference between boys and girls. (Chi-squared = 6.382 with 2df p = 0.0411).

When the children were asked if they got ideas from their teachers, 30.5% said yes, (10 boys and 15 girls). Children were asked if they got ideas from anywhere else and 18 reported that they got ideas from a book (6 boys and 12 girls), 3 boys and 2 girls get ideas from friends, 1 boy gets idea from his mother, and another boy gets ideas from his 'club'. Three children did not answer. Thirty one boys (57.4%) reported that they don't get ideas at all, and 23 girls (42.6%) reported in this category also, that is 54 children or 65.9 % of this group of eight year olds. It would appear that for almost 66% of the children, the 'golden age of creativity' (Gardner, 1982) has passed.

(Q.40) Children were asked what was it that they enjoyed about making things, answers were then post-coded. Only 66 children responded, 33 boys and 33 girls. Their answers were spread, with most frequent response from 29 (43.9%), 14 boys and 15 girls, was that they enjoyed the process of making, such as the 'messy bits', and the cutting out. Nine

children (13.6%) said that they liked 'learning new things'. Seven of these were boys and 2 were girls. Another 9 (13.6%) children, 2 boys and 7 girls liked having a finished product. Another 9 (13.6%) children, 5 boys and 4 girls said that they 'just do' enjoy making things, 6 children thought that it was 'fun' to make things (3 boys and 3 girls), and 4 children, 2 boys and 2 girls, enjoyed making things for a number of reasons.

In summary of the answers given by the children to question 37, painting and colouring was the most popular type of 'make and do' activity, in so far as it had the least number of respondents in the 'not often/never' category of all the 'make and do' activities with 16 children (19.5%) with 10 boys and 6 girls. Making things with 'bits and pieces, paper and cardboard' was the next most popular activity, with 35 children (42.7%) reporting in the 'not often/never category (25 of these were boys and 10 were girls). A statistically significant gender difference was found in favour of girls having more frequent engagement with this type of activity (Chi-squared = 10.64 with 3 df p = 0.0138). Making things with 'Lego' was the next most popular activity with 53% of children reporting that they use it. 38 children (46.3%) reported in the 'not often/never' category, 14 of these were boys and 24 were girls.

In responses to the mother's questionnaire, only 40.5% of all children were reported as engaging in 'construction' or craft type play or leisure interests, 31% of boys and 50% of girls (p = 0.0754). In children's own reports, when asked about the type of things they do for play or leisure, only 17% overall (19% of boys and 15% of girls) reported 'construction/arts/ crafts' type of play, compared to 81.7% reporting engagement with 'physically active play' (85.7% boys and 77.5% of girls). It would appear that gross motor movement is preferred to sitting down making things with fine motor control. This may be because school work, over which the child has little control with such an emphasis on sitting and handwriting might need to be 'balanced' with the release of energy through movement and gross physical activities in the child's own sphere of control as during leisure time and play.

Making stories, songs and rhymes.

One of the traditional associations we have with children's play is a notion of singing songs and rhymes as they play, such as skipping or hand-clapping rhymes or just playing with words as when making 'limericks'. Pop music is targeted at children especially

young girls and their interest in this music has been established earlier in the study. Do children have the urge to create their own songs and rhymes? Question 41 asked this. Fifty six percent (46) of children reported that they do make up songs or rhymes, 42%(18) of the boys and 70% (28) of the girls. There was a statistically significant difference (Chi-squared = 6.129 with 1 df p = 0.0133). (Q.42) The children were asked with whom they made up rhymes and songs. Of the 46 children who do, 5 boys (26.3%) do this on their own, as compared to 21 girls (77.8%). Ten boys (52.6%) do this with friends, as compared to only 4 girls (14.8%). Six other children, (4 boys and 2 girls) do this with some other such as teacher, father, football team, and grandmother. A statistically significant difference was found (Chi-squared = 12.06 with 2 df p = 0.0024). The 46 children were asked where do they make up these rhymes and songs, and these data demonstrate another statistically significant difference between boys and girls. Twenty one girls (75%) reported that they do this at home, as compared to only 8 boys (44%). Six boys (33%) do this at school, with 7 girls (25%) reporting the same location. Four (22%) boys and no girls said that they did this on the street. In summary, more girls make up rhymes/songs than boys, and more do so alone in their own homes. The boys who do make up rhymes or songs tend to a greater extent to do this with friends, at school, at home and on the street.

Many societies have a tradition of story telling, which was used to pass on myths and legends, to educate, and to entertain the listeners. The art of story telling and the art of conversation pre-dates television. Did children in the 1990s have an interest in making up their own stories. Questions 43 and 44 asked about making up stories for fun. Almost 70% of children (69.5%), 27 boys (64.3%) and 30 girls (75%) reported that they did make up stories for fun. The remainder 30.5% of children (35.7% of boys and 25% of girls) reported that they do not make up stories at all. Of those who do make up stories for fun, 20 of these, 11 boys and 9 girls make up stories by themselves. However 37 (45%) children, 16 boys and 21 girls do this with a variety of others. Of these 37 (45%) 16, children 6 boys and 10 girls do this with friends; 5 children make up stories with school friends (1 boy and 4 girls); 4 make up stories with their teacher; and another 12 children make up stories with combinations of friends/parents/siblings. When asked when and where they make up stories the following pattern emerged. Fifteen children (18.5%), make up stories during school, 11 (17.3%) when playing. 7 (8.64%) do this at bed time, 15 children (18.5%) make up stories 'anytime'. Four children mentioned doing this at special events such as 'sleepovers'. Four others only do this infrequently. 'At home' is the place

where most story making occurs with 31 children indicating this (38.3%), composed of 14 boys and 17 girls; 'at school' is the next most popular location with 15 children (18.5%), 9 boys and 6 girls. Four children mentioned at their 'den' or 'club', and 6 other children mentioned combinations of locations. It would appear that for almost 70% of the children in this study, storytelling has an attraction and is part of their leisure time interests.

Physically Active Leisure Interests.

The next series of questions 45 to 48 were about the frequency of gross motor play activities such as ball games, roller skating and organised sport. A list of ball games which were perceived to be available in primary school or public sports facilities was drawn up, and children were asked about their frequency of participation. It was expected that there should be some gender differences. 'Football' which usually means a version of 'soccer' in Dublin, was expected to be very popular, especially with boys. 'Gaelic' football is referred to as 'Gaelic', and rugby is referred to as 'rugby' as would be distinguished from 'football'. The table 5.15 presents the data.

Table 5. 15. Children's Reported Frequency of Playing Football. (Q. 45)

Frequency	Boys n = 42	Girls n = 40	All n = 82
More than 1 hour every day	13 (31%)	1 (2.5%)	14 (17.1%)
Every day	5 (11.9%)	3 (7.5%)	8 (9.76%)
Most days	9 (21.4%)	2 (5%)	11 (13.4%)
Some days	9 (21.4%)	8 (20%)	17 (20.7%)
Not often	3 (7.14%)	6 (15%)	9 (11%)
Never	3 (7.14%)	20 (50%)	23 (28%)

Chi-squared = 28.83 with 5 df p = 0.0001.

As expected football appears to be a very popular activity for boys and not for girls. 50% of girls never play football as compared to 7.14% of boys. Almost 43% of boys play football every day, with 31 % of boys reporting in the 'more than one hour a day category'. A further 21% (9) reported playing 'most days'. It is difficult to know if this interest in football is less to do with the 'inner drive' for mastery, and more to do with football being the socially accepted way for boys to engage or play together. If it is, then those 6 boys (14.28%) who 'not often' or 'never' play are not part of this social milieu. In contrast there are 4 girls who play football every day, which is untypical of the rest of the girls in this study.

No other ball game presented as such a popular activity. With regard to tennis, (playing with a ball and racquet on the street or tennis court) only 4 children (3 boys and 1 girl) reported in the 'every day' category. A further 4 (1 boy and 3 girls) reported in the 'most days' category. The majority, 68% (56) never play, with 71.4% of boys (30) and 65% of girls (26). A further 8.54% reported in the 'not often' category, (3 boys and 4 girls). The physical and motor development demands of tennis should permit eight year olds to have adequate competency to play on the street, or on nearby grass if they so wished. However it is limited in the number of children who can play at one time. Neither does the game have the T.V. or media coverage of football. Children don't dress up in tennis kit as they do in football team colours. Tennis was not a popular activity for children in this study. Some schools offer short tennis, but when asked about playing, 87.8% of children never play (88% of boys and 87.5% of girls). Hurling and camogie, (the girl's version) are classed as 'national games', and some counties outside of Dublin, such as Kilkenny, Tipperary, and Cork have great passion and interest in these games from childhood to old age. Interestingly, this study population have very little participation with hurling or camogie, with 81.7% reporting that they never play this 'national' game (69% of boys and 95% of girls). There was a statistically significant gender difference (Chi-squared = 10.57 with 4 df $p = 0.0319$). Only 1 boy reported in the 'more than one hour every day' category, and one boy and one girl reported in the 'every day 'category. Ten children, 9 boys and 1 girl played 'some days', and a further 2 boys played 'not often'. The difference in interest between hurling and football is extraordinary, as both team games are as accessible for 'tipping about' on the street or nearby green space. The cultural and social aspects of each game may be an explanation to these differences, as may the geographic location of the study participants.

Children were asked about playing net-bal. Ninety two percent never play. Basketball was a little more popular, with 34% playing the game, 2 boys as frequently as every day, 3 boys 'most days', and 17 (20%) children (10 boys and 7 girls) playing 'some days'. 66% (54) never play (25 boys and 29 girls). Ninety five percent of children (78) never play golf or pitch and putt. When asked about playing other ball games, 58.5% (48) reported 'never' playing, but 23 children (28%), 14 girls and 9 boys reported in the 'some days' category. The game most mentioned by girls was D.O.N.K.E.Y. (This is a game where children stand in a circle and throw the ball to each other. Failure to catch results in becoming the 'donkey'. It is a fairly static game, with most of the physical challenge focuses on catching and throwing a ball).

(Q. 46 and 47) In keeping with the theme of physically active play, children were asked about their interest in roller skating, 37.8% (31) said that they never went skating,(mostly boys 57% as compared to 17.5% of girls); 25.6% (21) skated 'not often' including 8 boys and 13 girls. Only 1 boy skated 'every day', 5 children (6%) skated 'most days' (2 boys and 3 girls), and 24 children (29.3%) skated 'some days', 7 boys and 17 girls. There was a statistically significant gender difference (Chi-squared = 15.84 with 4 df $p = 0.0032$). Skateboarding was relatively new to Ireland in 1994, none-the-less 64% of boys used skateboards, but not very often. Only 11 (26%) boys used this activity as frequently as 'some days'. However 87.5% (35) of girls reported that they 'never' used skateboards, compared to only 35.7%(15%) of boys. There was a statistically significant difference between boys and girls (Chi-squared = 23.09 with 2 df $p = 0.0001$). Depending on how used, activities such as skateboarding, roller-skating and riding a bike offer sensory inputs of movement, deep pressure and vibration, which demand balance reactions, and motor co-ordination in a dynamic state of change. This can be very exciting depending on how the challenges are set. It was of interest to ascertain if this group of eight year olds sought this stimulation by frequently playing these activities. Riding a bike is a more traditional activity for Irish children than was skateboarding at the time of the study, in so far as children's bicycles, both boy's and girl's have been available in shops for years. However they are an expensive item, and also require space for storage. Table 5.16 presents the data for children's reported frequencies of riding a bike.

Table 5. 16. (Q 46) Children's Reported Frequency of Riding a Bicycle.

Frequency	Boys n = 42	Girls n = 40	All n = 82
Every day	5 (11.9%)	2 (5%)	7 (8.54%)
Most days	10 (23.8%)	12 (30%)	22 (26.8%)
Some days	21 (50%)	19 (47.5%)	40 (48.8%)
Not Often	5 (11.9%)	6 (15 %)	11 (13.4%)
Never	1 (2.38%)	1 (2.5%)	2 (2.44%)

Chi-squared = 1.611 with 4 df p = 0.8069

Very few children (2) never ride a bicycle. Only a further 13.4% (11) reported in the 'not often' category. Other than that the rest of the children ride their bicycles at least as often as 'some days' with 48.8% (40) children, 21 boys (50%) and 19 girls (47.5%). 26.8% (22) ride their bicycles 'most days', 10 boys (23.8%) and 12 girls (30%). Seven children ride their bicycles every day, (5 boys and 2 girls). There was no statistically significant difference related to gender (Chi-squared = 1.611 with 4df p = 0.8069). Considering the damp Irish weather, riding a bicycle could be seen as a frequent physical activity for the children in this study.

Skipping (with a rope) is another traditional street game. It can be played alone or with a group of children taking turns on the rope, and others running into the rope to skip. It is quite demanding in terms of timing, posture maintenance, and co-ordination of upper and lower limbs. It was expected that there would be a preference amongst girls, and there was (Chi-squared = 13.89 with 4 df p = 0.0077). Twenty one children (25.6%) 16 boys and 5 girls said that they 'never' play skipping. Seventy four percent of children do, 62% of boys and 87.5% of girls, ranging in frequency from 1 child who played every day, and 3 children (1 boy and 2 girls) who reported playing 'most days', with 31 children (37.8%) playing some days, 9 of these were boys and 22 were girls. A further 26 (25.6%) play 'not often', 16 of these were boys and 10 were girls. There was a statistically significant

difference related to gender (Chi-squared = 13.89 with 4 df p = 0.0077). Skipping is a popular activity amongst girls.

Chasing and running games require no equipment, just space and a number of others to play with. There are many varieties of rule bound street chasing games such as 'tip the can' which are passed on from generation to generation. Accommodation can be made for younger children by adjusting the rules, such as giving people longer time or shorter distances, or simply pretending not to 'see' younger ones in obvious hiding places. However 'commitment' to the game is essential, such as not walking off in the middle of it or spoiling the fun for the group. It was of interest to know were these games still played by children in the late 20 century. Table 5.17 presents the data.

Table 5. 17. Reported Frequency of Playing Running and Chasing Games.

Frequency	Boys n = 42	Girls n = 40	All n = 82
More than I hour every day	4 (9.52%)	0	4 (4.88)
Every day	17 (40.5%)	11 (27.5%)	28 (34.1%)
Most days	11 (26.2%)	13 (32.5%)	24 (29.3%)
Some days	7 (16.7%)	11 (27.5%)	18 (22%)
Not Often	3 (7.14%)	3 (7.5%)	6 (7.32%)
Never	0	2 (5%)	2 (2.44%)

Chi-squared = 8.297 with 5 df p = 0.1406.

Only 8 children (8.76%) reported in the 'not often and 'never' category combined, 5 of these were girls and 3 were boys. For some of these it may be that other children were not available to play, or that where they lived was unsuitable. However it may also indicate an avoidance of physical play, or suggest a sense of social exclusion. The data gathered in the

mother's questionnaire generated some information on where the children played and with whom. Most children had street or green space for playing, and had play-mates available. More than 90% of children reported played these games as frequently as 'some days' each week (22%), with almost 39% playing every day, and a further 29% playing 'most days'. There was no statistically significant difference found between boys and girls. Running and chasing games were the most popular and frequent form of physically active play for 'all children'.

Question 48 asked children about their frequency of going to an organised sporting activity, such as swimming lessons, or being a football club member. Children were asked about their participation in listed organised physical activities such as swimming, athletics, football, netball, camogie/hurling and other sports. The following table presents the data. Their frequency is reported in the text.

Table 5. 18. (Q.48) Children's Reported Participation in Organised Sports Activities.

Activity	Boys n = 42	Girls n = 40	All n = 82
Swimming	22 (52.4%)	16 (40%)	38 (66%)
Hurling/ camogie	3 (7.14%)	3 (7.5%)	6 (7.14%)
Netball	3 (7.14%)	2 (5%)	5 (6.1%)
Athletics	5 (11.9%)	0	5 (6.1%)
Football	20 (48%)	3 (7.5%)	23 (42%)
Other sports	10 (24%)	14 (35%)	24 (29.3%)

With regard to football, 48% (20) boys reported that they go to organised sessions, yet in answering a previous question 85% of boys had reported that they play football as least as often as 'some days'. With regard to frequency of participation in organised sport, 1 boy and 1 girl reported going to organised football 'every day'. Three boys reported going 'most days', 16 children, (1 girl and 15 boys) reported going 'some days'. From anecdotal

evidence the organised sessions ranged from attending a proper pitch with markings etc. to going with a group of local children to a nearby green space where some adult men held regular training sessions, and marked out the pitch with objects, such as bags and jumpers. Teams played other teams usually on a Saturday. Children paid a nominal amount into the 'club' which covered insurance and league membership fees etc. Local supermarkets or businesses sponsored the football jerseys. Football appeared to be a local and community endeavour.

Board Games (Questions 50 to 57).

There are different types of games with rules, organised sport is one where playing 'fair' matters and breaking the rules brings penalties. Team membership brings responsibilities and pleasures and disappointments. Team sports offer opportunities for social and moral development. Other games with rules such as board games are usually played in a competitive manner as an individual rather than team member. They are suited to indoor, sedentary and physically restrictive environments. These type of board games are marketed at the age group 7 and upwards, often as a 'family' type activity. Within this type of game there are two main categories, games of chance, such as rolling a dice, and games of skill such as 'Scrabble', a word construction/spelling game. A game such as 'Monopoly' has both elements as chance plays a part, but so does planning and risk-taking. Some adult games have versions for 7/8 year old children, such as 'Junior Scrabble' and 'Junior Monopoly'. There may be issues about winning and loosing especially with the younger child. It was of interest to record how these children involved themselves with board games. Ages from 7 to 11 are associated with interest in 'games with rules' (Piaget, 1962), and Takata (1974) refers to this play in this age span as the 'game epoch'. The next set of questions (Q.50 to 57) were about interest in playing board games, and winning and loosing. Eighty two percent of children (68) reported that they play board games, 85.7% of the boys and 80% of the girls. 14 children (17%) said that they never played. They were then asked about how often they played named board games, with fixed choices of every day, most days, some days, not often and never. The games specifically asked about were ones available in toy shops and mentioned by the group of children in the pilot study. The games asked about were as follows; 'Connect Four', 50% of children said that they never played this: 'Draughts', 63.4% of children said that they never played this: 'Chess', 68.3% said that they never play this: 'Ludo' 75.6% of children said that they never played this: 'Pictionary', 95% of children said that they never play this: 'Snakes and Ladders', 40% of children said that they never played this: 'Junior

Scrabble', 73% said that they never played this: 'Junior Monolopy', 82.6% said that they never played this: and 'any other board game', 44.4% said that they never played. There were no statistically significant difference found between boys and girls. The frequency of the more popular games 'Snakes and Ladders' and 'other games' are presented below.

Table 5. 19. (Q 51) Frequency of Playing Most Popular Board Games.

Frequency	'Snakes and Ladders'	'Other' Category
Every day	1 (1.22%)	1 (1.23%)
Most days	3 (3.66%)	2 (2.47%)
Some days	37 (45%)	32 (39.5%)
Not often	8 (9.76%)	10 (12.3%)
Never	33 (40.2%)	36 (44.4%)

The most popular board game played is 'Snakes and Ladders' which is a game of chance, with little control over winning and loosing. Although 'other games' seem available they did not appear to have any great appeal to this age group, with only 39.5% playing them as frequently as 'some days'.

A question (Q 52) was asked about with whom the child plays these games. Children were asked about playing with friends, siblings, parents, another adult and child relatives. Combinations of playmates were reported, with friends being mentioned as part of various combinations 40 times. Siblings as part of combinations were mentioned 27 times. Playing with 'mother' was the next most mentioned with 24 reports, and 'father' was mentioned 22 times. Cousins were reported 12 times, and grandmothers had 3 mentions, other adults had 3 also. In all there were 131 mentions from 77 respondents.

(Q.55). The children were asked about the enjoyment factors of playing these games, and the answers were post-coded. Seventy seven children responded, the answers were separated into 8 categories. The 3 most reported categories representing 66 of these 77 respondents were; ' fun / amusement' with 38 reports, 17 children said that it was winning which was the enjoyable factor, and 11 said that they 'didn't know'. There was no gender related difference (Chi-squared = 1.215 with 2 df $p = 0.5447$). From the other categories, only 3 children reported 'excitement' as the enjoyment factor, another 3 children reported enjoying a 'control' aspect of the game, 2 mentioned 'learning new things'. Individual and

different reasons were given by 3 others. The 77 children who played were asked about winning and loosing the games, which can sometimes be difficult especially at this age. If children played mostly with friends, it was unlikely that accommodation would be made to let the child win. In addition, games of chance such as 'snakes and ladders' cannot really be adjusted to allow for winning. Children were asked (Q56) 'Do you ever win'. With options 'most times', 'sometimes' and 'seldom'. Thirty one percent (24) of children said that they win 'most times'; 13 (31.7%) of these were boys and 11 (30.6%) were girls. Almost sixty four percent (49) said that they win 'sometimes', 25 boys (62%) and 24 girls (66.7%). Four children (5.19) said that they 'seldom' win (3 boys and 1 girl). The children were then asked (Q57) 'What happens if you loose?' The answers were post-coded. Table 5.20 presents the data for the 77 children (41 boys and 36 girls) who play board games.

Table 5. 20. (Q57) 'What Happens If You Loose?'

'What Happens'	Boys n = 41	Girls n = 36	All n = 77
'It's O.K.'	24 (58.5%)	15 (41.7%)	39 (50.6%)
'Have a Re-Match'	9 (22%)	8 (22.2%)	17 (22.1%)
Nothing	5 (12.2%)	7 (19.4%)	12 (15.6%)
'Get grumpy/mad'	3 (7.32%)	4 (11.1%0	7 (9.1%)
Cheat	0	2 (5.56%)	2 (2.6%)

Chi-squared = 4.305 with 4 df p = 0.3662.

Only 9 children (11.7%) reported in categories that might indicate that loosing was unpleasant. On the other hand, the answers given by the other children might reflect a wish to give socially desirable answers, this was not explored any further in the interviews.

Pretend games. Questions 58 to 66.

The next set of questions (58 to 66) was about pretend games, did all children play socio-dramatic games with roles/characters and action assigned to inanimate objects or to each other? Was there a gender difference? From listening to children as part of the preparation for this research, there were some indications that particularly boys might not readily describe their play as 'pretend' lest it be seen as childish. However from observation and subsequent discussion with boys, who played street games centred mostly on football,

'pretend' was very much part of their play. They would assign characters to themselves, such as famous footballers and act out scoring 'goals', 'saves' and often shout out the commentary of the game as they played, highlighting the extraordinary feats and accomplishments of their character. None-the-less question 58 asked directly "Do you play pretend games like House, War, Post Office, Hospital or something like that?" Seventy five children (91.5%) said that they did, 90.5% of the boys and 92.5% of the girls. Seven children said they did not play pretend games (4 boys and 3 girls). The concerns about the possible reluctance of children to report playing pretend games were unsupported. This children's report contrasts with the P.Q. Item 4 (Fantasy), in which mothers reports regarding preference for pretend play indicated a very definite bias in favour of girls ($p = 0.0038$). It may be that boys' pretend play is less obvious to the onlooker, and/or that much of their pretend play is out of doors. Those who did play pretend games were asked about the types of games they played. Children reported only one type of game, but later questions sought more information. The data for this first question is presented in table 5.21.

Table 5. 21. (Q. 59) Types of Pretend Games Played.

Type of game	Boys n = 38	Girls n = 37	All n = 75
Fighting Action eg. War, Ninja Turtles	23 (60.5%)	6 (16.2%)	29 (38.7%)
Home-making games; eg. House, Barbies	12 (31.6%)	21 (56.8%)	33 (44%)
Work games: eg. Post-Office, Hospital.	0	8 (21.6%)	8 (10.7%)
School	2 (5.26%)	1 (2.7%)	3 (4%)
Other	1 (2.63%)	1 (2.7%)	2 (2.67%)

Chi-squared = 20.74 with 4 df p = 0.0004.

Obviously there was a statistically significant gender difference in the games played, but the above data are interesting in that it demonstrates that some boys (31.6%) actually play homemaking games, even though action games such as 'war' or 'Ninja Turtles' are the

most popular. Most of the of games played fell into 3 categories, and the remainder had only 2 'other' types of games. With reference to girls playing 'Barbies', these were pretend games where the children used the household and lifestyle toys associated with the doll rather than just dressing the doll, and combing her hair. Hence this type of play was included with the 'mammies and daddies' games in the 'House' section. Boys called these games 'House' or 'Mammies and Daddies'.

(Q.60) Children were asked about the frequency of playing pretend games. Table5.22 presents the data.

Table 5. 22. (Q60) Frequency of Playing Pretend Games.

Frequency	Boys n = 42	Girls n = 40	All n = 82
Every day	1 (2.38%)	6 (15%)	7 (8.54%)
Most days	7 (16.7%)	12 (30%)	19 (23.2%)
Some days	18 (42.9%)	17 (42.5%)	35 (42.7%)
Not Often	12 (28.6%)	2 (5%)	14 (17.1%)
Never	4 (9.52%)	3 (7.5%)	7 (8.54%)

Chi-squared = 12.16 with 4 df p = 0.0162 **SIG**.

There was a statistically significant difference with girls playing pretend more frequently than boys. This may explain the PQ Item 4 (Fantasy) reports by mothers with boys showing less preference than girls for pretend games.

(Q.61) Children were asked with whom they played pretend games. The answers were post-coded. Combinations of play-mates were reported. All reports were deconstructed into the number of mentions of a type of play-mates. The three most frequently mentioned were 'friends', 'siblings' and 'cousins' by both boys and girls. Boys reported 'friends' 28 times, 'siblings' 10 times and 'cousins' 5 times. Girls responses were similar with 'friends' reported 30 times, 'siblings' 16 times and 'cousins' 6 times. Four children reported playing pretend only by themselves (3 boys and 1 girl). No mentions of adults as playmates were made.

(Q. 63) Children were asked where they played pretend games. The answers were post-coded, the places ranged from 'own house', 'bedroom', 'outside', 'everywhere', 'school', 'friend's house', 'doorstep', 'tree, and 'garage'. The two most reported places were 'own house' with 46.3% of children, (38) 16 of these boys and 22 girls, and 'outside' as

reported by 31.7% of children (26). Of the 26 children who indicated this location, 20 were boys. A chi-squared test between these two locations representing 64 reports supported that a statistically significant difference was present in choice of location for pretend play (Chi-squared = 7.605 with 1 df p = 0.0058). This is in keeping with the action nature of playing 'fighting games' by the boys which tended to happen outdoors, as compared to the homemaking and work type games played by the girls indoors.

(Q.64). Children were asked to name their current favourite pretend game. This was to provide further opportunity for the collection of data about the type or categories of games played. Seven children reported that they do not play pretend games. The category with 'War'/ 'Action Man'/ 'Power Rangers' was the most frequently mentioned favourite game with 32 boys (76.2%) and 2 girls mentioning these games. Games such as 'Barbies' and 'House' were reported by 16 girls (40%) as their favourite, and no boys reported this. Work place games such as 'Hospital' or 'Post Office' were mentioned by 11 children (13.4%), 8 girls (20%) and 3 (7.14%) boys. A game of 'School' was reported by 8 girls (20%) as their favourite. No boys mentioned this. Six children, 3 boys (7.14%) and 3 girls (7.5%) mentioned other individual pretend games not related to the above categories. In terms of the favourite pretend games mentioned above there seems there appears to be a more extreme gender difference than in the answers given and presented in table 59 above (Chi-squared = 52.87 with 5 df p = 0.0001).

Children were then asked what was it about playing pretend games that they liked. The answers were post-coded. The most popular aspect as reported by 29.3% (24) children, (11 boys and 13 girls) was the pretending itself, such as being in another role and context. A further 17 children (20.7%) said that it was just the 'fun' part of playing pretend. This represented 21.4% of boys (9), and 20% of girls (8). Eleven others (13.4%) 'didn't know' what they enjoyed (7 boys, 16.7% and 4 girls, 10%). Another 9 children (11%) (2 boys and 7 girls) really liked setting up or making the game as the best part of pretend play. Eight children, 7 boys (16.7%) and only 1 girl really liked the excitement and adventure of pretend play. Six other children, 2 boys and 4 girls had individually different aspects which they reported as enjoyable, such as 'being in charge' when playing teacher, or making up different noises for the different weapons when playing 'war'. The spread of the above data demonstrates that there is variety in the aspects of pretend play that were reported as enjoyable.

(Q.65). At the time of the interviews toy shops were promoting figurines or action models such as 'Power Rangers', 'Turtles', 'Wrestlers', 'My Little Pony' and dolls such as 'Barbie'. Question 65 asked children if they played with toys such as these and question 66 asked what did with them. These questions were asked to allow for children who might not want to say that they played pretend play in case they thought it was too 'babyish', or to allow for boys to describe pretend play in perhaps a more socially acceptable 'male' manner. Three boys did not answer the question, two girls said 'not really', and 14 children, (10 boys and 4 girls) said 'no'. 63 children (76.8%) said 'yes'. Twenty nine (69%) of the boys, and 34 (85%) of the girls said that they play with these figurines. There was no statistically significant difference between boys and girls (Chi-squared = 2.956 with 1 df p = 0.0856). There were fewer children reporting 'yes' than those answering question 58, "Do you play pretend games like House, War, Post Office, Hospital or something like that?" to which 75 children (91.5%) said that they did, 90.5% of the boys and 92.5% of the girls.

Question 66 asked "What do you do with them". This question was asked to check that they were actually used for pretend play, for example 'Barbie' dolls could be used for doing up hair styles or dressing up in different types of clothes with no pretend element. There were two post-coded categories, one was playing pretend as in role playing of characters and stories. The other was with more emphasis on the construction of a game, such as in setting up the arena for 'war' with a game of toy soldiers, planning the action, and then playing the 'war' game. The results of use of figurines are presented in table 5.23.

Table 5. 23. (Q. 66) Children's use of Figurines.

Use of Figurines	Boys n = 42	Girls n = 40	All n = 82
Don't use	13 (31%)	6 (15%)	19 (23.2%)
Role play	26 (61.9%)	29 (72.5%)	55 (67.1%)
Construct a game	3 (7.14%)	5 (12.5%)	8 (9.76%)

Chi square = 3.196 with 2 df p = 0.2023

Role play is by far the most popular reported use of figurines. This concluded the section related to pretend play.

Care of Pets and Plants.

The next set of questions (Q.67 to 72) was about care of pets and plants. It is difficult to find evidence in the literature about children's involvement with pets and plants, although from a folk knowledge perspective, it is assumed that most children will go through a stage of wanting a pet, but it is usually the mother who ends up looking after it. It was considered worthwhile to ascertain if children of this age group were involved in the care of pets and plants. When asked if they had pets, 45% (37) said 'yes' (18 boys and 19 girls); 52.4% (43) said 'no' (22 boys and 21 girls), and 2 boys did not answer. Children were then asked what type of pet they had. Table 5.24 presents the results.

Table 5. 24. Types of Pets.

Type of Pet	Boys n = 18	Girls n = 19	All n = 37
Dog	11	10	21
Cat	5	4	9
Fish	6	7	13
Hamster/guinea pig	1	1	2
Bird	3	3	6
Rabbit	1	4	5
Horse		1	1

Seven children had two types of pets, 5 children had three types of pets, and one child had 4 types of pets.

(Q.69). Children were then asked "How do you take care of it?" Of the 37 children who had pets, only 33 gave answers. Eight said that they did 'nothing', (2 boys and 6 girls); 8 children, (5 boys and 3 girls) said that they played with or walked their pet; 3 children said that they fed their pet, and 14 said that they did a combination of feeding and playing/walking their pet. It could be assumed that some adult was the main caretaker of the majority of pets.

(Q.70 to 72). Children were asked about growing plants and doing gardening. Eleven percent did not answer the question, 51% (42) said that they did, with 42.9% of boys (18) and 60% of girls (24). When asked "What do you do?" the answers were post-coded into

'planting' and 'maintaining' categories. Planting was related to planting bulbs in pots, or planting flowers in the garden, 'maintaining' relates to watering plants, or maintaining a lawn by cutting or watering. An equal number of children, 19 (23%), reported in the planting and in the maintaining categories. Only 4 children reported doing both. There was no gender difference in relation to care of plants (Chi-squared = 4.823 with 3 df p = 0.1853).

(Q.72) The children were asked about their enjoyment of care of plants/gardening. The answers were post coded into a 'watch it grow' category, a 'sensory' category such as 'getting /wet mucky' or 'messing', an 'other' category and a 'don't know' category. The most popular enjoyment aspect was the sensory one with 22 children (48.9% of those who garden) enjoying getting mucky, wet or messing when gardening. Only 22% (10) mentioned 'watching it grow' as an enjoyment factor. Four children (8.89%) gave 'other' reasons, and 9 (20%) said that they didn't know what they enjoyed.

(Q.73 to 75). In concluding the questioning about what it was that children did, they were asked (Q.73) "Is there anything about what you do that I have left out?" Seventy seven children (93.9%) said 'no', and 5 children said 'yes' (4 girls and 1 boy). These children then reported their activities that they had not talked about as: Climbing trees; rolling down the stairs; dancing; playing cars; and fighting with a sister.

Children were then asked (Q. 75) "Is there anything that you really would like to do that you don't do now? Their preferences are presented in table 5.25.

Table 5. 25. (Q. 75) What Would Like to Do that You Don't Do Now?

Activity	Boys n = 42	Girls n = 39	All n = 82
Motor Skill eg Karate, Gynmastics	31 (73.8%)	21 (52.5%)	53 (64.6%)
Swimming	4 (9.52%)	6 (15%)	10 (12.2%)
Creative with art/craft	3 (7.14%)	5 (12.5%)	8 (9.76%)
Personal independence in daily living activity.	2 (4.76%)	4 (10%)	6 (7.32%)
Be 'grown up'	2 (4.76%)	2 (5%)	4 (4.88%)
Nothing else	0	1 (2.5%)	1 (1.22%)

Chi square = 4.049 with 5 df p = 0.5424.

It is interesting to note that 85% of boys and 70 % of girls had an interest in even more physical activities such as sport, karate, and swimming, considering both the children's and mothers reports of an already high level of interest in physically active play, and participation in organised physical activities such as Irish dancing, swimming and sport. Organised physical activity appears to invite a challenge for both boys and girls, and this could be interpreted as reflecting the children's inner drive for mastery and/ or competence in skilled physical activity.

Section 2. Where Children Like to Play.

The next section of the questionnaire was about where the children liked to play, and how often they get a chance to play there (Q. 76 and 77).

The question about where children most liked to play was pre-coded into 7 locations of 'school yard', 'street', 'playground', 'own house', friend's house', 'tree/field' and 'other' category. Only one place could be chosen as the most favourite place to play. The following table presents the data. One child did not answer.

Table 5. 26 (Q. 76) Where Children Enjoy Playing the Most.

Where	Boys n = 42	Girls n = 39	All n = 81
School Yard	1 (2.38%)	7 (17.9%)	8 (9.88%)
Street	9 (21.4%)	6 (15.4%)	15 (18.5%)
Own home	8 (19%)	14 (35.9%0	22 (27.2%)
Friend's house	5 (11.9%)	7 (17.9%)	12 (14.8%)
Garden	5 (11.9%)	3 (7.69%)	8 (9.88%)
Field/bushes/trees	13 (31%)	0	13 (16%)
Other places eg. Playground, Anywhere	1 (2.38%)	2 (5.13%)	3 (3.7%)

Chi-squared = 20.82 with 6 df p = 0.0020 **SIG**.

As can be seen from the data there was quite a spread and contrast in preferences for places to play with a notable gender difference in preference. The most preferred place for

boys to play was in trees/bushes/field with 31 % (13) of them indicating this. The next most preferred place was playing on the street with 21% (9) choosing this location. The girls' most preferred location was their own home, with 35.9% (14) indicating this. Their next most preferred locations were the school –yard; and their friend's house with an equal number of 7 girls (17.9%) choosing each location.

Question 77 asked the children if they often get a chance to play in their preferred location. The following table presents the data.

Table 5. 27. (Q.77) Frequency of Playing in Preferred Place.

Frequency	Boys n = 42	Girls n = 40	All n = 82
More than 1 hr every day	16 (38.1%)	15 (37.5%)	31 (37.8%)
Every day	3 (7.14%)	8 (20%)	11 (13.4%)
Most days	13 (31%)	12 (30%)	25 (30.5%)
Some days	8 (19%)	4 (10%)	12 (14.6%)
Not often/never	2 (4.7%)	1 (2.5%)	3 (3.66%)

Chi-squared = 4.632 with 4 df p = 0.4624

Over 50% of children get to play in their preferred place every day, 37% for more than 1 hour every day. A further 30% get to play as frequently as 'most days'. Only 3 children seldom get to play in their favourite place.

Section 3. With Whom Children Like to Play.

(Q.78 to 85). The next set of questions were about with whom the child spends play and leisure time. Question 78 asked the children with whom they most enjoyed playing with, and answers were post-coded. Unsurprisingly 'friends' were the most reported playmates, with 65 (79.2%) children reporting in this category (80.9% of boys and 77.5% of girls). The next highest category was 'cousins' who were mentioned by 11 (13.4%) children as their favourite person to play with (4 boys and 7 girls). Siblings were reported by 7 children (4 boys and 3 girls). There were reports of various combinations of siblings, parents, cousins, and friends. There were individual reports of preference for playing with a mother; neighbour; uncle; football team; and playing by self.

(Q.79) Children were asked if there was anybody else they really enjoyed playing with, 21% said 'no'. A further 49.3% (35) mentioned other friends, 7 (9.86%) mentioned siblings and an equal number mentioned cousins. There were then individual mentions such as; mother; parents; adult relative; and combinations of the above. Children were asked how often they got to play with their preferred person/s. The data is presented below.

Table 5. 28. (Q.80) How often Children Get to Play with Preferred Person/s.

Frequency	Boys n = 42	Girls n = 40	All n = 82
More than 1 hour each day	14 (33.3%)	10 (25%)	24 (29.3%)
Every day	8 (19%)	5 (12.5%)	13 (15.9%)
Most days	14 (33.3%)	19 (47.5%)	33 (40.2%)
Some days	4 (9.52%)	5 (12.5%)	9 (11%)
Not often	2 (4.76%)	1 (2.5%)	3 (3.66%)

Chi-squared = 2.514 with 4 df p =0.6422.

Only 46% of children get to play with their favourite person as frequently as 'every day', however a further 40 % get to play as frequently as 'most days'. It would appear that 86% of children get to play with their favourite person/s at least as frequently as most days and 80% get to play in their favourite places at least as often as 'most days'. This combination of results could be seen as a measure of the children's play opportunities, with regard to place and person.

In order to further explore the theme of self-direction and organisation through play and leisure pursuits, it was considered worthwhile to ask the children about how they handled situations when there was no one available to play with, and what they did when they were bored. Questions 81, and 86 to 92 were posed for this reason. The answers were post-coded. The following table presents the data.

Table 5. 29. (Q. 81) What Do You Do If You Didn't Have Anybody to Play With?

Response	Boys n = 42	Girls n = 40	All n = 82
Read /Watch T.V. /Play computer	12 (28.6%)	11 (27.5%)	23 (28%)
Play with sister/cousin	2 (4.76%)	6 (15%)	8 (9.76%)
Play by self/make things	23 (54.8%)	20 (50%)	43 (52.4%)
Talk to aunt/gran	2 (4.76%)	0	2 (2.44%)
Phone a friend	0	1 (2.5%)	1 (1.22%)
Help in house	0	1 (2.5%)	1 (1.22%)
Lie down on bed	1 (2.38%)	0	1 (1.22%)
No response	2 (4.76%)	1 (2.5%)	3 (3.66%)

It is interesting to note that for 8 children, 'sisters' and 'cousins' were not seen as 'anybody to play with', and were only used in this capacity in the absence of proper play-mates.

These data were then summarised as either an 'active activity ' response or a 'passive activity' response, and then tested for gender difference. The category of getting actively involved in something else, either playing by self, or looking elsewhere for somebody else to play with or talk to was the 'active' response; the other category was that of finding a more passive activity such as watching television, reading or playing with the computer. Of the 79 children who responded to the question, 69.6% chose the 'active' activity, 27 of the boys (67.5%) and 28 of the girls (71.8%). Only 30.4% (24) chose the more 'passive' activity, 13 were boys (32.5%) and 11 girls (28.2%). As was presented in earlier data, there may not always be someone of choice available to play with, yet this group of 8 year olds appear to be able to organise themselves when this occurs.

Spending Time with Adults.

From the pilot study it was noted that spending time with adult extended family members appeared to be part of the routine of children's leisure time. A question (Q82) was asked "Do you spend time with adults that you enjoy?" A list of adults was offered (Q83) such as 'mother'; 'father'; 'grandmother'; 'grandfather'; 'other relative (state)'; 'other adult (state)'. The children were asked to respond (yes/no) to each person on the list, this was recorded and chi- squared analysis applied for gender difference to each category of person.

Table 5. 30. (Q.83) Summary Table. The Adults With Whom Children Enjoy Spending Time.

Adult	Boys n = 42	Girls n = 40	All n = 82
Mother	31 (73.8%)	35 (87.5%)	66 (80.5%) Chi-sq = 2.445 with 1 df p = 0.1179
Father	31 (75.6%)	38 (95%)	69 (85.2%) Chi-sq = 6.032 with 1df **p = 0.0140**
Grandmother	22 (52.4%)	22 (55%) 1 non - respondent	44 (53.7%) Chi-sq = 1.195 with 2 df p = 0.5501
Grandfather	18 (42.9%)	21 (52.5%) 1 non-respondent	39 (47.6%) Chi-sq =2.04 with 2 df p = 0.3605
Other Relative	18 (42.9%) 1 non respondent	18 (45%) 1 non-respondent	36 (43.9%) Chi-sq = 0.04215 with 2 df p = 0.9791
Other Adult	6 (14.3%) 4 non-respondents	11 (27.5%) 2 non-respondents	17 (20.7%) Chi-sq = 2.514 with 2 df p = 0.2845

Only 80% of children (73.8% of boys and 87.5% of girls) reported that they enjoy spending time with their mothers. Mothers had reported that 97.6% of them spend time with their child each day, although it tends to be of the 'accompanying' and 'indoor leisure' categories. Not all children particularly boys, appear to report this as 'enjoyable'. Even fewer boys reported enjoying spending time with their fathers, 75.6% (31) as compared to 95% of girls (38). As 9.52% of boys (4) and 4.76% of girls (2) had been reported by mothers as spending no time with their fathers, this may have contributed to this result, but does not explain the gender difference in the data, in which more girls enjoy their father's company than do boys.

More than half of the children (53.7%) reported that they enjoy the company of their grandmothers, and almost half (47.6%) reported that they enjoyed the company of their grandfathers. In addition, 43.9% said that they enjoyed the company of an other adult relative, whereas only 20.7% reported that they enjoyed the company of an adult non-relative.

(Q.85) The children were then asked "What do you do together", the answers were post-coded in the same way as in the mothers' questionnaire and gave the following results. There were 2 boys who did not respond.

Table 5. 31. (Q. 85) What Children Enjoy Doing Together With Adults.

Activity	Boys n = 40	Girls n = 40	All n = 80
Indoor leisure/ company	12 (30%)	17 (42.5%%)	29 (36.3%)
Outdoor pursuits	9 (22.5%)	7 (17.5%)	16 (20%)
Accompanying to school/shopping	5 (12.5%)	2 (5%)	7 (8.75%)
Indoor leisure plus outdoor pursuits	6 (15%)	9 (22.5%)	15 (18.8%)
All of above	8 (20%)	5 (12.5%)	13 (16.3%)

Chi-squared = 3.69 with 4 df p = 0.4496.

The category with the highest appeal for children was the 'indoor leisure and company keeping' one as indicated by 35.4% of the children, however a further 18% reported that

they liked a combination of indoor and outdoor activities, and another 15 % liked doing all of the category activities with adults. So it would appear that children liked doing a range of activities, with adults, and no one specific type appeared as 'the preferred'. In their accounts the comments such as one girl said "I like playing 'mess fighting' with my dad, like jumping up on him and punching him and wrestling." Or another girl reported "I like when my Mam collects me from school, and we walk home together." Outdoor pursuits which included going to the cinema or to McDonalds, as well as outings to the beach and walks in the countryside were only mentioned by 19.5% as their enjoyable activities. Most children liked a range and combination of activities to share with the adults in the routines of their daily lives. They appeared to have the capacity to enjoy the company keeping, as well as the shared activities.

Being Bored. (Questions 86 to 92)

The next set of questions was in keeping with the theme of self-organisation of leisure time, the children were asked about boredom. When asked "Do you ever get bored?"(Q. 86) 93.9% (77) said yes, (38 boys (90.5%) and 39 girls (97.5%)). There was no statistically significant difference (Chi-squared 1.765 with 1 df $p = 0.1840$). The children were then asked about how often they got bored during weekdays, weekends and holidays. The following table presents the data for all children. One girl did not respond.

Table 5. 32. (Q.86) Frequency of Getting Bored during Weekdays/Weekends/ Holidays.

Frequency All Children (n = 81)	Weekdays	Weekends	Holidays
More than 1 hour each day	1 (1.22%)	1 (1.22%)	1 (1.22%)
Every day	6 (7.32%)	5 (6.1%)	3 (3.66%)
Most days	6 (7.32%)	5 (6.1%)	6 (7.32%)
Some days	40 (48.8%)	35 (42.7%)	41 (50%)
Not often	25 (29.3%)	28 (34.1%)	24 (29.3%)
Never	4 (4.88%)	7 (8.54%)	6 (7.32%)

Weekdays; Gender difference Chi-squared = 10.36 with 5 df p = 0.1104.

Weekends; Gender difference Chi-squared = 4.268 with 5 df p = 0.6405.

Holidays; Gender difference Chi-squared = 9.176 with 5 df p = 0.1639.

Most children are only bored 'some days' or less frequently. These positive reports are supported by the mothers' reports in which rather similar figures were reported. When the frequency of the categories of 'some days', 'not often' and 'never' for 'Weekdays' are added together this amount to 83% of all children. A similar addition of mothers' reports amounted to 84%. Addition of the same frequency categories for 'Weekends' gives 85% and mothers reported 83%. Children's reports of frequency in the 'some day' categories and less of being bored on 'holidays' gives 86%, whereas mothers reported 81% in these categories.

This would suggest that most children can engage to their own level of satisfaction, with their leisure time activities, and only get bored 'some days', or less frequently, even without the structure of school; and that they have the capacity to adjust to changes in the time available for play and leisure afforded by weekends and holidays.

(Q.89) Children were then asked "What do you do if you get bored?" Four children (4.88%) said that they never got bored. The answers were post-coded, 62.2% (51) reported in a 'takes action/organises something to do' category (26 of these were boys, and 25 were girls). A further 17% (14), (5 boys and 9 girls) 'says it' to someone. Eight (9.76%) reported that they sit doing nothing (5 boys and 3 girls). Five (6.1%) reported in a 'gets disruptive' category (3 boys and 2 girls). There was no statistically significant difference (Chi-squared = 2.815 with 4 df p = 0.5892). This data contrasts with the mothers' reports in which they considered that 69% of the children 'says it' when bored, and that 14.7% 'gets disruptive'. In anticipation that some children might not equate 'saying it' as a action, Question 90 asked the children "Would you tell anyone about how you felt?" To this question 65.9% (54) answered 'yes, (61.9% of boys (26) and 70% of the girls (28)). The responses to this were more in keeping with mother's reports of 69% of children 'saying it'.

Question 91 asked 'Who would you tell?' Of the 53 children who said that they would tell someone, 38 of these (71.7%) would tell their mother, 16 of these were boys (61.5%) and 22 were girls (81.5%). 1 boy would only tell his father, and 14.8% (12) would tell

both or either parent, 7 of these were boys, and 5 were girls. Two boys would only tell some other adult.

Question 92 asked the children "What happens next?" Of the 54 children who tell someone that they are bored, 33.3% (18) reported that the most frequent reaction from adults is 'She/he tells me to do something', for example 'go outside and play', or 'get out your bike'. The next most frequent response reported by 11 children (20.4%) was that the adults organised something for the child to do. A further 18.5% (10) gives the child some ideas of thing to do. Six adults (11.1%) chastise the child by 'giving out', and a further 6 adults (11.1%) were reported as doing 'nothing' in response to the child's saying that s/he was bored. Only 3 adults (5.56%) were reported as 'doing something with' the child. There was no statistically significant difference related to the child's gender (Chi-squared = 1.818 with 5 df $p = 0.8737$). These results can be compared with the reported responses given by the mothers in their interviews. The following table allows comparison of the children's and the mothers' results.

Table 5. 33. Children's and Mothers' Reports of What Happens When Children Tell Someone that They are Bored.

What Happens	Children's Reports n = 54	Mothers' Reports n = 84
Adult organises something for child to do.	11 (20.4%)	7 (8.33%)
Tells child to do something specific	18 (33.3%)	41 (48.8%)
Adult 'gives out' to child	6 (11.1%)	15 (17.9%)
Adult gives child ideas as to what to do	10 (18.5%)	47 (56%)
Does something with the child	3 (5.56%)	14 (16.7%)
Does 'nothing'	6 (11.1%)	5 (5.9%)
Various other individual responses	0	8 (9.52%)

Only 54 children said that they would tell someone if they were bored. In the mothers' questionnaire 58 mothers (69%) said that their child would say that they were bored. As reported in the section of mothers' results, mothers indicated other ways of knowing that their child was bored. None-the-less there are some differences in the reports from the children and from the mothers about what happens if the child says that s/he is bored. The most obvious one being the difference in the 'gives child ideas as to what to do' category, 56% (47) of mothers said that they do this, but only 10 children (18.5%) reported that this happened. On the other hand more children reported that the adult 'organises something for the child to do' than the mothers reported. There was less reporting by children of the adult 'giving out' than reported by the mothers. There was similar reports from both children and mothers in the 'does nothing' category.

Satisfaction with how leisure time is spent. (Question 93).

The final question asked of the children was "Are you happy with how you spend your time? (If not explain.) Over 96% of all children (79) said that they were happy. Three children said that they were not. (One boy was 'made do' karate, because he was bullied as school but he hated doing it and wanted to give it up. Another boy was 'made do' football, and was always put in goal. He hated this and wanted to give it up too. A girl who was not happy did not elaborate as to why.) This was a high satisfaction rate (96.3%) for play and leisure activities. Although for the most part, these activities were in the child's domain of choice and organisation, parental support must be recognised as an important social sanction, even at a minimum level of allowing children the freedom to engage. Their role should also be recognised in contributing to the ways in which children have learned to negotiate for themselves the time, and opportunities, and learned the complex skills to play to a high level of satisfaction for themselves.

Summary.

The purpose of the interview with the children was to find out from them how they spend their leisure time, what they enjoyed, with whom and where they played, and their satisfaction with how they spend their time. In spite of the prevailing caution at the time of the study design, about children's ability to self report, only few children did not respond to some of the questions. However as anticipated it was difficult to tease out the specific enjoyment factors for the different types of play. Most frequent was the response of 'it's

fun to do', and there appeared to be little explanation, expression or description of the 'inner drive' for mastery as is reported in the literature for children at this developmental stage. Or it may be that the drive for mastery is covered up by 'having fun'.Also contrary to reports in the literature, the children reported a continued interest in pretend play. The enjoyment of physically active games such as running and chasing out of doors, riding bicycles, skipping (for girls) and playing football on the street (boys) were enjoyed frequently. Most children had an organised leisure activity that was essentially physical in nature such as Irish dancing or sport (especially football and swimming). Children expressed a wish to do more organised activities.

Television viewing, computer or video games did not predominate as leisure activities, contrary to popular fears. The general picture for most children is one of variety, with considerable social interaction both with friends and extended family members. Children had variety in their choice of activity and in places to play, both indoor and outdoor. There were notable gender preferences in relation to favourite places to play, with girls preferring to play more indoors, and boys enjoying outdoor locations especially in fields, trees and bushes. Gender segregation appears well established with regards to choice of friends.

Most children appeared to mix with adults in their extended family, some of the preferred shared activities were outdoor pursuits, but indoor pursuits and company keeping was also enjoyed.

An impression given by this interview data is that of children connected in their leisure time to their family, street and friendship group, and their community culture with its particular activity values (such as football for boys and Irish dancing for girls). As individuals, most appear to have the capacity to organise activities and play-mates for themselves and to enjoy themselves and have fun. Part of this 'fun' may be the striving to 'achieve mastery', but this was not expressed as such. Perhaps it is that children of this age group, unlike adults, go about 'achieving mastery' in a non-serious and playful way.

CHAPTER 6.
RESULTS OF THE PLAY ACTIVITY QUESTIONNAIRE AND THE BRUININKS – OSERETSKY TEST OF MOTOR PROFICIENCY FOR THIS SAMPLE OF DUBLIN CHILDREN.

Introduction.

One of the aims of the study was to describe the play preferences and patterns of a sample of Dublin children; another aim was to explore possible relationships between play preference and motor proficiency. In addition to the two questionnaires designed specifically for this study, two other measures were employed. These were the Play Activity Questionnaire (PQ) and the Bruininks-Oseretsky Test of Motor Proficiency (BOTMP). The results of these two measures with the Dublin study sample are presented in this chapter. Two main perspectives are taken, one is the description of the sample as a whole, using summary and composite scores, and the results for each test item and subtest. The second perspective is the description of gender differences. As has been described in the questionnaire data, there are differences in play preferences and patterns related to gender. The use of these two measures allowed the examination of gender difference in play preference and in motor ability. Chapter 7 further examines the inter-relationship between the PQ, the BOTMP, and the questionnaire data.

From analysing these data on the Dublin children, and mindful of issues raised in the literature on possible weakness in the PQ and BOTMP measures, validity issues related to these Dublin data are examined in Chapter 7. Chapter 8 examines the results of the BOTMP in relationship to the perinatal and infant data on motor ability.

The Play Activity Questionnaire.

The Play Activity Questionnaire (PQ) (see appendix 4) was developed by Finegan, Niccols, Zacher and Hood (1991) who considered that it was a valid measure of children's play behaviour with potential application in the fields of normal play and sex-role development, also in developmental psychopathology and psycho-neuroendocrinology. It was considered suitable for use with children aged from four to twelve years. It was developed in North America. Little information on social class or cultural factors was reported in the validation studies. It is a parent report measure of children's play

preferences composed of a 15 item Likert scale questionnaire, with four play factors: Active and Adventurous; Athletic; Rough and Tumble; and Quiet play. The range in the Likert scale is from 1 to 7, with 1 indicating 'not at all', 4 indicating ' an average amount', and 7 indicating 'a great deal'. In this study each mother was asked to tick each of the 15 items along the scoring line from 1 to 7. Fathers were not included.

Some minor adjustments were made to the language to reflect the Irish cultural context, for example as in Question 4: playing 'store' was replaced with playing 'shop', and the word 'skits' was removed. Question 5 was changed from 'rough house' to 'rough and tumble'. The games mentioned in Question 10 were changed to 'hurling' rather than 'ringuette' or 'floor hockey'. The games mentioned in Question 11 had 'hockey' removed and 'football' (meaning any type such as Gaelic or Rugby) included.

The rationale for including the PQ in this study was three fold:

1. As a method of triangulation to obtain a profile of the types of play preferences with the study population.

2. To allow comparison between the Canadian study with the Dublin Child Development Study.

3. To examine the correlation of the BOTMP scores with the different physical play preferences as identified by the PQ.

Possible Bias in Mother's Reports.

This PQ data gathering tool is a subjective measure and as such is open to bias. It was used in this study to give an indication of the mother's perspective particularly about physically active play. It is acknowledged that levels of activity or play preferences which some mothers considered as 'average' might not be the same as others. Also as these were first-born children, mothers' experiences might be more limited than if this was being completed on a second or third child. There may also be hidden expectations that what is 'normal' for boys might not be 'normal' for girls especially in expected activity levels. In addition, children's physical activity levels might differ in response to who was supervising their physically active play. Mothers might discourage certain type of play that might be allowed by fathers. There may also be cultural differences between North America and Ireland in reporting on ability level, in so far as in Ireland it may be more socially acceptable to understate rather than overstate one's ability or that of one's child.

In addition the experiences available to Dublin children such as the availability of playgrounds with monkey bars might be more limited than their urban counterparts in North America. The PQ tool was used in this study to provide a mother's description of the child's play preferences particularly in the physical activity domain, which would allow some reference to the BOTMP data.

Methodology.

At the time of the Play and Leisure Interests interviews each mother was given the Play Activity (PQ) questionnaire to complete by herself. Sometimes because of pressure of time this was not completed during the child's interview. The mother was then asked to return the completed questionnaire to the interviewer on her return visit to meet the child; or to give it to the BOTMP assessor. Sixty six questionnaires were returned. One questionnaire was completed on one side of the page only thereby missing the data for items 7 to 15, so for these items the number was 65. The DataDesk statistical package was used for statistical analysis.

Presentation of Results.

The results are presented below for each of the 15 items indicating the differences if any between boys and girls, Pooled t-tests were used. It was also considered useful to identify the scoring pattern on the scale so percentages for boys and girls are presented in the tables below. The mean and standard deviations are summarised on Table 6.15 below allowing comparisons with the PQ data provided by the North American developers of the scale. Issues about the validity of the Play Factor groupings are examined in Chapter 7, as are the correlations between PQ items and BOTMP scores.

Summary Statistics for Each PQ Item.

Table 6. 1. Item 1. My Child Likes Arts and Crafts.

Scale Rate	Boys n = 34	Girls n = 32	Total n = 66
1 not at all	1 (2.94%)	0	1 (1.54%)
2	1 (2.94%)	0	1 (1.54%)
3	0	0	0
4 average amount	15 (44.1%)	3 (9.38%)	18 (27.3%)
5	4 (11.8%)	2 (6.25%)	6 (9.09%)
6	3 (8.82%)	5 (15.6%)	8 (12.1%)
7 a great deal	10 (29.4%)	22 (48.5%)	32 (38.5%)
Mean	**5.02**	**6.43**	**5.71**

t = 4.305 w 64df p = 0.0001 **SIG.**

There is a statistically significant difference between mean scores of boys and girls, but most children like arts and crafts with nearly half of the girls liking it a great deal. Only two boys did not like arts and crafts. This is in keeping with the data gathered in the mothers' and children's interviews.

Table 6. 2. Item 2. In Comparison With Other Children The Same Age, My Child Throws a Ball..

Scale Rate	Boys n = 34	Girls n = 32	All n = 66
1. More poorly than other children	0	1 (3.13%)	1 (1.52%)
2.	1 (2.94%)	1 (3.13%)	2 (3.03%)
3.	1 (2.94%)	3 (9.38%)	4 (6.06%)
4. as well as others	20 (58.8%)	21 (65.6%)	41 (62.1%)
5.	7 (20.6%)	5 (15.6%)	12 (18.2%)
6.	3 (8.82%)	1 (3.13%)	4 (6.06%)
7. better than others	2 (5.88%)	0	2 (3.03%)
Mean	**4.47**	**3.968**	**4.20**

t = –2.114 with 64 df p = 0.0384. **SIG**

Sixty two percent of the children were considered by their mothers to be in the 'average' range of ability at throwing a ball well. There was a statistically significant difference in mean scores between boys and girls in the expected direction (Thomas & French, 1985) favouring boys.

Table 6. 3. Item 3 . I Rate My Child's Physical Activity Level During Play As...

Scale Rate	Boys n = 34	Girls n = 32	All n = 66
1. less than others	1 (2.94%)	1 (3.13%)	2 (3.03%)
2.	2 (5.88%)	0	2 (3.03%)
3.	1 (2.94%)	2 (6.25%)	3 (4.55%)
4. same as others	13 (38.2%)	20 (62.5%)	33 (50%)
5.	5 (14.7%)	4 (12.5%)	9 (13.6%)
6.	7 (20.6%)	2 (6.25%)	9 (13.6%)
7. more than others	5 (14.7%)	3 (9.38%)	8 (12.1%)
Mean	**4.76**	**4.37**	**4.56**

t = -1.148 with 64 df p = 0.2553

Half of the children were rated in the 'average' range, 38% of boys and 62% of girls. Interestingly, boys were scored as more active as might be expected, but not to a statistically significant level.

Table 6.4. Item 4. My Child Likes Fantasy Play (eg. Lego, playing shop).

Scale Rate	Boys n = 34	Girls n = 32	All n = 66
1. not at all	2 (5.88%)	0	2 (3.03%)
2.	3 (8.82%)	1 (3.13%)	4 (6.06%)
3.	5 (14.7%)	0	5 (7.58%)
4. average amount	11 (32.4%)	9 (28.1%)	20 (30.3%)
5.	2 (5.88%)	2 (6.25%)	4 (6.06%)
6.	4 (11.8%)	8 (25%)	12 (18.2%)
7. a great deal	7 (20.6%)	12 (37.5%)	19 (28.8%)
Mean	**4.411**	**5.625**	**4.97**

t = 3.007 w64 df p = 0.0038 **SIG.**

The distribution of the boys scores seemed more even in comparison to the girls with only one girl scoring in a below 'average' category compared to 10 boys. A statistically significant gender difference was found. This gender difference in fantasy play was in keeping with the results of the mothers' and children's interview data.

Table 6. 5. Item 5. My Child Likes to Wrestle and Rough and Tumble With Friends.

Scale Rate	Boys n = 34	Girls n = 32	All n = 66
1. not at all	0	4 (12.5%)	4 (6.06%)
2.	3 (8.82%)	4 (12.5%)	7 (10.6%)
3.	0	4 (12.5%)	4 (6.06%)
4. average amount	10 (29.4%)	10 (31.3%)	20 (30.3%)
5.	5 (14.7%)	3 (9.38%)	8 (12.1%)
6.	2 (5.88%)	5 (15.6%)	7 (10.6%)
7. a great deal	14 (41.2%)	2 (6.35%)	16 (24.2%)
Mean	**5.32**	**3.84**	**4.50**

t = -3.509 w/ 64 df. p = 0.008 **SIG**

Twelve girls were reported in the below 'average' categories as compared to 3 boys. 41% of boys were reported in the 'great deal' category as compared to only 6% of girls. There was a statistically significant difference between mean scores for boys and girls in keeping with popular assumptions. However it is interesting that not more than 12 girls (37%) were in the below 'average' categories.

Table 6. 6. Item 6. My Child Enjoys Games That Involve Running or Jumping.

Scale Rate	Boys n = 34	Girls n = 32	All n = 66
1. not at all	0	0	0
2.	2 (5.88%)	0	2 (3.03%)
3.	0	2 (6.25%)	2 (3.03%)
4. average amount	10 (29.4%)	12 (37.5%)	22 (33.3%)
5.	4 (11.8%)	2 (6.25%)	6 (9.09%)
6.	7 (20.6%)	9 (28.1%)	16 (24.2%)
7. a great deal	11 (32.4%)	7 (21.9%)	18 (27.3%)
Mean	**5.38**	**5.23**	**5.30**

t = -0.467 w/64 df p = 0.6421

One would have expected boys to like running and jumping more than girls. It is interesting to note the similar results of combining category 6 and 7 in which 53% of the boys score and 50 % of the girls. It would appear that most children in this study enjoy running and jumping games regardless of gender.

Table 6. 7. Item 7. When Playing With A Group of Friends, My Child Is Highly Active and Vigorous.

Scale Rate	Boys n = 33	Girls n = 32	Total n = 65
1. not at all	1 (3.03%)	0	1 (1.54%)
2	1 (3.03%)	0	1 (1.54%)
3.	0	3 (9.38%)	3 (4.64%)
4. average amount	16 (48.5%)	11 (34.4%)	27 (41.5%)
5.	5 (15.2%)	6 (18.8%)	11 (16.9%)
6.	3 (9.09%)	10 (31.3%)	13 (20%)
7. a great deal	7 (21.2%)	2 (6.25%)	9 (13.8%)
Mean	**4.81**	**4.90**	**4.89**

t = 0.2667 w/63 df p = 0.7906

One question 7 was not completed. Only 5 (7%) children fell into less than 'average' categories and 48% of boys were seen to belong in the 'average' category as compared to only 34% of girls. Thirty one percent of girls were in the 6th category as compared to only 9% of the boys. Forty five percent of boys were scored in the above 'average' categories as compared to 55% of the girls. It may be that mothers have different levels of expectation for boys and for girls in the area of active play, and hence consider their daughter more active than the lower level expected of girls. These results were similar to those found by Finegan et al (1991) in their studies. In addition to the finding that there is no perceived gender difference in activity levels, it is interesting to note that only two boys scored in the first two categories, marking them as very different in this respect from their cohort.

Table 6. 8. Item 8. My Child Prefers to Play With Active, Boisterous Friends.

Scale Rate	Boys n = 33	Girls n = 32	All n = 65
1. not at all	3 (9.09%)	5 (15.6%)	8 (12.3%)
2.	3 (9.09%)	3 (9.38%)	6 (9.23%)
3.	3 (9.09%)	8 (25%)	11 (16.9%)
4. average amount	17 (51.5%)	11 (34.4%)	28 (43.1%)
5.	3 (9.09%)	3 (9.38%)	6 (9.23%)
6.	0	1 (3.13%)	1 (1.54%)
7. a great deal	4 (12.1%)	1 (3.13%)	5 (7.69%)
Mean	**3.90**	**3.34**	**3.57**

t =1.487 w/63 df p = 0.142

One child's data were not completed for this question. Thirty eight percent of children were scored in categories 1,2,3 (less than an 'average' amount). These children do not prefer active boisterous friends. A further 43% scored in the 'average' amount category. Only 5 children (7.8%) scored that they liked this type of friends 'a great deal'. There was no statistically significant difference between mean scores of boys and girls.

Table 6. 9. Item 9. When Playing Active Games, My Child Likes to Shout and Yell.

Scale Rate	Boys n = 33	Girls n = 32	All n = 65
1. less than others	0	0	0
2.	1 (3.03%)	2 (6.25%)	3 (4.62%)
3.	5 (15.2%)	0	5 (7.69%)
4. same as others	20 (60.6%)	21 (65.6%)	41 (63.1%)
5.	2 (6.06%)	3 (9.38%)	5 (7.69%)
6.	2 (6.06%)	5 (15.6%)	7 (10.8%)
7. more than others	3 (9.09%)	1 (3.13%)	4 (6.15%)
Mean	**4.24**	**4.37**	**4.33**

t = 0.4755 w/63 df p = 0.636

Almost 75% of all children scored in the 'average' or less than 'average' categories. It would appear that the mothers in this study did not perceive their children to be excessively noisy in their play, or it may be that most of the active games were played outdoors.

Table 6. 10. Item 10.My Child Likes To Play Stick Games (Hurling/Hockey).

Scale Rate	Boys n = 33	Girls n = 32	All n = 65
1. not at all	7 (21%)	8 (25%)	15 (23%)
2.	5 (15.2%)	9 (28%)	14 (22%)
3.	7 (21.2%)	5 (16%)	12 (18%)
4. average amount	8 (24.2%)	7 (22%)	15 (23%)
5.	6 (18.2%)	3 (9%)	9 (14%)
6.	0	0	0
7. a great deal	0	0	0
Mean	**3.03**	**2.62**	**2.91**

t = -1.81 w/63df p = 0.2419

There was little interest in playing stick games demonstrated by this population of children. Considering Hurling is one of our national Gaelic Athletic Games (GAA), this apparent lack of interest certainly raises issues about the representativeness of the 'national' tag. There was no statistically significant different between boys and girls.

Table 6. 11. Item 11. My Child Likes Games Involving Body Contact.(e.g. Soccer, Wrestling)

Scale Rate	Boys n = 33	Girls = 32	All n = 65
1. not at all	1 (3.03%)	6 (18.8%)	7 (10.8%)
2.	4 (12.1%)	10 (31.3%)	14 (21.5%)
3.	2 (6.06%)	7 (21.9%)	9 (13.8%)
4. average amount	9 (27.3%)	5 (15.6%)	14 (21.5%)
5.	6 (18.2%)	0	6 (9.23%)
6.	1 (3.03%)	1 (3.13%)	2 (3.08%)
7. a great deal	10 (30.3%)	3 (9.38%)	13 (20%)
Mean	**4.75**	**2.93**	**3.75**

t = -4.077 w/63df p = 0.0001 **SIG**

Girls appear to dislike games involving body contact, with 72% scoring in the below 'average' categories of 1,2, and 3. Only 12.5% of girls were scored in category 5, 6 and 7 (a great deal). Boys appear to be very different, with 51% scoring in the same above 'average' categories. It fits into the stereotype of gender differences in children's play. The differences are statistically significant, and very interesting in that almost opposite category scores achieved. Wrestling as a sport was televised at the time of this study. Wrestling toys and games were merchandised and promoted on T.V., but wrestling as a specific play-time occupation was not reported by the boys in their interviews. Soccer would be less of a body contact game than Gaelic football or Rugby, yet soccer was the most popular form of football played by the boys. Perhaps the girls do not have this need for energetic physical contact, and prefer other types of physical contact. Or perhaps it may be discouraged in girls. This was not addressed in this study but might be worth further exploration.

Table 6. 12. Item 12. My Child Likes To Play Ball Games (eg. Baseball, Soccer).

Scale Rate	Boys n = 33	Girls = 32	All n = 65
1. not at all	1 (3.03%)	4 (12.5%)	5 (7.69%)
2.	5 (15.2%)	5 (15.6%)	10 (15.4%)
3.	4 (12.1%)	7 (21.9%)	11 (16.9%)
4. average amount	4 (12.1%)	8 (25%)	12 (18.5%)
5.	8 (24.2%)	5 (15.6%)	13 (20%)
6.	2 (6.06%)	1 (3.13%)	3 (4.62%)
7. a great deal	9 (27.3%)	2 (6.25%)	11 (16.(%)
Mean	**4.66**	**3.5**	**4.00**

t = -2.657 w/63 df p = 0.010 **SIG**

Considering the high level of interest expressed by many boys in their interviews in playing football, and the lack of interest expressed by girls, it is not surprising therefore that a statistically significant difference was found in this item between boys and girls.

Table 6. 13. Item 13. My Child Is Physically Courageous and Daring.

Scale Rate	Boys n = 33	Girls n = 32	All = 65
1. not at all	1 (3.03%)	4 (12.5%)	5 (7.69%)
2.	2 (6.06%)	7 (21.9%)	9 (13.8%)
3.	1 (3.03%)	5 (15.6%)	6 (9.23%)
4. average amount	17 (51.5%)	7 (21.9%)	24 (36.9%)
5.	4 (12.1%)	8 (25%)	12 (18.5%)
6.	3 (9.09%)	0	3 (4.62%)
7.	5 (15.2%)	1 (3.13%)	6 (8.23%)
Mean	**4.515**	**3.375**	**3.86**

t =-3.042 w/63 df p = 0.0034 **SIG.**

The girls' scores reflect a dislike or perhaps avoidance of being courageous and daring with only 28% scoring in the above 'average' range, 25% being accounted for in the score for category 5. Boys scores were almost the opposite with only 12% scoring in the below 'average', 51% in the 'average' range and the rest above this. These extremes are rather similar to item 11 (liking body contact) and raise issues about gender differences and physical engagement.

Table 6. 14. Item 14. At The Playground, My Child Is Active and Adventurous On The Monkey Bars and Climbing Apparatus.

Scale Rate	Boys n = 33	Girls n = 32	All n = 65
1. not at all	1 (3.03)	2 (6.25%)	3 (4.62%)
2.	1 (3.03%)	3 (9.38%)	4 (6.15%)
3.	1 (3.03%)	7 (21.9%)	8 (12.3%)
4. average amount	14 (42.4%)	6 (18.8%)	20 (30.8%)
5.	3 (0.09%)	4 (12.5%)	7 (10.8%)
6.	5 (15.2%)	3 (9.38%)	8 (12.3%)
7.	8 (24.2%)	7 (21.9%)	15 (23.1%)
Mean	**4.93**	**4.37**	**4.66**

t = -1.305 w/63 df p = 0.196

In contrast to P.Q. item 13, there was no statistically significant gender difference found in this item.

Table 6. 15. Item 15. My Child Likes To Sit and Do Quiet Table Activities.

Scale Rate	Boys n = 33	Girls n = 32	All n = 65
1. not at all	2 (6.06%)	0	2 (3.08%)
2.	5 (15.2%)	2 (6.25%)	7 (10.8%)
3.	4 (12.1%)	2 (6.25%)	6 (9.23%)
4. average amount	8 (24.2%)	7 (21.9%)	15 (23.1%)
5.	3 (9.09%)	4 (12.5%)	7 (10.8%)
6.	6 (18.2%)	9 (28.1%)	15 (23.1%)
7. a great deal	5 (15.2%)	8 (25%)	13 (20%)
Mean	**4.30**	**5.25**	**4.73**

t = 2.24 w/63 df p = 0.0286 **SIG**

The results for both boys and girls appear to be well spread throughout the categories with the biggest single group of 24% for boys in category 4, and 28% for girls in category 6. However the mean scores highlight gender differences. Considering the gender differences identified in item 1 (arts and crafts) the statistically significant difference found in this item is not surprising. Quiet table games might include computer use and video games as identified in the interviews with mothers and children, so what constitutes 'quiet play' perhaps might be different for boys and girls.

Comparison Between Results of the Dublin and Canadian Samples.

The data from the Dublin study were compared with the data provided by the PQ developers. The following table presents the summary statistics for the 15 items on the PQ for children in this study, and the PQ developer's study. A test of individual means was applied and statistically significant differences in mean scores between the two samples found in 9 of the 15 items, with the Dublin children scoring lower than their North American counterparts. The probability of the t derived from independent groups t-test are stated in the table.

Table 6.15 . Summary Statistics Dublin Child Development Study and PQ Test Results.

	PQ Item No.	Mean	SD	Range
Dublin Study n = 66 PQ n = 239	1. Likes arts and crafts.	5.710 5.89 p = 0.318	1.48 1.42	1 – 7 1 – 7
Dublin PQ	2. Throws a ball well.	4.20 4.55 p = 0.004 **SIG**	0.978 1.19	1 – 7 1 – 7
Dublin PQ	3. Physical activity level during play.	4.56 5.01 p = 0.008 **SIG**	1.35 1.18	1 – 7 1 – 7
Dublin PQ	4. Likes fantasy play.	4.97 5.44 p = 0.0255 **SIG**	1.70 1.66	1 – 7 1 – 7
Dublin PQ	5. Likes rough and tumble play.	4.50 4.40 p = 0.6432	1.91 2.00	1 – 7 1 – 7
Dublin PQ	6. Enjoys running and jumping games.	5.30 5.46 p = .344	1.40 1.41	2 – 7 2 – 7
Dublin PQ	7. Is highly active and vigorous.	4.89 5.24 p = 0.037 **SIG**	1.32 1.45	1 – 7 1 – 7
Dublin PQ	8. Prefers active boisterous friends.	3.57 3.97	1.58 1.73	1 – 7 1- 7

		p = 0.043 **SIG**		
Dublin PQ	9. Likes to shout and yell.	4.33 4.50 p = 0.246	1.14 1.61	2 – 7 1 – 7
Dublin PQ	10. Likes stick games.	2.91 3.32 p = 0.023 **SIG**	1.45 1.91	1 – 7 1 – 7
Dublin PQ	11.Likes body contact games.	3.75 3.83 p = 0.746	2.03 1.96	1 – 7 1 – 7
Dublin PQ	12. Likes ball games.	4.00 4.46 p = 0.046 **SIG**	1.86 1.84	1 – 7 1 – 7
Dublin PQ	13.Is physically courageous and daring.	3.86 4.51 p = 0.002 **SIG**	1.64 1.69	1 – 7 1 – 7
Dublin PQ	14.Adventurous on monkey bars.	4.66 5.39 p = 0 .0009 **SIG**	1.72 1.42	1 – 7 1 – 7
Dublin PQ	15. Likes table top /quiet play.	4.73 5.15 p = 0.151	1.72 1.60	1 – 7 1 – 7

The similarities and differences in the data between the two samples of children are interesting. The results indeed indicate a difference in play preferences between the samples. Items such as 'playing stick games' (PQ item 10) might reflect the interest North American, especially Canadian children have in ice hockey, whereas the Dublin sample

have been shown in their interviews to have little interest in the Irish game of hurling. However the differences in scoring may also reflect the data gathering differences between the two samples. In the Dublin study mothers completed the questionnaires, whereas in the developers' study fathers and mothers were involved. It is a subjective measure and there may be gender differences in judging what is 'average', or indeed in the type of physical play exhibited by children to fathers and to mothers. Another possible influencing factor explaining the lower scores given by Irish mothers might be the cultural trend to understate rather than overstate ability or behaviour. Irish parents would tend not to 'talk up' achievements, but rather report their children as 'average' or 'normal'.

What is not known about the North American sample is the play pattern and opportunities that the children have, or indeed their mothers' exposure to their play. Bearing in mind that most Irish mothers were home based, and may have more (or at least different) experience in observing not only their own children but also their neighbour's children, since much physically active play by the Irish sample takes place on the street. The differences in the scores of the two samples could also cast doubt on its value as a measure in identifying those with gender identity pathology (the purpose for which it was designed) if it is possibly so culturally biased.

The Four 'Play Factors'.

The developers of the PQ have a particular perspective on play and its relationship to gender identity and make assumptions relating play preference to gender identity formation and role. They cite Green (1974) and Zucker (1985) who report that unlike many 'typical' boys, those with atypical gender identity development appear to avoid rough–and–tumble play and to prefer stereotypical feminine play activities. The following table presents the item groupings into the 4 'play factors'.

Table 6.17. The 4 Play Factors in the Play Questionnaire (PQ) Items.

1. Active and Adventurous Items	2. Throws a ball well. 3. Physically active during play. 6. Enjoys running and jumping games. 13. Physically courageous and daring. 14. Active and adventurous at playground.
2. Athletic Items	10. Likes to play stick games. 11. Likes body contact. 12. Likes to play ball games.
3. Rough and Tumble Items	5. Likes to wrestle, rough house w/ friends. 7. Active, vigorous playing with friends. 8. Prefers active boisterous friends. 9. Likes to shout and yell when playing.
4. Quiet Play Items	1. Likes arts and crafts. 4. Likes fantasy play. 15. Likes quiet table activities.

Although the above categories appear to have a face validity, on closer inspection it is difficult to see why some items belong in one category rather than another such as 'likes body contact games' categorised as 'athletic', whereas it could just as easily belong to the 'rough and tumble' category. A sensory integration perspective (Ayres, 1974) could offer a different interpretation related to the avoidance or seeking out of different types of physical play preferences, as could an understanding of motor developmental disorders which as reported earlier have been estimated at a prevalence rate of 6% with a predominance of boys. The issues of validity of the 4 play factors is examined in Chapter 7 using these data from the Dublin Study.

Gender Differences in the Dublin Sample as Identified by the PQ.

The eight PQ items were identified as having a statistically different difference related to gender were; Item 1, 2, 4, 5,11, 12, 13 and 15. Bearing in mind that this is a subjective mother's report, these differences should not be interpreted as indicative of 'clinical' differences. However individual children in the extreme or opposite categories from the majority of their gender group mean may warrant further attention for a variety or reasons. These eight items are now examined below regarding their relevance to gender.

Item 1. 'My child likes arts and crafts'. Only 2 children did not like arts and crafts and these were boys. Avoiding arts and crafts may be indicative of a dislike for tactile contact with messy textures, or of an awareness of poor fine motor skills. All other children were scored as liking it from an 'average' amount upwards with a statistically significant difference in favour of girls.

Item 2. This item asks parents to compare their child's ability in throwing a ball with the 'average' child. It does not ask about preference for this type of activity, or its frequency. However the literature reports few differences in motor skill between girls and boys in middle childhood, with the exception of the ability to throw object, in which boys consistently outscore girls. But it is not clearly reported in the literature if boys with DCD are included in the high scoring groups, or what other factors other than gender difference or preference are correlated with lower ball throwing scores.

Item 4. The literature on play tends to suggest a minimal role for fantasy as a play activity in middle childhood. However this author's study (the interview data and the PQ data) supports the view that children do continue with fantasy play into middle childhood, but that there is a greater preference for this kind of play amongst girls. None the less, approximately 38% of boys were scored in the 'above average' PQ categories and these are all hardly likely to have gender identity issues. On the other hand those who dislike fantasy play may be of interest because of its possible associations with social/interpersonal interaction deficits as in Asperger's syndrome

Item 5. 'My child likes to wrestle and rough and tumble with friends'. This item could be seen as relating to a typically boyish pastime, and only 3 boys (8%) do not like this type of play as compared to 12 girls (37%). However there may be issues other than gender

identity for these boys that influence preference for or avoidance of rough and tumble play.

Item 11. 'My child likes games involving body contact'. A considerable 22% of boys scored in the less than 'average' categories even though there was a marked difference between boys and girls. So avoidance of body contact for this percentage of boys is unlikely to be solely related to gender difficulties. Twenty three girls (72%) scored in the below 'average' categories.

Item 12. In the interview data it was striking that most boys reported playing ball games, and most girls reported going to Irish dancing. This gender difference was found for this PQ item also. It is difficult to estimate to what extent these differences are affected by opportunity and cultural expectations. Since this study data were gathered (1994/5) there has been a marked increase in female participation in contact sports such as soccer, with Gaelic football being reported as the fastest growing sport in Ireland for girls. In addition, children who avoid ball games might do so because of their perceived clumsiness, and/or in order to avoid physical contact because of 'tactile' defensive. It is difficult to see why avoiding ball games should indicate gender identity issues.

Item 13. This item states that 'My child is physically courageous and daring'. One might expect the stereotypical boy to seek out physical challenges. Only 4 boys (13%) scored in the less than 'average' category as compared to 16 girls (50%). As with the other items there may be explanations other than gender identity for scoring at the extreme end of the range in this item.

There are clearly gender differences in play preferences identified by the PQ Further gender differences were identified in the child and mother questionnaires used in this study. These differences and their relationship to motor proficiency are explored in chapter 7. The remaining work of this chapter 6 is to describe the results of the BOTMP for this study sample. First, descriptive information on the sample as a whole is given, followed by data related to gender differences

.

The Bruininks-Oseretsky Test of Motor Proficiency (BOTMP).

The Bruininks-Oseretsky Test of Motor Proficiency (BOTMP) (Bruininks, 1978) is an individually administered test that assesses motor functioning in children from 4.5 years to 14.5 years of age. The complete battery, with eight sub-tests, comprising 46 separate

items, provides an index of motor proficiency as well as separate measures of both gross and fine motor skills. The eight sub-tests are; Running Speed and Agility; Balance (both static and performance); Bilateral Co-ordination involving sequential and simultaneous co-ordination of upper and lower limbs; Strength involving arm and shoulder strength; abdominal strength and leg strength; Upper Limb Co-ordination and Visual tracking; Response Speed to a moving visual stimulus; Visual-Motor Control; and Upper Limb Speed and Dexterity. The test was designed to both screen and assess motor proficiency. It is well known, and widely used in the assessment of motor proficiency (Reid, 1987). It is frequently used in a clinical situation by occupational therapists (Rodger, 1994). It has been found useful clinically for documenting change following sensory integrative intervention (Clark, Malloux, and Parham, 1989). It was developed in North America, and there are no reports in the literature on how Irish children score with this assessment.

The test was administered in the homes of 75 children who had been recruited into the Dublin Child Development Study from birth. The mean age at the time of testing was 8 years six months (see table 1 below for age distribution). These data were gathered as part of a study exploring play and leisure interests of children, and the relationship if any, to play preference and motor development. It is acknowledged that each home situation was different, and therefore non-standardised. The assessment items used were from the standardised pack. Two chairs and a kitchen/dining table were provided by the child's mother. It should be noted that the Running Speed and Agility test, which involved running 15 yards, was carried out of doors in conditions that varied with the weather.

Data Collection.

Non-Respondents/Non Completion.

Seventy-five children took part in the BOTMP compared to 82 who had contributed to the play and leisure data interviews. Of the 75 who did take part, not all children completed all the sub-tests, for example 11 did not complete the running speed sub-test as their mothers did not want them running outside in the rain. Occasionally a child did not want to complete a sub-test, for example he/she cried and /or said it was 'too hard'. With the absence of these sub-test scores, composite scores could not be computed for these children, therefore it is worth noting the count for each data set, as it varies.

Some of the invited children did not wish to be assessed, (or their mothers did not wish them to be assessed). Two mothers said at the time of the play interview that they did not think that their child would enjoy the experience, and that the child was nervous of tests, and was not good at catching balls and sports. They declined the offer to be assessed. Four others declined the offer when the assessor phoned to make arrangements. Hay and Missiuna (1998) reported that children with perceived low levels of self-efficacy about their motor skills were found to have characteristics that are typical of children with developmental co-ordination disorder. So it may be that at least some of the children who excluded themselves from the study did not rate themselves highly on motor skills, or the enjoyment of physical activity. The possible effects of their exclusion should be borne in mind. Other than general encouragement and explanation about the contents and purpose of the BOTMP, children were not coerced into participation. This further limits the extent the results of this non-random sample can be generalised.

Another possible reason for non-participation in the B.O.T.M.P. was the length of time between the interview (on play and play preference) and the date for assessment of motor proficiency. It may be that this delay was too long, and that the child or mother no longer wanted to participate.

From a test administration perspective, a senior occupational therapist was employed to arrange the motor proficiency assessment. She set about doing this in a geographical cluster approach. As is clear from the data on play and leisure preferences, getting three children available on any one Saturday, or two children available after school, proved quite difficult. If the first appointment was not possible for all, then those who were available were assessed, but considerable time could pass before the assessor was back in that geographical area again. The areas in which the children lived were quite scattered, and included counties Dublin, Kildare, and Wicklow. Eventually it emerged that a single assessor would not be able to complete the programme in a timely fashion so a second senior occupational therapist with 10 years experience was engaged to as an assessor to target several specific geographical area, such as west Dublin, and take children as and when they were individually available.

Limitations of the Study Sample.

The results of this study need to be interpreted in the context of the sample limitations. The sampling plan for the B.O.T.M.P. as detailed in the examiner's manual (Bruininks, 1978)

reports on its multistage stratified sampling procedures based on the 1970 U.S. census which was to allow for representation within strata of age, gender, race and community size, and geographic region. There is no mention of informed consent or the possibility of withdrawing from the testing programme, so it is assumed that the random sample within the stratification included children who did not feel good about their physical ability or who may have been 'clumsy'. The only children not included in the sampling were those with 'severe physical impairments'. Any substitution that was made was to meet the requirements for representativeness in gender and race. In contrast, the study carried out by this author is a non-random sample, and some children exercised their choice to be excluded. This may have removed some of the less able from the data set. Prevalence estimates obtained internationally consistently indicate that about 5% to 6% of the school aged population may be affected by "developmental co-ordination disorder"(DCD) (Gubbay, 1975; Henderson & Hall, 1982; Wright, Sugden, Ng & Tan, 1994). Children with these difficulties may have a reluctance to practice motor skills, and generally have reduced motivation to participate in physical activities. They often have low perceived competence in the physical domain (Schoemaker & Kalverboer, 1994; Thompson, Bouffard, Watkinson, & Causgrove Dunn, 1994). These children have been found to be heavier and to have lower levels of physical fitness than their peers (O'Beirne, Larkin & Cable, 1994). Differences in the data between the Dublin children and the standardization sample should be interpreted in the context of the different sampling methods, and the choice which was offered to the Dublin children.

Age Distribution of the Sample.

As reported above there were difficulties in getting access to children to carry out the assessment. It took approximately 1 year 7 months to carry out the assessments, as compared to only 1 year 3 months to complete the play interviews; this has had an impact on the age range of the children at time of testing. The range was from 7 years 6 months to 10 years 2 months, with a mean age of 8 years 6 months, a range of 32 months and a standard deviation of 9 months. The following table presents the age and gender distribution in the 6 monthly categories as used in table 23 in the Examiner's Manual for the BOTMP (pages 115-120).

Table 6. 18. Age Distribution of Children Assessed with the BOTMP.

Age group	Boys n = 37	Girls n =38	All = 75
7 yrs 6mths to 7 yrs 11 months	12	12	24 (31.6%)
8 yrs to 8yrs 5 months	12	10	22 (29%)
8 yrs 6 mths to 8 yrs 11 months	2	4	6 (7.8%)
9 yrs to 9 yrs 5 months	4	4	8 (10.6%)
9 yrs 6 months to 9 yrs 11 months	6	6	12 (16%)
10 yrs to 10 yrs 5 months	1	2	3 (4 %)

Sixty percent of the children were aged between 7 years and 6 months and 8 years and five months. Twenty one percent were older than 9 years six months when tested. The ages were divided into two age bands; one of 7 years 6 months to 8 years and 5 months, representing 60.5% of the sample, and all other age bands. A chi-squared analysis with 1 d/f showed no statistically significant association between gender and age grouping (Chi-squared = 0.2203. p = 0.6388). The scoring procedures are designed to convert the raw point scores to age adjusted standard scores. All of the data presented here are the age adjusted standard and composite scores.

Differences Related to Arm and Leg Preference.

As part of the assessment, the children were tested for arm and leg preference. The table below presents this data.

Table 6. 19. Arm and Leg Preferences for All Children.

Preference	Boys n = 37	Girls n = 38	All n = 75
Right hand/ r leg	28 (75.6%)	27 (71.1%)	55 (73.3%)
Left hand/lft leg	5 (13.5%)	2 (5.26)	7 (9.3%)
Right hand/Lft leg	1 (2.7%)	0	1 (1.33%)
Left hand/ R. leg	1 (2.7%)	0	1 (1.33%)
Mixed hand dominance (uses right and left)	1 (2.7%)	5 (13.2%)	6 (8.0%)
Mixed leg Dominance (uses right and left)	0	3 (7.89%)	3 (4.0%)
Mixed hand and Leg dominance	1 (2.7%)	1 (2.63%)	2 (2.66%)

Almost 76% of the study sample had a preference for right hand and right leg, and 9% had a preference for left hand and left leg. The remainder 15% indicated various combinations of mixed preferences. The individual combinations had very small numbers that made examination difficult. Three categories of dominance preference were generated; right hand right leg with 55 children; left hand left leg with 7 children; all other mixed variations with 13 children. An independent pooled t-test was used with the data from the right preference group and with each of the other two groups for the 8 sub tests and composite standard scores. No statistically significant difference was found between the groups for any sub-test or composite results.

The Sub-test and Composite Standard Scores.

Data are presented for each sub-test, and composite data scores are also given (eg. gross motor composite, fine motor composite). Independent pooled t-tests were used to test for statistically significant differences between boys and girls scores on the individual sub-tests, and on composite scores. Scores for children who displayed left, and mixed hand and leg preferences are examined. All scores for the sub-tests have been converted to standard scores following the tables presented in the manual. The sub-test standard scores were developed to ensure that each sub-test would contribute equally to the composite scores.

The sub-test standard scores in Table 23 of the Examiner's Manual (Bruininks, 1978) have a mean of 15 and a standard deviation of 5 for each age group tested in the standardization programme. The groupings of sub-test standard scores listed below can be used to obtain an estimate of the level of performance on each sub-test. However the manual recommends caution about the interpretation of individual sub-test standard scores. "The relatively low reliabilities of some sub-tests make routine interpretation of sub-test standard scores inadvisable, since differences in these scores must be quite large to represent real variations in performance" (Examiners Manual, Bruininks, 1978, pg 135).

Table 6. 20. Subtest Standard Scores. Examiner's Manual (Bruininks 1978) pg 135.

Subtest Standard Scores	Percent of Norm Group	Description of Performance
Above 23	4%	High
19 – 23	19%	Above Average
12 – 18	54%	Average
6 – 11	19%	Below Average
Below 6	4%	Low

Hence a standard score of between 12 to 18 is seen as 'average' regardless of the age group. The system of composite standard scores used for the BOTMP was selected to achieve comparability among the three composite scores within a single age group, as well as across successive age groups. For example a standard score of 60 denotes the same level of performance on all composite scores, regardless of the subject's age. A composite score of 43 to 57 is in the 'average' category, below this is in the 'low' category and above this is in the 'high' category.

Analysis of BOTMP scores.

Table 6.21 presents the age-adjusted standard scores for the fine motor, gross motor and battery composites of the BOTMP. A score of 50 is regarded as average and a score below 43 as indicative of impairment.

Table 6. 21. BOTMP Scores

	FINE MOTOR COMPOSITE	GROSS MOTOR COMPOSITE	COMPLETE BATTERY COMPOSITE
	N = 73	N = 65	N = 63
Mean	52.04	54.72	55.37
Standard Deviation	12.1	9.7	11.1
Percent below 43	16.4	6.2	11.1
Mean for males	52.34	53.3	54.93
Mean for females	51.76	56.00	55.73

The scoring of this Irish sample was generally somewhat above the expected average. The girls scored a little better overall than the boys but while girls were considerably stronger on the gross motor composite they were slightly poorer on the fine motor composite. Ten participants scored in the 'impairment' area on the fine motor composite (6 boys), four on the gross motor composite (3 boys) and seven on the battery composite (4 boys).

The following table presents data on the 8 sub-tests and composite results for the gross motor; fine motor; and upper limb co-ordination. The categorisation of the sub tests into these composites has been critiqued and questioned (Hattie & Edwards, 1987). As reported in the methodology section, point scores are converted into standard scores for each sub-test, by following the tables presented in the manual. Standard scores are presented here. Also presented are the composite standard scores that are made from a combination of specific sub-tests results. A composite score can only be obtained if the child has completed all the sub-tests in that composite category, as some children did not complete all sub-tests, the numbers of children with composite scores varies. Differences in results between the standard scores of boys and of girls were tested by a Pooled t-test, with the p value set at 0.05.

The scoring method used with this study sample was the gender free, age adjusted tables, following the guidelines of Part 5 on scoring (p101 –107) in the main body of text in the manual (Bruininks, 1978). The sample was then split into groups by gender, and examined for statistically significant differences. In appendix B of the manual (p 147 –149)

supplementary composite standard score (eg. gross motor, fine motor) norms tables are presented for test users who required separate composite norms for boys and for girls. These norms were not used in this study.

Table 6. 22. Summary Table of Standard Scores for Sub-tests and Composite Scores for All Study Children.

Test	N	Mean St. Score	St. Dev	Range
Running Speed / agility	65	17.63	7.2	27
Balance	75	14.69	5.06	26
Bilateral Co-ordin.	75	16.72	4.28	24
Strength	74	15.08	5.20	24
Gross Motor Composite	65	54.72	9.7	50
Upper Limb Co-ordin.	75	15.88	5.88	25
Response Speed	73	17.71	6.83	29
Visual Motor Control	75	18.77	5.62	24
Upper-Limb Speed/Dexter.	75	9.29	4.64	24
Fine Motor Composite	73	52.04	12.1	54
Battery Composite	63	55.36	11.12	50

As was noted in the Examiner's Manual pg. 135 (table 6.20 above) 54% of the Norm Group in the standardization sample had sub-test standard scores in the range of 12 to 18 (Average), and this gives a reference point with which to compare the Dublin sample with the BOTMP standardisation sample. The system of composite standard scores used in the BOTMP was selected by the developers to achieve comparability among the three composite scores within a single age group, as well as across successive age groups. Although criticism of these 'composite' groupings of sub-tests is reported in the literature review and this criticism is confirmed by the current data analysis presented in Chapter 7, the data from this study are described under these three 'composite' categories in this chapter. These are normalized scores with a mean of 50 and a standard deviation of 10 for each age group tested in the standardization programme. With regard to the composite scores achieved in this study, a range of scores from 52 to 56 were achieved. Only 65 children completed all the sub-tests, with 11 children not completing the 'running speed and agility' subtest, which required a running surface out of doors. If it was raining or very cold some mothers did not want the sub-test carried out. Perhaps the children or mothers

who chose to run were the 'outdoor' types who liked physical activity, and were different in gross motor areas from those who did not complete this sub-test. It is also interesting to note that the mean girls' score achieved was 19.05 which places it in the 'Above Average' category. Thirty four of the 38 girls took part, whereas with the boys it was only 31 of 37. Gender differences are discussed further in this chapter.

Gender Differences in Composite and Sub-test Scores.

Thomas and French (1985) in a meta analysis of gender differences in motor performance across age found little evidence of uniform development of gender difference, except in the area or throwing (velocity or distance). Gender differences in play preferences found in this sample of Dublin children have been reported in earlier sections. This section will examine the gender differences in the BOTMP results

Table 6.23 . Summary Table of Gender Differences in Standard Scores for Sub-tests and Composite Scores.

Test	Count All Boys/ Girls	Mean Standard Score	St. Dev	Range	Gender diff t-test p value
Running	65 all	17.63	7.2	27	t = 1.678
Speed / agility	31 boys	16.06	8.12	27	w/63 df
	34 girls	19.05	6.20	26	p = 0.0982
Balance	75 all	14.69	5.06	26	t =2.532
	37 boys	13.24	4.68	21	w/ 73 df
	38 girls	16.10	5.08	24	p = 0.0135 **SIG**
Bilateral	75 all	16.72	4.28	24	t = -0.019
Co-ordin.	37 boys	16.72	4.64	22	w/73df
	38 girls	16.71	3.97	17	p = 0.9847
Strength	74 all	15.08	5.20	24	t = -3.068
	36 boys	16.88	5.33	24	w/72 df
	38 girls	13.36	4.52	26	p = 0.0030 **SIG**
Gross Motor	65 all	54.72	9.7	50	t = 1.108
Composite	31 boys	53.32	11.88	50	w/63df
	34 girls	56.00	7.23	33	p = 0.272
Upper Limb	75 all	15.88	5.88	25	t =-1.511
Co-ordin.	37 boys	16.91	5.92	25	w/73 df
	38 girls	14.86	5.82	23	p = 0.135
Response	73 all	17.71	6.83	29	t = -2.259
Speed	35 boys	19.52	7.36	28	w/71 df
	38 girls	16.02	5.89	27	p = 0.0269 **SIG**
Visual Motor	75 all	18.77	5.62	24	t = 1.994
Control	37 boys	17.48	6.47	24	w/73 df
	38 girls	20.02	4.38	16	p = 0.0499 **SIG**
Upper-Limb	75 all	9.29	4.64	24	t = 3.154
Speed/Dexter	37 boys	7.67	4.24	15	w/73 df
	38 girls	10.86	4.5	23	p = 0.0023 **SIG**
Fine Motor	73 all	52.04	12.1	54	t = -0.202
Composite	35 boys	52.34	13.96	51	w/71df
	38 girls	51.76	10.38	51	p = 0.840

Battery Composite	63 all 29 boys 34 girls	55.36 54.93 55.73	11.12 12.5 9.94	50 50 45	t = 0.283 w/61 df p = 0.7775

Statistically significant gender differences were found in 5 sub test scores. The girls scored higher in Balance, Upper Limb Speed and Dexterity, and Visual Motor Control. The boys scored better than the girls in Strength and Response Speed. It is also interesting to note that the mean score for Running Speed and Agility for girls was 19.05 (which was 'Above Average), and for the boys was 16.06 in the 'Average' range. This was not a statistically significant difference.

Girls were better on scores for Balance than boys. The Balance sub-test involved holding positions or moving while on a balance beam. Balance could be considered as fundamental to all movement. From the play interviews it would appear that boys move about and play more physically than girls. This difference might suggest that perhaps girls are more neurologically refined. The possibility that this gender difference in results may relate to foot size on the balance beam was examined in a crude way. Although data were not gathered on foot-size or height, the sample was divided into two groups by age. A pooled t-test was carried out to compare the difference in the mean scores for Balance of the under 8 years and 5 months group and the older group. No statistically significant difference was found (t = -0.3713 w/73 df p = 0.7115). So being older and possibly bigger in relation to the size of the balance beam does not appear to explain the gender differences.

The mean scores for Bilateral Co-ordination for both boys and girls were within the 'Average' range, and were very similar with the boys' mean score of 16.72 and the girls' score of 16.71. This test involved tapping feet while making circles with fingers; jumping up and own and clapping hands and drawing lines and crosses simultaneously.

Boys scored better on the Strength sub-test, with a score of 16.88 in contrast to the girl's score of 13.36. All of the standard scores are age adjusted, nonetheless the data were examined by being split into the two age groups (below 8 years and 5 months and above) using a pooled t-test. A statistically significant difference was found in the Strength scores

between the groups (t = - 3.81 w/73df, p = 0.0003). The older group scored higher than the younger group.

The Upper Limb Co-ordination sub-test involved items such as bouncing a ball and catching it; throwing a ball at a target; and touching one's nose with eyes closed. As the boys in the study sample reported considerable interest in ball games than the girls, it was expected that they would outscore the girls in such a sub-test. However, although there was a difference in their scores with boys scoring a mean of 16.91 and girls scoring a mean of 14.86, the difference was not statistically significant.

Boys scored better on Response Speed. The mean score for boys in Response Speed was 'Above Average' at 19.52 in comparison to the girls' mean score of 16.02, which was 'Average'. The Response Speed test involves stopping a falling stick while in a seated position. The stick is placed against a wall, and is dropped by the tester. The stick is stopped from falling by the subject's thumb. It has measurements on it that give the score for the amount of drop before being stopped. It measures the speed of the response. It could be described as measuring speed of response in simpler patterns of movement that require less complex motor planning. It is difficult to explain the gender difference in this sample. It could be seen as a 'splinter skill' in which practice would improve speed. But both girls and boys were given the same number of trials. It could also be seen as a competition with oneself to stop it. Perhaps the boys were more engaged with the challenge of stopping it in the quickest amount of time. Unfortunately there is no way of knowing if this was an influential factor.

The Visual Motor Control for 'all' children in this author's sample was also 'Above Average' with a score of 18.77. The girls' mean score of 20.02 is scored as 'Above Average', but the boys scored in the 'Average' range with 17.48. The gender difference was statistically significant. This test is not a speed test, but tests accuracy in such tasks as cutting out a circle with preferred hand; drawing a line through a crooked / curved/ straight path and copying shapes.

The Upper-Limb Speed and Dexterity scores for the whole sample were 'Below Average' (Table 6. 4 above), with the boys' mean score at 7.72, and the girls' mean score at 10.86. This sub-test involved speed-testing such tasks as placing pennies in a box; sorting shape

cards with preferred hand; stringing beads; drawing lines; and marking dots in circles. All of these required sitting at a table which might have had a height implication affecting the speed of completion of these tasks, such as when the child's elbow was below the table height. The Examiner's Manual specifies "The table and one chair should be of the appropriate height so that the subject can sit comfortably with feet flat on the floor, and work with the test equipment on the table without difficulty" (p.44). As no data were obtained on the children's height, an assumption was made that older children would be taller and that the household adult furniture might advantage them. The results were broken down into the two age groups mentioned above (below 8 years 5 months and above) and a pooled t-test was applied to test for statistically significant difference between the scores on the Upper Limb Speed and Dexterity test for the age groups. The null hypothesis was rejected (t-statistic was –2.063 w/72df, $p = 0.042$). There was a statistically significant difference, but the mean score of the younger children (10.15) was higher than the older children's mean score of 7.93.

There was therefore no support for the hypothesis that the low scores achieved were related to the restrictions of younger children's elbow height in relation to the table. As the age groups were made up of equal numbers of boys and girls, the better scores achieved by girls might reflect their better ability in Speed and Dexterity. But it is difficult to explain the overall 'Below Average' scores for this sub-test, particularly when Upper Limb Co-ordination scores were 'Average' at 15.88 for all children. It might be related to an overall testing problem, or perhaps it is a true difference related to cultural experience and activity/occupational experience.

There were no statistically significant differences found between the boys' and girls' scores in any of the composite groupings.

Summary.

The PQ measure as applied to this Dublin sample has allowed description of play preferences that generally support the findings of the child and mother questionnaires, although mainly in the area of physical play preferences. The PQ results highlight gender differences in preferences in 8 of the 15 items, with girls having a preference for arts and crafts and for fantasy play, and boys preferring ball games, 'rough and tumble' and body

contact play. However there was no gender difference found in the mothers' reports of physical activity levels during play.

The PQ had been developed as a measure to identify children with gender identification pathology. However considering the preference distribution of this Dublin sample, and that there may be other reasons for avoidance or preference of a particular type of physically active play, (such as poor level of motor skill or sensory processing) it is difficult to see how this identification could be valid. There were statistically significant differences in preferences between the Dublin and North American sample, in the mean scores of 8 of the 15 items, this reflects cultural differences in play preferences, which further undermines the value of the PQ as an assessment tool for gender identification pathology. The validity of categorising the 15 PQ items into the 4 play factors requires further analysis, this is reported in the next chapter (7). One of the reasons for selecting the PQ was that it allowed analysis of physical play preferences and motor proficiency as measured by the BOTMP. This analysis is presented in chapter 7.

The BOTMP.

The scoring of this Irish sample was generally somewhat above the expected average. The girls scored a little better overall than the boys, but while girls were considerably stronger on the gross motor composite they were slightly poorer on the fine motor composite. Ten participants scored in the 'impairment' area on the fine motor composite (6 boys), four on the gross motor composite (3 boys) and seven on the battery composite (4 boys). With regard to the subtests, girls scored better on Balance, Visual Motor Control, and Upper Limb Speed and Dexterity. Boys scored better on Strength and Response Speed. Issues have been raised in the literature regarding the validity of grouping the subtests into fine and gross motor composites. The interrelationships between subtests and composite grouping for these Dublin data have been analysed, the results are presented in Chapter 7. The use of the BOTMP and the PQ, and the child and mother interview data allowed statistical analysis of the relationships between play preference and motor proficiency in this Dublin sample. These data are presented in the following chapter (7).

CHAPTER 7: ANALYSIS OF THE INTRA AND INTER RELATIONSHIPS OF THE PLAY ACTIVITY QUESTIONNAIRE, THE BOTMP RESULTS, AND SELECTED INTERVIEW DATA.

Introduction.

This chapter is organised for two main purposes, relating to the interpretation of the data generated on play preference and to the assessment of motor development and possible interrelationships. Two standardised measures (the PQ and the BOTMP) were employed in this study to allow comparison of play preferences with motor proficiency. Data generated from the child and mother questionnaires are also examined and compared with the data from the PQ and BOTMP results. These results are presented in this chapter. However, analysis of the PQ and BOTMP data generated in this Dublin study raised queries regarding the validity of some aspects of these measures. The results of analysis of the psychometric strengths and weakness of these measures are therefore presented in this chapter.

Analysis of The Validity of The PQ.

As previously reported, the developers of the Play Activity Questionnaire (Finegan, Niccols, Zacher & Hood, 1991) considered that the measure had potential application in the fields of gender identity developmental, psychopathology and psycho-neuroendocrinology. Hence gender related analysis was considered worthwhile and results have been reported item by item in Chapter 6. Gender differences were found in 8 of the 15 PQ items. However it was difficult to accept that this information could identify those with gender identity pathology, given that the particularly physical nature of most of the PQ play items may have an influence in attracting or deterring children with other issues especially motor or sensory processing problems. The PQ was developed in Canada. Little information on social class or cultural factors was reported in their studies. When comparing the results of the North American and Dublin samples, 8 of the 15 PQ items were found to have statistically significant differences between both samples. This supports the findings in the literature (Roberts & Sutton-Smith, 1962; Pelegrini, 1998) that social and cultural factors also influence play preference, which further weakens the developers' claim of the usefulness of the measure in identifying pathology.

Another apparent weakness in the PQ measure is the categorisation of the 15 items into four play factors. From a perspective of their physical demands, these factors did not appear to be valid. In an attempt to examine the justification for these four play factor grouping of items, Pearson Product-Moment Correlations were calculated between intra-group factor items. The results of the Pearson Product Moment correlation matrix of all 15 items is presented in Table 7.1. Tables presenting the correlations between the factor items are also presented in this chapter.

Table 7.1 Correlation Between 15 PQ Items.

Pearson Product-Moment Correlation

No Selector

	arts +_	throws_	physic_	fantas_	rough _	run + _	group _	active _	shout _	stick g_	body c_	ball ga_	courag_	monkey_	table a_
arts + crafts	1.000														
throws ball	-0.131	1.000													
physical act_	-0.005	0.455	1.000												
fantasy play	0.385	-0.164	-0.133	1.000											
rough + tum_	-0.108	0.148	0.205	-0.031	1.000										
run + jump	0.106	0.328	0.502	0.016	0.264	1.000									
group - acti_	0.150	0.142	0.494	0.116	0.103	0.608	1.000								
active frien_	-0.158	0.296	0.522	-0.142	0.532	0.510	0.496	1.000							
shout + yell	0.106	0.096	0.132	0.149	0.144	0.182	0.388	0.402	1.000						
stick games	-0.102	0.242	0.259	-0.111	0.208	0.299	0.243	0.171	-0.045	1.000					
body contact	-0.258	0.421	0.327	-0.134	0.612	0.315	0.211	0.531	0.024	0.442	1.000				
ball games	-0.231	0.446	0.275	-0.042	0.497	0.267	0.240	0.463	0.084	0.363	0.731	1.000			
courageous _	-0.151	0.302	0.506	-0.072	0.468	0.385	0.246	0.406	0.008	0.170	0.382	0.436	1.000		
monkey bars	-0.099	0.261	0.591	-0.037	0.233	0.433	0.421	0.427	0.233	0.149	0.231	0.371	0.657	1.000	
table activit_	0.340	-0.240	-0.309	0.427	-0.053	-0.222	-0.188	-0.293	-0.166	0.050	-0.057	0.019	-0.102	-0.221	1.000

It could be expected that children's scores should have a high correlation with intra-factor group items, and have less relationship to other factor group items. Most correlation coefficients are lower than .5. The highest achieved was .657 between liking 'courageous and daring' and being 'active and adventurous on monkey bars'. Relationships between items in the four play factor groupings are further discussed below.

The following table presents items from the 'Active and Adventurous' play factor.

(* indicates a gender difference as reported earlier.)

Table 7. 2. Correlations between 'Active and Adventurous' PQ Items.

PQ Items	Throws ball well	Physically act.	Running Games	Courageous/ Daring	Monkey bars/climbing
(2) Throws Ball *	1.00	0.455	0.328	0.302	0.261
(3) Physical Active		1.00	0.502	0.506	0.591
(6) Running Games			1.00	0.385	0.433
(13)Courage /Daring *				1.00	0.657
(14)Monkey bars/climb					1.00

The items with the highest correlation are item 13 and 14 'being courageous and daring' and being 'active and adventurous on the monkey bars and climbing apparatus'. Considering the similarity of demands of the activities in terms of motor ability, this relationship could be expected to be even higher. Item 2, 'Throws a ball well' belongs to this 'Active and Adventurous' category, whereas item 12 'Likes ball games' belong to the 'Athletic' category. These two items had a correlation of 0.446, which is a higher

correlation that 4 out of 5 items in its own category grouping of 'active and adventurous. The other 'Athletic' items are 'Likes stick games'; 'Likes games involving body contact'; 'Likes ball games'. The following table presents the Pearson Product Moment correlations for these 'Athletic' items.

Table 7. 3. Correlations for PQ 'Athletic' Play Items.

PQ Items	Body contact games	Ball games
(10) Stick games	0.442	0.363
(11) Body contact *	1.000	0.731
(12) Likes ball games *	0.731	1.000

Liking 'body contact games' and 'liking ball games' have a high correlation. But the item of liking body contact games could be perceived as belonging to 'rough and tumble' activities. Item 5, 'Likes to play wrestle and rough and tumble' had a correlation of 0.612 with item 12, 'likes ball games'.

There were 4 items in the 'rough and tumble' play factor category. The following table presents the Pearson Product-Moment correlation for these items.

Table 7. 4. Correlations for PQ Items in 'Rough and Tumble' Factor.

PQ Item	Active with friends	Boisterous friends	Shouts and yells
(5)Likes rough and tumble play *	0.103	0.532	0.144
(7) Active with group of friends	1.00	0.496	0.388
(8)Prefers boisterous friends		1.00	0.402
(9)Likes to shout and yell			1.00

Item 9, 'shout and yell' has a very low correlation with liking 'rough and tumble' play, as has item 7 'active and vigorous with group of friends'. This item 7 ('active with friends') has a correlation of .462 with item 12 'likes to play ball games'. When item 7 was correlated with 'Active and Adventurous' category item 3 (regarding the child's physical activity level during play), a correlation of 0.494 was found. Item 7 when correlated with a 'Quiet' play factor, item 4 'Liking fantasy play' not unexpectedly had a low correlation of 0.149.

The 'Quiet' play factor consisted of 3 items. The following table presents the data. All three of these items yielded statistically significant gender differences.

Table 7. 5. Correlations for PQ 'Quiet' PlayFactor.

PQ Items	Arts/crafts	Fantasy
(1) Arts/crafts *	1.00	
(4) Fantasy *	0.385	1.00
(15) Table top*	0.340	0.427

The highest correlation (0.427) is between 'fantasy play' and 'table top' activities, but this is not particularly high. The traditional view of 'table top' activities may be that of board games or jig saws, and these did not feature highly in the children's interviews as preferred play activities. However it may be that the mothers in this study included video games or computer use as table top activities. Fantasy /pretend play was reported much more frequently in the interview data than table top activities.

There may be an issue with the delineation between the categories especially the 'athletic' and 'rough and tumble' play. In addition the interview data generated wider gender difference in play preferences especially in to regard to reading, and in preferred places to play and numbers of friends played with. Notwithstanding this apparent weakness when deciding to use the PQ as a measure in this study the individual items were considered of greater interest than the grouping of items into the 4 play factors, in so far as that the data generated would allow comparison and analysis with BOTMP sub-test scores.

From working with the BOTMP data and especially while inputting each child's individual sub-test scores it appeared that there was a lack of consistency in achievement. It often appeared that high scores in one sub-test did not predict high scores in other sub-tests even in the same composite grouping. These interrelationships are examined below.

Interrelationship Between BOTMP Sub-Tests and Composite Groupings.

Acknowledging that this sample were children who had not been identified as having motor problems, this finding drew attention to the caution in the manual about reading too much into an individual sub-test score. The Manual states that 'A difference of at least 5 to 6 standard score units between subtests is required for the difference to be considered significant' (Bruininks,1978,p.37). The apparent lack of relationship might mean that each subtest is measuring discrete skill areas; or the lack of relationship between the subtests particularly in the composites of fine and gross motor might suggest that the composite grouping of scores are not valid entities. This issue has been raised in the literature (Hattie & Edwards, 1987; Tabatabainia, Ziviani & Maas, 1995). In order to examine this issue in relation to the data gathered in this Dublin study correlational analysis, including factor analysis of sub-tests was undertaken. SPSS statistical package was used. Table 7.6 presents the correlation matrix showing the inter-correlations between the 8 subtests of the BOTMP. The critical value for significance was set at <.01.

Table 7.6 Correlation Matrix for the BOTMP Sub-tests.

		Running speed & agility	Balanc	Bilateral coordinat	Strengt	Upper-limb coordinat	Respon e speed	Visual-motor control
	N							
Balance	Pearson Correlat.	.029						
	Sig. (2-tailed)	.818						
	N	65						
Bilateral coordinat.	Pearson Correlat.	-.013	.086					
	Sig. (2-tailed)	.921	.459					
	N	65	76					
Strength	Pearson Correlat.	.246	.156	.406				
	Sig. (2-tailed)	.048	.182	.000				
	N	65	75	75				
Upper-lim coordinati n	Pearson Correlati n	.350	.091	.300	.434			
	Sig. (2-tailed)	.004	.435	.009	.000			
	N	65	76	76	75			
Response speed	Pearson Correlat.	.076	.184	.190	.371	.376		
	Sig. (2-tailed)	.552	.118	.105	.001	.001		
	N	64	74	74	74	74		
Visual-motor control	Pearson Correlat.	.399	-.005	.304	.109	.308	.229	
	Sig. (2-tailed)	.001	.965	.007	.351	.007	.049	
	N	65	76	76	75	76	74	
Dexterity	Pearson Correlat.	.305	.253	.287	.389	.273	.282	.332
	Sig. (2-tailed)	.014	.029	.013	.001	.018	.016	.004
	N	64	75	75	74	75	73	75

There is only one correlation significant at the <.01 level in the gross motor group, that is the correlation between Bilateral Coordination and Strength (r =.406). The correlation between Running Speed and Strength is significant at the <.05 level. Similarly in the Fine Motor group only the correlation between Visual-Motor Control and Dexterity reaches

significance at the <.01 level, although both other correlations are significant at the <.05 level (Response Speed with Dexterity and with Visual-Motor Control). While the fine motor group of subtests appear to be somewhat more coherent, there is little evidence here that the division of the subtests into a fine motor and a gross motor group is justified.

This becomes even clearer when one examines the correlations, subtest by subtest. The Running Speed subtest has no significant correlations with the other subtests in the gross motor group but is significantly correlated with the Upper Limb Coordination and Visual-motor control subtests. The Balance subtest also has no significant correlations with the other subtests in the gross motor group and only one correlation significant at the <.05 level with Dexterity in the fine motor group. Bilateral Coordination and Strength do have one significant correlation within their group (with each other) but in addition have some outside the group (Bilateral Coordination with Upper Limb Coordination and Visual-Motor Control; Strength with Upper limb Coordination, Response Speed and Dexterity).

The situation is no better for the fine motor group, since the Response Speed subtest has significant correlations only outside the group (with Upper Limb Coordination and Strength) and Dexterity and Visual-Motor Control have as many or more correlations outside their group as within it. Visual-motor Control has significant correlations with Dexterity, Bilateral Coordination, Upper Limb Coordination and Running Speed and Dexterity has significant correlations with Visual-motor Control and Strength. Interestingly, Dexterity also had <.05 level significant correlations with all the other subtests and Upper Limb Coordination also had a strong pattern of significant correlations (<.01 level) across both groups (with Running Speed, Bilateral Coordination, Strength, Response Speed and Visual-Motor Control). Conversely, the Balance subtest was a particularly isolated subtest largely uncorrelated with other subtests both within and outside its own group.

The subtests all correlate at the <.01 level of significance with the composite score for their particular group. This is not surprising since each composite is derived from the simple addition of the three or four sub-test standard scores. The Upper Limb Coordination subtest, which is considered to be related to both the fine motor and the gross motor areas, correlates strongly with both composites even though it is not a component part in the calculation of these scores (r = .51 with fine motor composite and r = .45 with gross motor

composite, both $p<.01$). However, more confusingly the gross motor subtests with the exception of Balance correlate significantly with the fine motor composite score and the fine motor subtests with the exception of Response Speed correlate significantly with the gross motor composite score.

Although it appears that statistical significance was achieved in the correlation coefficients between many of the sub tests, the highest *r* was .434 which was between Strength and Upper Limb Coordination. The next highest was between Strength and Bilateral Coordination at .406. This may appear surprising until the sub-test is examined. 'Strength' is not the traditional use of the word as in exerting force on some outside object. In the BOTMP Strength is measured by a speed test of the number of sit-ups in 20 seconds, number of push-ups in 20 seconds, and the subject jumping as far forward as possible over 3 trials. This really involves making one's body work together as a unified whole, with a lot of reciprocal action involving many muscle groups in concentrated and co-ordinated action with speed. It is easy, therefore, to see that there might be a relatively strong relationship of what this sub-test measures and what Upper Limb Coordination and Bilateral Coordination sub-tests measure.

Perhaps the most interesting lack of relationship found is for the sub-test Balance. The only item with which it has a correlation coefficient at a statistically significant level of less than .05 is Upper Limb Speed and Dexterity. One might think that Balance was one of those factors that underpinned all aspects of motor performance. Maintaining balance is seen as important from a neuro-developmental perspective, in order to allow proficient movement of the limbs, as in walking or using one's hands in a skilled way. However perhaps it is the lack of balance that makes the difference. The sample in this study scored in the 'average' range, with the girls scoring statistically significantly better. Interestingly the girls also scored better than the boys in Upper Limb Speed and Dexterity. One would have expected greater correlation between the sub-tests particularly the fine motor ones. It may also mean that the sub-tests are indeed measuring discrete entities which is why they were included in the test in the first place.

Factor analysis is another method of examining construct validity and relationships between the constituent underlying concepts of the BOTMP. Table 7.7 presents a factor matrix for the BOTMP.

Table 7. 7. Factor Matrix of the BOTMP.

Total Variance Explained

Initial Eigen values			Extraction Sums of Squared Loadings		
Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
2.744	34.299	34.299	2.744	34.299	34.299
1.232	15.403	49.702	1.232	15.403	49.702
1.127	14.088	63.790	1.127	14.088	63.790
.823	10.284	74.074			
.665	8.309	82.383			
.613	7.659	90.041			
.424	5.299	95.340			
.373	4.660	100.000			

Extraction Method: Principal Component Analysis.

Factor analysis generated a three factor solution with the first emergent factor accounting for 34% of the variance and the second and third for 15% and 14% respectively. The first factor loaded on Bilateral Coordination, Strength, Upper-limb Coordination and Response speed. These variables cut across the gross motor and fine motor areas and so this factor fails to provide any evidence of a coherent division between the gross motor and fine motor domains in the BOTMP. Similarly, the second factor provides no support for the fine motor/gross motor distinction since it loads mainly on one gross motor and one fine motor variable, namely Running Speed and Agility and Visual-Motor Control. The third factor is mainly a Balance factor but also loads on Dexterity and so like the other two factors crosses the fine motor/ gross motor divide.

Tabatabainia et al's (1995) factor analysis produced a relatively strong first factor, accounting for 48.3% of common variance. All eight subtests loaded positively on this

factor (in the range .54 to .83). The present study produced a considerably weaker first factor with only half of the subtests having strong positive loadings on the factor. The present results do not lend support to Tabatabainia et al's (1995) conclusions that all eight subtests contribute to a 'general motor proficiency' factor and that, therefore, the overall battery composite score can be regarded as coherent and meaningful.

Table 7. 8 . Rotated Component Matrix

	Factor 1	Factor 2	Factor 3
Running speed & agility	-.017	.874	-.006
Balance	-094	-.022	.889
Bilateral coordination	.774	-.087	.322
Strength	.754	.223	.031
Upper-limb coordination	.592	.485	-.099
Response speed	.678	.078	-.127
Visual-motor control	.185	.738	.091
Dexterity	.334	.426	.501

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
Rotation converged in 4 iterations.

The factor analysis, therefore, confirms the interpretation of the subtest correlations, providing further evidence that the categorization of subtests as fine motor or gross motor is questionable.

In spite of these criticisms of both the BOTMP and the PQ, both measures have a value in examining the relationships between play preferences and motor proficiency if the data related to individual items and subtests is examined. The next section deals with the relationship between the PQ and the BOTMP results for this Dublin sample.

PQ Results and the BOTMP Results.

One of the reasons for selecting the PQ as part of this study was that many of the items had a bias towards indicating physical play preferences which would allow for comparison of children's BOTMP results and mothers' reports of physical play preferences. In addition, it was considered useful to examine the relationships (if any) between sub test scores and individual PQ items in greater detail, such as those scored as high or low on the preference scale. In order to do this, the results perceived as relevant were analysed by dividing the children into groups (such as those who really like arts and crafts and those who do not) and difference in their mean scores on relevant BOTMP sub-tests (such as visual-motor control) were examined. These data relating the BOTMP and the PQ items are presented here. Depending on the distribution of scores tabled above for each PQ item, the groups were formed with a minimum of 7 in any group. A pooled independent group t-test was used to examine the differences obtained by the different PQ groups on selected BOTMP sub-tests.

PQ item 1. Arts and Crafts.

Most children were reported as liking 'arts and crafts'. Only 2 children (boys) scored in categories 1, 2 and 3 combined; 18 children (27%) liked arts and crafts an 'average amount', 48.5% of all children composed of 10 boys and 22 girls were scored in the highest category (7) 'like arts and crafts a great deal'. The data were split into 2 groups, group 1 composed of all categories except category 7 with 51.5% of the children, group 2 was composed of category 7 with 48.5% of the children. The hypothesis was that the 2 groups might have different scores in some of the BOTMP sub-tests related to the physical requirements of engaging in arts and crafts. An independent (pooled) t-Test was carried out, the results are presented in table 7.9 below.

Table 7. 9. BOTMP Scores and PQ Item 1 'Liking Arts and Crafts' x 2 Groups.

Upper- limb speed and dexterity	Group 1 mean = 8.76. Group 2 mean 10.12. t-Stat. = 1.152 w/63 df p = 0.2538
Visual- motor control	Group 1 mean = 19.5. Group 2 mean = 22. t-Stat. = 3.029 w/ 64 df p = 0.0035 **Sig.**
Response speed	Group 1 mean = 19. Group 2 mean = 16.9. t- Stat. = 1.211 w/62 df p = 0.2305.
Upper limb co-ordination	Group 1 mean = 16.14. Group 2 mean = 15.37. t-Stat. = 0.522 w/64 df p = 0.6035.
Bilateral co-ordination	Group 1 mean = 17.26.Group 2 mean = 16.56. t-Stat. = 0.675 w/64 df p = 0.5019

The only statistically significant difference between the two groups who like arts and crafts 'a great deal' and others was found in the Visual–Motor BOTMP sub-test. There was no difference in Upper-Limb Speed and Dexterity or the 'Fine Motor Composite' which could have been expected as in 'Liking' could lead to more 'doing/practice' than others, and this could lead to developing better skill or ability. Or it may be that children enjoy doing crafts and that they choose different tasks depending on their own ability level. The statistically significant difference in the Visual-Motor Control scores between those who like arts and crafts a 'great deal' and the other children, is an interesting finding. Perhaps they have an innate advantage further developed by practice/doing arts and crafts. It also raises a query if visual motor control can be tested (or improved) more easily (and reliably) than the other skills in the BOTMP.

Item 2. 'Throws a ball well'.

Sixty two percent of children scored in category 4 as 'average' in throwing a ball. Only 6 children (2 boys and 4 girls) were scored in low categories 1, 2, and 3 (indicating less than 'average'). In addition only 6 children were placed in the 2 high categories of 6 and 7. A group size of 6 was considered too small to apply a t-test. Since 'Liking playing ball

games' was another PQ item with a better distribution in the groupings, it was considered that analysis of this item would be more valuable.

Item 3. 'My child's physical level of activity during play'.

Over-activity or under-activity could be seen as masking poor ability in certain physical skill areas. Seven (10%) children (4 boys and 3 girls) were scored in categories 1, 2, and 3 indicating that their mothers' considered that they were less active than other children. Twenty five percent of (17) children were scored in the highly active categories of 6 and 7 (12 boys and 5 girls). For statistical analysis children were divided into group 1 and group 2 and the remainder (42) who scored in categories 4 and 5 were combined as group 3. Independent pooled t-Tests were carried for all of the BOTMP sub-tests, and the results are presented below comparing mean scores for group 1 with group 3.

Table 7. 10. BOTMP Scores and PQ Item 3 Physical Activity Level During Play.

Running speed and agility	Group 1 x Group 3 t = 0.6815 w/18df p = 0.5042
Visual –motor control	Group 1 x Group 3 t = 1.463 w/22 df p = 0.1577
Balance	Group 1 x Group 3 t = 2.355 w/22 df p = 0.027 **Sig.**
Upper-limb speed and dexterity	Group 1 x Group 3 t = 0.449 w/22 df p = 0.6572
Strength	Group 1x Group 3 t = 2.035 w/21df p = 0.0547
Bilateral Coordination	Group 1 x Group 3 t = 0.6282 w/22df p = 0.5364
Upper-limb Coordination	Group 1 x Group 3 t = -2.085 w/22df p =0.0489 **Sig**
Response Speed	Group 1 x Group 3 t = 0.8018 w/21df p = 0.4317

Differences in Balance scores between groups 1 and 3 were statistically significant. There were only 7 children in group 1, and 17 in group 3. The mean score for

Balance in group 1 was 13.14 and for group 3 was 16.35. The 'average' range for the BOTMP scores is between 12 to 18. Both of these mean scores are within this range. It might be expected that children with poor postural control to be less physically active than those with very good postural control. However one might also expect a lot of movement from children who were seeking out deep proprioceptive input because they were under registering such inputs. It is interesting none-the-less that the difference between the group Balance means is statistically significant. It is also of note that in spite of difference in Balance, the Running Speed and Agility difference was not statistically significant. As noted in the factor analysis of the BOTMP sub-tests, Balance does not appear to be closely related with other factors. With regard to the mean score differences between group 1 and group 3 for Upper Limb Coordination, the mean score for the 7 children in group 1 was 12.428 (with a standard deviation of 6.724). This compares with a mean score for 17 children in group 3 achieving 17.94 with a standard deviation of 5.44. Six of the 9 elements of this sub test involve either catching or throwing a ball.

Scores for Strength were not statistically significantly different with a p value of 0.0547. The mean scores for Strength for group 1 was 13.57 and for group 3 was 17.87. Both were still within the 'average' range of 12 to 18 for the BOTMP scores. It should be noted that the numbers involved are small, particularly in Group 1 with just 7 children. It could be expected that children in the normal range of ability who are more physically active would be better at scoring on the Strength sub test than others who are less physically active.

Item 4 'Fantasy Play'. Although the literature reports that the peak time for pretend play has passed by age 7 years, the questionnaire data with children established that most children enjoy pretend games, boys play with figurines such as 'Turtles', wrestlers, or play 'war' with friends, and the the girls reported a preference for playing 'Barbies' and 'Mammies and Daddies'. In the PQ data a statistically significant gender difference was found ($p = 0.0038$) with a greater preference by girls for fantasy play. In order to examine for a difference in any of the BOTMP sub-tests between those who avoided and those who played a lot of fantasy play, children were divided into 5 groups. Those with below average interest (11, with 10 boys and 1 girl and those in the highest category 7 (19) were compared for mean scores in all

the 8 sub-tests. No statistically significant difference was found between the group mean scores.

Item 5 'Rough and Tumble' has a particular interest for those working with children who may be tactile defensive; those who have poor postural control; or those with developmental coordination disorders. Hence information on a normative group of children is welcome as there is very little in the literature about physically active play and motor ability. As has been shown in the BOTMP results chapter, there was no statistically significant difference between this study's sample of boys and girls on BOTMP composite scores, but there was a difference in four of the sub-test scores. In the 15 PQ items, 8 statistically significant differences in mean scores were found between boys and girls, with 'rough and tumble' as one in which gender appeared to be a particularly significant influence ($p = 0.004$). It is difficult to know to what extent this may be a culturally learned avoidance of rough and tumble play by girls; or it may indicate girls do not have the inner drive or need for this type of physical activity. Only 3 boys (8.82%) scored in the below 'average' categories, with 41.2% (14) scoring in the highest category of liking this 'a great deal' as compared to 6.25% (2) girls. The children were divided into 3 groups with Group 1 comprising of those in category 1, 2, and 3 (15) those who like less than 'average' amount of rough and tumble; Group 2 those in categories 4 and 5 (28); and Group 3, categories 6 and 7 (23) those who like it a lot. Using an independent pooled t-test means of Groups 1 and 2 and 3 were compared for 5 BOTMP sub-tests, where a difference might be expected. The subtests examined were Balance, Strength, Visual-Motor Control, Running Speed and Agility, Bilateral Co-ordination. A difference was found between Groups 1 and 3 in the first 2 BOTMP items and no difference was found in the remainder. Table 7.11 presents the significant results.

Table 7. 11. Significant Differences on BOTMP Subtests Between Groups Defined by PQ Item 5 ('Likes Rough and Tumble') Ratings.

Balance	Group 1 mean = 16.66. Group 2 mean = 14.96. Group 3 mean = 13.65. T-test Group 1 and Group 3 t = 2.181 w/36df p = 0.035 **Sig**
Strength	Group 1 mean = 12.46. Group 2 mean 15.55. Group 3 mean =16.91. T- test Group 1 and Group 3 t = 3.169 w/36df p = 0.003 **Sig**

The mean Balance scores for those who were in Group 1 (who like 'rough and tumble'less than 'average') was 16.66 . Those who like rough and tumble a lot (Group 3) had a mean Balance score of 13.56. Both groups were still within the BOTMP 'average' range of 12 to 18, but it is interesting that those who sought this type of play more scored lower in Balance. The mean score for Group 1 in Strength was 12.46 which was much lower than the mean score for Group 3 (16.913). So those who like 'rough and tumble' play most were higher in their Strength scores than those who dislike it, but lower in their Balance scores. This is difficult to explain as the Strength sub-test is assessed by a standing broad jump, sit-ups, knee push-ups and full-push for boys aged over 8 years. These all involve a considerable amount of reciprocal activation or inhibition of the main muscle groups in the body while moving with a broad base of support, and yet the Balance assessment appears somewhat similar in requiring very focused co-activation also but mostly of one side of the body in opposition to the other side of the body while moving on a very narrow base of support. Also it may be that the notable gender difference is a confounding factor in these results. In the BOTMP scores, girls scored better than boys on Balance ($p = 0.0135$) whereas boys score better on Strength ($p = 0.003$).

In PQ Item 3 those who liked physically active play more than those who did not had higher mean scores for Balance ($p = 0.027$), but the difference in Strength mean scores at $p = 0.0547$ was just outside the statistically significant level. There was no gender differences in PQ item 3 play preference.

PQ Item 6 (enjoying running and jumping games) had very few children (4) categorised in the less than 'average' categories of 1, 2, and 3. No gender difference was found. None the less categories 6 and 7 were combined into group 1 and the rest into Group 2. Independent t-tests were carried out for the BOTMP results for sub-test Running Speed and Agility and no difference was found ($t = 0.782$ w/57 df $p = 0.436$); and for Balance ($t = 6711$ w/65 df $p = 0.943$). So those, whose mothers reported them as liking running and jumping games more than others were no different in their BOTMP scores for Running Speed and Agility. As previously noted however when comparing group mean BOTMP Running Speed and Agility scores of those divided into groups with different levels of physical activity (namely frequent playing of football/ or going to Irish Dancing lessons), a statistically significant difference ($p = 0.043$) was found. It may be that it is the physical quality of the activity sought by the child that marks those who are more competent than others.

PQ Item 7, (being highly active and vigorous when playing with a group of friends) had only 5 children scored in the combined categories 1, 2 and 3, so it was not considered useful to analyse by high and low scored groups. In a similar way, in Item 8. only 2 children were rated in categories 6 and 7 as liking to 'play with active boisterous friends'.

PQ Item 9, liking to 'shout and yell' when physically active could be seen as a calming response due to pro-prioceptive or deep pressure stimulation from jaw extension, or as a self-arousing mechanism using auditory stimulation. Or perhaps it is just an expression of enjoyment and has no relationship to motor ability at all. The children were divided into three groups with group 1 comprising of those who scored in the lowest categories of 2 and 3 (8 children); group 2 comprised of those in categories 4 and 5 (48 children); and group 3 was made up of those in the higher than 'average' categories of 6 and 7 (12). An independent pooled t-Test was applied to compare the mean scores of Group 1 and 3 in the 8 BOTMP sub-tests. The only statistically significant difference found between groups 1 and 3 was in the Running Speed and Agility sub-test (t-Stat. = 2.198 w/20df. $P = 0.0399$). The mean score for group 1 (the quiet group) on the BOTMP Running Speed and Agility test was 11.5 (in the below average range) in comparison to the very noisy group with a mean score of 18.43 (above average category). The mean score for group 2 was 17.19 (in the average range). There were only 6 children in Group 1 who completed the Running

Speed and Agility test. It may be an artifactual finding, but it is interesting none the less. This throws up a tentative hypothesis as this Running Speed and Agility test is timed, perhaps it may be that these children are 'fired up and ready to go' as it were in comparison to the quiet children and hence score better on the Running Speed test. Another time-tested BOTMP sub-test Upper-Limb Speed and Dexterity was examined, this test requires concentration and accuracy as well as speed, but no statistically significant difference was found (t-Stat.= 0.2519 w/21df $p = 0.8036$).

Stick games (PQ Item 10) were known from the play interviews to be unpopular with this sample of children, so no BOTMP analysis was carried out on this item.

PQ Item 11 (liking games involving body contact) had been shown to have considerable gender bias, with most girls disliking this type of activity. There was a statistically significant difference between liking and avoiding 'body contact' games ($p = 0.0030$) and it was considered that this would confound the results of analysis of BOTMP scores.

PQ Item 12 (liking ball games) could be expected to produce differences in BOTMP scores such as Upper-Limb Co-ordination, Bilateral Co-ordination, Visual-Motor Control, Upper-limb Speed and Dexterity, and Strength. The PQ data demonstrated a statistically significant difference between boys and girls ($p = 0.010$) with boys having a higher mean score. It was also known from the interview data that few girls played ball games, and that football was a very popular game for boys. None the less this PQ item provided an opportunity to compare those who do and those who do not like ball games on the above list of BOTMP sub test scores. Children were divided into 3 groups with group 1 composed of PQ category 1 and 2 indicating a dislike of ball games (17 children, 9 girls and 6 boys), and these were compared with those in category 6 and 7, those who were scored as liking ball games a lot (14 children, 11 boys and 3 girls). No statistically significant difference was reached at the .05 level in any of these sub-tests. This fact that those who were reported as liking ball games a lot were no different in their scoring on the above BOTMP items might support the view that liking an activity and doing better in skill measurement might not be closely associated with each other. Perhaps it is that children at this age enjoy the process of doing and are not too concerned with the measurement of

their ability against others. It may also mean that those who do not like ball games are not necessarily disadvantaged in terms of motor skill acquisition, and may indeed have developed their motor skills through other play activities.

PQ item 13 (being courageous and daring) is of interest from a sensory integration perspective (Ayres, 1974). Motor ability differences would be expected between those who seek out adventurous play and those who avoid it. Another perspective could be the level of awareness of risk and physical challenge. A statistically significant difference was found between boys and girls ($p = 0.0034$) with boys being reported as more courageous and daring. The children were divided into 3 groups, with those who basically disliked it. Category 1 and 2 with 14 children (11 girls and 3 boys) formed group 1; those in categories 3, 4 and 5 formed group 2 with 42 children (20 girls and 22 boys); and those who really liked courageous play in categories 6 and 7 with 9 children (8 boys and 1 girl) formed group 3. An independent t-test was applied to the following BOTMP sub-test results for Group 1 and Group 3; Running Speed and Agility; Strength; Balance; Response Speed; Visual-motor Control and Upper Limb Speed and Dexterity. Surprisingly, no statistically significant difference was found in any of the above sub-tests at the .05 level. The significant gender difference may have been a confounding variable.

PQ item 14 (being active and adventurous on monkey bars). It would be reasonable to expect similar results as obtained in PQ item 13 as both types of play appear very similar. However there was no gender difference in the PQ scores for item 14. The 3 groups were made from categories in the same groupings as for item 13. Group 1 was made from categories 1 and 2 with 7 children; group 2 was made from those in categories 3, 4 and 5 with 37 children; and categories 6 and 7 with 24 children. The following BOTMP sub-test mean scores were compared for groups 1 and 3; Strength; Balance; Response Speed; Visual Motor-Control; Upper-Limb Speed and Dexterity and Running Speed and Agility. The only results with a statistically significant difference was in the sub-test Running Speed and Agility (t-stat = 2.072 w/24 df $p = 0.0492$. Only 6 of the children in Group 1 had completed the Running Speed and Agility test, compared to 20 in group 3. The mean scores for Running Speed and Agility were then examined for group 1 and group 3, and these followed the pattern set in the PQ item 9 (liking to shout and yell) results with group 1 (those who do not like playing on the monkey bars) achieving a below 'average' score of

10.166 (standard deviation of 11.80, range of 24) as compared to Group 3 with an above 'average' score of 18.05 (standard deviation of 6.90 with a range of 25). The numbers involved in Group 1 were small, and had a very large standard deviation, but this result is interesting because the only difference in the groups found was related to Running Speed and Agility BOTMP scores.

Liking table top (PQ item 15) activities would be expected to produce similar results to item 1 'likes arts and crafts'. A statistically significant gender difference was found in PQ item 15 ($p = 0.0286$) similar to that found in PQ item 1. This may have an influence on BOTMP scores. Three groups were formed. Group 1 was made with 9 children (7 boys and 2 girls) who were scored at the 'dislike' end of the scale in categories 1 and 2; Categories 3, 4, and 5 were combined to make Group 2 with 31 children (15 boys and 13 girls); and 28 children (11 boys and 17 girls) were grouped from categories 6 and 7 to form Group 3, those who really like table top activities. Groups 1 and 3 were compared for differences in the following BOTMP sub-tests: Upper Limb Speed and Dexterity; Upper Limb Co-ordination; Visual Motor Control; Response Speed; Bilateral Co-ordination; Running Speed and Agility. Only one of these sub-tests, Bilateral Co-ordination, yielded a statistically significant result ($t = 2.139$ with 35 df $p = 0.0395$). Interestingly the group who least liked table top games (Group 1 with 9 children) had the highest mean score of all three groups with a mean of 20.33 (above average BOTMP score) for Bilateral Coordination, and a standard deviation of 2.4. Group 3 (those who liked table top games most) with 28 children had a mean score of 16.89 (towards the higher end of the 'average' score range) with a standard deviation of 4.59. Group 2, with 28 children had a mean score of 15 and a standard deviation of 3.81. In the children's interviews table-top games other than video or computer games were seldom reported as play activities in comparison to other types of play.

Correlations Between the BOTMP and the PQ.

Another method of analysis was applied to explore the relationships between motor proficiency scores and play preferences identified by the PQ. The sample size and number of categories should be borne in mind.The Pearson's Product Moment Correlation matrix between the 8 BOTMP sub-tests and the 15 PQ items is presented in Table 7.12.

Table 7.12. Correlations of BOTMP Sub-tests and 15 PQ Items.

Pearson Product-Moment Correlation

No Selector

	table a_	monkey_	courag_	ball ga_	body c_	stick g_	shout _	active _	group _	run + _	rough _	fantas_	physic_	throws_	arts +_	dexteri_	respon_	balance	upper-l_	strength	bilater_	visual-_	running_
table activit_	1.000																						
monkey bars	-0.221	1.000																					
courageous _	-0.102	0.657	1.000																				
ball games	0.019	0.371	0.436	1.000																			
body contact	-0.057	0.231	0.382	0.731	1.000																		
stick games	0.050	0.149	0.170	0.363	0.442	1.000																	
shout + yell	-0.166	0.233	0.008	0.084	0.024	-0.045	1.000																
active frien_	-0.293	0.427	0.406	0.463	0.531	0.171	0.402	1.000															
group - acti_	-0.188	0.421	0.246	0.240	0.211	0.243	0.388	0.496	1.000														
run + jump	-0.222	0.433	0.385	0.267	0.315	0.299	0.182	0.510	0.608	1.000													
rough + tum_	-0.053	0.233	0.468	0.497	0.612	0.208	0.144	0.532	0.103	0.264	1.000												
fantasy play	0.427	-0.037	-0.072	-0.042	-0.134	-0.111	0.149	-0.142	0.116	0.016	-0.031	1.000											
physical act_	-0.309	0.591	0.506	0.275	0.327	0.259	0.132	0.522	0.494	0.502	0.205	-0.133	1.000										
throws ball	-0.240	0.261	0.302	0.446	0.421	0.242	0.096	0.296	0.142	0.328	0.148	-0.164	0.455	1.000									
arts + crafts	0.340	-0.099	-0.151	-0.231	-0.258	-0.102	0.106	-0.158	0.150	0.106	-0.108	0.385	-0.005	-0.131	1.000								
dexterity	0.077	-0.199	-0.172	0.026	-0.014	0.062	0.137	0.150	0.068	0.161	0.176	0.091	-0.002	0.104	0.277	1.000							
response sp_	-0.127	0.085	0.254	0.230	0.310	0.113	0.090	0.362	-0.015	-0.011	0.411	-0.200	0.101	0.285	-0.172	0.273	1.000						
balance	0.021	0.098	0.059	-0.122	-0.355	-0.038	-0.024	-0.067	0.178	0.038	-0.310	0.156	0.182	0.066	0.018	0.240	0.148	1.000					
upper-limb _	-0.238	0.199	0.194	0.281	0.324	0.014	0.144	0.354	0.177	0.209	0.270	-0.187	0.318	0.389	-0.073	0.274	0.380	0.096	1.000				
strength	-0.109	0.168	0.231	0.284	0.420	0.288	0.078	0.379	0.169	0.221	0.345	-0.214	0.323	0.215	-0.194	0.384	0.364	0.136	0.436	1.000			
bilateral co_	-0.197	-0.018	-0.058	0.004	0.105	-0.022	0.164	0.345	0.066	-0.037	0.187	-0.076	0.079	0.049	-0.067	0.290	0.197	0.101	0.300	0.411	1.000		
visual-moto_	0.124	0.089	-0.016	-0.050	-0.073	-0.107	0.208	0.070	0.062	0.009	0.102	0.053	0.188	0.068	0.445	0.373	0.257	-0.038	0.395	0.148	0.340	1.000	
running spee_	-0.031	0.227	0.009	-0.016	-0.066	-0.033	0.193	0.081	0.199	0.164	0.025	0.144	0.105	-0.069	0.095	0.385	0.076	0.029	0.350	0.246	-0.013	0.405	1.000

The physical ability demands implied by some of the PQ items appeared to have an obvious association with some of the BOTMP sub-test items eg. 'liking body contact games' and Strength. Others appear to have no obvious association eg. 'likes table top activities' and Strength. It was considered worthwhile to also examine the correlations between the BOTMP subtests with selected PQ items, Table 7.13 presents the results. The selection of some items was based on an expected or obvious similarity or physical demands of the activities, and others were chosen because of their lack of similarity or relationship. The significant levels test whether or not there was a difference from zero, probability was at the .05 level.

Table 7. 13. Correlations between BOTMP Sub-Tests and Selected PQ Items.

Running Speed and Agility

Item 3. Physical activity level	.105
Item 6. Likes running and jumping games	.164
Item 10. Likes stick games	-.033
Item 12. Likes ball games	- .016
Item 13. Is courageous and daring	.009

Balance.

Item 5. Rough & Tumble play	**-.310 Sig**
Item 8. Boisterous friends	- .067
Item 11. Body contact games	**- .355 Sig**
Item 12. Ball games	- .122

Bilateral Co-ordination.

Item 1. Likes arts and crafts	- .067
Item 2. Throws ball	.049
Item 5. Likes rough and tumble	.187
Item 11. Body contact games	.105
Item 12. Likes ball games	.004
Item 14. Likes monkey bars	- .018
Item 15. Likes table top activities	- .197

Strength.

Item 3. Physical activity level	**.323 Sig.**
Item 5. Rough and tumble	**.345 Sig.**
Item 6. Likes running and jumping	.221
Item 10. Likes stick games	**.288 Sig**
Item 11. Likes body contact games	**.420 Sig.**
Item 12. Likes ball games	**.284 Sig.**
Item 13. Is physically courage/daring	**.284 Sig.**
Item 14. Active on monkey bars	.168
Item 15. Likes table top activities	- .109

Upper Limb Co-ordination

Item 1. Likes arts and crafts	-.073
Item 2 Throws a ball well	**.389 Sig.**
Item 3. Physical activity level	**.318 Sig.**
Item 5. Likes rough and tumble	**.270 Sig.**
Item 6. Likes running and jumping	.209

Item 10. Likes stick games	.014
Item 11. Likes body contact games	.324
Item 12. Likes ball games	**.281 Sig.**
Item 14. Active on monkey bars	.199
Item 15. Likes table top activities	**.238 Sig.**

Response Speed

Item 1. Likes arts and crafts	- .172
Item 2. Throws a ball well	**.285 Sig.**
Item 5. Likes rough and tumble	**.411 Sig.**
Item 6. Likes running and jumping games	-.011
Item 7. Highly active with group /friends	-.015
Item 10. Likes stick games	.113
Item 11. Likes body contact games	**-.310 Sig.**
Item 12. Likes ball games	**.230 Sig.**
Item 14. Active on monkey bars	.085
Item 15. Likes table top activities	.127

Visual Motor Control

Item 1. Likes arts and crafts	**.456 Sig.**
Item 2. Throws a ball well	.089
Item 4. Likes fantasy play	.092
Item 5. Likes rough and tumble	.062
Item 11. Likes body contact games	- .115

Item 12. Likes ball games	-.095
Item 14. Active on monkey bars	.140
Item 15. Likes table top activities	.078

Upper Limb Speed and Dexterity.

Item 1. Likes arts and crafts	**.277 Sig.**
Item 2. Throws a ball well	.104
Item 5. Likes rough and tumble	.161
Item 10. Likes stick games	.062
Item 11. Likes body contact games	-.014
Item 14. Active on monkey bars	-.199
Item 15. Likes table top games	.077

It might be expected that because of the similarities of the physical demands of the subtest items and play preference items, that some of these correlations would be relatively strong e.g. greater than .5. However the highest score found was for the BOTMP sub-test Visual Motor Control and the PQ item 'Liking arts and crafts' with a correlation of .456. The second highest was for the BOTMP sub-test Strength and the PQ item 'Likes body contact 'games. The third highest is for the BOTMP sub-test item Response Speed and the PQ item 'Likes rough and tumble' play. The lack of correlation between other items is interesting, for example the BOTMP sub-test Running Speed and Agility and the PQ item 'likes running and jumping games' has a low correlation of .164. So those who really like it a lot according to mothers' reports did not have corresponding high scores in the Running Speed and Agility test.

There appears to be very little strength in association between liking a particular type of physical activity as measured by this PQ methodology and the motor skills assessed by the BOTMP. However the t-test analysis of mean scores between the preference groups for

certain PQ items has generated some interesting findings. Gender differences identified by both measures may be confounding variables. With relatively low correlations between BOTMP subtests and play preferences it is difficult to support the view that physical play preferences are strongly related to with levels of motor proficiency.

The B.O.T.M.P. and the Questionnaire Data.

Considering the broad range of scores achieved by this study's sample in all the sub-tests, and the apparently high level of children's interest in football and Irish dancing, it is likely that many children were involved in a variety of physical activities regardless of their skill level. Almost 43% of boys reported themselves as playing football as frequently as 'every day', compared to 10% of girls. Fifty two percent of girls (22) go to Irish dancing classes at least once a week. In spite of the frequently wet Irish weather, more than 84% of children reported riding their bikes at least as often as 'some days'. There was no statistically significant difference between boys and girls. More than 90% of children reported playing running and chasing games at least as frequently as 'some days'. From the BOTMP data it is clear that not all of these children are equally skilful, but none the less they frequently play in a physically active way. It could be presumed that they enjoy this type of play. When asked the question 'What would you like to do that you don't do now?', 64.6% (53) of children reported that they wanted to do a motor skill activity such as Karate, or Gymnastics, with a further 12% (10) wanting to do 'swimming'. That is 75% wanted to experience more skill based physical activities. There appears to be an enjoyment in physical activity by the majority of children that is not limited to their level of physical achievement on the BOTMP.

The BOTMP data were examined for those who reported a greater amount of practice in physically active play. As reported above most children were physically active in their play and this made it difficult to identify specific activity preferences for the purpose of dividing into groups for analysis of statistical difference in BOTMP scores. Gender differences in play preferences also made activity selection difficult. However, two physically demanding leisure activities were identified as being engaged in relatively equal proportions within the same gender such as football for boys and dancing classes for girls. With regard to boys, the data generated from question 45a in the Child's Questionnaire

was divided into 2 groups, those who reported playing football at least as frequently as 'most days' (group 1); and those who only played as frequently or less often than 'some' days. This included playing football on the street, and did not exclude children who were not team members. As noted above, 52% of girls go to Irish dancing classes. The girls were divided into those who chose to go to a dancing class, mostly Irish dancing (group 1) and those who did not (group 2). Irish dancing requires frequent practice to learn off the steps for the next week's class. Children are given copies of music tapes with which to practice. This categorisation was considered to indicate those who chose frequent skilled physically active leisure. A pooled t-test was carried out for each sub-test and all three composite scores to see if there was a statistically significant difference between the group 1 and group 2. Group 1 consisted of 24 boys and 19 girls totalling 43, group 2 consisted of 13 boys and 19 girls totalling 32. One boy who had completed the BOTMP did not complete the Child Questionnaire so he was excluded from this data analysis. Interestingly there were four statistically significant differences found between the two groups, in the following sub-tests; Running Speed and Agility (t- stat = 2.066 w/62df p = .0430); Bilateral Co-ordination (t- stat = 2.524 w/73df p = .0138); Upper limb Coordination (t-stat = 2.049 w/73df p = .0440) and for the Composite Score for the Battery (t-stat = 2.489 w/60df p = .0156).

It would appear that children who chose more physically active pursuits which are conducive to motor skill acquisition, as in football for boys and dancing for girls, have better skills in certain areas. It is easy to relate this type of interest to better scores in Running Speed and Agility and Bilateral Co-ordination (as tested by the BOTMP) as perhaps practice improves performance, but more difficult to understand is how high scores in Upper limb Co-ordination might be related to the practice of football or Irish dancing, as lower limb activity predominates in both these activities. From previous data it is clear that most children like physically active play, but those who practice these two skilled pursuits score better than those who don't in only the above areas. There was no statistically significant difference found in the following areas; Strength; Response Speed; Visual Motor Control; Upper limb Speed and Dexterity; Gross Motor Composite; and Fine Motor Composite.

Construction Play, Arts and Crafts and BOTMP Scores.

Gender differences in BOTMP scores and play preferences were examined with regard to construction play and making things such as arts and crafts, only 17% of the children initially indicated an interest in this area, but when asked detailed questions this rose to 42.7% for all children as frequently as 'some days'. There was a statistically significant difference between boys and girls with regard to frequency of 'making things' (Chi-squared = 10.64 with 3 df p = 0.0138) with girls more interested. This practice and involvement may have had an influence on the higher scores for girls in Upper Limb Speed and Dexterity and in Visual Motor Control scores. The BOTMP data and that gathered from the children's questionnaire (Q38) on frequency of 'making things' such as Lego/arts and crafts were used to divide the children into two groups; one group comprised those who reported making things at least as often as 'most days' and the other as infrequently as 'some days' or less. Thirty three children (12 boys and 21 girls) were in the more frequent group, 40 children (24 boys and 16 girls) were in the less frequent group. Three children with BOTMP results had not completed the Child Questionnaire so these were excluded. There were no statistically significant differences (at the .05 level) found between the two groups in any sub-test, not even in the Visual Motor Control test or the Upper-Limb Speed and Dexterity test. It would appear that those who reported 'making things' more often than others did not have any higher level of skill as identified by BOTMP.

Visual Motor Control and Play Preferences.

The mean score for the Dublin sample in the sub-test Visual Motor Control was in the 'Above Average' category at 19.03, with boys scoring a mean of 18.05 and girls scoring a mean of 20.02. Was this result related to real ability in the sample, or does it reflect a systematic error in the assessment process? Fortunately the sub-test is carried out using a booklet which makes possible examination by another tester. Ten booklets were re-evaluated for tester error and no discrepancies were found. If the results reflect a real ability in the sample in Visual Motor Control, could this be related to their occupations? One immediately thinks of computer games and visual motor speed and control. But the motor aspect is rather limited to pressing a mouse and not related to pen and pencil work and using a scissors which are the materials used in the sub-test. In addition, 43.9% of this sample reported themselves as 'never' using a computer, and an additional 25.6% reported in the 'not often' category. Gender differences in reading preferences and in engagement in arts and crafts have already been reported that may explain the higher scores found in the sample of girls. However there may be some explanation in the generally high scores of

the whole sample if the school experience of eight-year old children in Ireland is considered. Much of their schoolwork involves writing. Children at this age are learning and practising 'joined up' writing. At the time of data gathering for the study, reading and writing skills were introduced to children in their first year of school at age four or five, unlike some other western countries who complete a kindergarten education until age 6 or 7, and only start reading and writing then. Perhaps these many hours of practice have influenced the visual motor control skills that are assessed by the BOTMP.

T.V. Viewing and differences in BOTMP Scores.

The mean length of time spent by this sample of children watching T.V. on weekdays was 1.94 hours and during weekends was 2.97 hours (approximately 15 hours per week). This compared to the literature on U.S. studies in which the average child aged between 2 and 11 was reported to watch an average of 22 hours per week (American Psychological Association, 1993), suggests that this Dublin sample watched considerably less. Considering their activity levels and that of their siblings in the home, their formal leisure commitments, and visits to relatives it is difficult to imagine most of the children interviewed actually sitting for 2 hours each day. However it was considered worthwhile to examine the BOTMP scores for the small group of 8 Dublin children who watched T.V. for longer than the sample mean. Pooled t-tests on the mean scores for all eight BOTMP sub-test scores indicated that there was no statistically significant difference between those who watched television for three hours or more on weekdays when compared to the mean scores for the rest of the sample who watched less. There is a common assumption that those who watch more T.V. are 'couch potatoes', and are less proficient in motor skills. Perhaps their viewing time is dispersed throughout the afternoon and evening, interspaced with bursts of energy or physically active playing. This report of viewing for 3 hours or more per day may need further exploration. It is important to note also that the BOTMP does not measure cardiovascular fitness that may be associated with a sedentary lifestyle. Acknowledging that the numbers are small, nonetheless this was an interesting result.

Enjoyment Factors.

There appeared to be an enjoyment in physical activity for the majority of children which is not limited to their level of physical achievement on the BOTMP. When asked about what made their play and leisure activities pleasurable or enjoyable, in the children's interviews only one child mentioned doing something for practice to get better at it, 4 children mentioned 'learning new things' as their enjoyment factor. The most popular response category was 'combination of factors' chosen by 32 children (39%), and the next largest category was 'It's fun/amusement' with 23 (28%). Eighty one percent of all children reported themselves as being physically active in their play. Perhaps each child depending on his/her needs at the time uses physically active play for differing reasons, more akin to the mothers' perspective reported in interviews. Cultural differences may also be reflected in children's preferences for physical activity levels.

Summary.

Issues raised in the literature regarding the composite groupings of gross and fine motor skills in the BOTMP have been supported by the findings of this study. In addition the logic of the division of the PQ items into 4 factors has been questioned. Both measures were employed in this study in order to permit analysis of the possible relationship between play preference and motor proficiency. However accepting the limitations of both measures, some interesting data related to individual PQ items and BOTMP subtests has been generated. Most children enjoyed frequent physically active play, and this self selecting sample scored well generally on the BOTMP. There was a statistically significant difference found in some subtests related to gender (girls scored better on Balance, Upper Limb Speed and Dexterity and Visual Motor Control, and boys scored better on Strength and Response Speed). BOTMP sub-test scores and play /leisure preference of those partaking in skilled activities such as football and Irish dancing scored better on Running Speed and Agility, Bilateral Co-ordination, Upper Limb Co-ordination and on the Battery Composite. However not all differences in scoring can be explained as associated with practice or avoidance of certain types of play. There is a lack of consistency in BOTMP motor proficiency levels related to physical play preferences with this sample of Irish children. This may be explained in part by the generally healthy, able and physically active sample, and perhaps it is only those children with a narrow range of play experiences or with limited motor ability might manifest a stronger association between activity levels and motor proficiency. There is also the issue that motor

proficiency might be made up of a combination of discrete skills rather than one global ability, and that these discrete skills may or may not relate to specific play preferences.
The above analysis of the various measures is based on the description of the sample as a whole using measures of central tendencies. Gender differences are identified in play preferences and in motor proficiency. However each individual child has a unique profile, with an individual pattern of scoring on the BOTMP and their individual play preferences. Each child's scoring or play preferences may be similar in some ways to others, but it would be difficult to find a complete match even between two children from the 84. The study data merges their individuality into average trends. With regard to the BOTMP, it is easy to see how one summary or composite score masks the detail of strengths and weaknesses on the individual sub-tests. Tatatabainia et al (1995) and Wilson et al (1995) have raised issues about the validity and the clinical value of reading only the summary or composite BOTMP scores.

The combination of data collected from each child and mother offers a unique profile of the child's interests, strengths and supports. No one measure is adequate to provide a qualitative profile of an individual child. This study is interesting in that it uses different measures in an attempt to achieve its aims. That there is no consistent evidence to explain all of the relationships between play preferences and motor development, and that some children engage with activities that might not be directly related to their strengths also suggests that there is more to avoidance/engagement than the perceived level of skill, as is proposed by the sensory integration theorists (Ayres, 1979: Bundy, 1991). The drive for mastery proposed by Reilly (1974) might be met by the choice of skill focused formal leisure activities, such as learning Irish dancing or involvement in sports training. At other times, playing with friends and having fun might be reason enough for engagement. Perhaps it is the choice, breath, variety, and involvement of others in their play and leisure interests that allows the personhood and skill acquisition to evolve.

CHAPTER 8. PREDICTIVE VALUE OF EARLIER MEASURES OF MOTOR ABILITY.

Introduction.

As reported in the introduction chapter of this report, perinatal and infant measures including those with a motor development focus were taken on the study participants as part of the DCDS. Considering the paucity of information on the motor development of Irish children this was a valuable component of the earlier data. The use of the BOTMP in the present study provided a useful opportunity to examine the predictive ability of the earlier data. Although this aspect was not the main focus of the study on play preference and motor development, it was considered opportunistic and worthwhile. It is acknowledged that there are general difficulties in predicting motor proficiency from infancy to later childhood for a variety of reasons. These reasons are discussed below. This chapter then presents the analysis of the longitudinal data which focuses on the correlations between infant measures and the individual subtest scores of the BOTMP and the complete battery composite score. Statistical analysis was undertaken for the total group and for males and females separately. This opportunistic aspect of the study provided some interesting findings, and when considered in the context of the criticism of the BOTMP already reported, issues about the measurement of motor proficiency in early childhood are raised.

Difficulties with Prediction.

It is widely recognized that even such carefully developed and thoroughly standardized measures of infant intellectual development as the Bayley scales, do not correlate strongly with later measures of intelligence like the Stanford Binet or WISC. For example, Brooks-Gunn and Weinraub (1983) examined early studies of the predictive validity of infant scales and found that none of the correlations with later test results exceeded .50. This is not surprising given that the item content in infant scales and IQ tests is very different. Item content reflects maturational realities and the need at younger ages to rely on straightforward and simple motor, auditory, and visual-perceptual measures for estimates of emerging intelligence. Intelligence test items by contrast assess logical reasoning, memory, verbal skills and other higher level cognitive competencies (Hynd & Willis, 1985). As Lewis and Sullivan (1985, p.556) state "skills that could be tapped during

infancy were qualitatively different from those tapped on later tests and their relationship to that construct known as intelligence was complex".

The limited predictive validity of infant scales of intellectual development also reflects the plastic, emergent nature of intellectual development and its substantial dependence on highly contingent, environmental factors. This has led some researchers to conclude that the prediction of subsequent IQ is neither an attainable nor an appropriate goal for infant assessment scales, which should rather be focused on the task of early diagnosis of developmental problems (Honzik, 1983).

While there is substantial longitudinal research on various aspects of motor development in childhood (Kalverboer et al., 1993), there is little research relating infant measures to later pre-pubertal measures of motor performance. The measurement of the development of motor proficiency, it might be argued, is a less complex issue than the measurement of intelligence, because it is not hindered to the same extent by the need to rely on qualitatively different item types in tests for infants compared with tests for older children. Items used to measure motor ability in both infancy and later childhood usually have an obvious face validity. That is to say, in tests of motor ability as opposed to intelligence, motor performance is directly observed for its self-evident and explicit motor skills related content rather than as a purported marker for a hypothetical construct, such as intelligence. Given this advantage, the expectation of a substantial degree of continuity in measured motor proficiency over time and even between infancy and later childhood may be justified and Siegel (1992) provides some evidence for such continuity at least in the area of fine motor skill.

However, there are a number of theoretical and methodological difficulties that cloud the issue. In the first place infant motor scales such as the Bayley focus on the attainment of critical milestones and use a simple pass/fail assessment. In other words they focus on ability rather than skill and fail to take proper account of the quality of motor performance. Such tests favor the child who exhibits more rapid development over the child who develops more slowly but to a higher level of motor proficiency. Secondly, as Abbott and Bartlett (1999) point out, although there is little evidence-based research to support the assumption, it is widely assumed that environmental factors play a very influential role in motor development as well as in intellectual development. So, opportunities for play, sport

and other forms of motor performance practice, parental expectations, care-giving practices and the physical environment may have a profound influence on the child's emerging motor proficiency.

The inter-correlations between the various subtests of the BOTMP have been reported in an earlier section. This section offers an exploration of the correlations between measures taken in infancy and BOTMP scores at around 8 years and 6 months of age. Following analysis of the subtest inter-correlations of this study's data and reports in the literature which put in doubt the meaningfulness validity of the fine motor and gross motor composite scores (Hattie & Edwards, 1987; Tabatabainia et al, 1995) it was decided to focus mainly on the use of individual subtest scores as dependent variables.

The Sample.

There were 75 participants, 38 female and 37 male, who were administered the BOTMP in the current study. Although the original sample totalled 200 children, substantial attrition occurred due to a number of reasons. The single most significant factor was that 26 of the babies were almost immediately separated from their mothers for the purpose of adoption. However, a considerable number of the single mothers also moved away from the Greater Dublin area with their babies, and 6 babies died in the perinatal period. As a result, the sample size at 3 weeks was 157 and at 18 months, the point at which the Bayley scales were administered, was 125. By this stage the representation in the sample of mothers who were unmarried at the time of the birth was much less than 50%.

Eighty-four of the 125 children who had been administered the Bayley scales were contacted for the current study and agreed to co-operate with it. The mothers of the 75 children administered the BOTMP had a mean age of 23.6 years at the birth of their child and were, thus, a little older than the mean age for the original group of 200 which was 22.5 years. More than two-thirds of these mothers (67%) had been married at the time of the birth. The modal socio-economic class for this subset of mothers was IV. The average birth weight of the 76 babies was 3539 grammes, a little heavier than the result for the whole group of 200.

Measures and procedures.

As reported earlier, the BOTMP was administered to 75 children in their own homes. The subjects' homes were scattered widely over the Greater Dublin area and the children had to be tested outside school hours. This lead to a protracted BOTMP testing programme that lasted for over 18 months. As a result, the children, although all born within a few months of each other, varied in age, at the time of BOTMP testing, between eight years two months and ten years one month. However, the BOTMP scoring procedure adjusts for age differences by providing separate norms for each six months age interval between four and a half and fourteen and a half years.

The Apgar exam (Apgar, 1953) is an objective measure of the status of the neonate and has become the standard first assessment of the newborn baby. The Apgar scoring system involves rating the newborn 1 and 5 minutes after birth on five signs: heart rate, respiratory effort, reflex irritability, muscle tone and colour. Each sign is rated on a scale from 0-2, and the maximum positive score is 10. On average about 77% of newborns score at between 8 and 10 on the exam, about 17% score between 3 and 7 and 6% less than this.

The Brazelton Neonatal Behavioral Assessment Scale (NBAS) (Brazelton, 1984) assesses a wide range of behaviors in the new-born infant that are assumed to reflect the integrity of the neonatal CNS. The NBAS includes items in four categories: attention and social responsiveness; muscle tone and physical movement; control of alertness; and physiological response to stress. This study focuses solely on the motoric items that is those in the muscle tone and physical movement category, which assess the infant's ability to perform integrated motor acts such as bringing hand to mouth. The scale was administered in the hospital on the third day after the birth of the baby and again in the home 21 days after birth

As reported in the literature review, The Bayley (Bayley, 1969) Scales of Infant Mental and Motor Development were the first infant tests specifically designed to predict to future intellectual and motor performance. In her scales Bayley attempted to identify behaviors that represent significant criteria of development. The motor scale has items assessing control of the body, muscular coordination, manipulatory skill and so on. The scale is intended for children aged between 3 and 30 months of age. The 81 items in the Motor Scale are ordered according to the age at which 50% of the children tested in the

standardization process passed a given item. For example, at 6 months 50% of the children were able to sit alone for at least 30 seconds; at 14.6 months 50% were able to walk backwards; and at 28.1 months 50% were able to jump from a second step. Both the Bayley Mental and Motor Development Scales produce a normalized standard score based on the ratio of the established age norm for the highest level of performance attained by the child in testing and the child's actual chronological age. High scores indicate rapid development rather than quality of performance and low scores indicate that the child is lagging behind age appropriate levels of attainment. The scoring might now be considered rather crude. In addition as it was developed in the United States and in the late 1960's it may reflect to some degree child rearing, handling practices and cultural expectations of that time.

The participants in this study were administered the Bayley Scales at eighteen months of age. Procedures were carried out in a standardized setting in the Psychology Department of Trinity College, Dublin.

Results

Table 8.1 presents the age-adjusted standard scores for the fine motor, gross motor and battery composites of the BOTMP. A score of 50 is regarded as average and a score below 43 as indicative of impairment. The scoring of this Irish sample was generally somewhat above the expected average. The girls scored a little better overall than the boys but while girls were considerably stronger on the gross motor composite they were slightly poorer on the fine motor composite. Ten participants scored in the 'impairment' area on the fine motor composite (6 boys), four on the gross motor composite (3 boys) and seven on the battery composite (4 boys).

Table 8. 1: BOTMP Scores

	FINE MOTOR COMPOSITE	GROSS MOTOR COMPOSITE	COMPLETE BATTERY COMPOSITE
	N = 73	N = 65	N = 63
Mean	52.04	54.72	55.37
Standard Deviation	12.1	9.7	11.1
Percent below 43	16.4	6.2	11.1
Mean for males	52.34	53.3	54.93
Mean for females	51.76	56.00	55.73

The mean score for the one minute Apgar exam was 8.75 with only 6 babies scoring below 8 and 1 below 6. For the five minute Apgar the mean was 9.33 with all babies scoring 8 or better. The mean scores for the Bayley Motor and Mental Scales were 118 and 108 respectively. The mean scores for the NBAS motoric cluster (calculated as the average of 7 items measured on a 0-9 scale with higher numbers indicating better functioning) were 5.3 at three days and 5.7 at 21 days. The Apgar and the Bayley scores in particular indicate that this was a generally healthy sample, functioning at normal or better than normal levels.

The following analysis of longitudinal data will therefore focus on the correlations between infant measures and, on the one hand, the individual subtest scores of the BOTMP and, on the other, the complete battery composite score. Analysis was undertaken for the total group and for males and females separately.

Longitudinal Data.

Table 8.2 presents the correlations for a) birthweight, b) the Bayley Infant Scales of motor ability and mental ability (administered at 18 months) and c) the NBAS motoric cluster (administered at 3 days and 21 days) with the BOTMP battery composite score and eight separate subtest scores.

TABLE 8.2. BOTMP correlations with infant measures

	Birthweight	Bayley Motor	Bayley Mental	NBAS Motoric 3 Day	NBAS Motoric 21 Day

	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F
Battery Composite															
Running speed															
Balance				.27*		.35*							.35**		.35*
Bilateral coordination			.41*	.27*			.25*		.38*						
Strength															
Upper limb coordination			.45**												
Response speed											-.37*				.34*
Visual-motor control							.23*								
Dexterity							.26*								

*significant at the <.05 level ** <.01 level

The Apgar scores for one minute and five minutes are not included in the Table since they produced no significant correlations with any of the BOTMP scores.

A number of the negative results are noteworthy. In the first place, it is interesting that there are no significant correlations between the infant measures and the BOTMP battery composite, while there are several with subtest scores. Secondly, when the boys and girls are examined separately, there are 4 significant correlations for the girls but none for the boys. The strongest correlation of all is between birthweight and Upper Limb Coordination for the girls. It is also interesting that the Bayley Mental Scale has more significant correlations with the BOTMP subtests than the Bayley Motor Scale, despite the latter's focus on motor skills. Only Balance and Bilateral Coordination have significant correlations with the Bayley Motor Scale. The single BOTMP subtest most linked to the predictor variables is Bilateral Coordination.

The NBAS motoric cluster at three days has only one significant correlation with prepubertal performance on the BOTMP and this is for males only for Response Speed. This is a rather anomalous negative correlation, indicating a poorer performance on Response Speed for those who did better on the motoric cluster. The NBAS motoric cluster at twenty-one days has three positive significant correlations, with Balance for the whole group and for females and with Response Speed for females only.

Multivariate analysis

Two multivariate analyses of the longitudinal data were undertaken using stepwise multiple regression with a criterion of probability-of-F-to-enter less than or equal to .05. In the first analysis, the independent or predictor variables examined for possible inclusion in the equation were Apgar at five minutes, birthweight, Bayley Mental Scale score, Bayley Motor Scale score, NBAS motoric cluster score at three days, and NBAS motoric cluster score at twenty-one days. Nine dependent variables were examined in turn – the BOTMP battery composite score and the eight subtest scores.

No variable met the criteria for entry for the battery composite score and for the following four subtests: Running speed and agility, Strength, Upper-limb coordination and Response speed. A single variable was entered into the multiple regression equation for the

following subtests: Bilateral coordination, Balance, Visual-motor control, and Dexterity. These were: for Balance, NBAS motoric cluster at 21 days (R^2 = .12); for Bilateral coordination, Bayley Motor Scale score (R^2 = .06); for Visual-motor control, Bayley Mental Scale score (R^2 = .09); and for Dexterity, Bayley Mental Scale score (R^2 = .07).

A second multiple regression analysis was undertaken, which was similar to the first except that the 27 rating scores of the Bayley Infant Behaviour Record that focus on the child were used as independent variables, in addition to the Bayley Motor and Mental Scale scores, the Apgar at five minutes, birthweight, the NBAS motoric cluster score at three days, and the NBAS motoric cluster score at twenty-one days. The Bayley Infant Behaviour Record is a rating, made by the examiner immediately after the administration of the Motor and Mental Scales, of various aspects of the child's behaviour during the test.

TABLE 8.3: Multiple Regression on BOTMP scores of the Bayley subtest scores and perinatal measures

BOTMP Dependent Variables	Independent Variables Included in Equation	R^2	Significance of F
Battery Composite	Step 1: BY21	.11	.014
Running speed	Step 1: BY2	.1	.014
Balance	Step 1: NBAS21 2: BY5 3: BY25	.27	<.001
Bilateral coordination	Bayley Motor Scale	.06	.035
Strength	Step 1: BY19	.08	.021
Upper limb coordination	Step 1: BY6	.07	.028
Response speed	Step 1: BY19	.2	<.001
Visual-motor control	Step 1: BY18	.13	.003
Dexterity	Step 1: BY18	.08	.018

It is noteworthy, if unsurprising, that only the NBAS motoric cluster measured at 21 days after birth, among the neonatal variables, is entered (for Balance) as a significant predictor variable for any of the BOTMP dependent variables, measured at about 8 years six months. More surprisingly, the Bayley Mental Scale makes no appearance in the regression equations and the Bayley Motor Scale is a significant predictor variable only for Bilateral coordination. On the other hand, seven of the total of twenty-seven Bayley Infant Behaviour Record ratings are entered as significant predictor variables for seven of the BOTMP subtests and the composite battery score.

BY2, which predicts Running Speed, is a rating by the examiner of the child's responsiveness to the examiner on a 5 point scale from avoidant to inviting. BY5, which predicts Balance, is a rating of fearfulness on a 9 point scale from no evidence of fear to strong indication of fear of the strange. BY6, which predicts Upper Limb Coordination, is a rating of body tension on a 9 point scale from flaccid most of the time to predominantly taut or tense. BY18, which predicts Visual-motor Control and Upper limb Speed and Dexterity, is a rating of the child's tendency to produce vocalizations on a 9 point scale from none to excessive. (It is interesting that those who 'like to shout and yell when playing' as indicated by mothers completing the PQ. Item scored better that others in the BOTMP sub-test Running Speed and Agility, but in no other sub-test.) BY19, which predicts Strength and Response speed, is a rating of the child's tendency to bang toys or hands on the table and throw toys, on a 9 point scale from none to excessive. BY21, which predicts the Battery Composite score, is a rating of the child's body motion, on a 9 point scale from none to excessive. BY25, which predicts Balance, is a rating of the child's energy level, on a 5 point scale from low to high.

Two of the multiple regression equations (predicting Balance and Response Speed) are highly statistically significant and relatively powerful, explaining more than a quarter and a fifth of the variance in their respective dependent variables. It is interesting that most of the Infant Behaviour Record ratings involved in the equations relate to motor behaviour or energy and activity levels, though they are not intended to be measures of motor proficiency.

Conclusion

That the present results show only occasional, relatively weak associations between the perinatal variables and the Bayley scales at 18 months and the BOTMP at about 8 years 6 months is undoubtedly related in part to the fact that the early childhood measures used as predictor variables, such as the Bayley Motor Scale, are themselves global assessments. More specific early childhood motor ability measures might be expected to predict more powerfully to closely related measures used in later childhood, especially if they focused on quality of performance as well as simple attainment of a skill. This is assuming tht no other factors interfere with development, including environmental factors.Another issue is the generally very high average performance level of this sample, especially on the Apgar and the Bayley Scales and the consequent small number of low scoring children. Michelsson and Lindahl (1993) have related low Apgar scores and low birthweight to poor motor performance at 9 years. However, they compared controls with clinical groups who had Apgar scores of below 6 at five minutes and birthweights below 2000 grammes. None of the children in the present study had either an Apgar or a birthweight as poor as this.

Of course, there are definite limits to how well early childhood measures might predict later measures of motor proficiency. These limits are set by, amongst other factors, the potentially strong influence of the environment on developing motor proficiency, by gender differences that are unstable over time, and by a possible awkwardness phase. In this context the statistically significant correlations discovered in this study between early childhood measures and the BOTMP subtests administered at about 8 years 6 months confirm that further research in this area would be worthwhile. It is interesting that continuity in motor ability appears to be more manifest in female children at least up to the prepubertal period and that low birthweight appears to be predictive of poor motor performance in some areas for females but not for males. The present results also suggest that the Balance and Bilateral coordination subtests of the BOTMP have most potential with respect to the measurement of continuity in motor ability.

CHAPTER 9. DISCUSSION.

Introduction.

This study has generated a considerable amount of data regarding play and leisure interests; play preferences as measured by the PQ and data on motor proficiency as measured by the BOTMP. It has also examined the predictive ability of perinatal and infant motor assessments in relation to the BOTMP. Various measure were employed to obtain as full a picture as possible of the play and leisure interests including children's and mothers' perspectives. By employing measures such as the PQ and the BOTMP, issues about motor ability and possible relationships with play preferences were explored. It was opportunistic then to examine the predictive ability of the perinatal and infant data, even though this analysis was not the main focus of the study. The results are of interest from an occupational science, occupational therapy and from a motor/child development perspective.

In summary, the data collected and analysed in this study established that these first born children were involved in active and varied play and leisure pursuits, had friendships which they organized themselves, and mostly had a formal leisure or sports pursuit which required attending classes or training. The social nature of their play was evident, as was their contact with extended family members. Gender differences in preferences appeared to support the stereotyped image of large groups of boys playing on the streets, and in green spaces and smaller groups of girls playing indoors or in gardens. However pretend play for most children continued to a greater degree than the literature suggests, but with a greater preference evidenced in girls. Gender differences were identified in the BOTMP sub-tests with girls scoring better on Balance, Visual Motor Control, Upper limb Speed and Dexterity and boys scored better on Response Speed and Strength. The PQ identified gender differences in play preferences such as girls' avoidance of rough and tumble play, and their greater preference for fantasy play. Regardless of gender most children enjoyed physically active running and chasing games, riding bicycles, roller-skating and such like. The sample as a whole scored reasonably well on the BOTMP with the achievement of average scores with the exception of the Upper Limb Speed and Dexterity score which

were in the 'below average' category for the whole group. However individual patterns of scoring were more evident than global high or low scores for all of the subtests. A summary or even composite score did not best describe the child's pattern of strengths and weakness.

Although there were some clear associations between play/leisure preferences and BOTMP scores, especially for those who chose a formal leisure pursuit (such as football for boys and Irish dancing for girls), not all of the differences in scores can be explained by leisure preferences. It appears that children chose activities for their own reasons, and although it may appear that they had performed poorly on some underlying skill area central the play leisure activity, this did not appear to deter their engagement. It was notable that most children had variety in their play and the social aspect of playing with friends was a recurrent theme. Television viewing at about two hours per weekday was much below the reported length of time spent viewing in other studies in the literature. Most mothers considered play and leisure experiences important in their children's lives. Having fun, and making friends was seen as an important part of childhood and an antidote to the demands of school. Play and leisure activities were supported by parents and special interest groups, much of the work (such as training the boys' football team) was voluntary.

There was no national policy of support for the important role of play and leisure in childhood development. At the time of this study there was a relatively depressed economic climate, an unemployment rate for those seeking work of 14%, and this excluded most mothers who did not seek work outside of the home. Mortgage interest rates were at over 12%. Families lived in their own modest homes with rather constricted financial resources. There were constraints in the provision of State services such as health, education and infra-structural developments. There was a prevailing view in therapy services at that time that children avoided sensory motor activities that they were poor at, and that therapist directed 'play activities' were a means to building motor skill in the 'deficient' child in the belief that 'practice makes perfect'. Some of the assumptions are discussed in this chapter in the section on the relationships between play preference and motor skill. Occupational therapy literature in the early 1990s urged the use of formal assessment of measurable skills/ activity areas in a drive to prove that intervention worked. However it may be said that not enough rigor in critiquing these assessment was applied. In section 2 and 3 of this chapter, validity and prediction issues are discussed.

The main focus of this study was to describe the play and leisure interests of this group of children, and this has been described at length in the earlier results chapters in this report. However play is a socially sanctioned occupation and cannot occur without support. In the remainder of this chapter, issues about the importance of play and its role in social and personal development, its susceptibility to impact from social and economic changes such as the change in expected role of mothers, and the need for social policy on play are discussed.

In this chapter the discussion is presented in the following format:

1. The Relationships Between Play/Leisure Activities and Motor Proficiency.
2. The validity and value of the P.Q.
3. Estimating and Predicting Continuity in Motor Ability.
4. An Irish example of satisfied 'players' and the context in which this is supported.
5. Conclusion, limitations and recommendations.

1. The Relationship between Play Activities and Motor Proficiency.

The interview data demonstrated that most children enjoyed physically active play, such as running and chasing games with more than 90% reported as playing like this at least as often as 'some days'; 84% were reported as riding a bicycle equally often. More than 76% of children when asked what would they like to do more of, answered that they wanted to do more motor skill activities such as martial arts, gymnastics, or swimming. There appears to be an enjoyment in physical activity by the majority of the group, yet there are differences in abilities as measured by the BOTMP. However when examining these data for relationships between play preferences and motor proficiency, interpretation of results of this study should take note of the following;

(a) Gender difference is a confounding variable in comparing the PQ data items and BOTMP results. Confounders are factors that are associated with the outcome measure (the BOTMP scores) and the exposure measure (the PQ item scores) but that they are not directly on the causal pathway. The gender differences in play preference may be due to socialization rather than motor development factors. The play preferences of boys and girls were different in 8 of the 15 PQ data items. In addition there were 5 individual BOTMP

sub-test gender differences (statistically significant), although these were not reflected in the BOTMP battery or fine and gross motor composite results. However as discussed in the literature review and elsewhere in this report, the composite groupings of sub tests into fine and gross motor categories may not be justified. If fewer gender differences in play preferences were found, and there were fewer gender biases in the BOTMP sub-test scores, then statistical associations between play preferences and BOTMP scores could be seen as having greater validity.

(b) Assumptions about group results do not necessarily apply to individuals who score at the extreme ends of either PQ preference items or of BOTMP scales. These individuals are by definition not typical and their play preference might reveal different relationships to BOTMP scores. Wilson et al (1995) when reporting on their U.S. study have suggested that raw scores rather than age adjusted scores are more useful, and that certain sub tests such as Running Speed and Agility, Visual Motor Control and Upper Limb Speed and Dexterity were likely to provide the greatest degree of discrimination between children with and without motor problems. However, in this Irish study, the mean score for all children in the Upper Limb Speed and Dexterity was in the 'below average' category at 9.33 ('average' scores are from 12 to 18) which might suggest that cultural differences influence scoring on this sub-test.

(c) The two measures (the BOTMP and the PQ) have inherent psychometric weaknesses, true relationships or lack thereof between play preferences and motor proficiency may be distorted or missed by weaknesses in these measurement tools. Their scales and scoring methods may not be sufficiently discriminating to separate real differences in children's abilities or in their preferences.

In addition, perhaps some of the explanation lies in the nature of the formal leisure activity undertaken, such as frequent football for boys and Irish dancing for girls. Almost 43% of boys reported themselves as playing football as frequently as 'every day' and 52% of girls go to Irish dancing classes. The BOTMP data for those who do this frequent and skilled motor activity was analysed in comparison to those who play football less often than 'most days', and those who do not go to Irish dancing. Interestingly the skilled activity group results were higher in the Battery Composite score ($p = 0.0156$), and in the following 3 sub test scores; Running Speed and Agility ($p = 0.0430$); Bilateral Co-ordination ($p =$

0.0138); and Upper Limb Co-ordination (p = 0.0440). However it is interesting that this skilled activity group did not score better on Balance, in that both activities require skilled reactions during movement and when only one foot is in contact with the ground. It is also interesting that Upper Limb Coordination was higher in the skilled activity group, even though in soccer arms are used for balance but handling of the ball is not allowed. Similarly, Irish dancing is characterized by the emphasis on footwork and by the maintenance of a straight posture with arms kept almost rigid at one's sides.

At the time of the study there were several interpretations regarding choice of activity proposed in the occupational therapy literature, one was that children play what they are 'good' at, (Bundy, 1991); another view of play was that children seek mastery and have an urge for competence (White, 1971; Reilly, 1974). Ayres's (1979) argument was that children had an inner drive to seek out organizing sensations and that this is manifest in sensory-motor play activities and that these activities are critical to the development of sensory integration in the child. There was also the view upon which most remedial intervention was based, 'that practice makes perfect'. These are discussed below in the context of the data gathered in this study.

1.That children play what they are 'good' at (Bundy, 1991), and that those who had a strong preference for a particular type of activity would score better than others in the physical skill area underlying the specific play preference.
It is clear from this study's data that differences in BOTMP scores were not routinely and consistently in the same direction as differences in PQ preferences. Certainly some children frequently play physically active games and also scored highly on some related BOTMP sub test, however others were found to frequently choose activities even though they are at best mediocre in the underlying motor skill requirements. Although differences related to activity preference were found, some with face validity, there was sufficient lack of expected differences in some areas that caution is advised in making a general link between choice of physical play activity as an indication of proficiency in related motor skills.

2.That children seek mastery and have an urge for competence (White, 1971; Reilly, 1974) and this is reflected in their choice of activity. It has been hypothesised that children choose activities that they are mediocre or less good at for the purpose and challenge of improving their skills.

Most of the PQ/ BOTMP data analysis involved division into 3 preference groups, and each mean was compared. The general trend, with some exceptions, when differences were actually found, was that the PQ high preference group scored better in the BOTMP sub test scores than the lower preference groups. Two notable exceptions to this were in Item 15, 'liking table top activities', in which those, who most liked doing this, had a lower mean for Bilateral Co-ordination than those in the lowest preference range who scored in the 'above average' BOTMP category ($p = 0.0395$). This result could be interpreted as indicating that the high preference group has mediocre ability, and were seeking mastery or competence in these specific table top activities, and that the very competent group had moved on to other challenges. But such differences were not found in other expected sub test results such as Visual Motor Control or Upper Limb Speed and Dexterity (both physical skill areas required for table top activities).

Another exception was found in preference groups for Item 5, 'Liking Rough and Tumble' play. With regard to Balance, those who least liked rough and tumble play scored better than those who most liked it ($p = 0.0035$), but both groups were still in the 'average' BOTMP range. With the same play item, those who had a high preference for this kind of play scored the highest on BOTMP Strength ($p = 0.003$), which reflects the more usual trend of high preference linking with a higher BOTMP sub test score. The inconsistencies in the PQ/BOTMP data mean that neither the 'mastery' nor the 'competence drive' theory as reported in the literature for children in this developmental stage (Reilly, 1974) are fully supported by the current data.

Accepting that children may not articulate or be conscious of underlying drives to engage in a particular activity they were none-the-less asked in their interviews about what it was that they enjoyed. Only one child mentioned doing something 'for practice to get better', 4 mentioned 'learning new things', 23 children (28%) reported 'it's fun/amusing' and this was the largest single category. The majority reported diverse factors, some specific to a particular play activity, which may support the idea of children choosing play for different experiences at different times. Perhaps it is the engagement with the process, and a sense of 'doing, being, becoming' which gives the pleasure. The challenge may be in engaging with, rather than 'overcoming' for this group of children. However, considering the number of children who go to organised leisure activities and their interest in doing more physical skill activities such as martial arts, sport and swimming, this may be perceived by

the children as offering challenge in a different way from their other daily play activities. Skill acquisition and competence may be the objective in these particular activities. These study data indicate that much of the play appeared to be shared activities with friends. This social dimension of co-operative engagement in play with others appears to predominate over the drive to 'master' on ones' own or in competition with others. These children had choice and variety in their leisure time, perhaps this engagement for fun and individual interest is an antidote to their challenging school life.

3. Ayres (1979) argued that children had an inner drive to seek out organizing sensations and that this drive is manifest in play activities which in turn are critical to the development of sensory integration. Children need positive experiences in using their bodies for the brain to be properly orientated to receive and organise sensory information and for the child to be motivated to seek out sensory experiences. Experiential and motivational aspects are viewed as necessary parts of the adaptive spiral of sensory integration. However there is little empirical evidence to support a causal relationship between play experience, motivation and sensory integration status in 'normal' children.

The children in this study generally scored well on the BOTMP and they were reported as interested and active in physical play. This was a generally healthy sample in terms of motor proficiency as measured by the BOTMP, and certainly there were environmental, including social supports for active engagement in physically active occupational behaviours (play). It may be that the environmental supports and the inner drive of the child to seek out experiences may have enhanced the sensory integrative potential of the children in this study. Sensory integrative status was not tested, and there are no norms established for the sensory integrative status of Irish children.

Moreover in this study of 'normal' children, factors such as gender have been associated with preference or avoidance of some PQ items that could be taken as indicating a sensory integration aspect such as mentioned earlier in this report. There may be more influencing factors in avoidance and preference for types of play than sensory integration status alone. Also it is notable that there was insufficient proven correlations between BOTMP scores and P.Q. scores to support a direct relationship between preference/avoidance of physical active play activities and motor proficiency status on sub test scores for the group as a whole. Human development is more complex an simple causal relationships such as

dose/response may not be easily identified. Most children had variety in their range of play/ leisure activities which could be presumed to facilitate development across a broad range of areas including sensory processing.

However applying Ayres's view of self-actualization and self ordering as a manifestation of sensory processing in a broader construct than motor behaviour, the study children were reported as managing their play time, playmates and activities to a satisfactory level (to self and mothers), and had low reports of disruptive behaviour related to boredom. This view of (macro) self organisation may differ from the occupational behaviours associated with children with sensory integrative dysfunction, although there is little reported on this aspect. It may be that this high satisfaction level supports Ayres's view of a relationship between sensory integration and self organisation through self directed play and leisure activities. However her perspective did not take account of the importance of environmental opportunities and supports including social sanctioning in the development of occupational behaviours. Data about 'normal' children dealing with central tendency can mask the unique profile of each child, such as the unique profile on the BOTMP, P.Q. and questionnaire data. Individuals differed in many ways from each other in this study.

Much of Ayres's work deals with atypical children in terms of their sensory integration profile. The sensory integrative developmental pattern and potential of the atypical child might differ from others, and theories about 'normal' sensory processing may not apply. Therapy based on the sensory integration model always aims at remediation of the sensory integrative problem, and that postulates that there is an inner drive to seek order in sensory processing, and that this is a major influence on the child's choice of activity. This takes a rather narrow view of the role of play and leisure activities, and excludes Yerxa's (1990) view and those expressed by mothers in this study that the same play activity may have a myriad of different meanings depending upon the goal of the child, the environmental context or mood.

Another explanation may be offered by Csikszentmihalyi's perspective on satisfaction through 'doing' (1993). His stance was that of improving the quality of one's life not by thinking but through doing. "The issue is not to figure out how to be happy, satisfied, or contented; but to act in ways that will bring about those states of experience directly. Acknowledging that not all activities improve the quality of experience, the task was to

become involved in doing tasks that stretched one's abilities, and that focused one's whole being in a harmonious rush of energy that lifts us out of our anxieties and boredom" (p.40). When these conditions are present the person is said to be in 'flow'. Perhaps it is this experience of 'flow' that makes these children's play and leisure activities enjoyable. It is also difficult to separate 'inner drive' from social context. Methods for and time spent on having fun and enjoying oneself are culturally sanctioned experiences. Achievement and competitiveness may be encouraged in certain societies, or may be a result of an unconscious inner drive. Hence it is difficult to explain the rationale for engagement.

4 . That 'Practice Makes Perfect'.

It could be expected that high preference for a type of activity would be associated with high scores in specific BOTMP sub-tests (those reflecting the inherent physical skill required by the activity). It is reasonable to expect and that those who do not practice or play frequently a particular physical activity would score as less able on related BOTMP subtests. This hypothesis of practice improving performance is the basis of much intervention in education and rehabilitation, although recent literature reported in Chapter 2 supports a haphazard regime of practice as more effective in retaining 'real-world' motor skills than 'drill' training (Schmidt & Bjork, 1992). When using the PQ data for analysis with the BOTMP data, it is also assumed that mothers' indications of preference or dislike of a particular physical activity in some way equates with opportunity/frequency of partaking (as in high preference is associated with frequent practice/ low preference is associated with avoidance or infrequent practice). In the summary of the pertinent data results above, this relationship between direction of PQ preference and BOTMP scores only held true for some play activities, and in some sub-test sores. An example of this is in Item 1, 'arts and crafts' in which the high PQ preference group had statistically significantly higher scores in Visual Motor Control than the lowest preference group. But this was not found in other expected areas such as Fine Motor Composite, Upper Limb Co-ordination, or Upper Limb Speed and Dexterity. Another interesting example was that the high preference group for running and jumping games did not score any better in the BOTMP Running Speed and Agility sub test than the lower preference groups. Also the results of the correlations between PQ items and BOTMP scores were at best moderately high with very few above .4.

However, it may be that the nature of the physical engagement is such that the child does not seek to incrementally increase the physical challenge that in theory should improve ability. For example, the children may be generally fit due to their chasing games, but not necessarily getting any faster the more they play. After all getting 'caught' is part of the game, once the same person is not always caught first or is not 'on' all of the time, the game has variety and excitement. Opie and Opie (1977) in their work on street games point out that 'keeping the game going' is a major commitment made by all of the players. Different ages and abilities are absorbed into the game. The person who is 'on' in the chasing or hiding game may not always first go after the four year old who has chosen a very obvious hiding place. Some children may set themselves the challenge of being the last person 'caught', and put considerable amounts of efforts into this. Others may just be happy to participate, and run about. If it is accepted that mastery is not always the motivation for playing, an assumption could be made that that frequent playing of running and chasing games may maintain motor skills rather than improving them. This may explain in some way, the lack of strength in the relationship between preference levels for particular activities and motor skill levels.

On the other hand, it may be that the practice of skilled activity as in frequent football playing or Irish dancing, and the associated 4 differences in BOTMP scores might support the view that those who are drawn to such focused activity and its frequent practice, have high levels of motor abilities in some areas, such as speed and agility. However, to what degree practice improves innate ability cannot be measured in a cross sectional study such as this.

Conclusion.

It is clear that most children in this study group enjoy playing physically active games and that they frequently play them. There are differences in motor skills and differences in play preferences, however these are not all related to each other or all explained by gender differences. Strong play preferences for physical activities are not necessarily associated with higher motor skills. It is acknowledged that there are inherent psychometric weaknesses in the two measurement tools and these may have resulted in possible relationships being missed. Mastery and competence of motor skills *per se* may not always be the motivation for physically active play. Reasons for playing or engaging in physically active play may be multi-dimensional and contextual. However the choice of organised

physically skilled leisure interests may indicate a greater aptitude in some aspects of motor proficiency.

2. The Validity and Value of the Play Activity Questionnaire (PQ)

In the early 1990s in the initial stages of this study it was difficult to find a tool that would help describe what was it that children liked to do in their leisure time. There were few reports in the literature on the totality of children's play in middle childhood. The PQ was considered useful in so far as its emphasis was on physically active play. This was seen as a useful measure with which to relate the BOTMP scores. It is acknowledged that play behaviours exhibited by children to mothers and to fathers might differ, that environmental expectations have a role in influencing play, and that these might limit the value of a parent report. None the less the PQ was used in this Irish study in part as a test of its usefulness for the purpose it was intended, that is to identify gender differences. As a measure of play preferences it was found to be very narrow, and as a measure to record gender differences it was considered limited in its range of activities.

The developers of the PQ have a particular perspective on play and its relationship to gender identity and make assumptions relating play preference to gender identity formation and role. The developers worked in an area in which atypical gender identity is associated with pathology. No population prevalence rates are given in their literature, nor are levels of specificity required in a screening tool intended to discriminate those with 'pathological' gender identity from those who may be part of a minority group in terms of sexual preference. They cite Green (1974) and Zucker (1985) who report that, unlike many 'typical' boys, those with atypical gender identity development appear to avoid rough–and–tumble play and to prefer stereotypical feminine play activities. But avoidance of / or seeking to excess 'rough and tumble' play may also indicate sensory/ motor difficulties reported as more prevalent in boys.

Gender differences were found in only 8 of the 15 PQ items, and the item mean scores for this Irish sample were comparable to the North American developers' sample; why then have 15 items? It may be more useful to identify those that best discriminate gender

difference, or specific gender differences that indicate pathology. In addition analyses of the study data provided little support for the categorizations into the four play factors, with low correlation scores between items in the same groupings. Even at a face validity level it was difficult to see the logic in grouping similar motor skill activities into different factor groupings.

There is no doubt that there are gender differences in play preferences between boys and girls but at what level does this PQ scale identify the child with atypical gender identity. Extreme and statistically significant ($p = 0.0008$) differences were found in some items such as 'liking rough and tumble' play, in which the largest scale point gender difference was in liking it a 'great deal' with 14 (41.2%) of boys compared to 2 (6.35%) of girls. Does this indicate that the 2 girls are 'pathological' in their gender identity? Another example is given in the results of Item 1, 'likes arts and crafts' which showed that most children liked arts and crafts, but the gender difference was in the degree of liking. A statistically significant difference in mean scores between boys and girls was found ($p = 0.001$), only one boy and no girls were scored in each of the below average categories of 1 and 2. The remaining scores were spread over 4 measurements points on the scale from 'average' liking to 'a great deal'. How does this item identify the children with 'pathological' gender identity, with such a trans-gender liking of 'arts and crafts'. In addition this approach is clearly unable to discriminate those with other reasons for scoring in either extreme on the scale, such as sensory/motor difficulty.

From the data offered by its developers, and the results of this Irish study, it is difficult to accept the PQ as a valuable tool for identifying children with pathological gender identity, because of its focus on a narrow range of gender differences in play, its over-reliance on physical play differences, and its lack of discrimination or specificity in the measurement aspects of the scale. However children identified in the extreme or opposite categories from the majority of their peers may warrant further attention for a variety or reasons.

One of the reasons for choosing the PQ was that it provided an opportunity to compare preference group mean scores with BOTMP sub test results. The results allowed exploration of relationships between play preference and motor ability as presented above.

These relationships between liking a particular type of physical activity as measured by this PQ methodology and the motor skills assessed by the BOTMP are not consistently explicit. However the t-test analysis of mean scores between the preference groups for certain PQ items has generated some interesting findings.

The preference for physical activity by most children, and the gender differences in particular types of play preferences broadly supported much of the data gathered in the interviews, although the interview data were obviously more detailed. Nonetheless the PQ acted in some way as confirmation of the physical nature of most children's play in this age group. The underlying sensory motor perspective in many of the items was particularly interesting, as little normative data are available for Irish children with regard to this type of play. It would certainly be interesting to compare this data with those collected from children (in this age group) identified as having sensory motor problems.

Conclusion.

The PQ has been criticized for its structural weakness in its design as a tool to identify those with gender identity pathology. However it has some value in providing data on gender difference with regard to physically active play. When combined with the BOTMP sub test results, new information has been generated on relationships between physical play preferences and motor proficiency. These relationships or lack thereof has allowed discussion of issues regarding developing motor skill through play.

3. **Estimating and Predicting Continuity in Motor Ability.**

It could be expected that one of the main purposes of estimating motor ability is to identify those who may have motor skill problems, so that they can be referred for further attention and support. It could be expected therefore that the structure, scoring, weighting, and presentation of test results would be as informative as possible in making decisions as to who had or did not have a possible motor skills problem. In most western countries early screening is carried out on newborn babies and infants. In Ireland children are checked for general developmental delay until they are 3 years old by the public health services. The results of this analysis demonstrate the rather poor predictive value of early assessment in relation to the BOTMP at approximately 8 years 6 months. As has been reported in the literature review issues about the validity of aspects of the BOTMP have been raised,

especially the grouping of sub tests into fine and gross motor composite and then battery scores. Bruininks' original factor analysis with the standardization sample utilized the inter-correlations between all 46 items in the BOTMP. The factor analysis provided some support for the grouping of the 46 items into the 8 subtests that comprise the BOTMP. However, the factor analysis did not provide unequivocal support for the division of the subtests into fine motor and gross motor groups. The factor analysis in the present study, like that of Tabatabainia et al, (1995) utilizes the correlations between the 8 subtests. Examination of the inter-correlations and the emergent factor structure tend to further undermine the distinction made between gross motor and fine motor composites in the BOTMP and lend support to the view of Tabatabainia et al that, although motor abilities of children were well assessed by the test, "there is no justification for dividing (subtests) into fine and gross motor composites".

As well as indicating that the fine and gross composite scores do not constitute reliable and valid dependent measures for the current study, these results are highly relevant to the clinical practice of pediatric occupational therapists. The BOTMP is a popular and widely used instrument in a variety of settings (Reid, 1987; Crowe, 1989; Rodger, 1994; Wallen and Walker, 1995; Feder et al, 2000; Miller et al 2001; Crawford et al, 2001). Many of these settings involve a specific focus on the distinction between fine and gross motor abilities. Burtner et al (2002) surveyed 246 American, school-based, pediatric occupational therapists, who considered that the BOTMP was one of seven assessments that occupational therapy students should be able to administer on graduation from professional training. The present results confirm the view of Tabatabainia et al that the BOTMP's "arbitrary grouping of subtests needs to be viewed with caution" and that any attempt, using the BOTMP, to "define children according to fine and gross motor abilities is misleading".

On the other hand, the evidence from this study is consistent with the view that there may be multiple motor skills and abilities, which are relatively independent of each other, whether or not they are classified as fine motor or gross motor. In other words, people may excel at some specific areas of motor performance but be poor or mediocre at others, regardless of the fine motor/gross motor distinction. This casts doubt over the notion of a general motor proficiency factor underlying all areas of motor performance and calls into question the meaning of the battery composite score of the BOTMP. If subtests are

relatively independent of each other, then summating subtest results may produce a measure of overall motor proficiency that fails to discriminate between individual profiles of motor abilities that are patterned in significantly different ways. For example, an individual who has scored moderately across the board cannot be distinguished from an individual who has done poorly in some areas but especially well in others.

Individual profiles may be much more informative in identifying those who have particular motor skill difficulties that may impact on the performance of valued daily tasks, such as hand writing, or taking part successfully in sports. Wilson et al (1995) when reporting on their U.S. study have suggested that raw scores rather than age adjusted scores are more useful, and that certain sub tests such as Running Speed and Agility, Visual Motor Control and Upper Limb Speed and Dexterity were likely to provide the greatest degree of discrimination between children with and without motor problems. In this Irish study, the mean score for all children in the Upper Limb Speed and Dexterity was in the 'below average' category at 9.33 ('average' scores are from 12 to 18) which supports the importance of establishing cultural norms. Further research on the usefulness of the BOTMP data as a screening tool is required.

On the basis of the current results it appears reasonable to conclude that longitudinal studies, exploring the development of motor proficiency in children, should focus on measures relating to narrowly circumscribed areas of motor ability and avoid or treat with caution global estimates of motor ability. The longitudinal data derived in the current study confirm this conclusion, since they show no significant correlations between the neonatal variables and Bayley Mental and Motor Scales and the battery composite of the BOTMP, but do show a number of interesting correlations between the neonatal variables and Bayley Mental and Motor Scales and the individual subtest scores of the BOTMP. This limited evidence for continuity in and predictability of measured motor ability would have been missed given the normal sole focus on global assessments of motor proficiency.

Furthermore, underlining the benefits of working with BOTMP subtest scores, multivariate analysis in this study discovered a number of significant correlations between Bayley Infant Behaviour Record ratings at 18 months and BOTMP subtest scores at about 8 years 6 months. In fact, it is these correlations that provide the best evidence for a degree of measurable continuity in motor performance. It is surprising that the Bayley Infant

Behaviour Record ratings and the Bayley Mental Scale were frequently stronger correlates or more powerful predictors of the BOTMP scores than the Bayley Motor Scale. This finding casts doubt over the usefulness of the Bayley Motor Scale as a predictor of later motor development.

However, the present results also point to the weakness of currently available global assessments in the motor development area. In particular, they point to the lack of construct validity of the fine motor/gross motor distinction maintained by the BOTMP, and to the limitations of the Bayley Motor Scale, possibly due to its reliance on the simple pass/fail assessment of the attainment of age-appropriate milestones. There is a clear need for the development of more reliable and valid measures of normal motor development and the present results suggest that these can best be achieved through a focus on narrowly defined domains of performance rather than global assessments of motor proficiency.

With regard to their use for identifying the atypical child, it is accepted that the skilled clinician when testing a child for atypical development will not rely solely on test results but will use the testing experience to observe the child in a very detailed way such as posture maintenance, responsiveness to tactile contact, verbal cueing etc. However these non-standardized observations may not carry the same 'authority' as standardized assessments. It is therefore all the more important that the validity of standardized tests is closely examined.

Conclusion.

The present results also point to the weakness of currently available global assessments in the motor development area. In particular, they point to the lack of construct validity of the fine motor/gross motor distinction maintained by the BOTMP, and to the limitations of the Bayley Motor Scale, possibly due to its reliance on the simple pass/fail assessment of the attainment of age-appropriate milestones. Perhaps measurement of occupational engagement and participation in activities may be more useful study of child development.

4. An Irish Sample of Satisfied Players, and the Context in Which Satisfactory Play Is Supported.

The Introduction chapter to this study refers to Kielhofner's (1995) rejection of the common sense view of a world which is 'out there' and that is accessed by one's senses and actions. He puts forward the view that it is the body that gives the world texture, colour, sound, flavour and odour. He argues for a view of "the lived body as a locus of intelligence, intentionality, adaptiveness and experience" (p.153). It is the body that seeks and finds particular meaning in the world. The world we perceive is always on the other end of something we are doing with our bodies. One of the aims of this study was to attempt to describe, from both the child's perspective and that of the mother, what it is that children do in what is allegedly an important occupation of childhood, and leisure time. Leisure time and play activities are by definition free of the constraints of self-care and schoolwork. Another aim of the study was to describe the status of the children's bodies in terms of motor skill or proficiency and to examine if the play experiences engaged in related to level of skill. It was acknowledged that it would be difficult to ascertain what children enjoyed about what they did, and if there was any distinct sense of 'mastery' of skills being sought particularly through physically active play. None the less children themselves were consulted on these issues, even though at the time of the study (1994) the literature on similar studies was sparse, and there was a lack of confidence in the reliability and validity of methods involving children as informants. In the occupational therapy literature, occupational science was only then emerging as an important arena for study, which subsequently has given a value to the meaning and symbolism of the occupations in which we engage and related them to our sense of well being.

For example Hasselkus (2002, p66) states "I believe occupation and human development are bound together, life span meaningful occupation as an element of developmental well-being appears to be an absolutely universal phenomenon – worldwide, across all cultures, among all people. Human beings thrive and develop through their occupational endeavours. It is impossible to envision life span development occurring without occupation. To understand the relationship of occupation and life span development better and better is a quintessential goal (perhaps even *the* quintessential goal) for occupational therapy researchers". This perspective of

the occupational science literature frames this Irish study of busy, active children. Children who are apparently well connected through play and leisure interests, to friendship networks in their own communities and who appear to manage much of their play time to their own and their mothers' satisfaction.

Much of the data gathered from the children in this study, and indeed the experience of interviewing them as key informants on their own play and leisure interests puts forward an image of busy, active, and contented children who are well connected to their extended family and community through much shared and enjoyed activity. The data supports the view of children having choices of playmates, play activities and play places, and considerable playtime, which to a large degree they organise for themselves. Organising and managing one's own time to the satisfaction of self and one's mother, is no mean feat, and demonstrates that, for the majority at least, these are indeed well developed human 'doers'. When asked at the end of the interview, were they happy with how they spend their leisure time, 96.3% of children reported that they were. Only 3 children from a total of 82 reported that they were not happy (2 boys gave the reason for this as being 'made' do football or karate, which they hated, and 1 girl gave no reason). When asked questions about frequency of being bored, during holiday time when children have most time for play, 86% reported getting bored as infrequently as 'some days' or less often. Mothers' reports of 80% for this level of frequency support this general sense of infrequent boredom. The extent to which children are able and allowed to manage their own leisure is supported by mothers' reports of 94% of children needing 'little' or less assistance from them in organising their own time. As a measure of mothers' satisfaction with how this time is spent, more than 96% of mothers considered that their child's leisure time was in the 'reasonably well' category or better (with 31% indicating in the 'very well' category).

When mothers were asked is there anything that you wished your child did less of, only 9.5% (8) mothers answered 'yes', and when asked if there was anything that they wished their child did more of 57.8% answered 'no'. The 42% who answered 'yes', wanted their child to 'mix more with friends' and wished that their child had opportunities to do more organised activities such as learning music or sport, or to enjoy reading.

With regard to what was the purpose or reason for play, children had individual and diverse reasons for explaining what it was they enjoyed about what they played. The most

frequently reported factor was 'fun and amusement'. It is acknowledge that it is difficult for anyone to analyse or report on enjoyment factors. A response requires some level of reflection that may be incongruent with the spontaneity or freedom of just 'doing'. In keeping with the theme of 'doing, being, becoming', the pattern or range of activities can be viewed as a reflection of the 'selfing' that occurs through occupation (Christiansen, 1999). Theories on why children play, such as the Surplus Energy Theory (Spencer, 1873) in which it was considered that excess energy was burned off during active play, the Relaxation Theory popular in the 19th century in which play was seen as needed in order to restore the person's energy after its depletion through hard work and the more modern drive theories including those applied in occupational therapy, (such as White, 1971; Ayres,1979; and Reilly, 1974) may explain aspects of why children play some type of games. It may be that different reasons apply depending on the inner state of the child and the opportunities available at any one given time. What is clear however is that most children organise a satisfactory engagement with their world that brings them pleasure and fun in the here and now. So regardless of the possible skills being honed for adult life in social or vocational spheres through play, the enjoyment and participation with objects and other people to one's satisfaction and that of one's society is compatible with the recent W.H.O. (1999) definition of health and well-being which emphasises participation and activity.

These children were assessed as being a healthy sample in the neonatal and infant assessments. Their scores in the BOTMP identified 7 (4 boys) who fell below 'average' in the battery composite. From the interviews, 5 children appeared atypical, in that 4 had a limited range of engagement with others and with activities, and 1 child presented as immature in attention, conversation and general behaviour during interview. The purpose of this study was to collect normative data on the types and range of activities engaged in by this cohort of children, rather than focus on atypical children. With regard to the range of activities, when children were asked 'What do you do when not in school', the mean number of activities reported was 5.3 and the median was 5. The range was from 1 to 8. The first set of questions were intended to draw out the extent of activities or interests, which seemed to work quite well. The children with limited engagement had very little range, and depended on computer/video games more so than others. The question section on who the child enjoys playing with most, and on contact with friends was the other area yielding substantial contrast between the four with limited engagement and the other

children. For the other less typical child his whole demeanour was that of a much younger child who required adult assistance to organise or complete games or tasks, and whose friendship pattern appeared non specific. Yet this child said he was happy with how he spent his time. Further studies with atypical children investigating their range of activities, and connection with friends would be interesting.

There was variety in the types of play/leisure activities reported by most children with 83% naming activities in the 'non-social' category (such as reading, watching television, playing computer/video games), and 81.7% in the 'physically active' category (such as running and chasing games, football, riding bicycles etc.). Almost 70% of all children, with more girls (85%) reported playing 'pretend' games. This finding does not support the view put forward in the literature that the pretend play phase has passed by this age (Takata, 1974; Piaget, 1962). It is probable that the nature of the pretending may be less obvious, but as Fazio (1998) pointed out in her work pretend and fantasy play continues into adolescence, when children 'imagine' who they will be and what the future holds in terms of partners, homes and lifestyles.

Gender Differences.

The interview data gathered in this study identified gender differences in play interests and patterns of play, such as the differences in locations where boys and girls like to play; the numbers of friends played with; the social nature of the play; the different interest levels in reading in both content and frequency; differences in interest in playing video games and in making up rhymes or songs. There were no gender differences in frequency of playing running and chasing games, or in riding bicycles, but there were distinct gender differences in the type of chosen organized leisure activity, such as boys playing football and girls doing Irish dancing.

Interview data was supported by the PQ items in that some evidence of gender difference was found such as in Item 1 'Liking arts and crafts'. A statistically significant gender difference was found in the interview data with making things with 'bits and pieces', and making things in sewing and knitting, but no differences were found in making things with Lego, painting/drawing; or using model making kits. With regard to the PQ item 'fantasy' play, 91% of children in this Irish study indicated that they play these games, with a difference only in the greater frequency of playing by girls (Chi-squared = 12.16 w/4df p =

0.0162), and in the nature of the pretend games such as girls preferring 'home making ' or 'work role' games (Hospital), whereas boys preferred 'fighting games'. From a motor development perspective these similarities were interesting, as were the gender differences in the social aspects of play, such as the number of friends and location of preferred play. Girls preferred to play closer to home with a small number of friends, whereas boys preferred outdoor play such as street or fields with a larger group of friends. Also the girls greater preference for pretend play reflects a complex social interactive type of play such as 'mammies and daddies', whereas boys preference for fighting games requires less negotiation and interaction amongst the players. Cross gender play was relatively uncommon in this study with 74% of boys and 81% of girls reporting playing only with same gender friends. These results concur with similar studies of this age group (Sutton-Smith et al.1963). These differences may reflect cultural expectations prevalent at the time of the study that may well have changed since then. For example, ladies football is the fastest growing sport in Ireland in the early 2000s, and since 'Riverdance' and subsequent Irish dancing type entertainment, more boys may possibly regard Irish dancing as a worthwhile activity.

Rationale for Preferences.

It is difficult to ascertain motivation for preference in such a diverse range of activities that constitute the child's play menu. Preference may be a response to the opportunities and supports available, to the inner needs of the child's emotional and physical status, and ultimately it is also responsive to maternal/parental sanctioning. A breath and variety in play and leisure engagement appeared characteristic of most children. There were few unusual children who did very little with their time or appeared to spend a lot of time indoors playing video/computer games and watching the television. In this study group the average length of time for television watching was only 2.5 hours on weekdays. This appears very low compared to U.S. literature (American Psychological Association, 1993) of over 22 hours per week. Most children engaged in physically active play such as running and chasing games, bike riding etc, but obviously to differing degrees, some of this is explained by gender differences, with boys' great interest in football.

The issue of 'drive for mastery' as reported and discussed earlier in the literature review may not be the only drive or motivation for children's play, and may be overstated. In the data for this study, 81% of children are engaged in an incrementally skilful way with

organized activities /special interests such as football, Irish dancing, music etc. When the 68 mothers of children who went to organized activities were asked about the decision making around these activities, 39 (57.3%) of the children were reported as the decision makers, 13 (19%) of mothers acted alone in making the decision, 11 (16%) of both mother and child made the decisions, and for 5 (7%) the child's father had decided that the child should do the activity. The fact that mothers reported that sixty three percent of children had tried out and given up previous activities and that, in addition to a weekly class, some of these activities demand practice perhaps twice or three times a week, it is likely that most children were actively participating and exercising their choice rather than passively accepting their parents' decisions. Only two children complained about having to do organised activities that they disliked (both of these played alone indoors most of their leisure time). This interest in developing skill in this formal manner might indeed reflect the children's drive for mastery in this particular area. However most playtime was spent at other things, playing with friends, running and chasing games, pretend games, watching television, and reading. Children were also involved with their extended family and there appeared to be at least weekly contact for most with grandparents. Cousins were quiet frequently mentioned as playmates. So the 'drive for mastery' in specific activities may be seen in the context of a wide range of other activities enjoyed for differing reasons, many of them shared with others.

Mothers' Perceptions and Roles in Supporting Play.

When asked was it important that her child had leisure time, one mother replied "We moved house so that he would have a place and people to play with. It's that important!" Pary and Archer (1974) in their study with parents reported that play was often seen as a form of amusement which is distinct from and indeed opposed to work and learning. Ramsey (1988) reported that many parents had negative views on the value of play for their children. Many mothers in this study viewed play as an important antidote to the pressure of school and homework and considered that their children, particularly boys, needed a physical and mental release from the class room and they encouraged physical play (supporting the early classical 'relaxation and recreation' theory of play as described by Rubin, Fein & Vandenberg, 1983).

The notion of 'occupational role' as "the activity in an individual's life that contributes to society, and thereby defines the person's social worth" (Heard, 1977, p.244) is continued in the Model of Human Occupation (Kielhofner & Burke, 1980). In this model it is perceived that an individual is transformed from player to worker and home-maker. In order to fulfil these roles the individual needs to develop certain skills and attitudes. Being a player is deemed a legitimate occupational role because it was seen as through this role that essential rules, habits and skills are acquired for competence in later occupational roles. Play was seen as a means to an end. In examining the perspective on play expressed by the mothers in this study, this functionalist view, although represented in some parts of mothers' responses was not predominant. Playing was seen as a manifestation of living and enjoying oneself in the here and now, and this experience for now and future life was seen as valuable. Seventy percent of mothers considered that their child's leisure time was 'very important', and a further 26% considered it 'fairly important'. Only one mother considered that it was 'not important'.

The mothers' comments on why they considered play important have been grouped in themes from Level 1 as having a 'neutral' value as a necessity to 'fill in time', Level 2 as a channel to 'stop him causing trouble', Level 3, as necessary to balance out the negative restrictive aspects of school and to restore equilibrium, to Level 4 as reflecting a positive active sense of well-being. "Its good to do something constructive with your hands and mind", and that enjoying oneself and having fun is part of childhood. This could be interpreted as a reflection of the 'doing/ being' concept in occupational therapy. At Level 5 leisure was valued not only for the here and now but that it provided opportunities to assist the child in the future, such as being able to mix and get along with people seen as important for adult life; and that leisure might encourage exploration of a vocational interest. This could be seen as reflecting a sense of 'becoming' through doing, as in a traditional view of occupational therapy in which this active process of occupation enables humans to develop as individuals, and as members of society, as a means for learning, organising our lives, discovering meaning and exercising control (Fidler & Fidler, 1978; Kielhofner, 1995; Wilcock, 1993; Hasselkus, 1998).

In addition it was noted that when the mothers were describing their child's range of activities they related this to meeting differing individual needs that were met by engagement with different types of play or leisure interest. Play was seen as multi-

dimensional experience that was necessary since it answered varied and changing needs. There was evidence in the interview data to support the view that mothers considered play as an essential experiential learning medium about the very important social and personal development aspects of life. More mothers of girls expressed values that play helped their child learning about making choices, getting to know oneself, finding one's own 'space' than mothers of boys who tended to emphasise the importance of physical release from constraints of school, and mixing with others.

In terms of mother's role in their child's play and leisure, mothers reported that it was predominately in supporting rather than actively playing with. Only 3 mothers reported directly playing with their child. Descriptions of the role ranged from being 'a taxi service' to ensuring that there was space for having friends in to play, to providing bits and scraps particularly for girls, to keeping younger children away from the oldest child's things, to giving ideas as how to solve problems, to showing an interest in what their child does, and to ensuring safety. This is succinctly summarised by one mother's response. " Welcome his friends in the home. Give him space to play. Keep the peace with the younger members. And of course, drive him places."

Although it may appear that mothers 'do' very little with their children, self reliance and organisational ability demonstrated by the children could also be seen as an outcome of input at an earlier stage in the children's lives. Rathunde and Csikszentmihalyi (1991) reporting on a study on adolescent happiness and family interactions found that parents of children who experience more flow than others often treat their children differently from the way other parents treat their children. They were found to be more supportive and at the same time more stimulating than other parents usually are. These authors concluded that in such an environment children feel safe to invest attention in gradually more challenging opportunities. In other words, a supportive family milieu is likely to provide children at home with a complex range of challenges. Related studies (Csikszentmihalyi et al. 1993) suggest that flow does not just improve the quality of experiences momentarily, but also has longer term effects. Teenagers who report more flow tend to be happier, and to develop their academic talents further than peers, who experience flow less often. Parents and home environment are considered very influential in supporting flow in the young child. There might be constitutional and temperamental differences beginning to show in the first few months of a baby's life in terms of searching out new challenges, and parental treatment

can either dampen down or further encourage the infant's interests in exploring and playing with his environment. As such parents have considerable influence in the child's future ability to experience happiness through doing (Csikszentmihalyi, 1993).

What was interesting to note was that the supporting and accompanying role frequently reported by these mothers was not of the high energy 'quality time' variety. It was achieved within the context of ordinary family life. Sixty percent of mothers were full time in the home, 20% worked part time or in 'seasonal' work outside the home, and only 20% worked in fulltime paid employment. Most families (87%) had younger children. However 92% of children had 'fathers' living in the family home and with only 75% of these fathers were in full time employment. In the depressed economic climate at that time in Ireland many families lived with considerable financial constraints. The mothers' role accompanying children to school, to leisure interests and on family visits was seen as enjoyable by many of the children. The sharing of this time together and of some indoor leisure pursuits appeared to form the bulk of shared activities between child and mother. Almost 88% of girls and 74% of boys reported that they enjoy spending time with their mothers. Ninety five percent of girls and 76 % of boys reported that they enjoyed spending time with their fathers (Chi-squared = 6.032 w/1df p = 0.0140). Fifty four percent of all children reported that they enjoyed time spent with their grandmothers, and 52.5% of all children enjoyed time with their grandfathers (there was no gender difference), and 45% reported enjoying time with another adult relative.

Social Involvement.

Middle childhood is a time for developing a social self, especially outside the family. Three children were reported as having no friends. When asked with whom the children enjoyed playing with the most, unsurprisingly 79% reported 'friends' and 13% reported 'cousins', and 8% reported their siblings. Forty five percent reported that they get to play with their preferred playmate as often as 'every day' and a further 40% get to play as frequently as 'most days'. Girls played with two or three friends; in contrast boys played with larger numbers of friends. As much of the children's leisure time involved others it no doubt gave opportunity for the learning of the 'rules of engagement' in a social world outside the family, as in Piaget's stage of rule bound games. The development of social interaction and friendship skills may offer a mental health protection factor for adolescent and adult life. Limited social involvement in childhood may predispose to the poor

functioning as an adult in a social world. In addition to having frequent contact with friends of their own age group, these children's reports reflect an enjoyment of adult company, enriched social development, and offer an indication of their connectedness with their extended family and local community.

Similarities and differences between Mothers' and Children's Reports.

The intention behind asking both mothers and children for their input into the description of what it was that children do with their leisure time was to have as full a picture as possible, as a form of triangulation. There has been evidence that the views of children are different from those of their parents, but that they are valid and stable over time (Sturgess & Viviani, 1996; Bouman et al.,1999). Pellegrini (1998) reported that because adults see children in differing contexts, they are likely to have differing views about the amount of physical activity performed (Sallis, 1991). On the other hand, Pretzlik and Sylva (1999) considered that children were not the best source of detailed descriptive information, but evaluative judgements about concepts that they understand are suitable to be gathered by self report. When collating the data from the first three questions, children's and mothers' reports of what children do were similar in the following categories; non-social play; physically active play and pretend play. Forty percent of mothers reported construction type play as compared to only 17% of children, 38% of mothers reported care of pets/plants compared to 13% of the children. More children (48.4%) reported social play as an activity compared to only 25% of mothers. Organised leisure activities were only mentioned by 27% of the children in the initial questioning, whereas 71% of mothers reported this as a leisure activity. Subsequently when asked specifically about doing organised leisure activities there was agreement in the reports. Also when asked specific questions about helping in the house (45% of children compared to 51% of mothers) about making visits (73% of children compared to 86% of mothers) reports were fairly similar. These differences in reporting might reflect a difference in the categorisation of what is play or leisure, rather than a lack of agreement in engagement of the activities.

Boredom.

The capacity to be happy with what one does, and to be able to organise one's own pleasurable activities was seen as part of a 'quality of life' value system that children appeared to have absorbed. Almost 5% of children said that they never get bored, and of those who do 62% reported that they take action/organise something for themselves. Only 10% reported that they 'just sit and do nothing'. Developmentally it would be expected

that children in this age group have some ability to address their boredom discomfort, rather than just respond with disruptive behaviours. Only 6% of children included themselves in the category of 'being disruptive', in contrast to 14.7% who were reported to be disruptive by mothers (there was no gender difference). Berlyne's theory (1960) viewed intrinsically motivated behaviour as driven by needs, such as that of the central nervous system to maintain an optimal level of arousal. When the environment is not sufficiently stimulating, and yet the central nervous system is over aroused, the organism is driven to seek ways to reduce the level of arousal. It may be more difficult for some children to control this drive or direct it in a socially acceptable way as their central nervous system arousal mechanisms and /or their levels of skill in managing arousal may differ. There was little in the literature regarding expected frequencies of 'boredom' experienced by children in this age group or of mothers' responses to it. It is considered that this study group had high levels of self organisation and low levels of boredom, and subsequently low frequency of outbursts of disruptive behaviour. It would be worth comparing this data with similar data on atypical children in middle childhood in the context of their occupational patterns and profile. Ninety six percent of children reported that they were satisfied with how they spent their leisure time.

The Lack of Policy Making regarding Play and Leisure Resources in A Changing Society.

With regard to the position of children in Irish society at the time of the study, Hayes (2002) notes that "a protectionist welfare approach dominates, an approach where children have been perceived as dependents in need of protection or as problems in need of solutions. Children are seen as primarily the responsibility of parents and the State offers only limited support to parents in their parenting role. While this may afford some support to certain children and families it shows a limited recognition of children as a group with rights of equal value to those of adults. Policies have been developed without any explicit consideration of their impact on children: children are a powerless, statistically invisible group" (p. 73). Allowing children to make decisions on their use of time, space and materials as in allowing and supporting children in their play, reflects a more active and self determining perspective of the child. In 1992, Ireland ratified the United Nations Convention of the Rights of the Child (UNCRC) (UN General Assembly, 1989). These rights include opportunities to be involved in cultural, recreational and leisure activities,

but very little is known on what it is that Irish children do or enjoy doing, and how the macro society supports or impedes these activities. Article 31 of the UNCRC (1989) states that "States Parties recognise the right of the child to rest and leisure, to engage in play and recreational activities appropriate to the age of the child and to participate freely in cultural life and the arts". As Benson notes "without serious attention to that Article, children simply cannot become the sort of children who embody the ideals of the UN Convention" (1991 p.67.) However in the first national report on the UNCRC by the Department of Foreign Affairs (1996, p. 94-96), in the section dealing with "Leisure, Recreation and Cultural Activities", there is not even one mention of the word 'play'. Instead the section deals with sports policy, swimming pools, youth affairs, Arts Council, National Gallery, National Museum, and The Ark (a new arts centre for children in Dublin). Children's rights to play appear to have been overlooked. In the light of the absence of other data regarding Irish children this is not surprising. As Hayes states (2002) "The task of reviewing the experiences of Irish children is difficult because of the limited statistical data available on them as a specific group. There is no annual report published that brings together general details about Irish children".

The positive play experiences reported in this study have occurred in the absence of national social policies on play in Ireland (Webb and Associates, 1999). Play and leisure needs, such as space, time and resources were provided for by families, and community members and organisations such as those organising football training, Irish dancing classes etc. With regard to places to play, most (94%) children lived on housing estates with front and back gardens, in relatively modest 'family homes', apartment living was unusual for these study children. Seventy six percent of boys and almost 60% of girls were reported as playing on the street, even though 42% of mothers considered their street to be 'busy'. This type of living arrangement in housing estates with front and back gardens albeit some may be small, and the use of the street to play appeared to give ample space for the type of games favoured by this group of children. With regard to the favourite places to play, children have a variety of preferences with a gender difference. Thirty one percent of boys reported that their favourite place to play was in field/bushes/ trees type of location, another 21.4% reported a preference for their street. Almost 12% reported their garden and an equal percentage reported in a friend's house. In contrast girls tended to prefer to play in their own home (35.9%), or a friend's house (17.9%), the school yard (17.9%), with only 15% reporting the street as their favourite place.

Approximately 54% of boys prefer to play outdoors. Changing weather patterns with possibly increased rainfall may have implications for this. Almost 51% get to play in their favourite place as frequently as 'every day', and another 30% get to play as frequently as 'most days'. Children in this study have been able to choose a variety of places to play, and most of this is within 'eyeshot' of their mother.

Frequent accessing of leisure interests and the visiting of family members has been reported in spite of only 55% of mothers having the use of a family car. Thirty eight percent of mothers reported using a bus for their children's leisure interests. Housing and transport and economic policy may have an impact of children's opportunities for play and leisure interests. It would appear that although their built environment may not have followed a policy on play, the needs of children and family have been facilitated to a considerable degree. With the unprecedented rate of rising costs associated with housing in the greater Dublin area in the early 2000s (Dept. of Environment and Local Government, 2003) it is unlikely that space, both indoor and outdoor available for play will continue to be available in new homes. Housing policy supports a focus on high density building, including a new focus on apartment living with tax incentives for large scale crèches. There is little provision for the children in middle childhood or adolescence. Although the participants in this study may have had 'modest homes', they appeared to have been affordable homes. The location of many of the study children's homes facilitated an intergenerational experience through extended family contact. The cost of housing in established communities in Dublin city is now much greater than in 'commuter towns' outside the greater Dublin area. The much increased car ownership in Ireland over recent years has led to congestion and less efficient public transport. It has also made suburban streets busier and more dangerous as play spaces. With the increasing participation of women in the workforce, fewer children are likely to be living and playing in their own homes to the extent reported in this study. This has implications for limiting the friendship patterns and play and leisure opportunities that appeared to provide such a high level of satisfaction for this study group of children. It is important that social changes such as childcare outside the child's home, and the change in home building patterns and housing costs, should be examined for a possible impact on play and child development in the context of their belonging to an extended family network and their social and physical community. Even climate change will affect the outdoor play

opportunities enjoyed by most children, and particularly influence their physically active play patterns.

Very little is known about the play of Irish children, and the opportunities it offers for personal and social development. Vast amounts of tax payers money is invested in formal educational systems that appear to place great value on the acquisition and assessment of literacy based knowledge. Personal and social development and life satisfaction are not emphasised. The results of this study demonstrate the mothers' understanding of the need for balance in one's occupations, particularly of the role of play and leisure interests in release from the constraints of school work and in their children's social development. Satisfaction, enjoyment and freedom to engage were expressed as valuable experiences and as a necessary part of life. Now that more women are working outside of the home, these values and opportunities may be lost. This important and changing aspect of child development needs further attention if the economic, social/community and health needs of society are to be balanced.

5. Conclusion.

Although data from mothers' and children's questionnaires differ in some respects as reported earlier, the combined database describes a rather 'healthy' group of players and doers. Most children (93%) and their mothers are happy with their play, have variety in what they do and have enjoyable interactions with children and adults outside their home. Eighty one percent have an organised leisure activity such as dance, sport, or drama that provides a range of experiences other than that generated for and by themselves in their own play activities.

These are not financially well resourced families, yet commitment is demonstrated to supporting children's play by providing places to play, things to play with, encouraging friendships and playmates, bringing children to organised leisure activities (which takes time, effort and money, and usually with younger children in tow). The values expressed by mothers reflect an appreciation of the complexity of their child's experiences and benefits of play and leisure. Most children appear to be skilful in managing their leisure time and organising their play activities to their own high level of satisfaction. No one particular theory base referred to in the literature review has been exclusively supported or appears to be a sufficient basis for accounting for the diversity of play behaviour and

patterns. However there was considerable support for the broad occupational science perspective with a value on 'doing, being, becoming' through play and leisure experiences.

Day after day, season after season, the child engages in transformative occupational encounters through his/her various occupations. It is in the domain of play that he has most choice, deciding what to play or not to play in response to his needs or wishes and the environmental resources available to him. Play is considered one of the major occupations of childhood, and can be viewed as a major transformative process through which 'selfhood' emerges. Hence this study that describes children's play in terms of what they do, is also describing the children's context for 'being' and 'becoming'.

Limitations.

The results of this study with a self selecting, non-random sample of first born children of mothers who attended a public health maternity service in one geographical area of Ireland can not be taken as a representative sample of all Irish children, nor indeed could they be applied to those who left the study during the eight years.

The data gathered has to be interpreted as belonging to the economic context of the time of the study 1994/5 with high interest rates (13%), high unemployment rates (14%) of those looking for work (which did not take account of the vast majority of married women who did not seek paid employment outside the home), cutbacks in public spending and a depressed economy. These conditions were prevalent for a number of years from the late 1980s. At the time of the study there was no legal provision for divorce in Ireland. Social and economic conditions have changed considerably since then and no assumption is made that these data represent any other time than 1994/5.

A number of separate yet related issues were examined with a variety of data gathering tools. Interviewing children at the time of the study was considered an unreliable fact finding mechanism, and it could be argued that a more qualitative approach would yield better quality data especially when attempting to identify the rationale for preferences.

Access to 84 children and their earlier data records related to motor ability offered an opportunity to examine the predictive ability of the early infant measure in relation to the

well used BOTMP. However the results of this study concur with that of Tabatabainia et al (1995) who raise doubts about the construct validity of gross and fine motor composite scoring of the BOTMP. This combined with limitations of the Bayley Infant Scales and the PQ lessened the confidence in motor skills measurement tools and subsequently potential interrelationship between motor skills and play preferences. None-the-less this unique study has gathered and examined data on play preference and motor proficiency on a group of Irish children, and makes a contribution to a limited data base on Irish children's motor development status and to a sparse data base on children's play in middle childhood.

Recommendations.

The following recommendations are made with regard to the study of play. Furthermore recommendations regarding the measurement of motor proficiency are also made. The need to include the play and leisure interests of children in evolving economic and social policy is emphasized.

1. Involvement in and the experience of personal satisfaction with play /leisure activities and friendship could be developed for use as a possible 'health indicator' (WHO International Classification of Functioning and Disability with a focus on activity and participation, 1999). Normative studies exploring motivation for and supports for play and leisure engagement would allow comparison with atypical children in the middle childhood age group, (from a similar social background).

2. Further studies are recommended with a focus on personal satisfaction and meaningful engagement through leisure activities and the relationship (if any) to meeting mental health and social support needs later on in adolescent and early adulthood.

3. If health professionals are to assume a responsibility for designing environments and experiences for the prevention of illness, and for the maintenance and restoration of health and well-being, they need to promote an understanding of 'doing, being and becoming'.

4. It is considered that this study population had high levels of self organisation and low levels of boredom, and subsequently low frequency of outbursts of disruptive behaviour.

It would be worth comparing this data with similar data on atypical children in middle childhood in the context of their occupational patterns and profile, and possible underlying skill or support deficits.

5. That self report with children in middle childhood is an appropriate and useful methodology, and should be used in further studies on play and leisure interests.

6. With regard to the measurement of motor ability in children it is recommended that: Since analysis of these study data failed to provide evidence of a coherent division between gross and fine motor domains, the BOTMP should not be used to identify these areas. Assessments to measure fine and gross motor skills as distinct entities need further refinement.

7. When using the BOTMP as an assessment, each child's unique profile or pattern of scoring on the sub-tests is more informative than using the questionable validity of composite or battery score. Further studies related to atypical children and the identification of most useful indicators in type of score or sub test items should be conducted.

8.More specific early childhood motor ability measures should focus on quality of performance as well as simple attainment of a skill.

9.The results of this study indicate that the PQ is inadequate for the purpose it was intended and that it has limited value in the identification of gender differences in play.

10.There is a need for policy making in a changing society that takes account of the impact of social and economic changes on children's play, social networks and leisure interests in their local communities.

References.

Abbott A., & Bartlett, D. (1999). The Relationship between the home environment and early motor development. *Physical and Occupational Therapy in Paediatrics.* 19 (1), 43- 57.

Aiken, L.R. (1985). *Psychological testing and assessment.* Boston: Allyn and Bacon.

Alessandrini, N.A. (1949). Play – A child's world. *American Journal of Occupational Therapy.* 3, 9-12.

American Psychological Association (1993). Violence and youth: Psychology's response: Vol 1. Summary report of the American Psychological Association Commission on Violence and Youth. Washington, D.C.: American Psychological Association.

Ammar, H. (1994). *Growing up in an Egyptian Village*: London: Routledge and Kegan Paul.

Apgar V. A. (1953). Proposal for a new method of evaluation of the newborn infant' *Current Research in Anesthesia and Analgesia.* 32, 260-267

Axline, V. (1969). *Play Therapy*: New York: Ballantine Books.

Ayres, A.J. (1972). *Sensory Integration and Learning Disorders.* Los Angeles: Western Psychological Services.

Ayres, A.J. (1979). *Sensory integration and the child.* Los Angeles: Western Psychological Services.

Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist.* 37, 97-102.

Barnett L.A. (1990). Playfulness: Definition, design, and measurement. *Play & Culture*, 3, 319-336.

Barnett L.A. (1991). The playful child: Measurement of a disposition to play. *Play & Culture.* 4, 51-74.

Bates, J.E., & Bentler, P.M., (1973). Play activities of normal and effeminate boys. *Developmental Psychology.* 9, 20-27.

Bateson, G. (1955). A theory of play and fantasy. *Psychiatric Reports.* 2, 39-51.

Bateson, G. (1956). The message is "This is play". In B. Schaffner (Ed). *Group processes.* New York: Josiah Macy.

Bax, M. (1977). Man the player. In B.Tizard and D. Harvey (Eds). *Biology of play* (pp1-6). London: William Heinemann Medical Books Ltd.

Bayatzis, C.J., Matillo, G., Nesbitt,K., and Cathley, G. (1995). *Effects of the 'Mighty Morphin Power Rangers' on children's aggression and preschool behaviour.* Paper presented at the Biennial Meeting of the Society for Research in Child Development. Indianapolis, March.

Bayley N. C. (1969). *Bayley Scales of Infant Development.* New York, NY: Psychological Corporation

Beach, F.A. (1945). Current concepts of play in animals. *American Naturalist.* 79. 523-541.

Beatty, W.W. (1984). Hormonal organization of sex differences in play fighting and special behaviour. In G.J. De Vries, De Bruin, J.P., H.B. Uylings, & M.A. Corner (Eds). *Progress in Brain Research*, 61, Elsevier, Amsterdam.

Bee, H.L. (1998). *Lifespan development.* (2nd ed.) New York: Longman.

Bee, H.L., Barnard, K.E., Eyres, S.J., Gray, C.A., Hammond, M.A., & Spietz, A., (1982). Prediction of I.Q. and language skills from perinatal status, child performances, family characteristics, and mother infant interaction. *Child Dev.*,53, 1135-1156.

Benson, C. (1991). Play, culture and becoming a child, In The Council for Social Welfare (Eds) Conference Proceedings: *The rights of the child: Irish perspectives on the UN Convention,* Dublin: The Council for Social Welfare.

Berk, R.A. & DeGangi, G.A. (1979). *Technical consideration in the evaluation in physical education and exercise science.* Dubuque, 1A: William C. Brown.

Berlyne, D.E. (1960). *Conflict, arousal and curiosity*. New York: McGraw-Hill.

Berlyne, D.E. (1966). Notes on intrinsic motivation and intrinsic reward in relation to instruction, In J. Bruner (Ed). *Learning about Learning* (conference monograph 15, pp105-110). Washington, US Government Printing Office.

Berlyne, D.E. (1966). Curiosity and Exploration. *Science.* 153, 25-33.

Blishen, B.R., Carroll, W.K., & Moore, C. (1987). The 1981 socioeconomic index for occupations in Canada. *Can. Rev. Sociol. Anthropol.* 24, 465-488.

Blurton-Jones, N.G. (1972). *Ethological Studies of Child Behaviour*. London: Cambridge University Press.

Blurton-Jones, N & Konner, M.J. (1973). Sex differences in behaviour of London and Bushman children. In R.P. Michael & J.H. Crook (Eds). *Comparative ecology and behaviour of primates* (pp689). London: Academic Press.

Bonder, B. (1985). The foundation-standardised assessment: Ethical principles for use. *American Journal of Occupational Therapy*, 39, 473- 474.

Bouffard, M., Watkinson, E.J., Thompson, L.P., Causgrove Dunn, J.L. & Romanow, S.K. (1996). A test of the activity deficit hypothesis with children with movement difficulties. *Adapted Physical Activities Quarterly*, 13, 61-73.

Bouman, N.H., Koot, H.M., Van Gils APJ., & Verhulst F.C. (1999) Development of a health-related quality of life instrument for children: the Quality of Life Questionnaire for children. *Psychology and Health*, 14. 829-846.

Bowden S. (1995). Development of a research tool to enable children to describe their engagement in occupation. *Journal of Occupational Science: Australia*. November, 2, (3) 116-119.

Bracegirdle, H. (1992). The use of play in occupational therapy for children: What is play. *British Journal of Occupational Therapy*. March, 55 (3) 107- 108.

Bradley R., & Caldwell, B. (1976). Early home environment and changes in mental test performances in children from 6 to 36 months. *Dev. Psychol.* 12, 93-97.

Brazelton T.B. (1984). *Neonatal Behavioral Assessment Scale.* Philadelphia: J.B. Lippincott Co.

Brewer, P (1998). Efficacy and the self. *British Journal of Occupational Therapy*, May, 61 (5) 198-202.

Brier, N. (1989). The relationship between learning disability and delinquency: A review and reappraisal. *Journal of Learning Disability*. 22,546-553.

Broadhead, G.D., & Bruininks, R.(1983). Factor structure consistency in the Bruininks-Oseretsky Test-Short form. *Rehabilitation Literature*, Jan-Feb. 44, (1-2) 13-17.

Broman S., Nichos R., & Kennedy W. (1975). Preschool I.Q.: *Prenatal and early developmental correlates*. Hillsdale, N.J.: Lawrence Erlbaum.

Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design.* Cambridge, MA: Harvard University Press.

Brooks-Gunn J. & Weinraub M. (1983). History of Infant Intelligence Tests in M. Lewis (Ed) *Origins of Intelligence* New York: Plenum

Bruininks, R.H. (1977). *The Bruininks-Oseretsky Test of Motor Proficiency.* Circle Pines, MN: American Guidance Service.

Bruninks, R.H. Steffens, K., Spiegel, A., & Werder, J.K. (1989). *The Bruininks- Oseretsky Test of Motor Proficiency: Development, research and intervention strategies.* Second International Symposium on Psychomotor Therapy and Adapted Physical Activity. Leuven, Belgium.

Bruininks R. H. 1978. *The Bruininks-Oseretsky Test of Motor Proficiency* Circle Pines, MN: American Guidance Service

Bruner, J.S. (1972). The nature and uses of immaturity. *American Psychologist.* 27, 687-708.

Bruner, J.S., Jolly, A., & Sylva K. (1996). (Eds) *Play, its role in development and evolution.* New York: Basic Books.

Bruner, J. S. (1990). *Acts of meaning.* Cambridge: Harvard University Press.

Bruner J.S. (1964). *Toward a theory of instruction,* Cambridge, The Belknap Press of Harvard University Press.

Bruner, J.S. (1974). Child's Play. *New Scientist*, 62, 126-128.

Bundy, A.C. (1991) The process of planning and implementing intervention. In A.G. Fisher, E. Murray & A.C. Bundy (eds.) *Sensory integration; theory and practice.* F.A Davis, Philadelphia, 1991.

Bundy A.C (1997). *Play and playfulness*: What to look for. In (Eds.) L.D. Parham,
& L.S. Fazio, (Eds.) (pp.52–66) *Play in occupational therapy for children.* London: Mosby.

Burtner P., McMain M., Crowe T., (2002) 'Survey of Occupational Therapy Practice in Southwestern States: Assessments used and preparation of students for school-based practice' *Physical and Occupational Therapy in Paediatrics* 22,1 25-39

Caillois, R. (1961) *Man, play and games.* New York, Free Press.

Cairns A., & Cairns, B. (1994). *Lifelines and risks: Pathways of youth in our time*. Cambridge, Cambridge University Press.

Cantell, M.H., Smyth, M.M., & Ahonen, T.P. (1994). Clumsiness in adolescence: Educational, motor, and social outcomes of motor delay detected at 5 years. *Adapted Physical Activity Quarterly*, 11, 115-129.

Case-Smith J., Allen, AS., & Pratt P N. (1996). *Occupational Therapy for Children*. St. Louis: Mosby.

Child, E. (1983). Play and culture: English and Asian children. *Leisure Studies*. 2, (2), May.

Cintas H. (1988). Cross cultural variations in infant motor development. *Phys Occup Ther Pediatr.* : 8 (4): 1-20.

Cintas H. (1995). Cross-cultural similarities and differences in development and the impact of parental expectations on motor behaviour. *Pediatr Phys Ther*. 7: 103-111.

Clark, F., Malloux, Z., & Parnham, D. (1989). Sensory integration and children with learning disabilities. In P.N. Pratt & A.S. Allen (Eds.) *Occupational therapy for children* (2nd edn) St. Louis: Mosby.

Clark, P.N., Allen, A.S., Coley. I.L., Stephens, L.C., Schanzenbacher, K.E., & Carrasco, R.C. (1989). Instruments to evaluate childhood performance skills. In P.N. Pratt & A.S. Stevens (Eds.) *Occupational therapy for children* (2nd edn.) St. Louis: Mosby.

Clark, F.A., Parham, L.D., Carlson, M.E., Frank, G., Jackson, G., Pierce, D., Wolfe, R., & Zemke, R. (1991). Occupational Science: Academic innovation in the service of occupational therapy's future. *American Journal of Occupational Therapy,* 45, 300 –310.

Corcoran, O. & Cremin, K. (1997). A study to investigate the play preferences and use of leisure time activities of children with a physical disability and to compare these with non-disabled children. *Irish Journal of Occupational Therapy*, 27 (2), 3-9.

Cosgrove, J., Kellaghan, T., Forde, P., & Morgan, M. (2000). *The 1998 national assessment of English reading*. Dublin: Educational Research Centre.

Cratty, B. (1979). *Perceptual and motor development in infants and children*. 2nd edn. Englewood Cliffs, N.J. Prentice-Hall.

Crawford S. G., Wilson B. N. & Dewey D. (2001). *Identifying developmental coordination disorder: Consistency between tests.* Physical and Occupational Therapy in Paediatrics 20,2-3 29-50

Crowe, T. (1989). Pediatric assessment: A survey of their use by the occupational therapists in north-western school system. *Occupational Therapy Journal of Research*, 9. 273-286.

Csikszentmihalyi, M. (1990). *Flow: the psychology of opitimal experience.* New York: Harper & Row.

Csikszentmihalyi, M. (1993). Activity and happiness: towards a science of occupation. *Occupational Science; Australia*. Vol 1, 1, 38-42.

Csikszentmihalyi, M., Rathunde, K., & Whalen, S. (1993). *Talented teenagers: The roots of success and failure*. New York: Cambridge University Press.

Damon, W., & Hart, D. (1982). The development of self –understanding from infancy through adolescence. *Child Dev.*, 53, 841-864.

Denckla, M. (1984). Developmental dyspraxia: The clumsy child. In M.D. Devine & P.Satz (Eds.). *Middle childhood: Development and dysfunction* (pp. 245-260). Baltimore, M.D: University Park Press.

Dennis W., Najarian P. (1957). Infant development under environmental handicap. *Psychol Monogr.*; 71: 1-13.

Department of the Environment and Local Government (2002). *Housing Statistics Quarterly.* Dublin: Government Publications and Stationary Office.

DiPietro J.A., (1981). Rough and tumble play: A function of gender. *Dev. Psychol.* 17:50-58.

Dunn, J., & Wooding, C. (1977). Play at home and its implications for learning. In B. Tizard & D. Harvey (Eds.) *The biology of play* (pp. 45-58)). London: William Heinemann Medical Books.

Dunnette M. W. (1976). *Handbook of Industrial and Organisational Psychology* Chichester: Wiley

Durand, M (1998). *Sleep Better: A guide to improving sleep for children with special needs*. Baltimore: Paul Broohes Publishing Co.

Ellis, M.J. (1973). *Why people play*. Englewood Cliffs, N.J.: Prentice-Hall.

Espenschade A. S. & Eckert H. M. (1980). *Motor Development* (2nd Edition) Columbus OH: Merrill

Erikson, E.H. (1950) *Childhood and society*. New York: Norton.

Erikson, E.H. (1977) *Toys and reasons*. New York: Norton.

Eron, L.D. (1987). The development of aggressive behavior from the perspective of a developing behaviourism. *American Psychologist*, 42, 435-442.

Eron, L.D. (1992). Testimony before the Senate Committee on Governmental Affairs, *Congressional Record 88*, (June 18) PS8539.

Evaldsson, A-C. (2003). Throwing like a girl? Situating gender differences in physicality across game contexts. *Childhood, A global journal of child research*, 2003, (10), 4:

Fazio, L. (1997). Storytelling, storymaking and fantasy play. In (Eds.) Parham, L.D., Fazio, L.S. (Eds.) (pp.233-245) *Play in occupational therapy for children*. London: Mosby.

Feder K., Majnemer A., and Synnes A. (2000) 'Handwriting: Current trends in occupational therapy practice' *Canadian Journal of Occupational Therapy* 67 197-204.

Fein, G.G. (1981) Pretend play: an integrative review. *Child Development*. 52, 1095-1118.

Feitelson, D. (1977). Cross cultural studies of representational play. In B. Tizard, D. Harvey. (Eds.) *The biology of play*. (pp 6-15). London: William Heinemann Medical Books.

Fetters L., & Tronick E. (1996). Neuromotor development of cocaine- exposed and control infants from birth through 15 months: poor and poorer performance. *Pediatr.* 98: 938-943.

Fidler, G.S., & Fidler, J.W. (1978). Doing and Becoming: Purposeful Action and self –actualization. *American Journal of Occupational Therapy*, May-June, 32, (5) p305- 310.

Finegan, J.K., Quarrington, B.J., Hughes, H.E., & Doran, T.A. (1987). Infant development following mid-trimester amniocentesis. *Infant Behav. Dev.* 10 : 379-383.

Finegan, J.K., Niccols, G.A., Zacher, J.E., & Hood, J.E. (1991). The play activity questionnaire: A parent report measure of children's play preferences. *Archives of Sexual Behavior*, Vol 20:4, 393-408.

Fogel, A., & Thelen, E. (1987). Development of early expressive and communicative action: reinterpreting the evidence from a dynamic systems perspective. *Dev Psychol* 23:747-761.

Froebal, F. (1826). *The education of man* (translated 1889 by Hailman, WH) New York: Appleton.

Freud, S. (1920,1953). Beyond the pleasure principle. *Standard edition of the complete psychological works of Sigmund Freud*, Vol.8. London: Hogarth, 7-64.

Gage, M., & Polatajko, H. (1994). Enhancing occupational performance through understanding of perceived self-efficacy. *American Journal of Occupational Therapy. 48,* 452-461.

Garvey, C. (1977). Play with language. In B. Tizard & D.Harvey (Eds.) *Biology of Play*. London: William Heinemann. 74-99.

Gessel, A. *An atlas of infant behaviour*. (1934). Yale University Press.

Gillberg, I.C. & Gillberg, C. (1989). Children with preschool minor neurodevelopmental disorders, IV: Behaviour and school achievement at 13. *Developmental Medicine and Child Neurology*, 31, 3-13.

Giuffrida, C. (1998). Motor learning : an emerging frame of reference for occupational performance. In (Eds. M. E. Neistadt & E.B. Crepeau). *Willard & Spackman's Occupational Therapy.* 9th. Edit. Lippincott; Philadelphia. pp560-565.

Gliner, J.A. (1985). Purposeful Activity in motor learning: An event approach to motor skill acquisition. American Journal of occupational Therapy, January, (39) 1, 28-34.

Goodman, J.D. & Sours, J.A. (1967). *The child mental status exam*. New York: Basic Books.

Gottman, J.M. & Parker, J.G. (1986). In (Eds), *Conversations of friends: Speculations on affective development*, pp 139-191. Cambridge. Cambridge University Press.

Government of Ireland (1996). *Ireland, United Nations convention on the rights of the Child: First National Report.* Dublin: Government Publications Office.

Gubbay, S.S. (1975). Clumsy children in normal schools. *Medical Journal of Australia,* 1, 233-236.

Green,R. (1974). *Sexual identity and conflict in children and adults*. New York: Basic Books.

Greene, S. M., Nugent, J. K. & Wieczorek-Deering, D. (1995). 'Eighteen months old in Dublin'. *Children and Society*, 9, 81-92

Groos, K. (1901). *The play of man*. New York: Appleton.

Gurnalick, A. (1987). Peer social networks of young boys with developmental delay. *American Journal on Mental Retardation.* 101 (6) 595-612.

Hadders-Algra, M., Huisjes, H.J. & Touwen, B.C. (1988). Perinatal risk factors and minor neurological dysfunction: significance for behaviour and school achievement at nine years. *Developmental Medicine and Child Neurology*, 30, 482-491.

Hampel, F.R., Ronchetti, E.M., Rousseeuw, P.J., & Stahel, W.A. (1986). *Robust Statistics: The approach based on influence functions*. New York: Wiley.

Harter, S. (1978). Effectance motivation reconsidered: Towards a developmental model. *Human Development*, 21, 34-64.

Hasselkus, B.R. (2002). *The meaning of everyday occupation*. Thorofare,NJ, Slack.

Hattie J. & Edwards H., (1987). A Review of the Bruininks-Oseretsky Test of Motor Proficiency. *British Journal of Educational Psychology* 57, 104-113

Hay, J., & Missiuna C., (1998). Motor proficiency in children reporting low levels of participation in physical activity. *Canadian Journal of Occupational Therapy*, April, 64-71.

Hay, J., & Missiuna C., (1995). Academic and leisure outcomes in children with probable developmental coordination disorder. Motor proficiency in children reporting low levels of participation in physical activity. *Canadian Journal of Occupational Therapy Conference Supplement, 62, 25-26.*

Hayes, N (2002). *Children's Rights–Whose Right? A Review of Child Policy Development in Ireland,* Dublin, Policy Institute, Trinity College.

Heard, C. (1977). Occupational role acquisition: A perspective on the chronically disabled. *American Journal of Occupational Therapy,* 31,243-247.

Henderson, S.E. & Hall, D. (1982). Concomitants of clumsiness in young school-children. *Developmental Medicine and Child Neurology*, 24, 448-460.

Hillman, M., Adams, J. & Whitelegg, N. (1990). *One false move: A study of children's independent mobility.* London. Policy Studies Institute.

Honzik, M.P. (1983). Measuring Mental Abilities in Infancy: The Value and Limitations' in M. Lewis (Ed) *Origins of Intelligence* New York: Plenum.

Howard, L. (1996). A comparison of leisure–time activities between able-bodies children and children with physical disabilities. *British Journal of Occupational Therapy*. 59 (12), 570-574.

Hiizinga, N. (1947). *Homo Ludens*. (Trans R.F. Howe).London: Routledge and Kegan Paul.

Humphreys, A.P., & Smith, P.K., (1987). Rough and tumble, friendship and dominance in school children: evidence for continuity and change with age. *Child Dev*. 58: 201-212.

Hurff, J M. (1980). A play skills inventory: A competency monitoring tool for the 10 year old child. *American Journal of Occupational Therapy*, October, 34, (10) 651-656.

Huston, A.C. & Wright, J.C. (1994). Educating children with T.V.: The forms of the medium. In D. Zillmann, J. Bryant, and A.C. Huston (Eds.) *Media, children and the family: Social scientific, psychodynamic, and clinical perspectives*. (pp73-84) Hillsdale, N.J. Erlbaum.

Hynd G. & Willis W. G. (1985). 'Neurological Foundations of Intelligence' in B. Wolman (Ed) *Handbook of Intelligence* New York: John Wiley

Isaacs, S. (1946). *Social development in young children: study of beginnings.* London: Routledge.

Jackson, J. (1995). *Is there a place for role theory in occupational science?* Unpublished manuscript, University of Southern California, Los Angeles.

Kalverboer A. Hopkins B. & Geuze R. (1993). *Motor Development in Early and Later Childhood: Longitudinal Approaches* Cambridge: Cambridge University Press

Kielhofner, G., & Barris, R. (1984). Collecting data on play: a critique of available methods. *Occupational Therapy Journal of Research*, 4. 150-180.

Kielhofner G., & Burke, J.P., (1980). A model of human occupation , part 1. Conceptual framework and content. *American Journal of Occupational Therapy,*34, 572-581.

Kielhofner, G. (1995). *A model of human occupation. Theory and application.* 2nd. ed. Baltimore. Williams and Wilkins.

Kielhofner, G. (1995). A mediation on the use of hands. *Scandinavian Journal of Occupational Therapy*, 2: 153-166.

Klein, S. & Magill-Evans J. (1998). Perceptions of competence and peer acceptance in young children with motor and learning difficulties. *Physical and Occupational Therapy in Pediatrics*, 18(3/4), 39-52.

Knox, S. (1974). A play scale. In M. Reilly (Ed.). *Play as exploratory learning* (pp. 247-266) Beverly Hills, CA: Sage Publications.

Knox, S. (1996). Play and playfulness in preschool children. In R.Zemke, & F. Clark (Eds.) *Occupational science: The evolving discipline*. Philadelphia: F.A.Davis.

Krus, P.H., Bruininks, R.H., & Robertson, G. (1981). Structure of motor abilities in children. *Perceptual and Motor Skills*, 52, 119-129.

Law, M. (1987). Measurement in occupational therapy: Scientific criteria for evaluation. *Canadian Journal of Occupational Therapy*. 54, 133-138.

Lee, C. (1973). *The Growth and Development of Children,* Longman, London.

Lewis M. & Sullivan M. W. (1985). Infant Intelligence and its Assessment In B. Wolman (Ed). *Handbook of Intelligence* (pp 505 –599). New York: John Wiley

Leonard, C.T. (1998). *The neuroscience of human movement.* Mosby, St. Louis.

Lichtenberg, J D. (1989). *Psychoanalysis and motivation*. Hillsdale, NJ: The Analytic Press.

Lucas, J. & McKennell, V. (1974). *The Penguin Book of Playgroups,* Penguin, Harmondsworth., Middlesex.

Maccoby, E.E. & Jacklin, C.N. (1974). *The Psychology of Sex Differences*, Stanford University Press, Stanford, CA.

Maccoby E. (1988). Gender as a social category. Developmental Psychology. 24, (6) 755-765.

Mayer, A. (1922). The philosophy of occupational therapy. *Archives of Occupational Therapy,* 1,1-10.

MacDonald, K., & Parke, R.D. (1986). Parent-child physical play: The effects of sex and age of children and parents. *Sex Roles*15: 367-378.

MacGreil M. (1977). *Prejudice and Tolerance in Ireland.* Dublin: College of Industrial Relations

Maurer, P., Barris, R. Bonder, B., & Gillette, N. (1984). Hierarchy of competencies relating to the use of standardized instruments and evaluation techniques by occupational therapists. *American Journal of Occupational Therapy*. 38, 803-804.

Mead, G.H. (1934). *Mind self and society*. Chicago: Univ. of Chicago Press.

Michelsson K. & Lindahl E. (1993). Relationship between peri-natal risk factors and motor development at the ages of 5 and 9 years. In Kalverboer A. Hopkins B. and Geuze R. (Eds) *Motor Development in Early and Later Childhood: Longitudinal Approaches* Cambridge: Cambridge University Press.

Michelman, S. (1971). The importance of play. *American Journal of Occupational Therapy*, XXV, (6) 285-290.

Miller L., Missiuna C., MacNab J., Mallory-Miller T., and Polatajko H. (2001) 'Clinical description of children with developmental coordination disorder' *Canadian Journal of Occupational Therapy* 68 5-15

Missiuna, C. (1998). Development of "All About Me", a scale that measures children's perceived motor competence. *Occupational Therapy Journal of Research.* Spring, 18 (2) 85-108.

Montessori, M. (1973). *The Montessori method.* Cambridge, Mass.: Bentley, Inc.

Moore, R & Young, D. (1978). Childhood outdoors: Towards a social ecology of landscape. In (Eds.) I. Altman, & N.F. Wohlwill, Children and the environment, Vol.3, *Human Behaviour and Environment.* New York, Plenum: 83-130.

Morphy, H. (1998). *Aboriginal art.* London, Phaidon Press United.

Morrison, C D., Bundy A C., & Fisher A. (1991). The contribution of motor skills and playfulness to the play performance of preschoolers. *American Journal of Occupational Therapy.* August 45, (8) 687- 694.

Naylor, H. (1985). Outdoor play and play equipment. *Early Child Development and Care*19 (1): 109-130.

Neville-Jan A., Faxio L., Kennedy B., & Snyder C. (1997). Elementary to middle school transition: using multicultural play activities to develop life skills In L.D. Parham, L.S. Fazio, (Eds.) *Play in occupational therapy for children.* London: Mosby (pp144 –157)

Nugent, J. K., Lester, B., Greene, S. M., Wieczorek-Deering, D. & O' Mahony, P. (1996). 'The levels of maternal alcohol consumption and cigarette consumption during pregnancy: An acoustic cry analysis' *Child Development*, 67, 1806-1815

O'Mahony, P. (2002). Adults with mild intellectual disability in the criminal justice system. *Frontline*, Spring 18-19.

Opie, I., & Opie, P. (1969). *Children's games in street and playground.* Oxford: Oxford University Press.
Parham, L.D. (1996). Perspectives on play. In R. Zemke, & F. Clark (Eds.) *Occupational science: The evolving discipline.* Philadelphia: F.A. Davis.

Parham, L.D., & Fazio, L.S. (Eds.) (1997). *Play in occupational therapy for children.* London: Mosby.

Parham, L.D., Primeau, L.A. (1997). In (Eds.) L.D. Parham, L.S. Fazio, (Eds.) (pp.2 –21) *Play in occupational therapy for children.* London: Mosby.

Parker, S., Green S., & Zuckerman, B. (1988). Double jeopardy: the impact of poverty on early child development. *Pediatr. Clin. North Am.* 35: 1227-1240.

Parkinson, C.E. *Where children play*. Association for Children's Play and Recreation and Carrick James Market Research. Birmingham. Play Board.

Parry, M. & Archer, A. (1974). *Pre-school education*. London: Macmillian.

Patton M.Q. (1980). *Qualitative research methods*. Beverly Hills CA: Sage.

Patton, M.Q. (1990). *Qualitative evaluation and research methods*. Newbury Park, CA: Sage.

Pellegrini A.D. (1998). Rough and tumble play from childhood through adolescence: different perspectives. In: D.P. Fromberg, D. Bergen (Eds) *Play from birth to twelve and beyond: contexts, perspectives and meanings*. New York: Garland, 401-408

Piaget, J. (1962). *Play, dreams and imitation in childhood*. New York: Norton.

Pretzlik U. & Sylva K (1999). Paediatric patients'distress and coping during medical treatment: a self-report measure. *Achives of Disease in Childhood*, 81(6), 525-527.

Pratt, P.N. (1989). Play and recreational activities. In P.N. Pratt & A.S. Allen (Eds.) *Occupational therapy for children*(2nd edn pp.295-310) St. Louis: Mosby.

Primeau, L.A., & Ferguson, J.M. (1999). Occupational frame of reference. In: P. Kramer, & J Hinojosa, (Eds) *Frames of references for paediatric occupational therapy*. Philidelphia: Loppincott Williams and Wilkins, 469-516.

Ramey, C., Farren, D., & Campbell, F. (1979). Predicting I.Q from mother-infant interactions. *Child Dev*: 50: 804-814.

Ramsey, P. (1988). Designing play environments for pre-school and kindergarten children. In D.Bergen (Ed.), *Play as a medium for learning and development* (pp.213-239). Portsmouth, NH: Heinemann.

Ramsey M., & Piper M. (1980). A comparison of two developmental scales in evaluating infants with Down Syndrome. *Early Hum Dev*. 4: 98-95.

Rathunde K., Csikszentmihalyi M. (1991). Adolescent happiness and family interaction. In Pillmer K., & McCarthy K (Eds). *Parent–child interaction through life.* Hillsdale, NJ: L Erlbaum.

Reid D. (1987) 'Occupational Therapists' assessment practices with handicapped children in Ontario' *Canadian Journal of Occupational Therapy* 54 181-188

Reilly, M. (1969). The educational process. *American Journal of Occupational Therapy,* 23, 299-307.

Reilly, M. (Ed.) (1974). *Play as exploratory learning*. Beverly Hills, CA: Sage Publications.

Roberts, J.M., & Sutton-Smith, B. (1962). Child training and game involvement. *Ethnology* 1.

Rodger, S. (1994). A survey of assessments used by paediatric occupational therapists. *Australian Occupational Therapy Journal.* 41 137-142

Rosenthal, R. (1978). How often are our numbers wrong? *American Psychologist*, 3, 1005-1008.

Rosenbaum, P., Russell, D., Cadman, D., Gowland, C., Jarvia, S., & Hardy, S. (1990). Issues in measuring change in motor function in children with cerebral palsy: A special communication. *Physical Therapy*, 70, 125-131.

Ross, H., & Taylor, H. (1989). Do boys prefer Daddy or his physical style of play? *Sex Roles* 20: 23-33.

Rubin, K., Fein. G., & Vandenberg, B. (1983). Play. In E.M. Hetherington (Ed.) *Handbook of child psychology (Vol.4) Socialization, personality, and social development* (pp. 693-774. (4th ed.) New York: John Wiley.

Sallins, J.F. (1991). Self-report measures of children's physical activity. *Journal of School Health*, 61, 215-219.

Schaaf R.C. (1989). Play behaviour and occupational therapy. *American Journal of Occupational Therapy,* Jan. 44, (1) 68- 75.

Schaaf. R.C. & Burke, J.P. (Eds.) (1992). From the guest editors. Special issue on sensory integration and play–part 1. *Sensory Integration Special Interest Section Newsletter*, 15 (1), 1.

Schiller, von F. (1954). *On the aesthetic education of man*. New Haven, Conn.: Yale University Press.

Schlosberg, H. (1947). The concept of play. *Psychological Review*, 54, 229-231.

Schmidt, R.A. (1988). *Motor control and learning*. Champaign: Human Kinetics Publishers.

Schmidt, R.A. (1991). Motor learning principles for physical therapy: In M. Lister (Ed.) Contemporary management of motor control problems (pp. 49-64). Alexandria, VA: American Physical Therapy Association.

Schmidt, R., & Bjork, R.A. (1992). New Conceptualizations of practice: Common principles in three paradigms suggest new concepts for training. Psychological Science,3, (4) July: 207-217.

Shoemaker, M. M., & Kalverboer, A.F. (1994). Social and affective problems of children who are clumsy: How early do they begin? *Adapted Physical Activity Quarterly*, 11(2), 130-140.

Siegel L. S. (1992). 'Infant Motor and Language Behaviours as Predictors of Success at School Age' in *Advances in Infancy Research,* Vol. 7 Rovee-Collier C. and Lipsitt L. Norwood NJ: ABLEX

Singer, D. (1986). The development of imagination in early childhood: foundations of play therapy. In: R. van der Kooij & Hellendoorn (Eds.) *Play - play therapy play research* (pp.105-131) The Netherlands: Swets and Zeitlinger.

Singer, D. & Singer, J.L. (1990). *The house of make believe: Play and the developing imagination.* Cambridge, MA. Harvard University Press.

Slobin, D.I. (1964). The fruits of the first season: a discussion of the role of play in childhood. *J. Humanistic Psychol* 4:1.

Smith R.A., & Bjork R.A. (1992). New conceptualizations of practice: Common principles in three paradigms suggest new concepts for training. *Psychological Science,* (3); 4, July, 207-217.

Smith P.K., Takhvar, M., Gore, N., & Vollstedt, R. (1985). Play in young children: problems of definition, categorization and measurement. In: P. Smith (Ed) *Children's play: research developments and practical applications.* New York: Gordon and Breach Science Publishers, 39-55.

Spradley, J.P. (1979). *The ethnographic interview.* Forth Worth, Texas: Harcourt Brace Jovanovich College.

Spencer, H. (1873). *Principles of psychology.* Vol.2: 3rd ed. New York: Appleton.

Strauss, M. & Corbin, J (1998). *Basic qualitative research techniques and procedures for developing grounded theory,* (2nd ed.) London: Sage.

Sturgess, J., Rodger, S., & Ozanne, A. (2002). A review of the use of self-report assessment with young children. *British Journal of Occupational Therapy*, March, 65 (3) 108-116.

Sturgess, J.& Ziviani, J. (1995). Development of a self-report play questionnaire for children aged 5 to 7 years: Preliminary report. *Australian Occupational Therapy Journal.* 42, 107-117.

Sulloway, F.J. (1996). *Born to rebel: Birth order, family dynamics and creative lives.* London: Little Brown.

Sutton-Smith, B. (1966). *Piaget on play: A critique.* Psychological Review, 73, 104-110.

Sutton-Smith, B. (1976). Current research and theory on play, games and sports. In T.Craig (ed), *The humanistic and mental health aspects of sports, exercise and recreation.* Chicago: American Medical Association.

Sutton-Smith, B., Rosenberg, B.G., & Morgan, E.F. (1963). Development of sex differences in play choices during pre-adolescence. *Child Dev.*34:119-126.

Tabatabainia, M.M., Ziviani, J., & Maas, F. (1995). Construct validity of the Bruininks-Oseretsky Test of Motor Proficiency and the Peabody Developmental Motor Scales. *Australian Occupational Therapy Journal.* 42. 3013.

Takata, N. (1971). The play milieu – a preliminary appraisal. *American Journal of Occupational Therapy*, XXV (6) 281-284.

Takata, N. (1974). Play as prescription. In M. Reilly (ed), *Play as exploratory learning.* London, Sage.

Tanner J. M. (1989). *Foetus into Man: Physical Growth from Conception to Maturity* Cambridge Mass.: Harvard University Press

Taylor, A.S. (2000). UN Convention of the Rights of the Child: giving children a voice. In A. Lewis, G. Lindsay (Eds.) *Researching children's perspectives.* Buckingham: Open University Press, 21-23.

Thelen E., Kelso J., & Fogel A. (1987). Self organizing systems and infant motor development. *Dev. Rev*: 7: 39-65.

Titman, W. (1994). *Special places, special people.* Winchester. Learning Through Landscapes.

Tizard, B. (1977). Play: The child's way of learning? In B. Tizard & D. Harvey (Eds.) Biology of play. London. Heinmann pp199-208.

Thomas J. & French K. (1985). Gender Differences Across Age in Motor Performance. *Psychological Bulletin* 98, 2, 260-282

Thompson, L.P., Bouffard, M. Watkinson,E., & Causgrove Dunn, J.L., (1994). Teaching children with movement difficulties: Highlighting the need for individualized instruction in regular physical education. *Physical Education Review*, 17, 152-159.

Touwen B.C. (1993). Longitudinal studies on motor development: developmental neurological considerations. In (Eds.) Kalverboer A. Hopkins B. & Geuze R. (1993) *Motor Development in Early and Later Childhood: Longitudinal Approaches.* (pp15-34), Cambridge: Cambridge University Press

Touwen, B.C. (1988). Motor development: developmental dynamics and neurological examination. In: E.Meisami & P.S.Timiras (Eds.), *Handbook of human growth and developmental biology*, (1), part B, (pp 201-221) Boca Raton, FL.: CRC Press Inc.

United Nations Convention on the Rights of the Child (1989). Geneva: UN. CR/C/SR. 438.

Van Andel, J. (1990). Places children like, dislike and fear. *Children's Environments Quarterly*. 7 (5): 24-31.

Vandenberg, B. (1978). Play and development from an ethological perspective. *Am.Psychol.* 33: 724-738.

Vandenberg, B., & Kielhofner, G. (1982). Play in evolution, culture, and individual adaptation: Implications for therapy. *American Journal of Occupational Therapy,* January, 36, (1) 20- 28.

Vygotsky, L.S. (1967). Play and its role in the mental development of the child. *Soviet Psychology.* 12, 62-76.

Vygotsky, L.S. (1978). *Mind in society. The development of higher mental process*. Cambridge, Mass: Harvard University Press.

Wallen M. and Walker R. (1995) 'Occupational therapy practice with children with perceptual motor dysfunction: Findings of a literature review and survey' *Australian Occupational Therapy Journal* 42 15-25.

Webb, M. (1997). *Grounds for Play*, Dublin: Dublin Institute of Technology.

Webb, R. (1999). *Public policy on children's play in Ireland.* Centre for Social and Educational Research, Dublin: Dublin Institute of Technology and The Children's Research Centre, Trinity College:

Whey, R. & Millward, A. (1977). *Child's Play: Facilitating play on housing estates*. Charted Institute of Housing/ Joseph Rowntree Trust.

White, R. (1959). Motivation reconsidered: The concept of competence. *Psychological Review*, 66, 297-323.

White, R.W. (1971). The urge towards competence. *American Journal of Occupational Therapy,* 25, 271-274.

Whiting, B.B. (1963) *Six cultures: Studies of child rearing.* New York: Wiley.

Whiting, B.B., & Edwards, C.P. (1973). A cross-cultural analysis of sex differences in the behavior of children aged three through eleven. *J. Soc. Psychol.* 91: 171-188.

Wieczorek-Deering, D., Greene, S.M., Nugent, J. K. & Graham, R. (1991). 'Classification of attachment and its determinants in Irish infants'. *Irish Journal of Psychology* 12, 216-234.

Wilcock, A. A.. (1993). A theory of the human need for occupation. *Journal of Occupational Science: Australia*, 1, (1), 17 – 24.

Williams, H.G. (1983). *Perceptual motor development.* Englewood Cliffs. N.J. Prentice Hall.

Wilson, B.N., Polatajko, H.J., Kaplan, B.J., & Faris, P. (1995). Use of the Bruininks-Oseretsky Test of Motor Proficiency in occupational therapy. *American Journal of Occupational Therapy*, Jan. 49 (1) 8- 17.

World Health Organization (1999). *International Classification of functioning and disability.* Beta 2 draft. July. Geneva. W.H.O.

Wright, H.C., Sugden, D.A., Ng.R., & Tan, J. (1994). Identification of children with movement problems in Singapore: Usefulness of the Movement ABC Checklist. *Adapted Physical Activity Quarterly*, 11, 150-157.

Yerxa E J., Clark F., Jackson J, Parnham P., Pierce D., Stein C., & Zemke, R. (1990). An introduction to occupational science, a foundation for occupational therapy in the 21st. century. *Occupational Therapy in Health Care.* 1990: 6: 1-17.

Young, I. (1990). *Throwing Like a Girl. And Other Essays in Feminist Philosophy.* Cambridge: Cambridge University Press.

Zucker, K.J. (1985). Cross-gender –identified children. In B.W. Steiner (ed.) *Gender dysphoria: Development, research, management.* New York, Plenum Press.

APPENDIX 1:

MOTHERS' QUESTIONNAIRE FORM.

Child's Use of Leisure time. **Date:** **Child no.**

Name of child Birthday.

Gender Age now.

Introduction.

These questions are about how ---------- spends his/her leisure time, by that I mean time other than when eating, sleeping and at school. I am really interested to know what ------- does, and what you think about that. There is no right or wrong answer. The information you give is confidential in that you or your child's name will not be given when the results of this research study is being discussed.

What. Questions 1 to 4. (List and categorise answers.)

1.What does ….. do during his/her leisure time?	List.
2.What does she/he play? Name of games.	List.

3.What does she /he play with?	List.
4. Other than playing, what does … do in his/her leisure time?	a. Hobbies. b. Interests. c. Visits to others. d. Care of pets. e. Helps in house f. Other.

T.V. Video Radio and Tapes.

5. Do you have a T.V. Yes/No

6. Do you have a video player. Y/N : Radio Y/N/: Tape recorder Y/N.

7. Does …. watch T.V. in own home Y/N. In friend's home. Y/N.

8. Does …. Watch videos in own home Y/N. In friend's home. Y/N.

9.What programmes does he/she watch. Child's 1. Adult 2. Family 3.

……

10. What videos does …. watch at home. Child 1. Teen2. Adult 3. Fam 4.

……

11. What videos does .. watch elsewhere? ……

12. When does …. usually watch T.V. (am. Afternoon, evening, night, weekdays weekends, hols)……..

……

13. No. of hours a day watching T.V. and video.

Week days ____W/ends ____ Hols. ____ Week___ W/E __ Hol___

14. Do you control what s/he watches? (Indicate one only)

T.V.	Video.
Content only 1	Content only 1
Cont. + Length of Time. 2	Con. + Length of Time 2
Con + Length + Time of view. 3	Con + Length + Time of view. 3
Other control (state) 4……	Other control (state) 4……

15. With whom does ….. watch T.V. (Indicate all relevant)

Friends 1. Siblings 2. Mother 3. Father 4. Other adults 5.

On own 6.

16. Would you prefer that your child watched T.V. (tick one)

A lot more 1. More 2. Same amount 3. Less 4. A lot less 5.

17. Would you prefer that your child watched videos (tick one)

A lot more 1. More 2. Same amount 3. Less 4. A lot less 5.

18. Does s/he listen to radio in own home Yes/no. Friends home Yes/no.

19. What does s/he listen to mostly(tick one only). Music 1.

Child. Prog. 2. Special Interest Prog. 3. General prog. 4.

Other 5(state)

20. How often does s/he listen.

More than I hour every day 1. Every day 2. Most days 3.

Some days 4. Not often 5. Never 6.

21. Does s/he play tapes/ records in her own home Yes /no.

in friend's home Yes/no. Other place Yes/no.

22. If yes, what does s/he play? Music Y/N . Stories Y/N. Other Y/N.

23. How often does s/he listen?

More than I hour every day 1. Every day 2. Most days 3.

Some days 4. Not often 5. Never 6.

Reading for Pleasure.

24. Does s/he read books for pleasure? Yes/no. How often?

More than I hour every day 1. Every day 2. Most days 3.

Some days 4. Not often 5. Never 6.

25. If yes, what does s/he read? (List, categorise).....

.....

26. Does s/he read comics for pleasure? Yes/No. How often?

More than I hour every day 1. Every day 2. Most days 3.

Some days 4. Not often 5. Never 6.

27. What does s/he read? (List, categorise.)

.....

Video Games and Computer Use.

28. Does s/he play video games at home Yes/No. In friend's house Yes/no

in arcade Yes/no. How often on week days?

More than I hour every day 1. Every day 2. Most days 3.

Some days 4. Not often 5. Never 6.

How often on week-ends? (Indicate code number) .....

How often during holidays? .....

29. Does s/he have a computer at home ? Yes/no.

30. Does s/he use one at home 1. Elsewhere 2.

31. What does s/he do with it? Games 1. Write 2.

Do maths/sums 3. Other 4.

32. How often does s/he use it on week days?

More than I hour every day 1. Every day 2. Most days 3.

Some days 4. Not often 5. Never 6.

How often on week-ends? (Indicate code number) .....

How often during holidays? .....

33. When you are buying things for him/her to play with how do you decide what to buy?

(one only) 1 It's what child wants.

2 Not expensive. 3 Will last. 4 Educational. 5 Other.

34. What was the last thing you bought for him/her?

(list, categorise) .....

35. How did you decide? 1 It's what child wants.

2 Not expensive. 3 Will last. 4 Educational. 5 Other.

Leisure Facilities Near Your Home.(Mother's perception of 'near')

	Yes	No.	Used by Child.
a. Grassy play space			
b. Hard surface space			

c. Playground
d. Indoor playspace
e. Leisure centre
f. Football club
g. Hurling club
h. Athletics
i. Golf/pitch and putt
j. Tennis
k. Boxing
l. Swim.pool
m. Other sports clubs
n. Natural (sea/river/fields) State
o. Clubs eg cubs/scouts/ girl guides)
p. Summer project
q. Classes in: speech and drama
r. Arts and crafts classes
s. Music (band or individual) classes
t. Dancing (Irish; ballet; majorettes) classes
u. Swimming lessons
v. Gym classes
w. Language eg French classes
x. Other.

37. Transport available to child for leisure purposes.

Public bus 1. Pvt Bus 2. Train 3. Cycle 4. Family car 5. Other car 6.

38. Does child have an organised leisure activity, such as Dancing, Gym, Music, Swimming or Sports? Anything like that? Yes/No.

39. If yes what is it and how often does s/he do it?

Activity How often per week Goes with whom. Who decided.

a. dancing
b. drama
c. gym
d. music
e. swimming

f. sports (state what)

g. other

40. How much does it cost per session?

41. Was there any other activity that s/he used to do? If yes, what was it? (List, categorise)

42. Why was it stopped? (list)

.....

43. Other than what has been mentioned, is s/he a member of an organisation, choir or on a sports team? Yes/no. State what. .....(add this to list re previous questions)

44. Would you like your child to do more or less organised leisure activities? Yes/no. What?..... (list)

45. When your child is playing outside the home do you (or minder) know what s/he is playing. (tick one)

All of the time..1. Most times...2. Sometimes...3. Seldom...4.

46. How do you know what s/he is doing. (list).....

With Whom the Child Plays.

47. Who does s/he usually play with when not at school?

No. of friends... Gender of friends: No. of Siblings ....

All male.... All female.... Both.... Male .... Female....

Ages of friends..... Ages of Sibs.....

48. Is where friends live:

Seen from house 1. 5 mins. walk away 2. Further away 3.

49. How is playing together usually organised?

Child calls around to friends house ..1. Goes outside and sees who turns up ..2

Takes turns visiting each other's house ..3.

Makes arrangements with parent's permission ..4. Other (state) ..5.

50. How often does he play with friends?

Every day 1. Most days 2. Three days a week 3. Less Often 4.

Weekdays.

Weekends.

Hols.

51. Does child have someone to play with when s/he wants to.

Always 1. Mostly 2. Sometimes 3. Not usually 4. Seldom 5.

52. Do you approve of child's choice of friends?

Of All 1. Of Most 2. Of Some 3. Of Few 4. Of None 5.

53. Do you decides who he plays with?

Always 1. Mostly 2. Sometimes 3. Occasionally 4. Never 5.

54. What do you do if your child plays with someone of whom you disapprove? (List and categorise : 0 = doesn't disapprove of any)

.....

55. Does s/he spend time with adults?

(List, code and categorise as in Q. 55 above)

Who	How Often	Do What Together
Mother		
Father		
Grandmother		
Grandfather		
Other adult relative		
Other adult (state)		

59. Do you (or minder) know who s/he is with when playing?

Always 1. Mostly 2. Sometimes 3. Seldom 4.

60. How do you (or you minder) know with whom s/he is playing?

(List, categorise).....

Where Child Plays.

61. Where does s/he usually spend leisure time when s/he is on her own?

In own home (state room)..... Outside home .....

.....

62. When with friends, where does s/he spend his time? (Tick any as relevant)

In own home...1 Other's home ....2 Front garden ....3 Back garden 4

Own street ...5 Friend's street ... 6 Elsewhere ...7 (state).....

63. If s/he is playing in the house with friends, where would they usually play?

Living room....1 Bedroom ....2 Kitchen ...3 Playroom ...4 Elsewhere in house ...5.

Doesn't usually have friends in house ...6.

64. Do you know where s/he is when playing outside the home?

Always 1. Mostly 2. Sometimes 3. Seldom 4.

65. How do you know? (List categorise as in Q.60 above).....

.....

66. Does s/he get bored?

Several times a day 1. Once a day 2. Some days 3. Seldom 4.

Never 5.

Week-days

Weekends

School Holidays.

67. How do you know s/he is bored?

Gets distruptive 1. Says it 2. Sits doing nothing 3. Other 4. (state) .....

(List, categorise).....

68. What do you do? (Tick any as relevant). Organise something for him to do...1. Tell him to do something...2. Give out ...3. Give child ideas as to what to do...4. Do something with him ....5. Do nothing ...6. Other ....7.

69. How much of your assistance does child need to organise leisure time?

Total ...1. Considerable ...2. Some ...3. Little ...4. Very little...5.

70. In your opinion, is it important that s/he has leisure time?

Very Important...1. Fairly Important ...2. Important...3. Little Importance...4. Not Important ...5.

Why...(List, categorise).....

.....

71. Does it matter to you how this time is spent?

Matters a lot...1. Fair amount...2. It matters ...3. Matters a little ...4. Not really...5.

72. Do you think his/her leisure time is spent;

Extremely Well ...1. Very Well ...2. Reasonably Well ...3. Poorly ...4.

Very Poorly ...5.

73. Is there anything you wish your child did less of ? (if yes, state what)

.....

Is there anything you wish your child did more of ? (if yes, state what)

……

74. What do you see as your role in regards to your child's leisure time and play? (List, categorise)……

……

……

Demographic and Neighbourhood Information.

75. Mother's name……

76. No. living in dwelling: Adults…… Children …..

77. Ages of all children Living in home. ……

78. Relationship to study child. Father 1. Mother 2. Grandfather 3. Grandmother 4. Other adult 5. Other child. 6.

79. Marital status of mother. Single 1. Married ..2. Separated ..3. Widowed ..4. Divorced..5. Other..6. (state)……..

80. Employment status of those in the house:

	Working			Unemployed	
	Fulltime 1.	Part/tme 2.	Seasonal 3.	Long/tme 4.	Sh/tme 5.
Mother					
Father					
Other					
Other					

81. Usually weekly take-home pay from employment in the household…….

82. State benefits (other than children's allowance) ……...

83. Other income ……

84. Type of Housing. House …1. Flat …2. Other (state) ….3.

85. Rented from Local Authority …1. Local Authority Vested…2. Private rented…3. Owner occupier…4. (Who owns relationship to child……)

86. Does home have front garden ….yes/no. Back garden …yes/no.

Front yard (cement place to play)… yes/no. Back yard…yes/no.

If living in a flat (apartment) Floor level……. Balcony… yes/no.

87. No of bedrooms .....

88. Road outside home. Quiet daytime traffic ..... Busy traffic .....

Thank you for your time.

APPENDIX 2

CHILDREN'S QUESTIONNAIRE FORM.

Child Name: Date: Child code.

Introduction.

These questions are about how you spend your leisure time, by that I mean the time other than when you are eating, sleeping or at school. I am really interested to know what you like to do. There is no right or wrong answer. The information you give me is confidential, in that I won't be giving people you name and telling them what you said. All the information from the different children will get put together then I will know this is what boys and girls of your age usually like to do, and that some of them like to do things differently. I will know things like where boys like to play best and if this is different from the girls, like do girls like football as much as boys, or do boys skip or roller-blade. Your information is very important in that no one but you can say what is it you really like about your play. So thank you for meeting me.

What.

1.What do you do when not at school ?	(List and record no. of mentions)
2.What do you like to play at these days?	(Add to list above and code as in mother's q'aire)

3. How do you play with …….. (ask re clarification for type of play)	(Add to list above and code as in mother's q'aire)
4. What do you enjoy about these different types of play? Record key word, categorise later.	Post-coded categorisations were as follows: 1. learn new things 2. excitement 3. fun/amusement 4. pretend/character or story 5. combination of things 6. don't know 7. Just do 8. being in charge/control 9. physical exercise

5. What are your favourite thing or games to play at the moment?

(Categorise as above)

6. Other than playing, can you think of anything else you like to do such as (Indicate Yes/No, if yes, list)

Hobbies/interests.....

Visits to people (granny, cousins) .....

Care of pets .....

Helping in the house .....

Other.....

Watching T.V and Videos & Listening to Radio and Tapes.

7.Do you watch T.V? Yes/No. If yes

8. What are your favourite programmes?

.....

.....

(List and categorise as: 1 Children's programmes. 2 Family.

3. Combination of children and family. 4. Adult programmes.)

9. What do you enjoy about these programmes? (Code as: 1 Learning new things. 2 Excitement. 3 Amusement. 4 Story/characters. 5 Combination.

10. With whom do you watch T.V. (Indicate all)

With friends

Siblings

Mother

Father

Other Adults

On Own

Cousin.

11.Would you prefer that you watched T.V. 1 A lot more. 2 More. 3 Same amount. 4 Less. 5 A lot less.

12. Do you watch videos? Yes/No

13. Who do you watch them with?

1 Always. 2 Mostly. 3 Sometime. Seldom 4. Never 5.

Friends

Siblings

Mother

Father

Other Adults

On Own

Cousin.

14. What do you enjoy about watching these?

.....

.....

.....

(Categorise as follows:

1 Learning new things. 2 Excitement. 3 Amusement. 4 Story/characters. 5 Combination. 6 Don't know. 7 Just do.

8. Pictures/visuals. 9. Relaxing.)

15. Would you prefer to watch videos: (Indicate one)

1 A lot more. 2 More. 3 The same amount. 4 Less. 5 A lot less.

16. Do you listen to the radio? Yes/no.

17. If yes, what do you listen to: 1 Music. 2 Weather forecast.

3 The news. 4 Sport. 5 Other.

18. What best do you like about listening to the radio? (List, categorise)

.....

19. How often do you listen?

1 More than 1 hour every day. 2 Every day. 3 Most days. 4 Some days. 5 Not often. 6 Don't listen.

20. Do you play tapes? Yes/No. If yes, what do you play:

1 Music. 2 Stories. 3 Combination of music and stories. 4 Don't play.

21. How often do you listen?

1 More than 1 hour every day. 2 Every day. 3 Most days. 4 Some days. 5 Not often. 6 Don't listen.

22. What do you enjoy about this?.....

.....

(List, categorise)

Reading For Pleasure.

23. Do you read books for pleasure?

1 More than 1 hour every day. 2 Every day. 3 Most days. 4 Some days. 5 Not often. 6 Don't read.

24. What do you read?.....

.....

(List, categorise)

25. Where do you get your books ? Yes/no to each of the following:

1 Buy for self. 2 Bought by others. 3 On loan from friends. 4 Public library. 5 School/class library.

26. Do you read comics? Yes/No. If yes, what do you read?

.....

(List, categorise)

27. What do you enjoy about reading?

1 Learning new things. 2 Excitement. 3 Amusement. 4 Story/characters. 5 Don't know. 6 No comment. 7 Other.

Video Games and Computer Use.

28. Do you play video games? Yes/ No. If yes

29. Where do you play: 1 Own home. 2 Friend's house. 3 School.

30. How often do you play: (Indicate one for each)

1 More than 1 hour every day. 2 Every day. 3 Most days. 4 Some days. 5 Not often. 6 Don't play.

Weekdays Weekends Sch. Hols.

31. What do you enjoy about playing video games? (List and categorise)

.....

.....

32. Do you use a computer? Yes/no. If yes where?

33. 1 At home. 2 Friend's house. 3 Other (state).....

34. What do you play ? 1 Games. 2 Write. 3 Sums. 4 Other.

35.What do you enjoy about playing with the computer?

.....

(List, categorise)

Making Things.

37.Do you make things with (see list below): Tick Yes/No.

38. How often? (Code frequency as follows:

1 More than 1 hour every day. 2 Every day. 3 Most days. 4 Some days. 5 Not often.)

a. Lego.

b. Playdough.

c. Paper/cardboard/bits and pieces.

d. Kits such as model planes, jewellery.

e. Sewing/knitting/ handcrafts.

f. Painting/colouring.

g. Baking/cooking.

h. Other things (state)

39. From where do you get the ideas to make things? (List and categorise)

.....

.....

40. What do you enjoy about making things like this?

.....

41. Do you ever make up rhymes or songs? Yes/No.

42. If yes, who do you do this with? (List, categorise).....

Where do you do this? .....

When ?.....

43. Do you make up stories for fun? Yes/No.

44. Who do you do this with? .....

When? .....

Where? .....

(List, categorise)

45. Do you play ball games such as:

(Code frequency as follows:

1 More than 1 hour every day. 2 Every day. 3 Most days. 4 Some days. 5 Not often. 6 Never.)

a. Football
b. Tennis
c. Short tennis
d. Hurling
e. Net ball
f. Basket ball
g. Golf/pitch and put
h. Any other ball game.

46. Do you go: (1 More than 1 hour every day. 2 Every day. 3 Most days. 4 Some days. 5 Not often. 6 Never.)

a. Skating (roller blades)
b. Skateboarding
c. Skipping
d. Riding a bike
e. Chasing or running games.

48. Do you go to an **organised** sport activity (such as team practice for)

1 Every day. 2 Most days. 3 Some days. 4 Not often. 5 Never.)

a. Swimming
b. Athletics

c. Football

d. Netball

e. Camogie

f. Hurling

g. Other sports

50. Do you play board games ? Yes/no

51. How often?

(1 More than 1 hour every day. 2 Every day. 3 Most days. 4 Some days. 5 Not often. 6 Never.)

a. Connect Four

b. Draughts

c. Chess

d. Snakes and ladders

e. Ludo

f. Pictionary

g. Junior Scrabble

h. Monopoly

i. Any other games like that.

52. Who do you play with?

(1 Children only. 2 Adults and children.) .....

53. When do you play? .....

54. Where do you play ? .....

55. If yes to any of the above, what do you enjoy about playing these games?

.....

.....

56. Do you ever win? 1 Most times. 2 Sometimes. 3 Seldom.

57. What happens if you loose? (List and categorise).....

.....

.....

Pretend Games.

58. Do you play pretend games like House, War, Post Office, Hospital or something like that? Yes/No. If yes

59. What do you play? (List)

.....

.....

.....

60. How often?

(1 More than 1 hour every day. 2 Every day. 3 Most days. 4 Some days. 5 Not often. 6 Never.)

61. Mostly who do you play with?

a. Self
b. Friends
c. Siblings
d. Mother
e. Father
f. Grandmother
g. Cousins
h. Other adult.

62. When do you play?

.....

63. Where do you play?

.....

64. What is the name of your favourite pretend game at the moment?

.....

What do you enjoy about playing these games? (List and categorise)

.....

.....

65. Do you ever play with dolls/action models like Barbie, Action Man, My Little Pony, Wrestlers, Gladiators or Transformers? Yes/No

66. What do you do with them? (This is to clarify that it is pretend play rather than other types of play)

.....

.....

.....

Plants/Pets.

67. Do you have any pets? Yes/No

68. If yes, what do you have? (Type and number)

.....

69. How do you take care of it? (Categorise)

.....

70. Do you grow plants or do gardening? Yes/No.

71. If yes, what do you do? (List/ categorise) .....

.....

72. What do you enjoy about this?

.....

.....

73. Is there anything about what you do that I have left out? Yes/No.

74. If yes, what is it?

.....

75. is there anything that you would really like to do that you don't do now?

Yes/No. (State)

Where you like to Play.

76. Where do you enjoy playing the most?

a. School yard

b. Street

c. Playground

d. Own house

e. Friend's house

f. Garden

g. Trees/Field

h. Elsewhere.

77. Do you get a chance to play there often?

(1 More than 1 hour every day. 2 Every day. 3 Most days. 4 Some days. 5 Not often.)

With Whom.

78. Who do you enjoy playing with the most?

1 Friends. 2 Sibling. 3 Cousin. 4 Mother. 5 Neighbour. 6 Self.
7. Other (state)

79. Is there anybody else you really enjoy playing with? Who is that?

.....

80. Do you get a chance to play with him/her/ them very often?

(1 More than 1 hour every day. 2 Every day. 3 Most days. 4 Some days. 5 Not often.)

81. If you didn't have anybody to play with what would you do?

.....

.....

82. Do you spend time with adults that you enjoy?

83. Who? (Yes/no to all below) 84. When? 85. What do you do together? (List/categorise)

a. Mother

b. Father

c. Grandmother

d. Grandmother

f.Other Relative.

G. Other (state)

86. Do you ever get bored? Yes/No

87. When might that be?

---

88. Is it often?

1 More than 1 hour every day. 2 Every day. 3 Most days. 4 Some days. 5 Not often.

Weekdays

Weekends

School Hols.

89. What do you do? (List, categorise, and compare with mother's report)

_____

_____

90. Would you tell anyone about how you felt? Yes/No

91. Who? Mam 1. Dad 2. Both 3. Other 4 state

_____

92. And what happens then? (list and categorise)

_____

93. Are you happy with how you spend your time? Yes/No

If no explain.

94. Thank you very much for answering these questions. Is there anything you would like to add, or to ask me?

_____

Thanks again.

Bruininks-Oseretsky Test of Motor Proficiency

Robert H. Bruininks, Ph. D.

INDIVIDUAL RECORD FORM
Complete Battery and Short Form

NAME _____ SEX: Boy ☐ Girl ☐ GRADE _____

SCHOOL/AGENCY _____ CITY _____ STATE _____

EXAMINER _____ REFERRED BY _____

PURPOSE OF TESTING _____

Arm Preference: *(circle one)*
RIGHT LEFT MIXED

Leg Preference: *(circle one)*
RIGHT LEFT MIXED

	Year	Month	Day
Date Tested			
Date of Birth			
Chronological Age			

TEST SCORE SUMMARY

Complete Battery:

SUBTEST	POINT SCORE Maximum	POINT SCORE Subject's	STANDARD SCORE Test (Table 23)	STANDARD SCORE Composite (Table 24)	PERCENTILE RANK (Table 25)	STANINE (Table 25)	OTHER
GROSS MOTOR SUBTESTS:							
1. Running Speed and Agility	15						
2. Balance	32						
3. Bilateral Coordination	20						
4. Strength	42						
GROSS MOTOR COMPOSITE		* SUM					
5. Upper-Limb Coordination	21	*					
FINE MOTOR SUBTESTS:							
6. Response Speed	17						
7. Visual-Motor Control	24						
8. Upper-Limb Speed and Dexterity	72						
FINE MOTOR COMPOSITE		* SUM					
BATTERY COMPOSITE		* SUM					

*To obtain Battery Composite: Add Gross Motor Composite, Subtest 5 Standard Score, and Fine Motor Composite. Check result by adding Standard Scores on Subtests 1–8.

Short Form:

	POINT SCORE Maximum	POINT SCORE Subject's	STANDARD SCORE (Table 27)	PERCENTILE RANK (Table 27)	STANINE (Table 27)
SHORT FORM	98				

DIRECTIONS

Complete Battery:

1. During test administration, record subject's response for each trial.

2. After test administration, convert performance on each item (item raw score) to a point score, using scale provided. For an item with more than one trial, choose best performance. Record item point score in *circle* to right of scale.

3. For each subtest, add item point scores; record total in circle provided at end of each subtest and in Test Score Summary section. Consult *Examiner's Manual* for norms tables.

Short Form:

1. Follow Steps 1 and 2 for Complete Battery, except record each point score in *box* to right of scale.

2. Add point scores for all 14 Short Form items and record total in Test Score Summary section. Consult *Examiner's Manual* for norms tables.

© 1978 by American Guidance Service, Inc. The reproduction or duplication of this form in any way is a violation of the copyright law.

AGS® Published by American Guidance Service, Inc., Circle Pines, MN 55014-1796

A 0 9 8 7 6 5 4 3

Printed on recycled paper

SUBTEST 1: Running Speed and Agility

1. Running Speed and Agility SF*

TRIAL 1: _____ seconds TRIAL 2: _____ seconds

Raw Score	Above 11.0	10.9-11.0	10.5-10.8	9.9-10.4	9.5-9.8	8.9-9.4	8.5-8.8	7.9-8.4	7.5-7.8	6.9-7.4	6.7-6.8	6.3-6.6	6.1-6.2	5.7-6.0	5.5-5.6	Below 5.5
Point Score	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

RECORD POINT SCORES FOR COMPLETE BATTERY

RECORD POINT SCORES FOR SHORT FORM

POINT SCORE SUBTEST 1 (Max. 15)

SUBTEST 2: Balance

1. Standing on Preferred Leg on Floor *(10 seconds maximum per trial)*

TRIAL 1: _____ seconds TRIAL 2: _____ seconds

Raw Score	0	1-3	4-5	6-8	9-10
Point Score	0	1	2	3	4

2. Standing on Preferred Leg on Balance Beam SF *(10 seconds maximum per trial)*

TRIAL 1: _____ seconds TRIAL 2: _____ seconds

Raw Score	0	1-2	3-4	5-6	7-8	9	10
Point Score	0	1	2	3	4	5	6

3. Standing on Preferred Leg on Balance Beam—Eyes Closed *(10 seconds maximum per trial)*

TRIAL 1: _____ seconds TRIAL 2: _____ seconds

Raw Score	0	1-3	4-5	6	7	8	9	10
Point Score	0	1	2	3	4	5	6	7

4. Walking Forward on Walking Line *(6 steps maximum per trial)*

TRIAL 1: _____ steps TRIAL 2: _____ steps

Raw Score	0	1-3	4-5	6
Point Score	0	1	2	3

5. Walking Forward on Balance Beam *(6 steps maximum per trial)*

TRIAL 1: _____ steps TRIAL 2: _____ steps

Raw Score	0	1-3	4	5	6
Point Score	0	1	2	3	4

6. Walking Forward Heel-to-Toe on Walking Line *(6 steps maximum per trial)*

TRIAL 1: ☐☐☐☐☐☐ = _____ steps TRIAL 2: ☐☐☐☐☐☐ = _____ steps

Raw Score	0	1-3	4-5	6
Point Score	0	1	2	3

7. Walking Forward Heel-to-Toe on Balance Beam SF *(6 steps maximum per trial)*

TRIAL 1: ☐☐☐☐☐☐ = _____ steps TRIAL 2: ☐☐☐☐☐☐ = _____ steps

Raw Score	0	1-3	4	5	6
Point Score	0	1	2	3	4

8. Stepping Over Response Speed Stick on Balance Beam

TRIAL 1: Fail Pass TRIAL 2: Fail Pass

Raw Score	Fail	Pass
Point Score	0	1

POINT SCORE SUBTEST 2 (Max. 32)

*SF and the box in left-hand margin indicate Short Form items.

SUBTEST 3: Bilateral Coordination

1. Tapping Feet Alternately While Making Circles with Fingers[SF] *(90 seconds maximum)*

* Raw Score	Fail	Pass
Point Score	0	1

2. Tapping—Foot and Finger on Same Side Synchronized *(90 seconds maximum)*

* Raw Score	Fail	Pass
Point Score	0	1

3. Tapping—Foot and Finger on Opposite Side Synchronized *(90 seconds maximum)*

* Raw Score	Fail	Pass
Point Score	0	1

4. Jumping in Place—Leg and Arm on Same Side Synchronized *(90 seconds maximum)*

* Raw Score	Fail	Pass
Point Score	0	1

5. Jumping in Place—Leg and Arm on Opposite Side Synchronized *(90 seconds maximum)*

* Raw Score	Fail	Pass
Point Score	0	1

6. Jumping Up and Clapping Hands[SF]

TRIAL 1: _____ claps TRIAL 2: _____ claps

Raw Score	0	1	2	3	4	Above 4
Point Score	0	1	2	3	4	5

7. Jumping Up and Touching Heels with Hands

TRIAL 1: Fail Pass TRIAL 2: Fail Pass

Raw Score	Fail	Pass
Point Score	0	1

8. Drawing Lines and Crosses Simultaneously *(15 seconds)*

NUMBER OF PAIRS CORRECT: _____

Raw Score	0	1	2-3	4-5	6-7	8-9	10-11	12-14	15-17	Above 17
Point Score	0	1	2	3	4	5	6	7	8	9

SUBTEST 4: Strength

1. Standing Broad Jump[SF] *(record number from tape measure)*

TRIAL 1: _____ TRIAL 2: _____ TRIAL 3: _____

Raw Score	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Point Score	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

2. Sit-ups *(20 seconds)*

NUMBER: _____

Raw Score	0	1-2	3-4	5-6	7-8	9-10	11-12	13-15	16-18	19-20	Above 20
Point Score	0	1	2	3	4	5	6	7	8	9	10

3a. Knee Push-ups (For Boys Under Age 8 and All Girls) *(20 seconds)*

NUMBER: _____

Raw Score	0	1-2	3-5	6-7	8-9	–	–	10-12	–	–	13-15	–	16-18	–	–	19-20	Above 20
Point Score	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

3b. Full Push-ups (For Boys Age 8 and Older) *(20 seconds)*

NUMBER: _____

Raw Score	0	–	–	–	–	1-5	6-9	–	10-11	12-13	–	14-15	–	16-17	18-20	–	Above 20
Point Score	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

*For Subtest 3, circle pass or fail in Items 1-5.

RECORD POINT SCORES FOR COMPLETE BATTERY

RECORD POINT SCORES FOR SHORT FORM

POINT SCORE SUBTEST 3 (Max. 20)

POINT SCORE SUBTEST 4 (Max. 42)

SUBTEST 5: Upper-Limb Coordination

1. Bouncing a Ball and Catching It with Both Hands *(5 trials)*

NUMBER OF CATCHES: _____

Raw Score	0	1-2	3-4	5
Point Score	0	1	2	3

2. Bouncing a Ball and Catching It with Preferred Hand *(5 trials)*

NUMBER OF CATCHES: _____

Raw Score	0	1-2	3-4	5
Point Score	0	1	2	3

3. Catching a Tossed Ball with Both Hands[SF] *(5 trials)*

NUMBER OF CATCHES: _____

Raw Score	0	1-2	3-4	5
Point Score	0	1	2	3

4. Catching a Tossed Ball with Preferred Hand *(5 trials)*

NUMBER OF CATCHES: _____

Raw Score	0	1-2	3-4	5
Point Score	0	1	2	3

5. Throwing a Ball at a Target with Preferred Hand[SF] *(5 trials)*

☐☐☐☐☐ =HITS

Raw Score	0	1-2	3-4	5
Point Score	0	1	2	3

6. Touching a Swinging Ball with Preferred Hand *(5 trials)*

NUMBER OF HITS: _____

Raw Score	0	1-2	3-4	5
Point Score	0	1	2	3

7. Touching Nose with Index Fingers—Eyes Closed *(90 seconds maximum)*

*

Raw Score	Fail	Pass
Point Score	0	1

8. Touching Thumb to Fingertips—Eyes Closed *(90 seconds maximum)*

*

Raw Score	Fail	Pass
Point Score	0	1

9. Pivoting Thumb and Index Finger *(90 seconds maximum)*

*

Raw Score	Fail	Pass
Point Score	0	1

SUBTEST 6: Response Speed

1. Response Speed[SF]

TRIAL	SECONDS TO WAIT	SCORE[1]	RANKED TRIAL SCORES[2]
Practice 1	1	XXXX	
Practice 2	3	XXXX	
1.	2	_____	HIGHEST ☐
2.	3	_____	☐
3.	1	_____	☐
4.	3	_____	MEDIAN ☐ →
5.	2	_____	☐
6.	1	_____	☐
7.	1	_____	LOWEST ☐

[1] Record number from response speed stick in this column.

[2] Rank all seven trial scores, highest to lowest, in boxes provided. The point score for Subtest 6 is the median (middle), or fourth, score from the top.

*For Subtest 5, circle pass or fail in Items 7-9.

RECORD POINT SCORES FOR COMPLETE BATTERY

RECORD POINT SCORES FOR SHORT FORM

POINT SCORE SUBTEST 5 (Max. 21)

POINT SCORE SUBTEST 6 (Max. 17)

SUBTEST 7: Visual-Motor Control

1. Cutting Out a Circle with Preferred Hand

NUMBER OF ERRORS: _____

Raw Score	Above 10	10	8-9	3-7	0-2
Point Score	0	1	2	3	4

2. Drawing a Line Through a Crooked Path with Preferred Hand

NUMBER OF ERRORS: _____

Raw Score	Above 6	6	2-5	1	0
Point Score	0	1	2	3	4

3. Drawing a Line Through a Straight Path with Preferred Hand[SF]

NUMBER OF ERRORS: _____

Raw Score	Above 6	6	2-5	1	0
Point Score	0	1	2	3	4

4. Drawing a Line Through a Curved Path with Preferred Hand

NUMBER OF ERRORS: _____

Raw Score	Above 6	6	2-5	1	0
Point Score	0	1	2	3	4

5. Copying a Circle with Preferred Hand[SF]

SCORE: _____

* Raw Score	0	1	2
Point Score	0	1	2

6. Copying a Triangle with Preferred Hand

SCORE: _____

* Raw Score	0	1	2
Point Score	0	1	2

7. Copying a Horizontal Diamond with Preferred Hand

SCORE: _____

* Raw Score	0	1	2
Point Score	0	1	2

8. Copying Overlapping Pencils with Preferred Hand[SF]

SCORE: _____

* Raw Score	0	1	2
Point Score	0	1	2

RECORD POINT SCORES FOR COMPLETE BATTERY

RECORD POINT SCORES FOR SHORT FORM

POINT SCORE SUBTEST 7 (Max. 24)

*See scoring criteria for Items 5-8 in Appendix A of *Examiner's Manual*.

SUBTEST 8: Upper-Limb Speed and Dexterity

1. **Placing Pennies in a Box with Preferred Hand** *(15 seconds)*

NUMBER OF PENNIES: _____

Raw Score	0-5	6-10	11-13	14-15	16-17	18-19	20-21	22-23	24
Point Score	0	1	2	3	4	5	6	7	8

2. **Placing Pennies in Two Boxes with Both Hands** *(50 seconds maximum for seven correct pairs)*

PAIRS CORRECT: ☐☐☐☐☐☐☐☐☐☐☐☐☐☐ TIME IN SECONDS: _____

Raw Score	Above 49	41-49	31-40	26-30	21-25	18-20	16-17	14-15	12-13	10-11	Below 10
Point Score	0	1	2	3	4	5	6	7	8	9	10

3. **Sorting Shape Cards with Preferred Hand**[SF] *(15 seconds)*

NUMBER OF CARDS: _____

Raw Score	0	1-8	9-12	13-16	17-20	21-25	26-29	30-33	34-37	38-41	Above 41
Point Score	0	1	2	3	4	5	6	7	8	9	10

4. **Stringing Beads with Preferred Hand** *(15 seconds)*

NUMBER OF BEADS: _____

Raw Score	0-1	2-4	5	6	7	8	9	Above 9
Point Score	0	1	2	3	4	5	6	7

5. **Displacing Pegs with Preferred Hand** *(15 seconds)*

NUMBER OF PEGS: _____

Raw Score	0	1-5	6-7	8-9	10-11	12-13	14-15	16-18	19-20
Point Score	0	1	2	3	4	5	6	7	8

6. **Drawing Vertical Lines with Preferred Hand** *(15 seconds)*

NUMBER OF LINES: _____

Raw Score	0	1-3	4-6	7-9	10-12	13-16	17-20	21-24	25-35	Above 35
Point Score	0	1	2	3	4	5	6	7	8	9

7. **Making Dots in Circles with Preferred Hand**[SF] *(15 seconds)*

NUMBER OF CIRCLES WITH DOTS: _____

Raw Score	0	1-10	11-15	16-20	21-25	26-30	31-35	36-40	41-50	51-60	Above 60
Point Score	0	1	2	3	4	5	6	7	8	9	10

8. **Making Dots with Preferred Hand** *(15 seconds)*

NUMBER OF DOTS: _____

Raw Score	Below 10	10-25	26-35	36-45	46-55	56-65	66-75	76-85	86-95	96-105	Above 105
Point Score	0	1	2	3	4	5	6	7	8	9	10

RECORD POINT SCORES FOR COMPLETE BATTERY

RECORD POINT SCORES FOR SHORT FORM

POINT SCORE SUBTEST 8 (Max. 72)

NOTES/OBSERVATIONS

Printed in U.S.A.
D.C.1-55-7701

Play Activity Questionnaire (PQ)

Dear Parent:

We are interested in assessing play activity in boys and girls. To help us do so, it would be appreciated if you would complete the following questionnaire. If you would like clarification regarding any of the questions, please do not hesitate to ask. If you have something to say about any of the questions, please feel free to make any comments in the margins.

Your help is very much appreciated.

Please complete the following:

Child's name: _____ Birthdate: _____ Completed by: Mother _____

Boy _____ Girl _____ Child's age: _____ years Father _____

1. My child likes arts and crafts (e.g., colouring, drawing, cutting, and pasting)

1	2	3	4	5	6	7
not at all			an average amount			a great deal

2. In comparison with children the same age, my child throws a ball

1	2	3	4	5	6	7
more poorly than other children			as well as other children			better than other children

3. I rate my child's physical activity level during play as

1	2	3	4	5	6	7
less than other children			the same as other children			more than other children

4. My child likes fantasy play (e.g., Lego, dollhouse, ~~skits~~, playing ~~store~~ shop)

1	2	3	4	5	6	7
not at all			an average amount			a great deal

5. My child likes to play wrestle and rough ~~house~~ a tumble with friends (e.g., piling on top of one another, tumbling together on the floor, dragging one another down)

1	2	3	4	5	6	7
not at all			an average amount			a great deal

6. My child enjoys games that involve running or jumping (e.g., hide-and-seek, leapfrog)

1	2	3	4	5	6	7
not at all			an average amount			a great deal

7. When playing with a group of friends, my child is highly active and vigorous

1	2	3	4	5	6	7
not at all			an average amount			a great deal

8. My child prefers to play with active, boisterous friends

1	2	3	4	5	6	7
not at all			an average amount			a great deal

9. When playing active games, my child likes to shout and yell

1	2	3	4	5	6	7
less than other children			the same as other children			more than other children

10. My child likes to play stick games (e.g., hockey, ringuette, floor hockey)

1	2	3	4	5	6	7
not at all			an average amount			a great deal

11. My child likes games involving body contact (e.g., soccer, hockey, wrestling)

1	2	3	4	5	6	7
not at all			an average amount			a great deal

12. My child likes to play ball games (e.g., baseball, soccer, T-ball)

1	2	3	4	5	6	7
not at all			an average amount			a great deal

13. My child is physically courageous and daring

1	2	3	4	5	6	7
not at all			an average amount			a great deal

14. At tthe playground, my child is active and adventurous on the monkey bars and climbing apparatus

1	2	3	4	5	6	7
not at all			an average amount			a great deal

15. My child likes to sit and do quiet table activities (e.g., puzzles, board games)

1	2	3	4	5	6	7
not at all			an average amount			a great deal

555 UNIVERSITY AVENUE
TORONTO, ONTARIO
CANADA M5G 1X8
PHONE (416) 813-1500

THE HOSPITAL FOR SICK CHILDREN

January 17, 1994

Siobhan Mac Cobb, MSc. Dip COT.
The University of Dublin
School of Occupational Therapy
Rochestown
Dun Laoghaire, Co. Dublin
Ireland

Dear Ms. Mac Cobb:

Enclosed please find the materials you requested. There are no costs involved, and you have my permission to use it if you find it suitable.

Good luck with your research.

Sincerely,

Jo-Anne Finegan

Jo-Anne Finegan, Ph.D., C. Psych.
Department of Psychology

Dear

I am writing to you as a participant in the Dublin Child Development Study, and have been given permission to contact you by Dr. Sheila Green, in the Dept. of Psychology, Trinity College. I work in the School of Occupational Therapy and have an interest in the play and leisure interests of children, and in their physical ability and skills.

I really would appreciate it if you could give me about thirty minutes of your time for an interview about your child's interests and play activities. I would also like to talk to ------- for about thirty minutes to find out about favourite activities, friends and places to play. At a later stage a colleague of mine would like to measure ---- physical ability (such as catching a ball, drawing and cutting- out tasks, and running and jumping). This measurement may take about one hour.

I would really appreciate you and your child's involvement in this research. No child or mother will be identified in the results, and both of you are free to partake to whatever extent that you wish. Any contribution about your child's play and leisure interests would be most welcome.

I am hoping to call to your house to meet you on ----., and if interested we can arrange another visit to talk to your child. If you would prefer that I did not call, or if this time and date are inconvenient, please phone my work no at ----------, or my home phone after 6pm ----------.

Looking forward to meeting you then,

Yours sincerely,

_____

Siobhan Mac Cobb. MSc. Dip. COT.
Lecturer.

Dear

I am writing to you as a participant in the Dublin Child Development Study. You may remember receiving a letter about my interest in meeting you and your child regarding my study of play and leisure interests. Perhaps the date and time of my recent visit was unsuitable. I would really welcome your views and that of -----.

If you are interested in being involved, I would be delighted to meet you for about thirty minutes in your home. Please phone me at either work _____ or home ____ .

I appreciate that you have many demands on your time. Your and your child's contribution is valuable to this unique study. Your participation in this research would be greatly appreciated.

Thank you for your consideration,

Yours sincerely,

_____
Siobhan Mac Cobb. MSc. Dip. COT.