2017

# Boys and girls come out to play: Gender differences in children's play patterns

D O'Connor
*The Univeristy of Notre Dame Australia*, dee.oconnor@nd.edu.au

M McCormack

C Robinson
*The University of Notre Dame Australia*, christine.robinson@nd.edu.au

V O'Rourke



This conference paper was originally published as:
O'Connor, D., McCormack, M., Robinson, C., & O'Rourke, V. (2017). Boys and girls come out to play: Gender differences in children's play patterns. *9th International Conference on Education and New Learning Technologies*.
https://library.iated.org/view/OCONNOR2017BOY

Original conference paper available here:
https://library.iated.org/view/OCONNOR2017BOY

# BOYS AND GIRLS COME OUT TO PLAY: GENDER DIFFERENCES IN CHILDREN'S PLAY PATTERNS

**D. O'Connor[1], M. McCormack[2], C. Robinson[1], V. O'Rourke[3]**

[1] *The University of Notre Dame (AUSTRALIA)*
[2] *Letterkenny Institute of Technology (IRELAND)*
[3] *Dublin City University (IRELAND)*

## Abstract

This paper presents findings from The Irish Neighbourhood Play Study; a national, cross-border research project which recorded children's play patterns in Ireland during 2012. The study incorporated 1688 families across 240 communities.

This study recorded the play patterns of children in Ireland aged birth-14 years. The findings of the study are discussed here in the context of gendered patterns. Particular emphasis is placed on the skill differences developed through various play choices. These differences are explored within the context of established literature on the learning strengths of boys and girls.

Established bodies of literature on children's learning across gender lines has long been engaged in the debate about whether these differences are biological or socially constructed. This paper offers a parallel question; Are gender differences within learning, constructed through play choices within childhood?

Keywords: The Irish Neighbourhood Play Study, Play, Early Childhood Education, Gender, Gender and Play, Gender Socialisation.

## 1 THE PROJECT

### 1.1 The Irish Neighbourhood Play Study

The Irish Neighbourhood Play Research Project was a large scale research study which included almost 1700 participant families and 240 communities throughout Ireland. The research study was initiated, shaped and resourced by IT Sligo and Early Childhood Ireland to investigate the play choices made by children aged 0-15 years of age. The investigation employed parental surveys and naturalistic observation to secure data on how children in modern Ireland aged 0-15 years of age are spending their free time. An all-island approach was taken incorporating cities, towns and rural areas across a variety of socio-economic groupings.

Responses from 1688 families were collated. There was a wide spread of respondents from 18 geographic areas. There was also an even representation from the three socio economic (SE) indicators; affluent (30.5%), middle (35.4%) and disadvantaged (33.9%). 60% of respondents were from suburban houses surrounding large cities, medium sized towns and villages, 21% were from rural houses, 18% were from urban houses and 1% were from urban apartments. Gender differentials were based on 906 boys and 782 girls between the years of 0 and 15 years.

Despite the socio-economic spread of communities incorporated, the majority of respondents (61%) identified themselves as middle income earners, while 13% of respondents were unemployed. Just under half of all respondents (49%) had achieved a third level qualification above level 7 (Bachelor's Degree). Over two thirds of parents who took part in this study were aged between 35 and 49, a further quarter were aged between 25 and 34.

### 1.2 Methodology

The aim of the research was centred on the research question: What is happening in children's neighbourhood play in Ireland today?

A blended approach was adopted that incorporated detailed parental questionnaires (phase one) and the construction of a tailored observational tool (phase two). This blended approach was selected as best being able to respond to the research question. Phase one, the questionnaire, was used to

ascertain parental views on their children's play experiences. Phase two, the naturalistic observation (Geller, Russ & Altomari, 1986; Loucopoulos & Karakostas, 1995) was chosen as the most effective method of capturing a snapshot view of children's neighbourhood play. The project's sequential design allowed for the collection of data from multiple sources to facilitate triangulation which enriched the project, as there are often differences between what people report and actual behaviour (Punch, 2001).

A total of 240 communities took part in this investigation, within which 1688 families were involved. The 240 communities were spread across 18 geographical regions which incorporated 6 cities, six medium size towns and 6 rural areas. Socio economic difference, rural/urban differences, cross-border jurisdiction differences, age, gender and type of dwelling differences were all part of the analysis.

This was a descriptive study designed to uncover children's play patterns in modern Ireland. A large scale quantitative study was carried out, incorporating personal survey research (phase one) and structured observation (phase two). The study sought to uncover the extent to which children play outside, they types of play they are predominantly engaged in, the places children play, the impact of homework on play and the impact of the physical environment has on play. Data collection comprised two phases; phase one was a large personal scale survey with 1688 parents and phase two was structured observation of 240 children at play. Data was collected during the months of June and July 2012. Triangulation which occurred through the use of multiple data collection methods provided comprehensive insight into children's play patterns.

The unique benefits of personal survey research such as high response rates and control over the sample (Cohen *et al*., 2011, p. 262) ensured that data was collected in a comprehensive and methodical manner. Data was captured in the respondent's home through the use of a structured questionnaire. Collecting data in the participant's home was considered to assist the respondent feel at ease. Additionally, it was felt that in assisting the participant to feel at ease, longer and more comprehensive responses may be provided to the questionnaire instrument (Robson, 2011, p. 245). The questionnaire comprised 22 questions in total, the majority of which were closed ended finishing with a small number of open-ended questions. The questionnaire instrument was refined and tested for validity and reliability during the pre-test and questions that were somewhat duplicated and/ or ambiguous were revised (Robson, 2011, p. 265). The final questionnaire took approximately 20 minutes to complete. The population of interest were all parents of children aged between 0 and 15 years of age who resided on the island of Ireland in June- July 2012. The sampling technique utilised was non-probability sampling, which is appropriate when access to a comprehensive sampling frame does not exist. The sampling technique employed was purposive sampling (Robson, 2011, p. 75); 18 regions across the island of Ireland were selected to maximise representation across geographical regions and socio economic regions. For Southern Ireland, the Haase-Pratschke Index of Relative Affluence and Deprivation (revised from Central Statistics Office, 2012) was employed, alongside the Northern Ireland Multiple Deprivation Measure (Northern Ireland Statistics and Research Agency, 2010) to inform selection of target locations. The final sample size achieved was 1688. The Statistical Package for Social Scientists (SPSS) Data was used to analyse data. Analysis was uni-variate and bi-variate in nature, counting patterns and frequencies, and exploring relationships between variables (Pallant, 2010).

Naturalistic observation was the second quantitative method of data collection. (Geller, Russ & Altomari, 1986; Loucopoulos & Karakostas, 1995). Naturalistic observation is commonly used to capture data on the behaviours of children. Observation was overt and non-participant in nature, and occurred in playgrounds and communal play spaces. While participant observation has its merits when researching children, children may feel uncomfortable communicating with unfamiliar adults (Punch, 2002), therefore it was decided to employ non-participant observation, as adults are unable to truly participate in children's social worlds (Hill, 1997; Fine & Sandstrom, 1988). Data collection was guided by 'The Children First: National Guidance for the Protection and Welfare of Children' policy (Department of Social Protection, 2011), The Convention on Rights of the Child (United Nations, 2010) and the Data Protection Act (Government of Ireland, 2003). Observations were short term in nature, approximately three minutes, which facilitated a focused data collection of children's play in the context of behaviours and the surrounding environment.

Data was collected utilising a simple coding system (Robson, 2012, pp. 337) which captured data on variables including age, gender, extent of peer interaction, type of play environment, play objects used, instances of interaction with nature and/or electronics and the type of play children were engaged in. The population of interest was all children aged between 0 and 15 who resided on the

island of Ireland in June- July 2012. Corresponding with the survey research, the sampling technique employed was purposive sampling, external play areas within the previously determined geographical and socio economic locations were observed. The final sample size achieved was 240. Data was analysed quantitatively; frequencies and cross tabulations were performed.

# 2 THE FINDINGS

## 2.1 Play Choices and Gender

The study found that play choices were different for each gender. Findings illustrated that boys engaged more with construction play, physical play and organised sports. For example, of those observed playing football, 96% were boys. In addition, significantly more boys than girls are engaged in watching TV/Films and playing with electronic equipment including video games. This use of electronic equipment as play increases with age. Boys were observed in greater numbers engaging in outdoor play.

It is interesting to note that more boys than girls watch TV /films and play with electronics while more girls than boys engage in spontaneous sports and creative activities. Age does not appear to greatly impact TV/ film viewing, whereas the number of children engaging in the other activities varies more with age. There is a drop in the number of children engaging in spontaneous sports from the age of 9 onward. The number of boys engaging in creative activities peaks at the age of 7, while the number of girls engaging in creative activities peaks at the age of 10. As children get older they play more with electronic games.

## 2.2 Boys and outdoor play

In total 400 children were observed playing in outside spaces. Further analysis of the top two outside spaces was conducted;

Of the 108 children observed playing in estate green areas, 42% were aged between 8 and 11 (45 children) and more boys (38) than girls (7) were observed. The second largest group observed (41%) were children aged between 4 and 7 (44 children) and again more boys (29) than girls (15) were observed. 9% (10 children) were between the ages of 0 and 3 (4 boys and 6 girls) and 8% (9 children) were between the ages of 12 and 15 (3 boys and 6 girls).

Of the 158 children observed playing in estate roads, the majority (33%) were of children between the ages of 4 and 7 (52 observations) and more boys (35) than girls (17) were observed. The second largest age group observed (28%) were children between the ages of 8 and 11 (45 observations) and again, more boys than girls were observed (28 and 17 respectively). Just under a further 28% of observations (44) were of children between the ages of 12 and 15 (32 boys and 12 girls), while 11% (10 observations) were of children between the ages of 0 and 3 (7 boys and 10 girls).

## 2.3 Boys and play equipment

In total 173 children were recorded using equipment to play outside. Further analysis was carried out on the top two play objects observed.

Children across all age categories used footballs to play outside. Of the 84 children observed using footballs to play outside, 37% were between the ages of 8-11, 27% between the ages of 4-7 and a further 27% between the ages of 12-15. In all of these cases almost all of those observed were boys (1 girl was recorded playing with a football in each of the ages categories). The remaining 9% of children were aged between 0-3 and a more balanced mix of gender (4 boys and 3 girls) was observed.

Again, children across all age categories used bikes to play outside. Of the 52 children observed using bikes to play outside, 38% were between the ages of 8 and 11 (15 boys and 5 girls), 33% were between the ages of 4 and 7 (11 boys and 6 girls), a further 17% were aged between 12 and 15 (6 boys and 3 girls) and the remaining 12% were aged between 0 and 3 (1 boy and 5 girls). Again in the majority of cases (apart from the 0-3 age category) more boys than girls were observed playing with bikes.

## 2.4 Boys and electronics

In total 42 children were recorded interacting with electronics. Over half (55%) were aged between 12 and 15 and more boys (15) than girls (8) were observed. A further 31% were aged between 8 and 11 (9 boys and 4 girls) and the remaining 14% were aged between 4 and 7 (5 boys and 1 girl). No children between the ages of 0 and 3 were observed interacting with electronics.

## 2.5 Activities in which children engage

The top four activities children engage in are:

1. Watching TV and films (Boys)
2. Sports (Girls spontaneously, boys organised)
3. Being creative at home (girls)
4. Playing with electronic games (boys)

Further analysis of the top four activities children are engaged in across the ages of 0 to 15 and across both genders highlighted some differences. More boys than girls watch TV /films and play with electronics. While more girls than boys engage in spontaneous sports, more boys than girls engage in organised sports. Much higher numbers of girls engage in creative activities. There is a steady increase in the number of boys engaging in creative activities until a peak at the age of seven. For girls, more and more creative play occurs as they get older, predominantly from the age of 3 onward, peaking at the higher age of 10.

# 3 A DISCUSSION ON GENDER DIFFERENCE WITHIN PLAY

Differences between boys and girls has been the subject of many studies (Baye & Monseur, 2016; Criesses & Van Langan, 2013, Olivares, Fidalgo & Terlecki, 2016). Gender differences have been found within play and activity choices. They have also been identified within mathematical learning, language development and language related activities such as reading and writing. Further analysis of the top four activities children were engaged in, across the ages of 0 to 15 years and across both genders, highlighted some differences. More boys than girls watched TV/films and played with electronics. Boys on the other hand were more likely to engage in planned or organized sports but girls were more likely to engage in spontaneous sports. Girls were also much more likely to engage in creative activities and social or communication based activities within their communities.

This gender division in play and activity choice substantiates findings from established studies. In 1991, Lytton & Romney found that parents promote different types of play to sons and daughters. They found that boys were encouraged to engage in more in physical, constructive and mechanical play. They are more often given gifts of lego, vehicles, tools and sports equipment. Girls, on the other hand, are more likely to be given dolls, kitchen sets and art sets (Vasta, Miller & Ellis, 2004). Gendered gifts start from birth (Pomerlaeu et al, 1990). This socialisation into the nuances of gender are internalised into the evolving identity of the child. The fruit of this gender socialisation appears in children's behaviour between the ages of one and two, when they begin to show clear preferences for toys which ostensibly match the gender markers they have been shown (Wood, Desmarais & Gugula, 2002). Lindsey and Mize (2001) also found that parents play differently with sons and daughters and are much more likely to play imaginatively with a daughter.

In classroom studies, academic differences have also come to light. While boys are stronger, girls have more motor control and are better at both fine and gross motor activities earlier than boys (Vasta, Miller & Ellis, 2004). This has serious implications for the developmentally appropriate teaching of motor skill dependent outcomes such as writing. Girls are also ahead with language development. Girls surpass boys within verbal skills, reading ability and writing skills. While the writing skills could be linked to girls' earlier motor skill development, Leaper (2013) discounts biological influences as generally inconclusive and speculative. Socialisation however, certainly does play a role within girls' performance in language, verbal skill and subsequently reading and writing; Meta-analysis of parental-infant interaction showed that girls are spoken to more and receive a higher level of vocal exchange opportunities (Leaper, Anderson & Sanders, 1998). Parents are also much more likely to attribute better reading skill to their daughters than their sons; even when this is not supported by actual skill (Wigfield et al, 2002).

The opposite trajectory appears in relation to boys and girls ability within mathematics. In general, there is a perception among parents, teachers and students themselves that boys are better at mathematics and related subjects such as science and technology. Park, Bauer and Sullivan (1998)

found that girls were better at computational problems but boys were better at mathematical reasoning. Boys have also been shown to be ahead in spatial skills (Terlecki, Newcombe & Little, 2008). However, the research also shows that boys are much more likely to play in ways that promote spatial skills and mathematical reasoning; engaging in much higher levels of construction play than girls do (Subrahmanyam et al, 2001). Boys are more likely to receive blocks and building materials as gifts from birth onwards and are directed to construction as gender approved play from their early life (Vasta, Miller & Ellis, 2004). They reap the benefit of construction play through the mathematical pathways that form in their brain as a consequence. Early childhood is the key phase of life for cognitive development. Play choices matter.

## 4 CONCLUSION

This investigation presented findings regarding children, aged from birth to 15 years, and their play patterns, illustrating that gender differences were evident across a range of children's play experiences. If gender assumptions are leading to negative outcomes for boys and girls within different learning domains, change is required. If boys and girls are being socialised into gender specific play, this must be addressed- by society and more specifically, by educators. Why? Because play, in its truest sense is not gender exclusive; boys and girls have a right to experience, and a need to experience, all types of play. Imaginative play develops communication skills, interpersonal skills, negotiation skills, fosters collaboration and promotes creativity. Physical play builds the cerebellum, supports the development of strength, endurance, tenacity and confidence; all skills that are transferrable into the academic sphere of middle childhood and onwards. Construction play improves visual-spatial skills and coordination, both of which are important within mathematical reasoning. Indeed, every type of play holds holistic developmental benefits for children, regardless of gender.. A balance within play is necessary and as such, play should not be divided along gender lines.

## ACKNOWLEDGEMENTS

The research study was supported, shaped and resourced by IT Sligo and Early Childhood Ireland. Both organisations are acknowledged and thanked for their support.

Patricia Foley (nee MacLaughlin) and Jonathan Angus were also key members of the team that collected the data alongside Dee O'Connor and Marlene McCormack. The authors wish to thank them for their contribution to the research.

## REFERENCES

[1] Bandura, A. (1998). Health promotion from the perspective of social cognitive theory. Psychology & Health, 13(4), 623-649. doi:10.1080/08870449808407422

[2] Banerjee, R., & Lintern, V. (2000). Boys will be boys: The effect of social evaluation concerns on Gender-Typing. *Social Development, 9*(3), 397-408. doi:10.1111/1467-9507.00133

[3] Baye, A., & Monseur, C. (2016). Gender differences in variability and extreme scores in an international context. *Large-Scale Assessments in Education, 4*(1), 1-16. doi:10.1186/s40536-015-0015-x

[4] Blatchford, P., Pellegrini, A. D., & Baines, E. (2015). The child at school: Interactions with peers and teachers: Second edition. () doi:10.4324/9781315726953

[5] Central Statistics Office (2012) The Haase-Pratschke Index of relative affluence and deprivation [online], available: http://www.cso.ie/en/media/csoie/surveysandmethodologies/documents/pdfdocs/Haase,Pratschke,Report,on,Optimising,the,Sampling,Methodology,for,CSO,Household,Surveys.pdf

[6] Cohen, L., Manion, L. and Morrison, K. (20011), *Research Methods in Education*. Oxon: Routledge.

[7] Department of social protection (2011) The Children First: National Guidance for the Protection and Welfare of Children' policy [online], available: http://www.welfare.ie/en/Pages/Children-First.aspx Ebert, E.S. & Culyer, R.C. (2011). An Introduction to education. Cengage:Belmont, CA

[8] Driessen, G., & Langen, A. v. (2013). Gender differences in primary and secondary education:Are girls really outperforming boys? *International Review of Education / Internationale Zeitschrift Für Erziehungswissenschaft / Revue Internationale De l'Education, 59*(1), 67-86. doi:10.1007/s11159-013-9352-6

[9] Eccles, Freedman-Doan, Frome, Jacobs, & Yoon (2000) J.S. Eccles, C. Freedman-Doan, P. Frome, J. Jacobs, K.S. Yoon. Gender-role socialization in the family: A longitudinal approach T. Eckes, H. Trautner (Eds.), The developmental social psychology of gender, Lawrence Erlbaum, Mahwah, NJ (2000), pp. 333–360

[10] Fine, G. and Sandstrom K. (1988) *Knowing Children: Participant Observation with Minors*, Qualitative Research Methods: Volume 15, London: Sage.

[11] Geller, E., Russ N. and Altomari, M. (1986), Naturalistic observations of beer drinking among college students, *Journal of Applied Behaviour Analysis,* 19 (4) 391-396

[12] Government of Ireland (2003) Data Protection Act [online], available: http://www.irishstatutebook.ie/2003/en/act/pub/0006/sec0001.html

[13] Hall, J. (2012). Gender Issues in Mathematics. Journal of Teaching and Learning, 8(1), 59-72.

[14] Hill, M. (1997) Participatory Research with Children, Research Review, *Child and Family Social Work* (2) 171–83

[15] Leaper, C., Anderson, K. J., & Sanders, P. (1998). Moderators of gender effects on parents' talk to their children: A meta-analysis. *Developmental Psychology, 34*(1), 3-27. doi:10.1037//0012-1649.34.1.3

[16] Lindsey, E. W., & Mize, J. (2001). Contextual differences in Parent–Child play: Implications for children's gender role development. *Sex Roles, 44*(3), 155-176. doi:10.1023/A:1010950919451

[17] Lytton, H., & Romney, D. (1991). Parent's differential socialization of boys and girls - a meta-analysis. *Psychological Bulletin, 109*(2), 267-296.

[18] Luecke-Aleksa, D., Anderson, D. R., Collins, P. A., & Schmitt, K. L. (1995). Gender constancy and television viewing. Developmental Psychology, 31(5), 773-780. doi:10.1037/0012-1649.31.5.773

[19] Loucopoulos, P. and Karakostas, V. (1995) System Requirements Engineering, McGraw Hill International

[20] Northern Ireland Statistics and Research Agency (2010) The Northern Ireland Multiple Deprivation Measure [online], available: http://www.ninis2.nisra.gov.uk/public/Theme.aspx?themeNumber=137&themeName=Deprivation

[21] Olivares, F., Fidalgo, R., & Torrance, M. (2016). Differences in reading self-efficacy between school years and according to gender. *Revista De Psicodidactica, 21*(1), 45-63. doi:10.1387/RevPsicodidact.13832

[22] Pallant, J. (2011) SPSS Survival Manual: A step by step guide to data analysis using SPSS, Australia: Allen and Unwin O'Connor, D., McCormack, M., MacLaughlin, P., Angus, J., & O'Rourke, V. (2014a). Playing for high stakes: Findings from the Irish neighbourhood play research project and their implications for education. Edulearn: Barcelona

[23] Pomerleau, A., Bolduc, D., Malcuit, G., & Cossette, L. (1990). Pink or blue - environmental gender stereotypes in the 1st 2 years of life. *Sex Roles, 22*(5-6), 359-367.

[24] Rathus, S. A., & Rathus, S. A. (2011). Childhood: Voyages in development (4th ed.). Belmont, CA: Wadsworth Cengage Learning.

[25] Rosenthal, R., & Jacobson, L. (1968). Pygmalion in the classroom. The Urban Review, 3(1), 16-20. doi:10.1007/BF02322211

[26] Rogoff, B.Apprenticeship in thinking : Cognitive development in social context. Oxford University Press: NY

[27] She, H. (2000). The interplay of a biology teacher's beliefs, teaching practices and gender-based student-teacher classroom interaction. Educational Research, 42(1), 100-111. doi:10.1080/001318800363953

[28] Park, H.-S., Bauer, S. C., & Sullivan, L. M. (January 01, 1998). GENDER DIFFERENCES AMONG TOP PERFORMING ELEMENTARY SCHOOL STUDENTS. *Journal of Research and Development in Education, 31,* 3, 133.

[29] Subrahmanyam, K., Greenfield, P., Kraut, R., & Gross, E. (2001). The impact of computer use on children's and adolescents' development. *Journal of Applied Developmental Psychology, 22*(1), 7-30. doi:10.1016/S0193-3973(00)00063-0

[30] Terlecki, M. S., Newcombe, N. S., & Little, M. (2008). Durable and generalized effects of spatial experience on mental rotation: Gender differences in growth patterns. *Applied Cognitive Psychology, 22*(7), 996-1013. doi:10.1002/acp.1420

[31] Punch, S. (2001) Multiple Methods and Research Relations with Children in Rural Bolivia, in M. Limb and C. Dwyer (eds) *Qualitative Methodologies for Geographers.* London: Arnold.

[32] Punch, S. (2002) Research with Children: The Same or Different from Research with Adults? *Childhood,* 9 (3) 321-341

[33] Robson, C. (2011) Real World Research, 3rd Edn, West Sussex: Wiley.

[34] United Nations (2010) The UN Convention on the Rights of the Child [online], available: http://www.childrensrights.ie/sites/default/files/UNCRCEnglish.pdf

[35] Vasta, Miller & Ellis, 2004

[36] Wigfield et al, 2002