



CREATE

Canterbury Research and Theses Environment

Canterbury Christ Church University's repository of research outputs

<http://create.canterbury.ac.uk>

Copyright © and Moral Rights for this thesis are retained by the author and/or other copyright owners. A copy can be downloaded for personal non-commercial research or study, without prior permission or charge. This thesis cannot be reproduced or quoted extensively from without first obtaining permission in writing from the copyright holder/s. The content must not be changed in any way or sold commercially in any format or medium without the formal permission of the copyright holders.

When referring to this work, full bibliographic details including the author, title, awarding institution and date of the thesis must be given e.g. Howells, K. (2014) The contribution of the primary school setting and physical education lessons to children's physical activity levels. Ph.D. thesis, Canterbury Christ Church University.

Contact: create.library@canterbury.ac.uk



**THE CONTRIBUTION OF THE PRIMARY SCHOOL SETTING AND PHYSICAL
EDUCATION LESSONS TO CHILDREN'S PHYSICAL ACTIVITY LEVELS.**

by

Kristy Howells

Canterbury Christ Church University

Thesis submitted for the Degree of Doctor of Philosophy

2014

Abstract

The thesis research explored children's physical activity levels that occurred within the primary school setting. It examined the contribution that Physical Education lessons make to children's overall measured physical activity levels within the school day. It investigated children's perceived level of physical activity and compared this with children's physical activity measured by accelerometers. For the purpose of the thesis research, physical activity was regarded as, "any bodily movement resulting in energy expenditure" (Sirad and Pate, 2001, p.440). The majority of previous physical activity research has focused on secondary aged children and adults, with little on physical activity levels achieved by primary aged children within school time, or on the comparison between infants (6 – 7 year olds) and juniors (9 – 10 year olds).

Data were collected within a case study setting in one school, over one school year. 20 children, 5 infant boys (mean age at start of data collection, 6 years 4 months), 5 infant girls (mean age at start of data collection, 6 years 6 months), 5 junior boys (mean age at start of data collection, 9 years 4 months) and 5 junior girls (mean age at start of data collection, 9 years 4 months) wore Actigraph accelerometers to record physical activity intensity levels throughout the school day from 9am until 3.10pm. A repeated measures 3 factor ANOVA was used to analyse the effects of factors including the following: type of day (days including a Physical Education lesson (PE days) and those that did not (Non PE days); year group (infants / juniors); parts of the day (curriculum time / morning break / lunchtime / afternoon break) and gender (male / female). P values of <0.05 were taken as the value for statistical significance \pm one standard deviation. Statistical analysis was completed using SPSS 17.0. An interactive tool, (Qwizdom) was incorporated with a questionnaire that was adapted from Kowalski et al. (2004) in terms of language and vocabulary to suit the age of the children which assessed the children's perceived levels of physical activity. The perceived activity was compared with the accelerometer physical activity data.

The findings revealed that children were more physically active on school days that included Physical Education lessons. Boys were more physically active at a moderate to vigorous level than girls. Junior boys were able to accumulate 60

minutes of moderate to vigorous physical activity within the school day on a day that included Physical Education lessons and in doing so reached the Department of Health's (DH, 2005) and the World Health Organisation's (WHO, 2010) recommendations for children's physical activity within the school day, even though these are for the full day not just the school day. Children's perceived physical activity levels matched their accelerometer recordings, in particular for junior boys during break time and for girls during Physical Education lessons.

The results present the potential for broader claims to be made, relating to: the contribution primary schools make to children's physical activity levels, the contribution Physical Education lessons make to children's overall physical activity levels and the potential provision of opportunities for children to be physically active outside of Physical Education lessons during the school day.

Acknowledgements

I would like to acknowledge Canterbury Christ Church University for the opportunity to carry out this thesis research, in particular both the department of Primary Education for allowing me 'time out' and the department of Sport Science, Tourism and Leisure for allowing me 'time in'.

I wish to sincerely thank all the children, class teachers and head teacher for their help and support without whom I could not have completed this exploration. I am especially grateful to these people who allowed me to not only share their world, but for me to then share their world with others.

It would not have been possible to complete this thesis without the supervision, expertise and support of Dr Ian Wellard and Dr Kate Woolf-May.

I am indebted to the encouragement and kind support of Dr Jan Clark and Dr Sarah Howlett.

I am very appreciative of the support and questions of Dr Damian Coleman and Dr Judith Roden.

I would like to thank also Nicki Leggatt and Di Dawson for their time, patience and key eyes, especially in the final stages.

Special thanks go to all members of 'Team K' – including both the Clark and Howells families, for being the continuous cheering squad throughout the years.

Finally, above all and more than I can ever fully express, thanks to JDH for being: my sunshine, my number one supporter, for believing, for listening, for proof reading the never ending four pages a day and most importantly laughing with me along the journey.

List of Contents

Title – p.i

Abstract – p.ii – iii

Acknowledgements – p.iv

List of Contents – p.v – xv

List of Appendices – p.xi – xii

List of Figures – p.xii – xv

List of Tables – p.xv

Glossary – p.xvi – xviii

Chapter 1 – Introduction – p.1 – 18

1.1 Introduction – p.1

1.1.1 What is physical activity? – p.1

1.1.2 Previous research into children's physical activity – p.2

1.1.3 Ideological and pedagogical differences in key stage curricula – p.3

1.1.4 Recommended daily levels of physical activity for children – p.4

1.1.5 Children's difficulties in describing their physical activity levels – p.5

1.1.6 School as a place for physical activity – p.5

1.1.7 Political landscape and children's physical activity at time of data collection – p.6

1.2 Research background - myself as the researcher – p.8

1.3 Identifying a gap in the field of research – p.11

1.4 Research aims and questions – p.12

1.5 Research setting and process – p.13

1.6 Thesis structure – p.15

Chapter 2 – Literature Review – p.19 – 88

2.1 Introduction – p.19

- 2.1.1 Chapter structure – p.20
- 2.2 Physical activity defined – p.21
- 2.3 Physical activity and social influences – p.27
 - 2.3.1 Physical activity and social class – p.28
 - 2.3.2 Physical activity and gender – p.30
 - 2.3.3 Physical activity and modern technology – p.36
 - 2.3.4 Physical activity and the media – p.43
- 2.4 Physical activity and children’s obesity levels – p.44
 - 2.4.1 Physical activity and sedentary behaviour – p.48
 - 2.4.2 Physical activity and the use of BMI – p.49
- 2.5 Physical activity of children in the local area – p.51
- 2.6 Physical activity and Physical Education lessons – p.53
 - 2.6.1 Physical activity levels in Physical Education lessons – p.64
 - 2.6.2 Physical activity levels in Physical Education lessons in the local area – p.67
 - 2.6.3 Physical activity, Physical Education lessons and the Every Child Matters agenda – p.69
- 2.7 Physical activity programmes – p.75
 - 2.7.1 Physical activity programmes and academic performance – p.76
- 2.8 Physical activity and playground development – p.79
 - 2.8.1 Physical activity and playground development in the local area – p.81
- 2.9 Physical activity and whole school approaches – p.83
 - 2.9.1 Physical activity and travelling to school – p.87

Chapter 3 –Methodology and Methods – p.89 – 152

- 3.1 Introduction – p.89
- 3.2 Research questions – p.90
- 3.3 Methodology – p.90
 - 3.3.1 Positivism – p.90
 - 3.3.2 Interpretivism – p.95
 - 3.3.3. Idiographic approach – p.97
 - 3.3.4 Mixed methodology – p.98
- 3.4 Methods – p.99
 - 3.4.1 Case study (research design) – p.100
 - 3.4.2 Action research – p.103

- 3.4.2.1 Action research and primary education – p.107
- 3.4.3 Longitudinal strategy – p.108
- 3.5 Data collection tools – p.109
 - 3.5.1 Accelerometers – p.109
 - 3.5.1.1 Data collection and analysis of the accelerometer data – p.122
 - 3.5.2 Qwizdom – p.126
- 3.6 The research setting – p.133
 - 3.6.1 The school – p.133
 - 3.6.2 The teachers – p.137
 - 3.6.3 The children – p.139
- 3.7 Ethical approval – p.145
- 3.8 Power calculations – p.146
- 3.9 Pilot phase – p.147
 - 3.9.1 MVPA key findings of the pilot phase – p.148
 - 3.9.2 LPA key findings of the pilot phase – p.149
 - 3.9.3 SA key findings of the pilot phase – p.150
 - 3.9.4 Field note reflections of the pilot phase – p.150

Chapter 4 – Accelerometer Results (Main Phase) – p.153 – 191

- 4.1 Introduction – p.153
- 4.2 Results - MVPA – p.153
 - 4.2.1 MVPA for whole school day – p.153
 - 4.2.2 MVPA for year and gender – p.154
 - 4.2.3 MVPA during different parts of school day – p.156
 - 4.2.4 MVPA for year and gender during different parts of the school day – p.156
 - 4.2.4.1 Curriculum time – p.157
 - 4.2.4.2 Morning break –p.158
 - 4.2.4.3 Lunch time – p.159
 - 4.2.4.4 Afternoon break –p.160
 - 4.2.4.5 Physical Education lessons – p.161
- 4.3 Results - Percentage of MVPA – p.162
 - 4.3.1 Percentage of MVPA for whole school day – p.162
 - 4.3.2 Percentage of MVPA for year and gender – p.163
 - 4.3.3 Percentage of MVPA during curriculum time – p.164

4.4 Results - LPA – p.165

4.4.1 LPA for whole school day – p.165

4.4.2 LPA for year and gender – p.166

4.4.3 LPA during different parts of the school day – p.167

4.4.4 LPA for year and gender during different parts of the school day –
p.167

4.4.4.1 Curriculum time – p.168

4.4.4.2 Morning break – p.169

4.4.4.3 Lunch time – p.170

4.4.4.4 Afternoon break – p.171

4.4.4.5. Physical Education lessons – p.172

4.5 Results - Percentage of LPA – p.173

4.5.1 Percentage of LPA for whole school day – p.173

4.5.2 Percentage of LPA for year and gender – p.174

4.5.3 Percentage of LPA during curriculum time – p.175

4.6 Results - SA – p.176

4.6.1 SA for whole school day – p.176

4.6.2 SA for year and gender – p.177

4.6.3 SA during different parts of the school day – p.178

4.6.4 SA for year and gender during different parts of the school day –
p.178

4.6.4.1 Curriculum time – p.179

4.6.4.2 Morning break – p.180

4.6.4.3 Lunch time – p.181

4.6.4.4 Afternoon break – p.182

4.6.4.5 Physical Education lessons – p.183

4.7 Results - Percentage of SA – p.184

4.7.1 Percentage of SA for whole school day – p.184

4.7.2 Percentage of SA for year and gender – p.185

4.7.3 Percentage of SA during curriculum time – p.186

4.8 Key Findings – p.187

4.8.1 MVPA key findings of the main phase – p.187

4.8.2 LPA key findings of the main phase – p.188

4.8.3 SA key findings of the main phase – p.189

4.8.4 Field note reflections of the main phase – p.190

Chapter 5 - Physical Activity Questionnaire Results (Qwizdom) – p. 192 – 214

5.1 Introduction – p.192

5.2 Results – p.192

5.2.1 Travelling to school questions – p.192

5.2.2 Break time activity questions – p.194

5.2.3 Lunch time activity question – p.197

5.2.4 Lesson related questions – p.198

5.2.5 Activity areas in Physical Education lessons related questions – p.202

5.2.6 After school activity questions – p.205

5.2.7 Activities completed within the last 7 days questions – p.209

5.2.8 Personal description question – p.211

5.3 Questionnaire data and accelerometer data reflections– p.212

Chapter 6 – Discussion – p. 215 – 256

6.1 Introduction – p.215

6.2 Physical activity levels of children during the primary school day – p.216

6.3 The differences between the physical activity levels of infants and juniors – p.220

6.3.1 Differences in MVPA between infants and juniors – p.221

6.3.2 Differences in LPA and SA between infants and juniors – p.222

6.4 The differences between the physical activity levels of boys and girls – p.224

6.4.1 Differences in MVPA between boys and girls – p.224

6.4.2 Class teachers' reactions to differences in MVPA in boys and girls – p.225

6.4.3 Differences in LPA and SA between boys and girls – p.227

6.5 The differences in self reporting between infants, juniors, boys and girls – p.227

6.6 The contribution of Physical Education lessons to primary children's physical activity levels – p.230

6.6.1 The activity areas of the Physical Education lessons – p.237

6.6.2 School's value of Physical Education lessons – p.242

6.6.3 Class teachers' reactions to physical activity levels within Physical Education lessons – p.244

6.6.4 Potential new directions of physical activity and Physical Education lessons – p.246

6.7 The influence of break times as opportunities for physical activity and the use of playground equipment – p.248

6.7.1 Class teachers' reactions to MVPA levels during break times – p.252

Chapter 7 – Conclusion – p. 257 – 270

7.1 Introduction – p.257

7.2 Answering the research questions – p.257

7.2.1 How physically active were the primary school children during the school day? – p.258

7.2.2 What were the differences in the physical activity levels during the school day of children aged six – seven (infants) and aged nine – ten years (juniors)? – p.259

7.2.3 To what extent does the primary school setting contribute to children's recommended levels of physical activity (DH, 2005; WHO, 2010) within the primary school day? – p.260

7.2.4 What contribution do Physical Education lessons make to primary school children's physical activity levels? – p.261

7.3 Limitations of the research – p.262

7.3.1 Changes in focus – p.262

7.3.2 Class teacher's gender – p.263

7.3.3 Recording physical activity in swimming – p.264

7.3.4 Active transport – p.265

7.4 Further research – p.265

7.4.1 After school clubs for infants, physical activity programmes and new playground equipment for all – p.265

7.4.2 Infants becoming juniors – p.267

7.4.3 Teacher influence – p.267

7.4.4 Activity areas of Physical Education lessons – p.268

7.5 Final thoughts – p.269

References – p. 271 – p. 325

Appendices – p. 326 – p. 366

List of Appendices

Appendix 1 – Field Notes - Pilot Phase – p.327

Appendix 2 – Field Notes - Main Phase 1 – p.328

Appendix 3 – Field Notes - Main Phase 2 – p.329

Appendix 4 – McNiff's (2009) action research questions and my responses. (The process of answering the questions was used to help shape my thinking) – p.330

Appendix 5 - Permission form 1 – Parent permission form – p.331

Appendix 6 – Permission form 2 – Head teacher permission form – p.332

Appendix 7 – Permission form 3 – Child permission form – p.333

Appendix 8 – Parent Newsletter 1 – January Update – p.334

Appendix 9 – Parent Newsletter 2 – Summer Update – p.335

Appendix 10 – Summary data of the mean number of minutes recorded at a MVPA level during PE and Non PE days for year group and gender – p.336

Appendix 11 - Summary data of the mean number of minutes recorded at a MVPA level for different parts of school day during PE and Non PE days for year group and gender – p.337

Appendix 12 – Summary data of the mean percentage number of minutes recorded at a MVPA level during PE and Non PE days for year group and gender – p.338

Appendix 13 – Summary data of the mean number of minutes recorded at a LPA level during PE and Non PE days for year group and gender – p. 339

Appendix 14 – Summary data of the mean number of minutes recorded at a LPA level for different parts of school day during PE and Non PE days for year group and gender – p.340

Appendix 15 – Summary data of the mean percentage number of minutes recorded at LPA during PE and Non PE days for year group and gender – p.341

Appendix 16 – Summary data of the mean number of minutes recorded at a SA level during PE and Non PE days for year group and gender – p.342

Appendix 17 – Summary data of the mean number of minutes recorded at a SA level for different parts of school day during PE and Non PE days for year group and gender – p.343

Appendix 18 – Summary data of the mean percentage number of minutes recorded at a SA level during PE and Non PE days for year group and gender – p.344

Appendix 19 – Physical Activity Questionnaire adapted from Kowalski et al. (2004) PAQ-C (physical activity questionnaire for children) – p.345

List of Figures

Figure 1 – Example of accelerometer used – p. 121

Figure 2 – Example of accelerometer within pouch on a belt for wearing around the hip – p.121

Figure 3 – Example of a Qwizdom handset – p.127

Figure 4 – Juniors are using the Qwizdom equipment – p.129

Figure 5 – The Primary Physical Education Specialist Diagram (Carney and Howells 2008) – p. 139

Figure 6 – Children who participated in both the pilot and main of the thesis research – p.140

Figure 7 – Overall mean number of minutes \pm SD of MVPA within the whole school day for all children – p.154

Figure 8 – Overall mean number of minutes \pm SD of MVPA within the school day for year group, gender and type of day – p.155

Figure 9 – Overall mean number of minutes of physical activity \pm SD of MVPA during curriculum time for year group, gender and type of day – p.157

Figure 10 – Overall mean number of minutes \pm SD of MVPA during morning break for year group, gender and type of day – p.158

Figure 11 – Overall mean number of minutes \pm SD of MVPA during lunch time for year group, gender and type of day – p.159

Figure 12 – Overall mean number of minutes \pm SD of MVPA (for infants only) during afternoon break for gender and type of day – p.160

Figure 13 – Overall mean number of minutes \pm SD of MVPA during Physical Education lesson for year and gender – p.161

Figure 14 – Overall mean percentage number of minutes \pm SD of MVPA during whole school day for type of day, for all children – p.162

Figure 15 – Overall mean percentage number of minutes \pm SD of MVPA for the whole of the school day for year group, gender and type of day – p.163

Figure 16 – Overall mean percentage number of minutes \pm SD of MVPA within curriculum time for year group, gender and type of day – p.164

Figure 17 – Overall mean number of minutes \pm SD of LPA within the whole school day for all children – p.165

Figure 18 – Overall mean number of minutes \pm SD of LPA within the school day for year group, gender and type of day – p.166

Figure 19 – Overall mean number of minutes \pm SD of LPA during curriculum time for year group, gender and type of day – p.168

Figure 20 – Overall mean number of minutes \pm SD of LPA during morning break for year group, gender and type of day – p.169

Figure 21 – Overall mean number of minutes \pm SD of LPA during lunch time for year group, gender and type of day – 170

Figure 22 – Overall mean number of minutes \pm SD of LPA (for infants only) during afternoon break, for gender and type of day – p.171

Figure 23 – Overall mean number of minutes \pm SD of LPA during Physical Education lesson for year group, gender and type of day – p.172

Figure 24 – Overall mean percentage number of minutes \pm SD of LPA during whole school day for type of day for all children – p.173

Figure 25 – Overall mean percentage number of minutes \pm SD of LPA during whole school day for year group, gender and type of day – p.174

Figure 26 – Overall mean percentage number of minutes \pm SD of LPA during curriculum time for year group, gender and type of day – p.175

Figure 27 – Overall mean number of minutes \pm SD of SA for whole school day for type of day for all children – p.176

Figure 28 – Overall mean number of minutes \pm SD of SA for whole school day, for year group, gender and type of day – p.177

Figure 29 – Overall mean number of minutes \pm SD of SA during curriculum time, for year group, gender and type of day – p.179

Figure 30 – Overall mean number of minutes \pm SD of SA during morning break, for year group, gender and type of day – p.180

Figure 31 – Overall mean number of minutes \pm SD of SA during lunch time, for year group, gender and type of day – p.181

Figure 32 – Overall mean number of minutes \pm SD of SA (for infants only) during afternoon break, for gender and type of day – p.182

Figure 33 – Overall mean number of minutes \pm SD of SA during Physical Education lesson, for year group and gender – p.183

Figure 34 – Overall mean percentage number of minutes \pm SD of SA for whole school day, for type of day for all children – p.184

Figure 35 – Overall mean percentage number of minutes \pm SD of SA for whole school day, for year group, gender and type of day – p.185

Figure 36 – Overall mean percentage number of minutes \pm SD of SA during curriculum time, for year group, gender and type of day – p.186

Figure 37 – Different ways children travel to school – p.192

Figure 38 – Time taken to travel to school by the children – p.193

Figure 39 – Activity levels of the children are during break times – p.194

Figure 40 – Children's favourite activities that were completed for the longest time during break times. – p.195

Figure 41 – Children's least favourite activities that were completed for the shortest time during break times – p.196

Figure 42 – Activities participated in during lunch time – p.197

Figure 43 – Children's favourite lesson – p.198

Figure 44 – Children's second favourite lesson – p.199

Figure 45 – Children's third favourite lesson – p.200

Figure 46 – Children's least favourite lesson – p.201

Figure 47 – Children's favourite activity area in Physical Education lessons – p.202

Figure 48 – Most physically active, activity area within the Physical Education lessons – p.203

Figure 49 – Children's frequency levels of being very active within Physical Education lessons - p.204

Figure 50 – Number of after school sports clubs, children attend at school – p.205

Figure 51 – Number of sports clubs that children attend in the evening outside of school – p.206

Figure 52 – Type of activities at home, completed by children most frequently straight after school – p.207

Figure 53 – Types of activities at home the children would choose to do straight after school – p.208

Figure 54 – Children's frequency levels in the last 7 days when they were physically very active straight after school – p.209

Figure 55 – Children's frequency levels in the last 7 days of the evenings when they were physically very active – p.210

Figure 56 – Time spent by the children being physically active during their free time – p.211

Figure 57 – Castle, new playground equipment used every lunch and break time by the children in child initiated play – p.253

Figure 58 – Castle, new playground equipment, side on view, photograph highlights the climbing frame, slide, and sand pits – p.254

Figure 59 – Castle, new playground equipment, opposite side on view, photograph highlights the slide, walk way, noughts and crosses games and climbing frame – p.255

Figure 60 – Trim trail used for focusing on balance and co-ordination – p.256

List of Tables

Table A – Time in minutes for each part of the school day – p.125

Table B – Number of children within each year group, gender and their mean age – p.141

Table C – Overall mean number of minutes \pm SD of MVPA for the different parts of the school day for all children – p.156

Table D – Overall mean number of minutes \pm SD of LPA during different parts of the school day for all children – p.167

Table E – Overall mean number of minutes \pm SD of SA during different parts of the school day for all children – p.178

Table F – Overall mean number of minutes \pm SD for MVPA during whole school day for year group and gender – p.217

Table G – Overall mean number of minutes and mean percentage number of minute \pm SD for different physical activity intensity levels during different parts of the primary school day ($n = 5$ in each Gender / Year group and $n = 15$ PE days and $n = 15$ Non PE days) – p.219

Table H – Overall mean number of minutes \pm SD for different physical activity intensity levels during Physical Education lessons ($n = 5$ in each Year / Gender, $n = 15$ Physical Education lessons recorded) – p.230

Table I – Overall mean number of minutes of MVPA completed within Physical Education lessons and the increase in mean number of minutes of MVPA completed within PE days when compared to Non PE days – p.234

Total word count: 90,490

Glossary

APA = all physical activity that is at and over 2 METs (at 2.5kcal / min and above).

Afternoon break time = the time of day when only infants were allowed in the afternoon a break from the formal learning. This lasted for 15 minutes every day. This would also be straight after Physical Education lessons. The time is child initiated unorganised in terms of the structure and contains informal activities.

BECTA = British Education Communications Technology Agency

BBC = British Broadcasting Corporation

BHFNC = British Heart Foundation National Centre

BMI = Body Mass Index

Break time = the time of the day where the children would be allowed to have a break from the formal learning. For both juniors and infants this break time was in the morning, and the break time occurred at the same time for both aged children and lasted 20 minutes. Similar to afternoon break time as the time is child initiated unorganised in terms of the structure and contains informal activities.

Curriculum time = is a specific terminology used for this thesis and is the time of the day when formal learning occurred, but this time did not include Physical Education lessons. For infants this lasted for 236 minutes on a day that included a Physical Education lesson, and 276 minutes on a day that did not include a Physical Education lesson. For juniors this lasted for 251 minutes on a day that included a Physical Education lesson, and 291 minutes on a day that did not include a Physical Education lesson.

DDR = Dance Dance Revolution

DCSF = Department for Children, Schools and Families

DCMS = Department for Culture Media and Sport

DfE = Department for Education

DfEE = Department for Education and Employment

DfES = Department for Education and Skills

DfT = Department for Transport

DH = Department of Health

ECM = Every Child Matters

GP = General Practitioners

Infants = children who are aged 6 years old at the start of the research

KCC = Kent County Council

KNOSR = Kent NHS Overview and Scrutiny Report

LPA = Light physical activity, at 2 METs and under 3 METs (at 2.5 – 3.4 kcal / min)

MET = Metabolic equivalent

MS = Microsoft

MTI = Manufacturing Technologies Incorporation

MVPA = Moderate to vigorous physical activity, at or over 3 METs (at 3.5kcal / min and above)

NICE = National Institute for Health and Clinical Excellence

NHS = National Health Service

Non PE day = a day that does not include a Physical Education lesson.

PAQ-C = Physical Activity Questionnaire for Children

PE = Physical Education

PE day = a day which includes a Physical Education lesson will be referred to as a PE day

Physical Education lesson = is the formal lesson input which is organised and structured by the teacher, it is not child initiated or unorganised or has informal activities. This lasted for both infants and juniors for 40 minutes.

PESSCL = Physical Education, School Sport and Club Links

SA = all physical activity that is less than 2 METs (at 2.4 kcal / min and lower).

Thesis research = the research that was conducted as part of this thesis.

UK = United Kingdom

USA = United States of America

Wet play = a break time that occurs within the classroom due to it raining outside.

Whole school approach = an approach that involves and includes the pupils, teachers, parents, governors, and external partners.

WHO = World Health Organisation