Today’s seminar

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Speaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.30pm – 3.00pm</td>
<td>‘School’s out . . . now what? A multi-methods investigation into children’s out-of-school physical activity’</td>
<td>Rob Noonan</td>
</tr>
<tr>
<td>3.00pm – 3.20pm</td>
<td>‘Effective strategies to promote compliance to physical activity monitoring in young people’</td>
<td>Debbie McCann</td>
</tr>
<tr>
<td>3.20pm – 3.40pm</td>
<td>&quot;Using Self-Determination theory to enhance teacher motivations to increase children's in-class PA levels&quot;</td>
<td>Matthew Domville</td>
</tr>
<tr>
<td>3.40pm – 3.50pm</td>
<td>‘The impact of second-hand smoke exposure on children’s exercise performance’ [Future project]</td>
<td>Melissa Parnell</td>
</tr>
<tr>
<td>3.50pm – 4pm</td>
<td>‘Exploring methods of sedentary behaviour measurement in children’ [Future project]</td>
<td>Liezel Hurter</td>
</tr>
<tr>
<td>4pm</td>
<td>Closing</td>
<td></td>
</tr>
</tbody>
</table>
School’s out . . . now what?
A multi-methods investigation into children’s out-of-school physical activity

Mr Robert Noonan
The Physical Activity Exchange, Liverpool John Moores University
Department of port and Physical Activity, Edge Hill University
Why study the out-of-school period?

Comparison of children’s free-living physical activity derived from wrist and hip raw accelerations during the segmented week

Robert J. Noonan, Lynne M. Boddy, Youngwon Kim, Zoe R. Knowles, and Stuart J. Fairclough

*Physical Activity Exchange, Research Institute for Sport and Exercise Sciences, Liverpool John Moores University, Liverpool, UK; †MRC Epidemiology Unit, University of Cambridge School of Clinical Medicine, Cambridge, UK; ‡Department of Sport and Physical Activity, Edge Hill University, Ormskirk, UK; §Department of Physical Education and Sport Sciences, University of Limerick, Limerick, Ireland

Wear Compliance and Activity in Children Wearing Wrist- and Hip-Mounted Accelerometers

STUART J. FAIRCLough1,2, ROBERT NOONAn,3, ALEX V. ROWLANDS4,5, VINCENT VAN HEESA, ZOE KNOWLES,6, and LYNNE M. BODDY7

1Department of Sport and Physical Activity, Edge Hill University, Ormskirk, UNITED KINGDOM; 2Department of Physical Education and Sport Sciences, University of Limerick, Limerick, IRELAND; 3Physical Activity Exchange, Research Institute for Sport and Exercise Sciences, Liverpool John Moores University, Liverpool, UNITED KINGDOM; 4Diabetes Research Centre, University of Leicester, Leicester General Hospital, Leicester, UNITED KINGDOM; 5National Institute for Health Research Leicester—Loughborough Diet, Lifestyle, and Physical Activity Biomedical Research Unit, Leicester, UNITED KINGDOM; and 6MoveLab, Physical Activity and Exercise Research, Institute of Cellular Medicine, Newcastle University, Newcastle, UNITED KINGDOM
Why study the out-of-school period?

Disparities in physical activity levels widen during the out-of-school period.
Schools and physical activity

- Structured school day provides various formal and informal physical activity opportunities that are inclusive to all.

Before school
- Recess periods
- PE & curriculum time

After school

Lots of opportunities for physical activity
Neighbourhood environments

BMJ Open

Cross-sectional associations between high-deprivation home and neighbourhood environments, and health-related variables among Liverpool children

Robert J Noonan, Lynne M Boddy, Zoe R Knowles, Stuart J Fairclough
Findings

• MD children were healthier than HD children. Lower BMI z-scores, waist circumference and higher cardiorespiratory fitness.

• MD children lived in more walkable neighbourhoods and were more likely to have access to a garden than HD children.

• Parks/green space/recreational facilities
• Neighbourhood aesthetics
• Crime safety
Findings

• Independent mobility positively associated with physical activity.

• Perceived safety and neighbourhood aesthetics positively associated with independent mobility.
Qualitative research

- Patterns in the data
  - Who is more active?
  - When they are most active?

- Doesn’t tell the (real) story of why this may be.

- To understand complex social issues....
Children’s perceptions

Write, draw, show, and tell: a child-centred dual methodology to explore perceptions of out-of-school physical activity

Robert J. Noonan, Lynne M. Boddy, Stuart J. Fairclough, and Zoe R. Knowles
Parental influence

Figure 1. Children’s Reinforcing Factors. +ve = positive. -ve = negative. B = Boy. G = Girl.
Parental influence

Figure 2. Drawing from a boy aged 10 illustrating cycling with father.
Parental influence

Figure 3. Drawing from a boy aged 10 illustrating family-based physical activity.
Peer influence

Figure 4. Drawings illustrating peer physical activity co-participation.
Environmental influence

Figure 5. Drawings illustrating activity equipment and provision.
Parents’ perceptions on childrens out-of-school physical activity and family-based physical activity

Robert J. Noonan, Lynne M. Boddy, Stuart J. Fairclough & Zoe R. Knowles
Parents’ perceptions

- Few children played outdoors
- Logistic and financial barriers
- Impacted on regular participation
Parental influence

Figure 6. Children’s Reinforcing Factors. +ve = positive. -ve = negative. B = Boy. G = Girl.
Family case studies

- **Parent perceptions and constraints** can influence children’s out-of-school **physical activity levels and activity mode**.

- Implications on physical activity promotion.
Family one

- Male, aged 11, healthy weight, very active (PAQ-C score 4.4/5.0) and high CRF (77 shuttles).

- Lives in an affluent neighbourhood, distant from school (3.8 km), doesn’t walk to school.

- Mum is healthy weight, married with two other children, degree educated and very active.
Family physical activity is a key part of family life.

As I said before, my husband takes them out cycling. And I take him out running. Even my six year-old little girl, after I've taken him out, she'll often ask, "Can I go round the block as well?", and she's got her little running trainers as well now...so we do do things together, and even the park, you know, we'll all go to the park, or we'll go and do a big walk. We go to Delamere Forest as well, take the children there walking, so yes'.
Family one

• Suburban neighbourhood with **green space** located very close by.

• Child not allowed to play outdoors alone (i.e., **limited independent mobility**).

‘The main reasons, I think people are just generally scared these days of letting them play out. I'm quite guilty of that’.

‘Well, he plays out in the garden. We've got a trampoline, and we've got neighbours next door with the same age children, so our fence is absolutely battered with the football getting kicked around and everything, but, do you know what? I'm not bothered’. 
Family two

- Male, aged 10, healthy weight, **walks to school regularly (1.2 km travel distance)**, highly active (PAQ-C score 4.0/5.0) low CRF (31 shuttles).

- Mum is overweight, **single** with two other children, **degree educated** and **reported low/moderate** physical activity.

‘I'm not exactly regular, but as long as he's enjoying it, then I'll support it, and I'm not one of these mothers that pushes him into be in the team to do this, and the team to do that.'
Family two

- **Does not have a family garden** but lives close to several public parks and a range of recreational facilities.

- Mum was **enthusiastic about her children playing outdoors** and visiting nearby parks independent of her supervision.

  ‘I personally think they should be playing out. Well, my kids will ride their bikes round where I live, and I'm happy for them to do that. I don't follow them. They ride round the block. I'm happy for them to go to the local park, just the two of them. So I personally believe that them being out and about is much better for them than being stuck at home but safe.’
Family-based research

- **Limited research on family units** for complexity reasons.
  - What mode of activity (e.g., active play, active travel or organised sport)?
  - How does this influence habitual activity levels?
  - Who do they undertake physical activity with?
  - Where does it take place?
Family-based research

- Seven families \( (n=25) \)
- Primary children \( (n=7) \), siblings \( (n=6) \), mothers \( (n=7) \), fathers \( (n=5) \).

<table>
<thead>
<tr>
<th>Day of week</th>
<th>Time of day</th>
<th>Type of activity</th>
<th>Minutes of activity</th>
<th>Who with</th>
<th>Where about</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example</td>
<td>10:00 - 10:40</td>
<td>Football</td>
<td>40 minutes</td>
<td>Brother</td>
<td>Garden</td>
</tr>
</tbody>
</table>

Saturday

Sunday
Figure 7 Mean MVPA in target children, siblings, mothers and fathers across measurement weekends.
Family case studies

Identified two families for case studies:

- **Low active family** (Evans family)
- **High active family** (Williams family)

- IMD
- Education level
- Family structure
- Neighbourhood/garden
- **Physical activity mode (structured vs unstructured).**
Figure 8 target children’s mean MVPA comparisons for each weekend. Median MVPA across the 8 weekends for each family is represented by the dotted lines.
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<th>Type of activity</th>
<th>Minutes of activity</th>
<th>Who with</th>
<th>Where about</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thursday</td>
<td>6.00pm</td>
<td><strong>Played, got 1</strong> football</td>
<td>2 hours</td>
<td>friends</td>
<td><strong>c/o grass area</strong></td>
</tr>
<tr>
<td>Friday</td>
<td>8:15am - 8:55am</td>
<td><strong>Walked to School</strong></td>
<td>40 mins</td>
<td>family</td>
<td>home to school</td>
</tr>
<tr>
<td></td>
<td>10:30am - 10:30</td>
<td><strong>School play-times</strong></td>
<td>30 mins 1h 30 mins</td>
<td>friends</td>
<td>Playground</td>
</tr>
<tr>
<td>Saturday</td>
<td>1:30pm - 5:00pm</td>
<td>Party in garden, trampoline etc</td>
<td>5.50 mins</td>
<td>friends</td>
<td>Parents friends house</td>
</tr>
<tr>
<td></td>
<td>5:00pm - 9:00pm</td>
<td><strong>Played out</strong></td>
<td>4 hours</td>
<td>family</td>
<td><strong>c/o grass area</strong></td>
</tr>
<tr>
<td>Sunday</td>
<td>12:00pm - 6:00pm</td>
<td><strong>Played out</strong></td>
<td>6 hours</td>
<td>friends</td>
<td><strong>c/o grass</strong></td>
</tr>
<tr>
<td>Day of week</td>
<td>Time of day</td>
<td>Type of activity</td>
<td>Minutes of activity</td>
<td>Who with</td>
<td>Where about</td>
</tr>
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<td>------------------</td>
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<td>-------------</td>
</tr>
<tr>
<td>Example</td>
<td>10.00 - 10.40</td>
<td>Football</td>
<td>40 minutes</td>
<td>Brother</td>
<td>Garden</td>
</tr>
<tr>
<td>Saturday</td>
<td>09.30 / 10.30</td>
<td>Football</td>
<td>2 hours</td>
<td>Team</td>
<td>Camp Hill</td>
</tr>
<tr>
<td></td>
<td>15.00 / 16.00</td>
<td>Velocity (Trampoline)</td>
<td>friends</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sunday</td>
<td>09.00 / 10.00</td>
<td>Football</td>
<td>1 hour</td>
<td>Team</td>
<td>Match</td>
</tr>
<tr>
<td></td>
<td>16.00 / 16.45</td>
<td>Football</td>
<td>45 min</td>
<td>Team</td>
<td>Garden</td>
</tr>
<tr>
<td></td>
<td>2.00 / 3.00</td>
<td>Golf</td>
<td>1 hour</td>
<td>Woolton golf course</td>
<td>Garden</td>
</tr>
</tbody>
</table>
Which mode of activity?

- Be specific about which mode to promote.
- The barriers and facilitators vary considerably across physical activity modes.
Now what?

Where Are We Going?


Thank you

Robert.Noonan@edgehill.ac.uk
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<td>4pm</td>
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</table>
Effective strategies to promote compliance to physical activity monitoring in young people

Deborah McCann¹
Dr Zoe Knowles¹, Professor Stuart Fairclough², ³., and Dr Lee Graves¹.

¹Physical Activity Exchange, Research Institute for Sport and Exercise Sciences, Liverpool John Moores University
²Department of Sport and Physical Activity, Edge Hill University
³Department of Physical Education and Sports Science, University of Limerick
Background

Situation

• Compliance rate of 70-80% (Sirard and Slater, 2009; Wells et al, 2013)
• Lack of standardization criteria within the literature: non-wear & minimum wear (Mattocks et al, 2008)
• Researcher driven compliance strategies (Sirard and Slater, 2009)

Target

• To improve compliance
• Valid, comparable data that is free from inconsistencies.

Proposal

• To find improved methods to increase compliance
PhD thesis

• Study 1 - Identify the most effective strategy to promote compliance to habitual physical activity (PA) monitoring in young people.

• Study 2 & 3 (a) - Investigate the influence of identified strategies from study 1 on compliance to free-living PA monitoring in children and young people.

• Studies 2 & 3 (b) - Analyse PA levels of children and young people in the Wigan Borough and compare to UK PA guidelines.

• Study 4 – Create a participant informed protocol to improve compliance to PA monitoring in children and young people.
Formative study

Aim
To explore the views of children and young people on strategies to encourage free living accelerometer wear time compliance with two types of accelerometers.

Participants
7 elementary schools (age 8-11yrs / yr. group 4-6)
47 children (25 female) 30% low SES defined by % FSM

5 high schools (age 12-15yrs/ yr. group 8-10)
49 adolescents (28 female) 70% low SES defined by % FSM
Methods

Design

• Interpretivist methodology
• 20 semi structured, mixed sex focus groups (10 children, 10 adolescents)
• 4-6 CYP per group, maximum age range 2 years
• Questions demonstrated aspects of face validity
• Based on the PRECEED- PROCEED model (Green et al., 2005, 4th ed).
Methods

Analysis

• Audio and video recorded, later transcribed verbatim
• Transported into QSR Nvivo 10 software package
• Pen profiling protocol (Mackintosh et al., 2011, BMC Public Health, 11:831)
• Triangular consensus offered credibility, transferability and dependability of the results
• Reverse tracking provided alternative interpretations of the data until consensus was reached
Findings

Participant driven compliance strategies:

<table>
<thead>
<tr>
<th>Children</th>
<th>Adolescents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sticky note reminders</td>
<td>1. Social conformity</td>
</tr>
<tr>
<td>2. Mobile phone reminders</td>
<td>2. Mobile phone reminders</td>
</tr>
<tr>
<td>3. Social conformity</td>
<td>3. Monetary compensation</td>
</tr>
</tbody>
</table>

Wider study

Aims:

A) To investigate the influence of identified strategies from phase 1 on compliance to free-living PA monitoring in Children and young people (phase 2.1).

B) To analyse PA levels of Children and young people in the Wigan Borough (phase 2.1) and compare to UK PA guidelines (phase 2.2)
## Design

<table>
<thead>
<tr>
<th>Children (age 8-11yrs / yr. group 4-6)</th>
<th>Young people (age 12-15yrs/ yr. group 8-10)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ActiGraph wGT3X-BT</strong></td>
<td><strong>ActiGraph wGT3X-BT</strong></td>
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<tr>
<td><strong>GENEActiv</strong></td>
<td><strong>GENEActiv</strong></td>
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<td>Sticky note</td>
<td>Social conformity</td>
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<td>Mobile phone</td>
<td>Mobile phone</td>
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<td>Mobile phone</td>
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<tr>
<td>Social conformity</td>
<td>Social conformity</td>
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<td>Social conformity</td>
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<td>Control</td>
<td>Monetary compensation</td>
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<td>control</td>
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<td></td>
<td>Control</td>
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<td>Control</td>
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</table>
Methods

Physical activity
ActiGraph wGT3X-BT triaxial accelerometer
Worn on the right hip
Participants wear the monitor for 9 consecutive days
1\textsuperscript{st} and 9\textsuperscript{th} day are removed to prevent reactivity

Analysis
ActiGraph accelerometer was downloaded using ActiLife software (v6.11, ActiGraph).
Subsequent data files were then analysed using a customised Excel macro (Microsoft Excel).
Valid wear criteria $\geq 10$ hours $\geq 3$ weekdays + 1 weekend day
Children (8-11 yrs) ActiGraph monitor.

Recruited 102 participants,

17 excluded from analysis

85 participants included in analysis
### Descriptive statistics

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th>Mobile phone</th>
<th>Social conformity</th>
<th>Stickers</th>
</tr>
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<tbody>
<tr>
<td>n</td>
<td>23</td>
<td>17</td>
<td>25</td>
<td>20</td>
</tr>
<tr>
<td>Age mean (SD): yr</td>
<td>10.3 (0.8)</td>
<td>9.7 (0.8)</td>
<td>10.0 (0.4)</td>
<td>9.8 (0.9)</td>
</tr>
<tr>
<td>School yr distribution n (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yr 4</td>
<td>4 (17%)</td>
<td>8 (47%)</td>
<td>0 (0%)</td>
<td>8 (40%)</td>
</tr>
<tr>
<td>Yr 5</td>
<td>6 (26%)</td>
<td>5 (29.4%)</td>
<td>25 (100%)</td>
<td>8 (40%)</td>
</tr>
<tr>
<td>Yr 6</td>
<td>13 (57%)</td>
<td>6 (23.5%)</td>
<td>0 (0%)</td>
<td>4 (20%)</td>
</tr>
<tr>
<td>% female</td>
<td>15 (65%)</td>
<td>14 (82%)</td>
<td>12 (48%)</td>
<td>13 (65%)</td>
</tr>
<tr>
<td>BMI mean (SD) kg/m²</td>
<td>20.6 (6.1)</td>
<td>19.6 (6.5)</td>
<td>18.8 (3.8)</td>
<td>20.6 (0.01)</td>
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<tr>
<td>BMI cut points n</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Normal weight</td>
<td>16</td>
<td>10</td>
<td>15</td>
<td>8</td>
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<tr>
<td>Overweight</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>7</td>
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<tr>
<td>Obese</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>% White British</td>
<td>100</td>
<td>93</td>
<td>95</td>
<td>94</td>
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<tr>
<td>In receipt of free school meal n</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>IMD score mean (SD)</td>
<td>2.3 (1.5)</td>
<td>2.4 (1.6)</td>
<td>1.6 (0.5)</td>
<td>2.0 (3.9)</td>
</tr>
</tbody>
</table>
## Compliance strategies

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th>Mobile Phone</th>
<th>Social conformity</th>
<th>Stickers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any 0-3 days</td>
<td>8 (35%)</td>
<td>1 (6%)</td>
<td>5 (20%)</td>
<td>5 (25%)</td>
</tr>
<tr>
<td>Any 4-6 days</td>
<td>12 (52%)</td>
<td>7 (41%)</td>
<td>18 (72%)</td>
<td>13 (65%)</td>
</tr>
<tr>
<td>Any 7 days</td>
<td>3 (13%)</td>
<td>9 (53%)</td>
<td>2 (8%)</td>
<td>2 (10%)</td>
</tr>
<tr>
<td>≥3 weekdays + 1 weekend</td>
<td>12 (52%)</td>
<td>15 (88%)</td>
<td>12 (48%)</td>
<td>6 (30%)</td>
</tr>
</tbody>
</table>
# Physical activity data

<table>
<thead>
<tr>
<th></th>
<th>Sedentary (min/day)</th>
<th>Light (min/day)</th>
<th>MVPA (min/day)</th>
<th>Steps taken (steps/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole group mean (SD)</td>
<td>408.7 (77.8)</td>
<td>462.4 (59.2)</td>
<td>90.4 (39.6)</td>
<td>9532 (9533)</td>
</tr>
<tr>
<td>Males mean (SD)</td>
<td>395.3 (72.2)</td>
<td>247.6 (70.4)</td>
<td>178.0 (100.3)</td>
<td>17037 (4182)</td>
</tr>
<tr>
<td>Females mean (SD)</td>
<td>417.7 (79.4)</td>
<td>270.0 (50.2)</td>
<td>83.0 (36.2)</td>
<td>9117 (3142)</td>
</tr>
</tbody>
</table>
### 60 min/day MVPA

<table>
<thead>
<tr>
<th></th>
<th>Whole week</th>
<th>Weekday</th>
<th>Weekend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full group n (%)</td>
<td>35 (41%)</td>
<td>66 (78%)</td>
<td>32 (38%)</td>
</tr>
<tr>
<td>Males n (%)</td>
<td>14 (45%)</td>
<td>26 (84%)</td>
<td>12 (39%)</td>
</tr>
<tr>
<td>Females n (%)</td>
<td>21 (39%)</td>
<td>40 (78%)</td>
<td>20 (37%)</td>
</tr>
</tbody>
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## Future work

<table>
<thead>
<tr>
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Methods

Socioeconomic status
Neighbourhood level SES (2015 Indices of Multiple deprivation)
In receipt of free school meals

Anthropometrics:
Stature and Sitting stature (to the nearest 0.1cm)
Body Mass (to the nearest kg)
BMI, BMI Z-scores and age and sex specific BMI cut points
Methods

Characteristics associated with compliance
Parents and young person’s PA knowledge
Participant wear time questionnaire
Parent and young person’s descriptive statistics
Weather

Summary

• In children mobile phone reminders were the most effective compliance strategy

Boys more active and less sedentary than girls

Targeting MVPA promotion on the weekend seems especially important

Future research will investigate compliance, influencing factors and PA levels in Wigan children and young people

Mackintosh KA, Knowles ZR, Ridgers ND, Fairclough SJ. Using formative research to develop CHANGE: a curriculum-based physical activity promoting intervention. BMC Public Health. 2011; 831(11)


Acknowledgements:
Thank you to Wigan Council who provided funding for this project
Thank you to my supervisors for their continued support

Thank you everyone for listening

Email: D.A.McCann@2014.ljmu.ac.uk
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"Theory into practice: Using Self-Determination theory to enhance teacher motivations to increase children's in-class PA levels“

Matthew Domville
PhD practitioner researcher
Email: m.s.domville@2014.ljmu.ac.uk
“Design and development of an effective and sustainable physical activity (PA) intervention to increase children’s (7-11 years) school based PA and reduce sedentary behaviour (SB).”

Sustainable – we want these positive findings to last once the intervention ceases
Why is this school-based research important?

• Schools are a key target for PA promotion (Kriemlar et al., 2011).

• Few school based PA interventions have been effective (Metcalf, Henley, & Wilkin, 2012) and few have been sustainable.

• Possible reason, many interventions fail to take into account participant views (e.g. head teachers, teachers and pupils) during the intervention design and development stages (Cole & Horacek, 2009).
Back to basics – Physical activity & sedentary behaviour

Question: But why is this important?

PA tracks from childhood into adolescence and adulthood where it is protective against chronic disease development (Cleland, Dwyer, and Venn 2012).

Our work is centrally concerned in the development of intrinsic motivation of children to be active, competent and confident to engage in PA for life.

How do we motivate children to become more active?
An introduction to self-determination theory.

Self-Determination Theory (SDT; Ryan and Deci, 2000) is a theory of motivation. It is concerned with supporting our natural or intrinsic tendencies to behave in effective and healthy ways.
Need supportive environments

- **Autonomy support** refers to the promotion of students’ sense of volition and psychological freedom (Reeve, 2009).

- **Competence support** refers to fostering a sense of effectance and confidence in ones abilities and actions to deal with the challenges of the environment (Sabire et al., 2013)

- **Relatedness support** refers to the development of a meaningful and mutual connectedness with others (Ryan & Deci, 2000)
Quick overview of studies

• **Study 1** – Understand how the **school environment** facilitate or negate the development of school PA

• **Study 2** - What factors influence a child's enjoyment levels in PE, and how can SDT help explain this?

• **Study 3** – Ask teachers opinions and thoughts of the proposed PA intervention & CPD program?

• **Study 4** – Evaluation and feasibility of a new whole school day PA intervention.
Investigation of factors that can facilitate or negate children’s school based PA?

Interviews with Head teachers (n=4) and teachers (n=5)
1. Current practice
2. Roles and responsibilities
3. Challenges and needs of schools to deliver PA

Using both an **deductive** (top down) and **inductive** (bottom-up) approach, existing and newly emerging themes were generated from the data using the qualitative program Nvivo 10.
Study 1 - results

**Organisational factors**
(e.g., rules and regulations for operations)

- Head teacher support increases PA sustainability
- Lack of space and time, high academic focus
- Child developmental needs

**Interpersonal factors**
(e.g., social networks and social support systems)

- Staff support (e.g., using office staff)
- Child engagement issues
- Limited teacher-coach relationships

**Intrapersonal factors**
(e.g., Characteristics of the individual such as knowledge, attitudes)

- Teacher interests, values and individual commitments
- Lack of teacher confidence, competence and training

Based on study 1

- Began the development of a **classroom based** PA intervention to increase PA and reduce SB

**Why classroom?**
- Teachers can deliver the PA intervention in secure & structured environment
- Time and space efficient
- Fits into the current school timetable
Study 2 - What factors influence a child's enjoyment levels in PE, and how can SDT help explain this?

Eight focus groups were conducted with 47 children (23 boys aged 7-11 years). Each focus group was mixed-gender and included approximately 4-6 children clustered by corresponding school years (years 3-4; years 5-6).

Using both an **deductive** (top down) and **inductive** (bottom-up) approach, existing and newly emerging themes were generated from the data using the qualitative program Nvivo 10.
Study 2

Individual preferences
- Limited time & choice in PE
- Varied abilities led to boredom or frustrations

Peer interactions
- Peer confrontations and arguments were often a direct cause of lack of enjoyment & limited competence

Instructor support
- Instructor interactions (un-supportive)
- Instructor involvement (no modelling)

Teacher v coach competence
- Children perceived teachers to be less component at delivering than their coaches

Autonomy & competence
Relatedness
Competence (& feedback; verbal and visual)
**Intervention development**

- Based on study 1 & 2, further developed of intervention

- **Study 1**
  - Education on importance of PA for health & A.B.C’s

- **Study 2**
  - Wanted to include education on the importance of need supportive behaviours

- **Access to online videos**
  - Ascertain thoughts and opinions of proposed online intervention
  - Feasibility and acceptability

- **On-going support**
  - What on-going support do teacher want to increase sustainability?
Aim
Ask teachers opinions and thoughts of the proposed PA intervention & CPD program (developing intervention sustainability)

Methods
Focus groups (n=4), Interview (n=1). Discussed the proposed intervention.

Analysis
Using both an deductive (top down) and inductive (bottom-up) approach, existing and newly emerging themes were generated from the data using the qualitative program Nvivo 10.
Study 3 – acceptability & feasibility

**Facilitators**
- Present evidence of impact (outcomes)
- Offer demonstration lessons

**Influential factors**
- PA as a school priority (SDP)

**Developing head-teacher Buy-in to intervention**

**Teacher training**
- Provision of meaningful rationale
- Understand training fears & PA preferences
- Theory into context (use the next day)
- Teacher in children's shoes
- Time for reflection (will this work in my class)

**Resources (increasing effectiveness)**
- Uncomplicated “just a click”
- Educational aspect (cross-curricula)
- Time efficient (in one spot)
- Progression

**On-going support (increasing sustainability)**
- Partnership
- Post training support essential (e.g., drop ins; email)
- Intervention as part of the monitoring process
- Establishing next steps/goal setting
Intervention development

• Based on study 1, 2 & 3 further developed of intervention.

- Educational (Study 3) K&U
- Time efficient & easy to use (Study 1 & 3)
- Progressive (Study 3) C
- Have a model (Study 1 & 2) C,R
- Provide choice, fun and enjoyable (Study 2) A,C,R
- Improve teacher competence confidence (Study 1 & 2) C

Key
K&U – Knowledge and understanding
A – Autonomy
C – Competence and confidence
R – Relatedness
Classroom intervention

Simple pictures for the children to take the class themselves (A, C, R)

Key - K&U – Knowledge and understanding; A – Autonomy; C – Competence and confidence; R – Relatedness
Novel intervention

- **Head teacher buy-in**: It focuses on different levels of school PA influences.
- **Teacher training**: Provides training to teachers to help them deliver the intervention in a need supportive way.
- **Access to online videos**: Provides teachers with PA videos to increase classroom PA and reduce SB.
- **On-going support**: Offers support for teachers via email and drop in sessions.
Evaluation of the intervention cRCT

Organisational buy-in → Pre intervention data collection → Teacher training and SOKKA planet resources → Post intervention Data collection → Evaluation and results

3-month intervention

**Teachers**
- Motivation and self-efficacy for delivering PA (pre)
- Re-collection and focus groups (post)

**Pupils**
- Motivation for PA, Perceived autonomy support, Self efficacy for PA, PA measurement (pre)
- Re-collection and focus groups (post)
Summary

• This intervention is designed to increase children's school day PA and reduce SB

• Using progressive studies (practice backed by theory and research)

• Trial the final study, and the resources in schools starting in February
Many thanks

Dr Lee Graves
Dr Paula Watson
Dr Dave Richardson

www.sokka.co.uk
Thank you – Questions?
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The Impact of Second-Hand Tobacco Smoke Exposure on Children’s Exercise Performance

Melissa Parnell
PhD Student
M.J.Parnell@2016.ljmu.ac.uk
Physical Fitness and Health

- Physical fitness is a measure of most body functions involved in the performance of daily physical activity (Ortega et al., 2008).

- Cardiorespiratory fitness – the ability of the circulatory, respiratory, and muscular systems to supply oxygen during sustained physical activity (Lee et al., 2010).
Second-hand smoke (SHS)

- Approximately 83% of tobacco smoke is in an invisible and gaseous form (Gee et al., 2012)
- Effects can be almost as large as active smoking (Barnoya & Glantz, 2005)
- Adults: coronary heart disease, stroke, lung cancer, COPD
- Children: asthma, respiratory infections, ear infection, sudden infant death (Naeem, 2015)
**Worldwide:** 34% non-smoking adults and 40% of children (Oberg et al., 2011)

**Merseyside:** 57% children have a smoking family member (McGee et al., 2015)

Children’s exposure to SHS varies according to the socioeconomic status of their families.
Rationale

• Extensive knowledge of tobacco and its influence in causing disease

• Less understanding about the impact of second-hand smoke on cardiorespiratory fitness

• Particularly less evidence regarding children

• Little information regarding SHS and attitudes towards physical activity
Objectives

1) Recruit 9-11 year old children and their families (200 families if possible) from ~ 6 Merseyside primary schools

2) Conduct a survey to determine self-reported:
   a) Smoking status
   b) Attitudes toward physical activity
   c) Levels of participation in physical activity

3) Directly estimate cardiorespiratory fitness levels of children through laboratory based measures
Objectives

5) Determine exhaled carbon monoxide (as an indication of tobacco smoke exposure)

6) Monitor tobacco smoke exposure in the homes of a sub-group of participants

7) Use qualitative and creative methods to explore attitudes to smoking and physical activity
Study 1 - Questionnaires

Parents:
- Self reported household smoking status

Children:
- Self reported physical activity participation
- Attitudes and beliefs towards physical activity

Spring Term 2017
Study 2a – Laboratory based fitness assessments

Spring-Summer Term 2017

During a half-day visit to LJMU sports labs:

- At rest:
  Lung function tests (forced expiratory volume, vital capacity)

- During maximal exercise:
  Running on a treadmill for ~ 8 mins
  (VO$_2$max protocol – Boddy et al., 2014)
Study 2b – Tobacco Smoke Exposure

During laboratory visits:
- Measure levels of expired carbon monoxide (eCO) and nitric oxide (eNO) (Sandberg et al., 2011)

In home assessments of tobacco smoke:
- Air quality monitors to measure levels of particulate matter (an indication of tobacco smoke)
Study 3 - Interviews and Focus Groups

• Participating parents will be invited for telephone interviews to discuss attitudes towards smoking and physical activity

• Children will also be invited to focus groups (at school) to discuss attitudes toward smoking and physical activity
Get Involved

• An important and novel study

• Interested? Please get in touch:

  Melissa Parnell
  PhD student

  M.J.Parnell@2016.ljmu.ac.uk
Thank you for listening. Any questions?
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Exploring Methods of Sedentary Behaviour Measurement in Children

Liezel Hurter
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Background and Importance

• Sedentary behaviour as independent risk factor for health (Tremblay et al, 2011)
• Research in children’s SB still in its infancy (Carson et al, 2011)
• Complex set of behaviours (Biddle, 2006)
Timeline of research

- **Study 1** – Jan ‘17
  A calibration study to identify raw acceleration thresholds for different SB

- **Study 2** – Oct ‘17 to Feb ‘18
  DCDC application

- **Study 3** – Apr ‘18 to Jul ‘18
  Parental perceptions and beliefs about SB
Methods

• 100 children (aged 9 to 11 years old)
• 7 consecutive days

• Digitising Children’s Data Collection (DCDC) application
  - self-reporting
  - photo taking
  - voice recordings

• Activity monitor
  (raw acceleration data)
Questions?

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