

Active Play

Engaging children in physical activity through play



Evaluation Report April 2016

Contents

| | |
|--|----|
| EXECUTIVE SUMMARY | 3 |
| Background to the Active Play Programme | 10 |
| Introduction | 10 |
| Programme description | 10 |
| Purpose of the evaluation | 11 |
| The theory of change | 11 |
| The logic model | 12 |
| Evaluation methodology | 12 |
| Terms and definitions | 13 |
| What did the Programme deliver? | 15 |
| Impact of the Programme | 19 |
| Outcome 1: Children improve fundamental movement skills/ develop physical literacy | 19 |
| Outcome 2: Children increase their levels of physical activity | 23 |
| Outcome 3: Children progress into more active forms of play and into sports. | 28 |
| Outcome 4: Increased awareness of play as a means to improved physical literacy | 29 |
| Case study | 34 |
| Learning from the projects | 36 |
| Appendix 1: The evaluation framework | 39 |
| Appendix 2: Overview of research methodology provided by Strathclyde University. | 41 |
| Appendix 3: Additionality of Active Play | 43 |
| Appendix 4: Physical activity measures for each venture | 44 |

Executive Summary

Background to the Active Play Programme

Through its Go2Play Fund, Inspiring Scotland invested in four play organisations to deliver an Active Play Programme targeting children in the more deprived areas of Scotland.

The Active Play Programme uses play as a means to engage children in physical activity, and to build their skills, confidence and motivation to introduce greater physical activity into their daily lives.

There is significant research available that acknowledges that greater physical activity in the early years contributes to better health, wellbeing and physical activity outcomes for later life. There is also evidence that active play makes a significant contribution to children's physical activity and could contribute to the health of future generations.¹

Purpose of the evaluation

Inspiring Scotland commissioned Arrivo Consulting and The University of Strathclyde to evaluate the Programme.

The quantitative element of the evaluation of the Active Play Programme was supported by an MPhil Studentship at the University of Strathclyde which is supervised by Professor John Reilly and Dr Adrienne Hughes. The research provided quantitative measures of Fundamental Movement Skills and levels of physical activity of children before and after participating in Active Play. Details of the research methods are included in Appendix 2.

The Programme logic model has four key outcomes.

Outcomes for children

- Children develop physical literacy/improve their FMS

- Children increase levels of physical activity
And as a result
- Children progress into more active forms of play and into sports.

The programme also seeks to influence the culture of the play sector and of teachers and parents. The key outcome it seeks to deliver is:

- Increased awareness of play as a means to improved physical literacy.

Programme delivery

Inspiring Scotland invested in four organisations to deliver the Active Play Programme in four communities in west central Scotland.

The ventures were chosen on the basis of their experience in delivering play activities and their capacity to engage children from the most deprived communities.

The four ventures provided a variety of settings in which to test the Active Play Programme:

- The Jeely Piece Club, which delivered in two primary schools in Castlemilk, Glasgow
- PASP (Parent Action for Safe Play), which delivered in four primary schools in North Lanarkshire
- Healthy Valleys, which delivered Active Play in a nursery, in a school and in a community setting in rural South Lanarkshire
- Enterprise Childcare, which delivered Active Play in a community setting in Port Glasgow, Inverclyde.

Impact of the Programme

This section reviews the evidence to identify the extent to which the Active Play Programme has achieved the four programme outcomes.

¹ 'The contribution of active play to the physical activity of primary school children' Rowan Brockman, Department of Exercise, Nutrition and Health Sciences at the University of Bristol, Preventive Medicine

Outcome 1: Children improve fundamental movement skills and develop physical literacy

Indicator 1: Children improve their Fundamental Movement Skills

The research by Strathclyde University measured children’s FMS scores at the beginning (baseline) and towards the end of the intervention (follow up) to determine whether the FMS scores had improved.

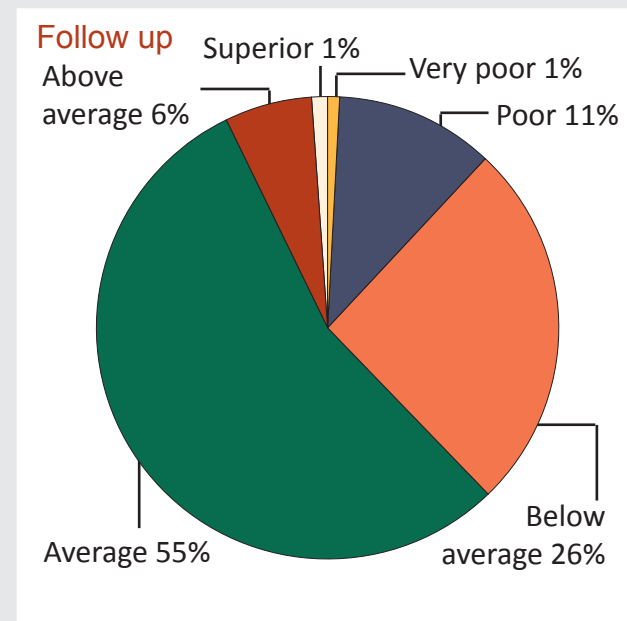
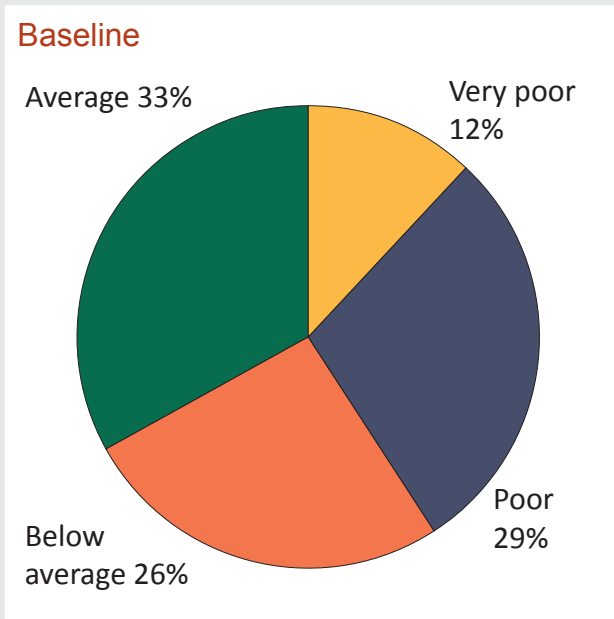
The results are based on data from 102 Primary School children (Ventures A, B and C).

- The research showed that children improved their FMS between the baseline measure and the follow-up.
- The mean score at the baseline measure was 83. When the tests were repeated at the follow-up, the mean FMS score increased by 10 from 83 to 93, which is a statistically significant improvement (P<0.001).
- A score in the 80s falls in the ‘below average’ category. A score in the 90s falls into the ‘average’ category.

The research also highlighted that children had very poor levels of FMS.

At the baseline measure, only 33% of the sample achieved average scores and none of the children scored above average scores.

- a further 26% were below average
- 29 % were poor
- 12 % were very poor



At the follow-up, there was a considerable reduction in the proportion of children who scored ‘poor’ or ‘very poor’ (40% at baseline reducing to 12% at the end of the intervention) and an increase in the percentage of children who achieved average FMS scores (from 33% to 55%). Furthermore, at follow-up there was now a small percentage of children at the above average and superior category (7%).

Outcome 2: Children increase their levels of physical activity

To demonstrate progress towards this outcome, we used three indicators:

Indicator 1: Children participate in additional physical activity through Active Play sessions

In the period September 2015 to end-March 2016, the Active Play Programme engaged a total of 438 children and delivered 429 additional play sessions. The table provides a summary of the delivery

It was anticipated that Active Play would provide an opportunity to participate in physical activity which would be additional to Physical Education classes.

The degree of additionality has varied.

- Children participating in the project in Port Glasgow (Enterprise Childcare) have access to 2 x 2hr sessions of Active Play per week. However, this project was delivered in a community setting and children 'dropped in', so attendance was irregular.

| Name of delivery organisation | Location | Delivery setting | Number of Active Play sessions per week | Number of children participating | Total number of sessions delivered |
|-------------------------------|----------------------------------|-------------------------------|---|----------------------------------|------------------------------------|
| Jeely Piece Club | Castlemilk, Glasgow | 2 Primary schools (4 classes) | 2 x 1hr sessions | 115 | 188 |
| Healthy Valleys | South Lanarkshire (rural/remote) | Nursery | 1 x 45min sessions | 20 | 100 |
| | | Primary school (2 classes) | 1 x 1hr session | 61 | |
| | | Smyllum community | 1 x 1hr session | 31 | |
| | | Rigside community | 5 sessions in school holiday week | 21 | |
| PASP | North Lanarkshire | 4 Primary schools (4 classes) | 1 x 1hr session | 98 | 86 |
| Enterprise Childcare | Inverclyde | Community | 2 x 2hr sessions | 92 | 55* |
| | | | | 438 | 429 |

- In school-based settings, attendance was more regular. However, schools have in most cases substituted Active Play for a Physical Education class. This has reduced the additionality of Active Play.

Indicator 2: Children are more active during Active Play sessions

The research by Strathclyde University measured children’s levels of physical activity during an Active Play session.

The results are based on levels of physical activity of 126 Primary School (from Ventures A, B and C) during a one hour Active Play session. The measurement of physical activity was taken using Actigraph activity monitors which measure the amount of time spent in sedentary, light-intensity physical activity and MVPA (Moderate to Vigorous Physical Activity).

- The research has identified that during a typical one-hour Active Play session, the average time spent in MVPA was 18.1 minutes (30.1%), though this varied across ventures (see table 3 below).
- Other research has identified that the MVPA content in primary school PE classes was as little as 11.4% of the PE time.²
- This result suggests that Active Play sessions generate more MVPA than a typical PE class.

These findings suggest that even where schools substituted Active Play for PE classes, it is likely that children were more active (as measured by MVPA) as a result of participating in Active Play.

Indicator 3: Children are more active outside Active Play sessions

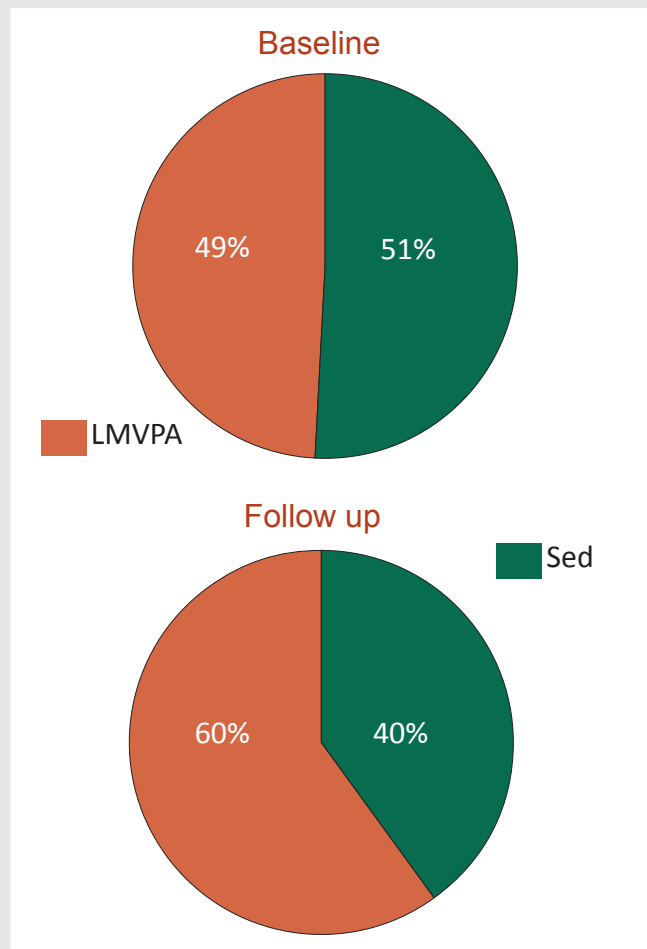
The research by Strathclyde University measured children’s levels of physical activity over a typical

school day. The finding showed that, towards the end of the Active Play intervention, children were spending less time in sedentary behaviour and more time in LMVPA during a typical school day.

The findings are based on data from 126 Primary School children, and measurements were made using Actigraph activity monitors.

At the baseline measure, children typically spent:

- 51% of their school day in sedentary behaviour
- 49% of their school day in LMPVA (Light or Moderate to Vigorous Physical) Activity) of which only 9% was in MPVA.



² Avril Johnstone. (2016). Active Play, Physical Activity and Fundamental Movement Skills: Literature Review for Inspiring Scotland’

At the follow-up measure at the end of the intervention:

- the amount of time spent in sedentary behaviour had reduced to 40%, and
- the amount of time spent in LMPVA had increased to 60%.

In real terms, this represents a reduction of 31 minutes of sedentary time and an increase of 41 minutes of LMPVA, of which 3 minutes is MVPA.

Feedback from teachers, parents and children also indicated that children who participated in Active Play were more physically active during the school day, and out of school.

Many of the children reported that they were using the games they had learned at Active Play to play at playtime/lunchtime.

- 42% of children (Venture A), 49% (Venture B), and 85% (Venture C), said they sometimes played the new games they learned at Active Play at playtime and lunchtime.

Children also reported that they were playing the games they learned at Active Play with friends after school.

- 70% of children (Venture A), 54% (Venture B) and 76% (Venture C) said they sometimes played the new games they had learned at Active Play after school.

Outcome 3: Children progress into more active forms of play and into sports

A key assumption in the theory of change is that, as a result of increased physical literacy and higher levels of physical activity, children will choose to engage in sports and other physical activities, leading to healthier lifestyles.

Indicator: Number of children doing more

physical activities or joining clubs/ starting to use local facilities

From surveys of participants, there is evidence that children have been motivated to participate in more physical activities after participation in Active Play.

- 52% of children surveyed by Venture A (N=52) had joined a club to do a physical activity
- 50% of children surveyed by Venture C (N=46) had joined an afterschool club or activity

Feedback from parents also indicates that children are playing outside more and are using local facilities (where they exist).

While a key measure of success for this outcome was the number of children who took up a new sport or physical activity it is recognised that there are gaps in provision in some areas which mean that there are no clubs or facilities to participate in sports.

We therefore also attempted to measure children's interest or motivation in physical activities.

The evidence from the programme suggests that children who participated in Active Play became more interested in physical activity as a result of their participation in the Programme.

- At the end of the intervention, 86% of children (135 children surveyed by 3 ventures) said they liked doing physical activities more than they used to.

Outcome 4: Increased awareness of play as a means to improved physical literacy

Active Play sought to influence play staff, parents and schools – increasing their awareness of the benefits of physical activity, but also increasing their skills and confidence to incorporate more physical activity into the daily lives of children.

Impact on the Play Ventures

- Surveys and external assessment of staff teams show that staff developed new skills and confidence in delivering physical activities.
- In most ventures, Active Play workers have developed a strong commitment to the benefits of physical activity and are enthusiastic advocates of physical activity. This level of enthusiasm and engagement has in some cases influenced wider play practices in the ventures.
 - Some ventures have trained other staff in Active Play
 - Some ventures have 'mainstreamed' Active Play, introducing new games and new practices into their other play activities.

Impact on Schools/nurseries

There were different levels of understanding of the benefits of physical activity and different levels of buy-in to the Active Play Programme across schools.

- Feedback from teachers at the end of the intervention demonstrates a greater recognition of the benefits of physical activity on children.

Active Play staff identified that some teachers/nursery staff lacked confidence in supporting children's participation in physical activities.

- Survey results also showed that most teachers became more confident following their participation in the Programme that they could deliver games and activities learned through the Programme to thus continue to encourage children to become more physically active.

Impact on Parents

While the project models did not include direct work with parents, some of the ventures have tried to influence parental understanding of the benefits of physical activity.

Venture C surveyed 30 parents at the end of the intervention.

- 77% agreed that Active Play had changed their views about the benefits of increasing levels of physical activity for children
- 93% said that they were more likely to encourage their child to do more physical activities in future.

Conclusion

The evidence from the research suggests that the Active Play model is an effective mechanism to engage children in physical activity, and to increase their skills, confidence and motivation to engage in more physical activities.

The key findings of the research were:

- Children improved their FMS scores and there are indications that children improved their physical literacy
- Children increased their levels of physical activity during a typical school day and qualitative evidence indicates that children were doing more physical activities outside school
- As a result of Active Play, children enjoyed physical activities more than they had before, and were motivated to participate in out-of-school clubs and sports.

The Active Play Programme has not only shown success in building awareness of physical activity, but has also successfully built skills,

confidence and enthusiasm among staff, teachers and parents for promoting engagement in physical activity.

Learning from the Programme

The delivery of the pilot Active Play Programme has provided valuable learning on the delivery model and the critical success factors in delivery which should inform any future Active Play provision.

The delivery model

The programme has tested and refined the delivery model for Active Play.

- To engage children in physical activity, Active Play sessions have to be fun and inclusive.
- The success of the approach is dependent on the skills and confidence of the delivery staff. However, additional to skills and confidence, the approach of the Play Worker and their capacity to engage children has been a critical success factor. Delivery staff must be positive, enthusiastic and have good levels of physical literacy to act as role models to the children.

The research indicates that children who engaged in two sessions of Active Play per week through school-based provision (compared to 1 session per week in most other school settings) recorded the greatest increase in physical activity (as measured by MVPA and LMVPA) and reduction in sedentary behaviour.

This would suggest that two sessions per week is more effective in changing behaviours.

Engaging children in Active Play through schools

The pilot projects have proven that primary schools have been a good vehicle to engage

children in physical activity. The Active Play Programme has also highlighted the need to raise awareness of the importance of physical activity in schools, and to build the skills and confidence of staff to deliver physical activities.

Lack of local clubs/facilities in many areas is acting as a barrier to participation in sports/physical activity

The intended long-term impact of the Active Play Programme is that children have the skills, confidence and motivation to participate in sport and other physical activities throughout their lifetime.

However, in some of the locations (disadvantaged areas and rural/remote), there are a number of barriers which inhibit children's participation in physical activities:

- The findings identify a lack of 'supply' of afterschool clubs and sports facilities which has inhibited children's progression in some of the pilot areas
- The cost and time required to take children to sports/other activities is a barrier for many parents.

The lack of clubs/facilities to enable children to continue to participate in physical activity could limit the success of any future programme of Active Play.

Background to the Active Play Programme

Introduction

Inspiring Scotland is a highly engaged venture philanthropy organisation designed and developed to transform Scotland's charities and change lives. Its aims are to tackle social issues in a way that brings greater cohesion and, through this, higher impact.

Background on Go2Play and play investments

Inspiring Scotland has worked in partnership with the Scottish Government over the past six years creating a track record in successfully supporting the development and expansion of free play in disadvantaged communities across Scotland. Through its Go2Play Fund it has invested in some of the most exciting and impactful play organisations in Scotland - helping develop the play sector and create greater play opportunities in Scotland's communities. In 2015 the focus of investment included Play Ranger activities, Family Support for Play and Active Play.

Vision for Active Play

There is significant research available that acknowledges that greater physical activity in the early years contributes to better health, wellbeing and physical activity outcomes for later life. There is also evidence that active play makes a significant contribution to children's physical activity and could contribute to the health of future generations.³

Inspiring Scotland has been investigating the role of Active Play and its benefits with play organisations since 2012. Pilot work started in the East of Glasgow with PEEK (Possibilities for Each and Every Kid) in partnership with Active East, a 2014 Commonwealth Games legacy programme. The aim of this early work was to provide children with the chance to develop fundamental movement skills and to try out a variety of sports in a community play setting with supported links into local youth organisations. This pilot was supported by a Strategic Steering Group with representatives of a number of Scottish Government departments and Education Scotland. The pilot project was evaluated by Arrivo Consulting. The evaluation identified the outcomes of the pilot and the learning, which has been taken forward into the current fund.

Programme description

The Active Play Programme uses play as a means to engage children in physical activity, and to build their skills, confidence and motivation to introduce more physical activity into their daily lives.

Additionally, Active Play seeks to influence play staff, parents and schools – increasing their awareness of the benefits of physical activity, and also increasing their skills and confidence to increase levels of physical activities in the daily lives of children.

³ *'The contribution of active play to the physical activity of primary school children'* Rowan Brockman, Department of Exercise, Nutrition and Health Sciences at the University of Bristol, Preventive Medicine

This programme was delivered through four play organisations, each of which is targeting children in the more deprived areas of Scotland. The four organisations are:

- The Jeely Piece Club, which delivered in two primary schools in Castlemilk, Glasgow
- PASP (Parent Action for Safe Play) which delivered in four primary schools in North Lanarkshire
- Healthy Valleys, which delivered Active Play in a nursery, in a school and in a community setting in rural South Lanarkshire
- Enterprise Childcare, which delivered Active Play in a community setting in Port Glasgow, Inverclyde.

Prior to the delivery phase of the Active Play Programme, Inspiring Scotland commissioned Agile to develop the delivery model and to devise and deliver training to venture staff. This aimed to ensure that venture staff had the practical skills and knowledge to deliver the programme and to ensure consistency and quality of the model being delivered by the four different ventures.

- Agile delivered a two-day staff training programme which covered the background and theory of Active Play, the revised delivery model and practical approaches to session delivery.
- Agile provided ongoing support and development for Active Play delivery teams over the duration of the programme, visiting the delivery sites to assist the teams to implement the model and providing additional training, support and resources to refine and develop the delivery of the programme.

Purpose of the evaluation

The purpose of the evaluation was to test the theory of change for the Active Play model.

The theory of change

Active Play introduces children to physical activity through play⁴. Through purposeful activities, it seeks to build children's fundamental movement skills (FMS), but also seeks to build their confidence and motivation (developing physical literacy), and to increase their levels of physical activity in their daily lives. A key assumption of the theory of change is that, as a result of improved physical literacy, children will choose to participate in more active forms of play and in sports, leading to healthier lifestyles.

The programme also seeks to influence the play sector, teachers and parents by:

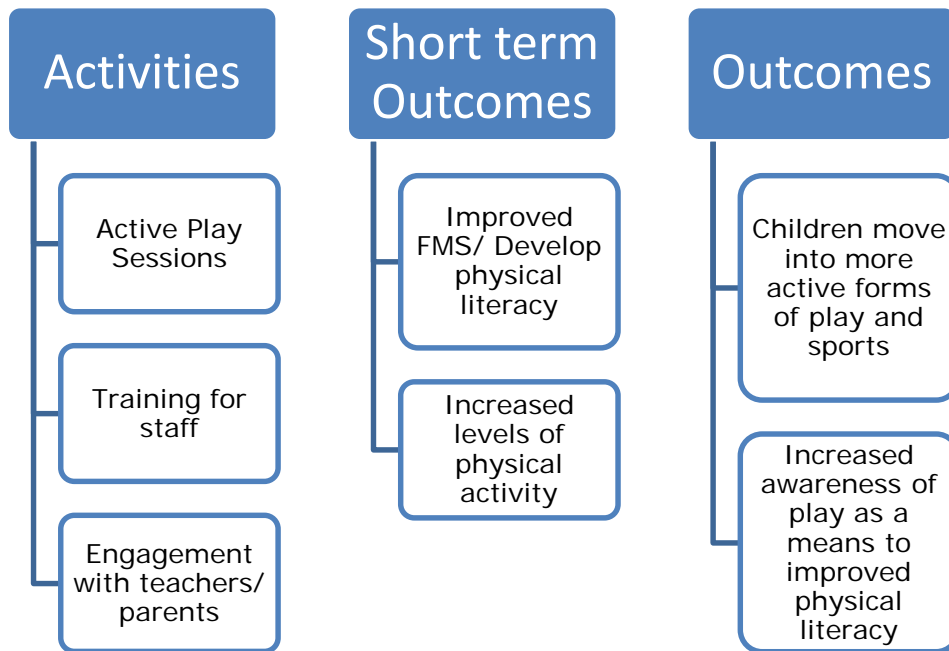
- building a greater understanding of the benefits of physical activity in the play sector, and building the skills and confidence to deliver more physical activities.
- building the awareness of teachers of the benefits of physical activity and building the skills and confidence to incorporate more physical activities into the daily lives of children.

⁴ Play is defined as activities which are freely chosen, personally directed, intrinsically motivated, spontaneous and enjoyable (Brockman, et al., 2010).

- building better awareness among parents of the benefits of physical activity and building their confidence/capacity to include more physical activity for their children.

The logic model

The logic model for the programme is summarised below.



The outcomes

The key outcomes from the programme are:

- Children improve their FMS and develop physical literacy
- Children increase levels of physical activity
- Children progress into more active forms of play and into sports.

The programme also seeks to influence the culture of the play sector and of teachers and parents. The key outcome it seeks to deliver is:

- Increased awareness of play as a means to improved physical literacy.

Evaluation methodology

The evaluation framework (attached at Appendix 1) summarises the evaluation methods. The framework identifies the key indicators which were chosen to demonstrate progress toward the outcomes, and shows the source of data for each indicator. These include:

- A research project carried out by an MPhil student at Strathclyde University

- Surveys of children, parents and teachers
- Staff observation of the participants
- Interviews with project staff
- Interviews with teachers.

The research project delivered by Strathclyde University

The quantitative evaluation of the Active Play Programme is supported by an MPhil Studentship which is supervised by Professor John Reilly and Dr Adrienne Hughes at the University of Strathclyde.

The research explores the questions: Does the implementation of an Active Play Programme improve (a) physical activity levels and (b) fundamental movement skills competency in children?

The study measured the Fundamental Movement Skills and levels of physical activity of children before and after participating in Active Play. The research has therefore provided quantitative evidence to demonstrate the achievement of outcome 1 (Children develop physical literacy and improve FMS) and outcome 2 (Children increase levels of physical activity). A summary of the methodology for the research is at Appendix 2.

The Strathclyde University research also produced a literature review which provides an overview of previous research relevant to this study⁵.

Terms and definitions

The literature review⁶ provides definitions of some of the key terms used in the report. To enhance the clarity of this report, these definitions have been reproduced below.

Fundamental Movement Skills (FMS)

Fundamental Movement Skills or FMS is a set of skills which children should be competent in, such as; throwing, catching, running and jumping (Lubans et al., 2010). Fundamental movement skills are usually characterised by object control and locomotor skills. FMS are somewhat related to physical literacy as they encourage children to move with competence. Unlike Physical Literacy, FMS does not develop motivation and confidence to be physically active.

Free Play

Free play is defined as any play activity which is 'freely chosen, personally directed and intrinsically motivated' (Scottish Government, 2013).

Moderate to Vigorous Physical Activity (MVPA)

Moderate to Vigorous Physical Activity (MVPA) is often described in lay terms as being accompanied by an increase in breathing, heart rate and body temperature; vigorous physical activity marks a rapid increase in heart rate and heavy breathing.

⁵ A Johnstone. (2016). Active Play, Physical Activity and Fundamental Movement Skills: Literature Review for Inspiring Scotland'

⁶ Ibid

The more technical definition of MVPA is physical activity with an energy cost of >2.9 but <6.0 times resting energy expenditure.

Physical Activity

Physical Activity is defined as “any bodily movement produced by skeletal muscles that results in energy expenditure” (Caspersen, Powell & Christenson, 1985, p. 126). Examples include; sports participation, active transport and physical education among others.

Physical Literacy

Physical literacy is not just about the physical movement, but is defined as the child's ability to move with competence and confidence and to have the motivation to pursue purposeful physical activities (Whitehead, 2001).

What did the Programme deliver?

The Active Play Programme was delivered by four third sector organisations in four different communities in West Central Scotland.

The organisations (referred to as ventures in this report) were chosen on the basis of their capacity to deliver the programme and to engage children from the most deprived urban and rural communities in Scotland.

This chapter summarises the delivery models and the level of activity delivered by each of the ventures.

The Jeely Piece Club

The Jeely Piece Club is an experienced play provider based in the Castlemilk area of Glasgow.

The Jeely Piece Club provided Active Play in two Primary Schools in Castlemilk, Glasgow:

- Miller Primary School
- Castleton Primary

Both schools serve communities which include datazones which are among the most deprived in Scotland (Lowest 15% as defined in the SIMD 2012).

The project engaged 115 Pupils aged 7 to 9 years. Children attended two Active Play sessions per week for the period September 2015-March 2016.

In total, the Jeely Piece Club delivered 188 sessions of Active Play and achieved 2701 attendances.

PASP (Parent Action For Safe Play)

PASP is an experienced play provider based in Airdrie and operating across North Lanarkshire.

PASP delivered Active Play in four primary schools:

- Plains Primary, Airdrie (located in lowest 10%, SIMD 2012)
- St David's Primary, Airdrie, (located in lowest 10%, SIMD 2012)
- St Timothy's Primary, Coatbridge (located in lowest 40% SIMD, but catchment includes children living in lowest 20% datazones, SIMD 2012)
- Kirkshaws Primary, Coatbridge (lowest 20%, SIMD 2012)

PASP engaged with children aged 5 to 7, providing one Active Play session (of 1 hour) per week to 98 children. In total, PASP delivered 86 sessions and achieved 1936 attendances.

Healthy Valleys

Healthy Valleys is a community-led health initiative, established in 2003 to reduce health inequalities, promote positive lifestyles and improve health and wellbeing in rural South Lanarkshire communities.

Healthy Valleys delivered Active Play in Rigside Nursery and Rigside Primary School.

- Rigside is a small remote community in rural South Lanarkshire which is among the most deprived in Scotland (lowest 10% SIMD 2012).

Healthy Valleys also delivered Active Play in a community setting in Smyllum in Lanark.

- The Smyllum area contains datazones in the lowest 20% in Scotland (SIMD 2012)

In total, Healthy Valleys engaged 133 children (and 10 adults).

- Rigside Nursery (20 children aged 3-5 years received weekly sessions of 45 minutes),
- Rigside Primary School (61 children aged 5-11 received one session per week of 1 hour)
- Smyllum in Lanark (31 children aged 5-11 received one session per week of 1 hour).

Healthy Valleys also delivered additional Active Play sessions during the October school holiday in Rigside which engaged 21 children and 10 adults.

In total, Healthy Valleys delivered 100 sessions and achieved 1887 attendances.

Enterprise Childcare

Enterprise Childcare is an established third sector childcare provider in Inverclyde. Enterprise Childcare delivers a range of childcare and play opportunities aimed at improving the lives of children and their families.

Enterprise Childcare delivered Active Play through a different model. It delivered Active Play in a community setting in Upper Port Glasgow. This is an area of multiple deprivation, with datazones in the lowest 20% (SIMD 2012).

The delivery model provided a total 55 sessions (two sessions per week of 2 hours each) over the life of the project.

The nature of the delivery model is such that attendance was more variable than the school-based projects as children could 'drop in', but there was a core of children who attended regularly. The project also achieved higher attendance on Wednesday evenings than on Saturday mornings.

In total, Enterprise Childcare engaged with 92 children and achieved 699 attendances.

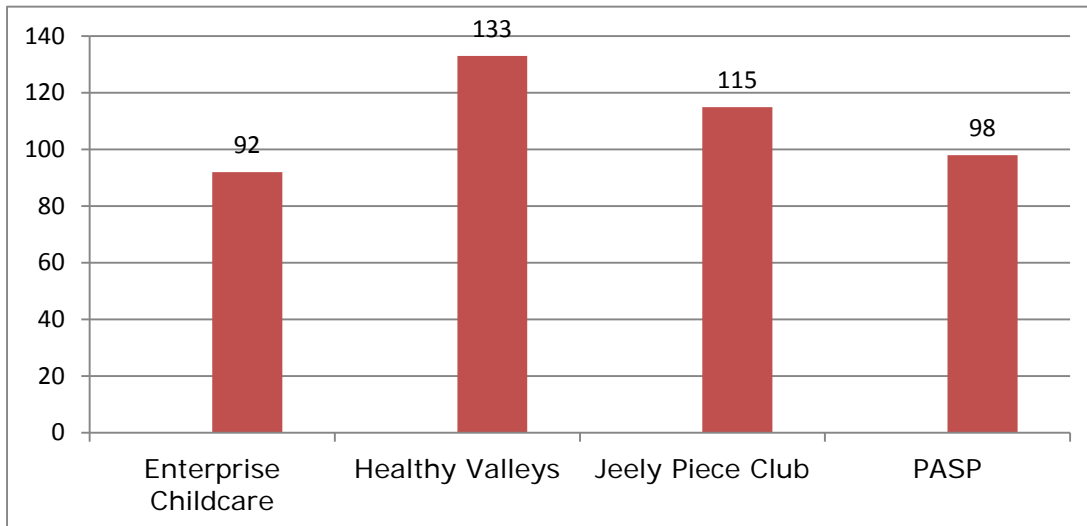
Summary of delivery models

| Name of delivery organisation | Location | Delivery Setting | Age Group | Number of children participating | Number of sessions per week |
|-------------------------------|----------------------------------|-------------------|--------------|----------------------------------|-----------------------------|
| Jeely Piece Club | Castlemilk, Glasgow | 2 Primary schools | 5-8 Years | 115 | 2 x 1 hr session |
| Healthy Valleys | South Lanarkshire (Rural/remote) | Nursery | 3-5 Years | 20 | 1 x 45 min session |
| | | Primary school | 5-11 Years | 61 | 1 x1 hr session |
| | | Smyllum community | 5-11 Years | 31 | 1 X 1hr |
| | | Rigside community | 5-11 Years | 21 | 5 over school holiday week |
| PASP | North Lanarkshire | 4 Primary schools | 5 - 8 Years | 98 | 1 x1 hr session |
| Enterprise Childcare | Inverclyde | Community | 5 - 10 Years | 92 | 2 x 2 hr sessions |

Number of children

The programme has engaged 438 children in the period September 2015 to end March 2016. Figure 1 shows the number of children engaged by each venture.

Figure 1: Number of children engaged by each venture

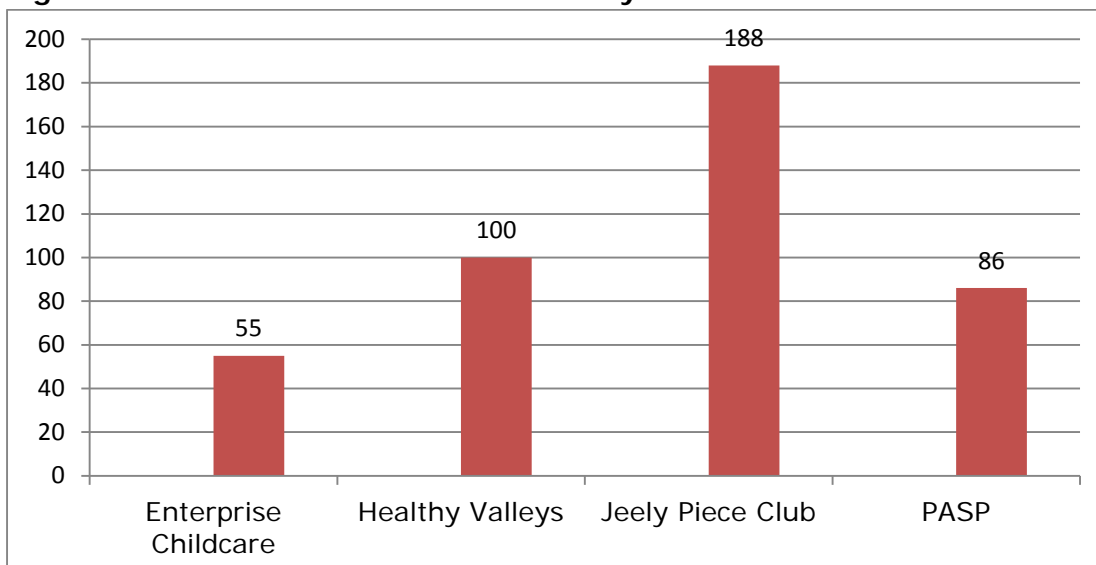


Number of sessions delivered

The Active Play Programme has delivered 429 additional play sessions to children. The number of sessions delivered by each venture is indicated in Figure 2.

However, it should be noted that while Enterprise Childcare delivered a smaller number of sessions, each session was of 2 hours duration.

Figure 2: Number of sessions delivered by each venture



Impact of the Programme

This chapter presents the evidence to demonstrate progress toward each of the four programme outcomes.

Outcome 1: Children improve fundamental movement skills/develop physical literacy

There are two indicators for this outcome:

Indicator 1: Children improve their Fundamental Movement Skills

Indicator 2: Children demonstrate improved skills, confidence and motivation for physical activities.

- There is no single measure of physical literacy, but the accepted definitions of physical literacy refer to 'the child's ability to move with competence and confidence and to have the motivation to pursue purposeful physical activities (Whitehead, 2001)'.
- As an indicator for physical literacy, the evaluation gathered evidence of increased skills, confidence and motivation among children.

Indicator 1: Children improve their Fundamental Movement Skills

The research by Strathclyde University measured children's FMS scores at the beginning (baseline) and towards the end of the intervention (follow up) to determine whether the FMS scores had improved.

The results are based on data from 102 Primary School children (ventures A, B and C).

FMS were assessed using the test of gross motor development 2 (TGMD-2) developed by Ulrich (2000) which is split into two subtests; locomotor and object control with six skills assessed in each subtest. A summary score is then calculated which is adjusted for age.

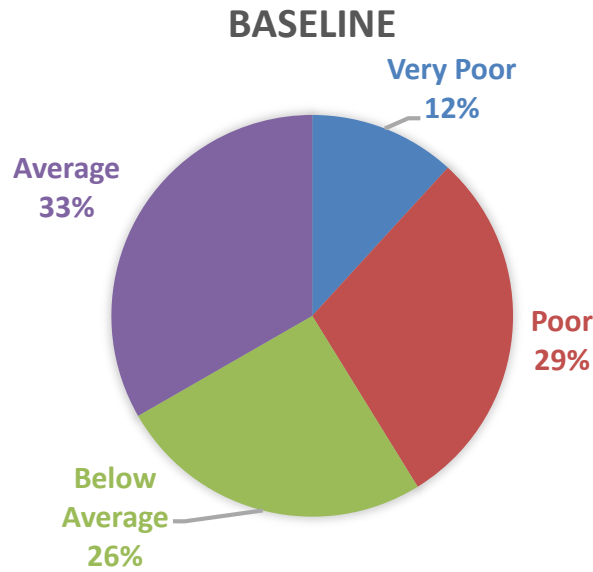
The TGMD-2 is a valid field assessment of children's FMS and has been widely used by researchers to determine children's gross motor development (Ulrich, 2000).⁷

The research identified that, at the start of the intervention, levels of FMS among children were very low. At the baseline measure, only 33% of the sample achieved average scores and none of the children scored above average scores.

- a further 26% were below average
- 29% were poor
- 12% were very poor.

⁷ Ibid

Figure 3: FMS scores at the baseline measure (before the intervention)



Results

When the tests were repeated at the follow-up, the mean FMS score increased by 10 from 83 to 93, which is a statistically significant improvement ($P < 0.001$). (A score in the 80s falls in the 'below average' category. A score in the 90s falls into the 'average' category).

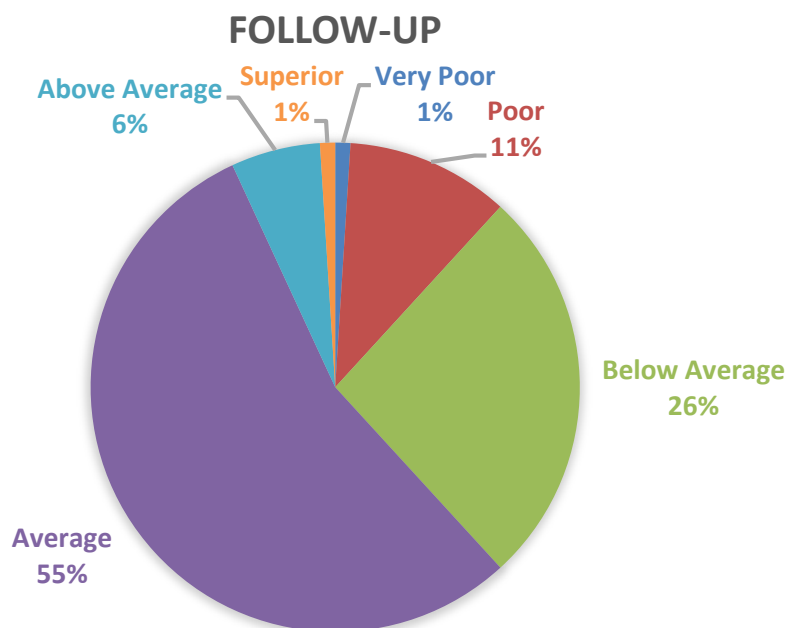
At the follow-up, there was a considerable reduction in the proportion of children who scored 'poor' or 'very poor' (40% at baseline reducing to 12% at the end of the intervention) and an increase in the percentage of children who achieved average FMS scores (from 33% to 55%). Furthermore, at follow-up there was now a small percentage of children at the above average and superior category (7%).

The FMS measure adjusts for age, so the results represents a real improvement in children's FMS.

Table 1: FMS scores at baseline and follow-up

| | Very Poor | Poor | Below average | Average | Above average | Superior |
|---------------|-----------|------|---------------|---------|---------------|----------|
| Before | 12% | 29% | 26% | 33% | 0 | 0 |
| After | 1% | 11% | 26% | 55% | 6% | 1% |

Figure 4: FMS scores at follow up



Indicator 2: Children demonstrate improved skills, confidence and motivation for physical activities

Qualitative evidence collected through observation and through questionnaires completed by children and their teachers suggest that children are improving their skills, their confidence in their physical abilities and their motivation.

Skills

Play staff observed that initially, many children had relatively poor physical skills. In particular, staff identified weaknesses in:

- Throwing and catching skills
- Batting/striking
- Object control.

Observation also highlighted poor levels of fitness but also low levels of motivation.

- Many children did not engage fully in activities,
- Children asked for frequent rest breaks.

By the end of the intervention, staff observed that children had improved their skills, were more confident in their physical abilities, were more willing to participate and more willing to try new things. Children also asked for less breaks and could participate in the whole session.

Confidence

The survey carried out at the end of the intervention demonstrated that children were more confident in their physical abilities:

- All children who completed the questionnaire reported that they had improved in at least one skill area, and most identified several skills.

"I think I'm better at skipping and throwing and kicking."

"I never used to be good at football but I'm getting better now."

Motivation

Although many children initially lacked interest and motivation, all ventures were successful in achieving high levels of engagement in Active Play. The key to achieving high levels of engagement was in planning sessions which were appropriate to the children's FMS and fitness levels, but which were fun, inclusive and active.

- Across the programme, 95% of participating children surveyed by ventures (N=135) said that they had fun at Active Play.

The survey also suggests that Active Play has changed children's perception and interest in physical activity. After the intervention, children enjoyed playing outside more and enjoyed physical activities more.

Table 2: Percentage of children reporting increased enjoyment of outdoor play and physical activities after the intervention

| | Venture A (N=52) | Venture B (N=37) | Venture C (N=46) |
|---|---------------------|---------------------|---------------------|
| Like playing outside more than they used to | 89% | 86% | 100% |
| Like doing physical activities more than they used to | 87% | 68% | 100% |

- 74% of children surveyed by Venture C identified a specific sport or activity that they liked doing more.

Teachers reported that:

- Children are more confident in their physical ability and more willing to take part in physical activities.
- A teacher at one school reported a higher level of attendance at after school sports clubs/activities among children who participate in Active Play.

Venture D, which delivered in a community setting surveyed parents at the end of the intervention. (N=14)

- All parents reported that their child enjoyed active play to a great extent and had become more enthusiastic about doing physical activities.
- 57% believed that their child had improved their physical skills to a great extent and the other 43% reported that they had seen some improvements.

Outcome 2: Children increase their levels of physical activity

To demonstrate progress toward this outcome, we used three indicators:

Indicator 1: Children participate in additional physical activity through participation in Active Play sessions

Indicator 2: Children are more active during Active Play sessions

Indicator 3: Children are more active outside Active Play sessions

Indicator 1: Children participate in additional physical activity through Active Play sessions

It was anticipated that Active Play would provide an opportunity to participate in physical activity which would be additional to Physical Education classes. It was anticipated that all children participating in Active Play (438 children) would therefore increase their levels of physical activity through participation in the project.

The degree of additionality has varied.

- Children participating in the project in Port Glasgow (Enterprise Childcare) have access to 2 x 2hr sessions of Active Play per week. While this provides up to an additional four hours per week of physical activity, not all children attend all sessions. This project is delivered in a community setting where participation is voluntary, and children can 'drop in' to sessions.
- In school-based settings, attendance is more regular, as Active Play is delivered during school hours. However, the number of sessions per week differ in the different schools. For example, children in Castleton and Miller Primary Schools in Castlemilk (Jeely Piece Club) receive two sessions (2 hours total) of Active Play per week, whereas children in other school settings are getting one session (1 hour) per week of Active Play.

Most schools have substituted Active Play for a Physical Education class. This has reduced the additionality of Active Play. There are only two classes where Active Play is delivered as well as PE classes. (See Appendix 2 for details.)

Indicator 2: Children are more active during Active Play sessions

The research by Strathclyde University measured children's levels of physical activity during an Active Play session.

The results are based on measurement of physical activity from 126 Primary School children during a one hour Active Play session delivered by ventures A, B and C. The measurement of physical activity was taken using Actigraph activity monitors which measure the amount of time sedentary, in light-intensity physical activity and MVPA (Moderate to Vigorous Physical Activity).

The research has identified that during a typical one-hour Active Play session, the average time spent in MVPA was 18.1 minutes (30.1%), though this varied across ventures (see table 3 below).

Table 3: Minutes and percentage of time spent in MVPA during an Active Play session

| | Venture A | Venture B | Venture C | Average |
|--|--------------|-----------|--------------|-------------|
| Minutes spent in MVPA during Active Play session | 20.3 | 17.8 | 15.6 | 18.1 |
| Percentage of time spent in MVPA | 34% | 30% | 26% | 30% |

It would appear from these results that Active Play sessions generate more MVPA than a typical PE class. A recent systematic review by Hollis (2016) identified that the MVPA content in primary school PE classes was as little as 11.4% of the PE time.⁸ A study conducted in Glasgow Primary Schools found that only 9% of time in PE was spent in MVPA (Fisher et al, 2011).

The findings of the Strathclyde University research suggest that even where schools substituted Active Play for PE classes, it is likely that children were more active (as measured by MVPA) as a result of participating in Active Play.

The efficacy of play in supporting higher levels of physical activity is supported by research. In a USA study, Brazendale et al. (2015) concluded that children aged 7 years spent 35% of their time in MVPA during free play (similar to active play session). This is significantly higher than MPVA achieved through more structured games and sports: - soccer (29%), kickball (17%), dodgeball (34%) and relay races (21%).⁹

The quantitative evidence is supported by qualitative data collected by the ventures which also shows that children are becoming more physically active during Active Play sessions.

Ventures report that many of the children initially lacked stamina and many were unable to participate for the full session:

- Children lacked enthusiasm for the sessions and many lacked the capacity to complete sessions without extensive breaks.
- Many of the children could not participate fully in the activities because of poor FMS.

⁸ Ibid
Ibid

- Venture A had to restructure the sessions to take account of the lack of physical capacity of the children.

Over the period of the intervention, ventures reported that children had increased their engagement with activities, and had improved their stamina and their motivation to participate. Simple examples of increased levels of physical activity are:

- Children reducing their 'time out' and not asking for rests/breaks
- Ventures are increasing the 'level of difficulty' (for example, delivering games on the full pitch rather than half of the pitch as children increased their capacity to run for longer periods of time).
- Ventures redesigning activities to ensure that children sustained their level of physical activity during the session (reducing waiting time and introducing games/activities to keep children active during 'time out' of a game).
- Children were happier to try out new activities and to take on new challenges.

Indicator 3: Children are more active outside Active Play sessions

The research by Strathclyde University measured children's levels of physical activity during a typical school day at baseline and follow-up to determine whether children became more active in their daily lives.

Physical activity was measured using an Actigraph accelerometer, which provides a measure of the minutes and percentage time spent in sedentary, light intensity physical activity and MVPA. Data was accepted if the participant had worn the Actigraph monitor for at least three school days, and had both baseline and follow-up data. The data for three days was averaged to provide a measure of physical activity for a typical school day.

Actigraph activity monitors provide a valid, objective measurement of physical activity compared to self-reported measures which tend to overestimate PA levels (Lau, Engelen and Bundy, 2013).

The results are based on data from 126 Primary School children. The findings report on the levels of physical activity in a typical school day based on combined data from ventures A, B and C.

Measurement of levels of physical activity at the start of the intervention showed that children were spending the majority of their school day in sedentary behaviour.

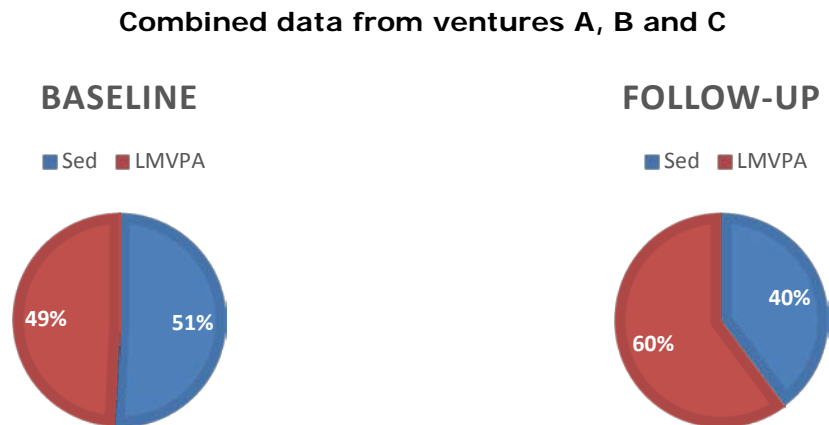
At the baseline measure, children typically spent:

- 51% of their school day in sedentary behaviour

49% of their school day in LMPVA (Light or Moderate to Vigorous Physical Activity) of which only 9% was in MPVA (Moderate to Vigorous Physical Activity).

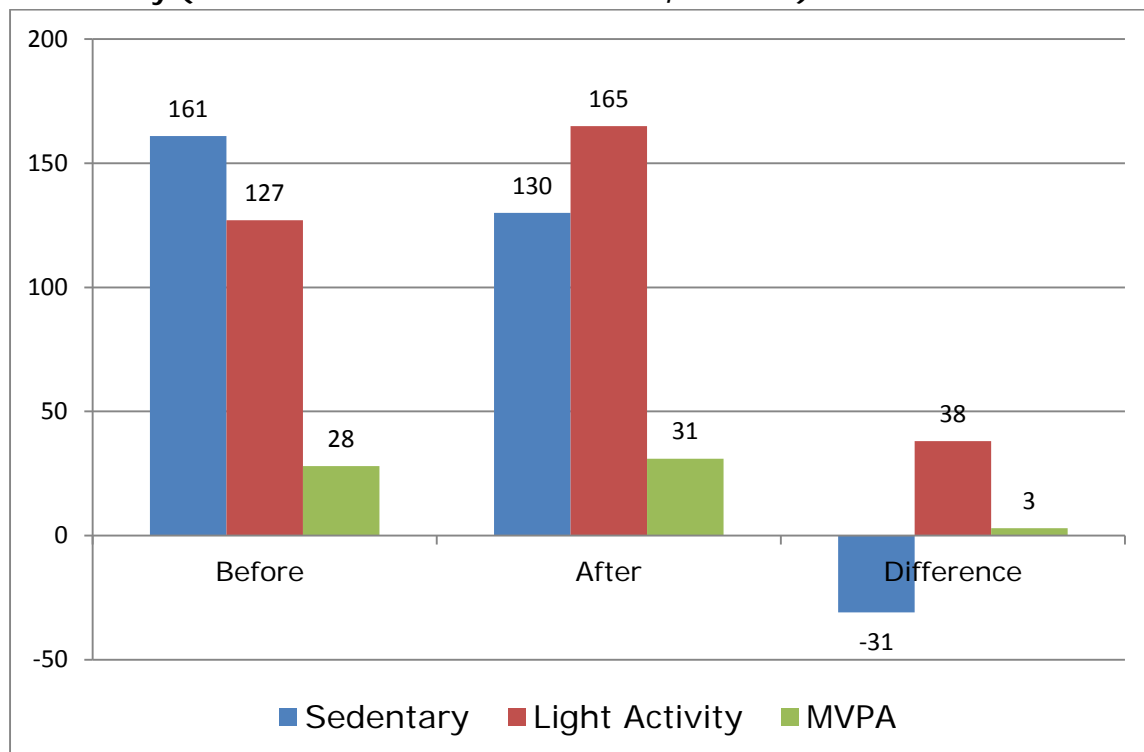
At the follow-up measure at the end of the intervention, the amount of time spent in sedentary behaviour had reduced to 40%, and the amount of time spent in LMPVA had increased to 60%.

Figure 5: Percentage of time in typical school day in sedentary and LMPVA



In real terms, this represents a reduction of 31 minutes of sedentary time and an increase of 41 minutes of LMPVA, of which 3 minutes is MVPA. (See figure 6)

Figure 6: Number of minutes spent in sedentary, light and MVPA in an average school day (combined data from ventures A, B and C)



However, the change in behaviours varied across each venture, and not all had a decrease in sedentary behaviour and an increase in light and MVPA, as can be seen in

the table below. Further detail of the results by each venture is included in the Appendix 2.

Table 4: Percentage of time in the school day spent in sedentary, light intensity and MVPA

| | Venture A | | Venture B | | Venture C | |
|--------------------|-----------|-------|-----------|-------|-----------|-------|
| | Before | After | Before | After | Before | After |
| Sedentary time | 52% | 34% | 46% | 48% | 51% | 45% |
| Light intensity PA | 40% | 55% | 45% | 42% | 39% | 48% |
| MVPA | 8% | 11% | 9% | 10% | 10% | 7% |

The biggest reduction in sedentary behaviour and increase in light intensity physical activity and MVPA was achieved by Venture A. Children in this group reduced sedentary activity by 18% and increased light activity from 40% to 55% and MVPA from 8% to 11%.

In real terms, this represents a significant **increase** in LMVPA of 65 minutes per school day from 153 minutes at baseline to 218 minutes after the intervention.

It is important to note that Venture A delivered two Active Play sessions per week to children (Venture B and C delivered one session per week), which would suggest that two sessions per week is more effective in changing behaviours.

However, only Venture A was measured at true baseline, (before the intervention began) as Ventures B and C had already started to deliver Active Play sessions prior to the first measurement, which may reduce the amount of change.

Are children more physically active outwith the school day?

The data collected from children, teachers and parents suggest that children were also more physically active outwith the school day.

Feedback from children

Evidence provided directly by children suggests that many of them are more active during the school day, and out of school.

Many of the children reported that they are using the games they learn at Active Play to play at playtime/lunchtime.

- 42% of children (Venture A), 49% (Venture B), and 85% (Venture C), said they sometimes played the new games they learned at Active Play at playtime and lunchtime.

"We like going out at playtime more as we've learned new games to play." Boy, age 6, Venture C.

"I showed my friends how to play some of our games at play time and they really liked it." Boy, age 6, Venture C.

Children also report that they are playing the games they learned at Active Play with friends after school.

- 70% of children (Venture A), 54%(Venture B) and 76% (Venture C) said they sometimes play the new games they learned at Active Play after school.

'I never used to go out to play at all, now I'm always out with Rhys.' Boy 10, Venture D.

Feedback from teachers

Feedback from teachers suggests that children who participated in Active Play were more physically active.

"The P.E. teacher has commented that my class has more stamina compared to the other classes."

"I feel that the children who are participating in Active Play are more active during our fun and fitness sessions and can last longer than the other classes."

Feedback from parents

Venture D worked in a community setting. From a survey of 14 parents:

- 79% parents said their child had become more active at other times to a great extent
- 21% reported that their child was a bit more active.

Parents also reported that children had made new friends through Active Play, and as a result were playing outside more.

Outcome 3: Children progress into more active forms of play and into sports

A key assumption in the theory of change is that, as a result of increased physical literacy and higher levels of physical activity, children will choose to engage in sports, and other physical activities, leading to healthier lifestyles.

Indicator: Number of children doing more physical activities or joining clubs/starting to use local facilities

Records show children are joining new sport and activity groups outside Active Play sessions and are more confident to take part in a wider range of sports which are new to them or which they did not like previously.

From surveys of participants, there is evidence that children have been motivated to participate in more physical activities after participation in Active Play.

- 52% of children surveyed by Venture A (N=52) had joined a club to do a physical activity
- 50% of children surveyed by Venture C (N=46) had joined an afterschool club or activity.

In Venture B (N=37), 25 children reported that they enjoyed physical activity more than they used to and nine had joined sports/activity clubs. However, it should be noted that there are significant barriers for children who do want to participate in physical activities in this area. In Rigside, there are no afterschool clubs for the children to attend and the nearest towns are 8 miles away.

In Venture D (community-based) 21% of the children have joined new clubs, but a greater number have started to play outside more and to use local facilities.

- One group of boys who have made friends at Active Play now regularly get together to play football in the play area. This is a new activity for them.
- Another group of children have started going to swimming together after the Saturday morning Active Play session.

There is also evidence that children are using local facilities (where they exist)

- In Castlemilk in Glasgow, 20 children who had not previously used the Playzone (a local play facility) have started to attend regular sessions.

While a key measure of success for this outcome was the number of children who took up a new sport or physical activity as a result of participating in Active Play, we recognised that there are gaps in provision in some areas which mean that there are no clubs or facilities to participate in sports. We therefore also attempted to measure children's interest or motivation in physical activities.

The evidence from the programme suggests that children who participated in Active Play are more interested in physical activity.

- At the end of the intervention, 86% of children (135 children surveyed by 3 ventures) said they liked doing physical activities more than they used to.

Outcome 4: Increased awareness of play as a means to improved physical literacy

Active Play sought to influence play staff, parents and schools – increasing their awareness of the benefits of physical activity, but also increasing their skills and confidence to encourage children to incorporate more physical activity into their daily lives.

Play staff are more aware and understand the benefits of physical activity

In most ventures, Active Play workers have developed a strong commitment to the benefits of physical activity and are enthusiastic advocates of physical activity. This level of enthusiasm and engagement has in some cases influenced wider play practices in the ventures.

- Some ventures have trained other staff in Active Play

- Some ventures have 'mainstreamed' Active Play, introducing new games and new practices into their other play activities.

Ventures have also reported that Active Play teams have higher levels of motivation and commitment than other internal teams.

Some workers have reported unexpected personal benefits of being involved with Active Play:

- An increase in energy and motivation for work.
- Some have reported that they have lost weight.

Play staff have improved skills and are more confident in supporting physical activity

Surveys and external assessment of staff teams show that staff skills and confidence have increased significantly over the programme.

Active Play staff are not only more confident in delivery of Active Play to children, but some have also been involved in delivering training to other venture staff and to teachers to help embed the learning.

Parents better understand the benefits of physical activity

While the project models did not include direct engagement with parents, some of the ventures have tried to influence parental understanding of the benefits of physical activity.

- Venture A regularly posts videos of the Active Play sessions on Facebook so that parents can see what the children are doing. Parents are watching the videos on Facebook and commenting on them.
- Venture B delivered a parent play day.
 - 7 parents attended the parent play day,
 - Each received activity packs which provided information on the benefits of participating in physical activity and ideas to get their children active.

Parents encourage children's engagement in more active play

Venture C surveyed 30 parents at the end of the intervention.

- 77% agreed that Active Play had changed their views about the benefits of increasing levels of physical activity for children
- 93% said that they were more likely to encourage their child to do physical activity in future.

"I will encourage them to continue playing outdoors, take them to clubs and play sports with them"

"Play outside more within the community"

"My daughter sleeps better and has more energy and plays outside more"

Venture D surveyed 14 parents:

- 92% said that Active Play had changed their views about the benefits of increasing levels of physical activity for children
- 100% said that Active Play had made them more likely to encourage their child to be more physically active in future.

" [I intend to] encourage him to play outside more and take him to different play areas and facilities."

Staff in nurseries and schools understand benefits of physical activity

There were different levels of understanding of the benefits of physical activity and different levels of buy-in to the Active Play Programme across schools.

- Ventures have had to challenge schools' attitudes to outdoor play.¹⁰ Some schools were initially unwilling to let children play outside during wet weather.
- By the end of the intervention, most schools were letting children outdoors to play even in wet weather.
- Teachers have had a varying level of involvement in Active Play.
 - Some teachers have been fully involved in the delivery of Active Play, and have started to use the Active Play activities in PE classes.

Feedback from teachers at the end of the intervention demonstrated a greater recognition of the benefits of physical activity on children. Teachers identified the following changes in children's behaviours.

- Confidence

" more confident with their physical ability and more willing to take part with harder games"

- Ability to concentrate

" concentrating on specific goals, e.g. getting the ball in the hoop for longer periods of time"

- Energy levels

○ *" able to run much longer and last during games for a longer period of time"*

"my views have changed about the benefits of increasing physical activity and I want to continue using these games and activities with my class".

Many teachers have identified wider impacts of Active Play on children:

¹⁰ Research suggests that outdoor play generates higher levels of physical activity and MVPA levels in children (Brockman et al., 2010; Gray et al., 2015).

- much better at listening and following instructions
- better at winning/losing than before
- better at working in teams.

"I've seen huge changes in their confidence, but also in things like creative thinking, resilience, conflict resolution.....it's been a revelation watching them sort it out over a ball"

"Some of the children are forming better relationships and deal with conflicts better as a result of active play"

"Children are more alert in the morning after their active play session and more confident"

Evidence of increased awareness of the benefits of physical activity in schools in North Lanarkshire

Venture C has now been approached by Active Schools Coordinators to provide Active Play within 2 Primary Schools in Coatbridge (after school hours) and 1 Primary School in Bargeddie (during school hours).

This is new, additional activity in both schools.

Both of the Schools are new to the venture (no previous relationship), so Active Play has also helped to build new relationships and new business for the venture.

Staff in nurseries and schools have the skills and confidence to support children to increase physical activity levels

Active Play staff identified that some teachers/nursery staff lacked confidence in supporting children's participation in physical activities.

However, over the life of the project, some staff have been getting involved/supporting delivery of Active Play and some teachers report that they are using games from Active Play in their own time (e.g. PE lessons) with children. Many teachers actively encourage the children to use the games they learn in Active Play during playtime and lunchtime. One teacher has incorporated Active Play games into (outdoor) Maths lessons.

Venture A has developed strong relationships with one school which has been keen to embed physical activity. The venture has provided CPD training to staff to build their confidence and skills to deliver physical activities.

Survey results show that all schools are more confident that they could deliver games and activities learned through the programme to continue to encourage children to become more physically active.

"I'll be more likely to brave the weather and go outside more often at P.E."

"I look forward to taking what I have learnt and practicing it with this class and my next ones. It was fantastic and lots of fun."

"I have learnt loads. I have participated in games and been involved in AP sessions."

Teachers made suggestions for how they might encourage more physical activity in their school. These included:

- The daily mile
- Active outdoor brain breaks
- Afterschool clubs
- Hosting lunchtime games/activities/clubs.

Evidence of increased skills and confidence among nursery teachers to support physical activity

Active Play staff from Venture B delivered Active Play training to all staff at Rigside nursery and other local nurseries.

At the training session:

- Staff were initially unsure of the physical activity guidelines and of the benefits of physical activity
- Staff disclosed that they were not confident in delivering structured Active Play and expressed concerns about not knowing what children can and cannot do.

After the Active Play training staff are more knowledgeable about physical activity and feel more confident in leading games.

- All staff are now implementing Active Play within their normal activities in the nursery
- Staff are more confident in letting the children explore different activities e.g. letting the children use the balancing beams and climbing frame.

Case study

This case study highlights how Active Play has influenced the understanding of the importance of physical activity in one school, and how that school has responded to integrate physical activity into the whole school.

The Jeely Piece club has been delivering Active Play in Miller Primary School in Castlemilk. The school serves an area that is among the most deprived in Scotland (datazones in the most deprived 15%).

Each week, the Jeely Piece Club has delivered two Active Play sessions to children in P2 and P3.

Although many of the children initially lacked confidence and motivation to take part in the physical activities, the Jeely Piece Club team developed a programme of fun and inclusive activities which has been successful in engaging the children and in building their skills, stamina and motivation.

One teacher said:

“[The Play staff] have been fantastic at getting the children involved and have planned some amazing sessions for my class.”

A parent reported that her child who had previously experienced some difficulties and often did not want to go to school, was enthusiastic about going to school on ‘Active Play’ days.

Active Play has been a great experience for the children who have participated, but has had a catalytic effect on changing the attitudes of children and teachers about the benefits of physical activity.

The school has a physical activity ‘champion’ who is developing a range of initiatives to integrate more physical activity across the school. In only one year, pupils’ involvement in sport has risen by more than 257% in Miller Primary.

“Active Play has really helped to get physical activity embedded in our school. One of the important things about Active Play is that it has been fun – there is definitely a higher uptake of afterschool activities by the children who do Active Play. It’s really changed attitudes to physical activity.”

The teachers in the school are also much more aware of the benefits of physical activity and with support from the staff of the Jeely Piece Club, have been developing their skills and confidence in delivering physical activities.

“As teachers we’ve learned lots from Active Play about making our PE sessions more active – like keeping the children moving all the time.”

The school also has children involved in delivering active play activities in the playground. With the support of the Jeely Piece Club, the school has introduced the

Mini Play Ranger Programme to the school. Mini Play Rangers are children who have been trained to lead games with other children in the playground.

- The school invited children to 'apply' for the posts of Play Ranger and applicants were interviewed by the staff team.
- The Jeely Piece team then trained the Mini Play Rangers in how to deliver games and activities and how to include all children in play.
- The Mini Play Rangers give up their playtimes/lunch times to engage other children in play.
- The Mini Play Rangers are now 'working' independently in the playground providing games and activities particularly for younger children who are isolated or struggle in the playground.

The aspiration is that the Mini Play Rangers will be running their own sport/activity clubs at lunchtimes.

Parents have also been involved and enthused by Active Play. Some of the parents (on the Sports Council) came into the school to see Active Play and were so enthusiastic that they have become involved in delivering 'stay and play' sessions afterschool for children.

The school encouraged these parents to visit the Jeely Piece Club to learn more about play and have a tour of the Jeely Piece Club facilities. As a result, one of the parents has started to volunteer with the Jeely Piece Club.

What's happened as a result?

The Active Play Programme has made a significant contribution to changing attitudes towards physical activity and developing the skills and confidence of staff, children and parents to deliver more physical activity in the school.

Miller Primary School now has a number of teachers, parents, and children supporting the development of more physical activity at the school. The school offers a range of before school, lunch-time and afternoon sports and activity sessions. It has also introduced a running club based on the Daily Mile Project which was set up by a primary school in Stirling. The 'active champion' in the school has also had training from the Jeely Piece Club and has started to deliver a Fundamental Movement Skills activity session at school (based on Active Play).

Miller Primary school was recently recognised for its achievements in promoting physical activity by being awarded the Lord Provost's Award at the Sports Person of the Year Awards.

Learning from the projects

The evidence from the research suggests that the Active Play model is an effective mechanism to engage children in physical activity, and to increase their skills, confidence and motivation to engage in more physical activities.

The key findings of the research were:

- Children improved their FMS scores and there are indications that children improved their physical literacy
- Children increased their levels of physical activity during a typical school day and qualitative evidence indicates that children were doing more physical activities outside school
- As a result of Active Play, children enjoyed physical activities more than they had before, and were motivated to participate in out-of-school clubs and sports.

The programme has also shown success in building awareness of physical activity, but also building skills, confidence and enthusiasm among staff, teachers and parents for promoting engagement in physical activity.

The delivery of the pilot programme has provided valuable learning on the delivery model and the critical success factors which should inform any future Active Play provision

The delivery model

The programme has tested and refined the delivery model for Active Play. The key elements of successful delivery are:

- To engage children in physical activity, Active Play sessions have to maintain high levels of fun and inclusiveness.
- The format of adult-led activities followed by free play where the children can practice the FMS and explore through free play has been most effective.
- Ongoing training and support to play workers has been critical to building confidence and knowledge in delivery of FMS.
- Delivery has been most effective where organisations have a clear understanding of the Active Play model and strong ownership and commitment to the programme from Management through to delivery staff.

The success of the approach is dependent on the skills and confidence of the delivery staff. However, additional to skills and confidence, the approach of the Play Worker and their capacity to engage children has been a critical success factor. Delivery staff must be positive, enthusiastic and have good levels of physical literacy to act as role models to the children.

It is important to note that children who engaged in two sessions of Active Play per week through school-based provision (compared to 1 session per week in most other school settings) recorded the greatest increase in physical activity (as measured by MVPA and LMVPA) and reduction in sedentary behaviour. This would suggest that two sessions per week is more effective in changing behaviours.

Engaging children in Active Play through schools

The Active Play Programme has proven that primary schools have been a good vehicle to engage children in physical activity.

The pilots have highlighted some practical issues in delivery. It was anticipated that Active Play would be 'additional' to existing PE classes, but many schools have substituted Active Play for PE. Although the findings of the Strathclyde University research suggest that even where schools substituted Active Play for PE classes, it is likely that children were more active (as measured by MVPA) as a result of participating in Active Play, the substitution of Active Play for PE classes has potentially reduced the impact of the programme.

Schools and other partners need to be proactively engaged from the outset to maximise the impact of Active Play. The programme has also shown that an internal 'Active Play Champion' can spread awareness and create opportunities to embed physical activity into the school.

The Active Play Programme has also highlighted the need to raise awareness of the importance of physical activity in schools, and to build the skills and confidence of staff to deliver physical activities.

- Initially many schools kept children indoors when it was raining. Active Play has highlighted the importance of outdoor play, and most of the schools have changed their attitudes to outdoor play
- Many teachers lack the skills and confidence to deliver physical activities to children. Active Play has been successful in many cases in building skills and confidence among teachers.

Lack of local clubs/facilities in many areas is acting as a barrier to participation in sports/physical activity

The intended long-term impact of the Active Play Programme is that children have the skills, confidence and motivation to participate in sport and other physical activities throughout their lifetime.

Evidence from the Programme shows that the majority of the children were motivated to do more physical activity and in locations where activities were available, a considerable number of children started to participate in new physical activities. In some areas, the ventures have been able to support the delivery of new activities (progression opportunities) and in other areas there are existing local clubs and facilities. However, in some of the locations (disadvantaged areas and rural /remote), there are a number of barriers which inhibit children's participation in physical activities:

- The findings identify a lack of 'supply' of afterschool clubs and sports facilities which has inhibited children's progression in some of the pilot areas
- The cost and time required to take children to sports/other activities is a barrier for many parents.

The lack of clubs/facilities to enable children to continue to participate in physical activity could limit the success of any future programme of Active Play.

Appendix 1: The evaluation framework

The evaluation framework identifies the indicators which have been chosen to demonstrate progress toward each outcome. The framework also shows the source of data for each indicator.

| OUTCOMES FOR CHILDREN | INDICATORS | SOURCE OF DATA |
|--|--|---|
| Children develop physical literacy and improve FMS | Improved scores in FMS Children have improved skills, confidence and motivation | Strathclyde University Research Observation, survey, feedback from teachers |
| Children increase in levels of physical activity | Children participate in additional physical activity through Active Play sessions Children are more active during active play sessions Children are more active outside active play sessions | Attendance stats Strathclyde University Research Observation by venture staff Strathclyde University Research Survey/Feedback from parents and teachers |
| Children progress into more active forms of play and into sports | Number of children using joining clubs/starting to use local facilities | Survey of children and feedback from teachers and parents |

| OUTCOMES FOR THE SECTOR | INDICATORS | HOW WILL WE MEASURE THIS |
|--|--|--|
| Increased awareness of play as a means to improved physical literacy | <p>Play staff are more aware and understand the benefits of active play</p> <p>Play Staff have improved skills and are more confident in supporting active play</p> <p>Staff in nurseries and schools better understand benefits of physical activity</p> <p>Staff in nurseries and schools have the skills and confidence to support children to increase physical activity</p> <p>Parents better understand the benefits of physical activity</p> <p>Parents encourage children's engagement in more physical activity</p> | <p>Independent assessment of staff skills and competencies</p> <p>Survey of teachers and feedback gathered through interviews</p> <p>Survey of teachers and feedback gathered through interviews</p> <p>Parent survey and collection of feedback</p> |

Appendix 2: Overview of research methodology provided by Strathclyde University

Recruitment began in September and October in primary schools who were receiving the active play intervention delivered by the three separate ventures. Recruitment involved meetings with relevant teachers at primary schools to inform them of the research protocol. Consent forms were provided and completed by the primary care giver prior to the research beginning. Participants were reminded that they could opt out of the research at any time.

Ethical approval was granted by the School of Psychological Sciences and Health ethics committee at the University of Strathclyde prior to data collection, and parents/guardians provided signed written consent to participation.

At baseline (September and October 2015), once consent was received, SIMD data and height/weight (to the nearest 0.1 cm/kg) were collected from each child to describe the deprivation and weight status of the sample. The demographics of the participants are presented in table 1. 74% of the children (N=126) are from the 15% most deprived areas of Scotland and 21% are classified as overweight or obese.

Table 1. Demographics Means and Standard Deviations

| Venture | Participant Numbers | Age (years) | Gender | Height (cm) | Weight (kg) | Number of Urban/ Rural |
|--------------|---------------------|----------------------|-----------------------------------|------------------------|-----------------------|--------------------------------|
| A | 63 | 7.3 (0.7) | 30 Male, 33 Female | 122.0 (7.4) | 24.9 (5.6) | 63 Urban |
| B | 19 | 7.1 (1.5) | 9 Male, 10 Female | 119.8 (9.6) | 23.7 (4.8) | 19 Rural |
| C | 44 | 6.4 (0.6) | 19 Male, 25 Female | 116.8 (4.9) | 22.5 (4.6) | 44 Urban |
| Total | 126 | 6.9 (0.9) | 58 Male, 68 Female | 119.9 (7.4) | 23.9 (5.2) | 107 Urban, 19 Rural |

Data presented as Mean (SD). Abbreviations: cm=centimetres, kg= kilograms

Physical activity was measured using an Actigraph accelerometer, at either true baseline (before the intervention began) or a few weeks into the intervention. The Actigraph accelerometer was attached to an elastic waist-belt worn around the child's waist for a minimum of three school days. Accelerometers provide valid, objective measurement of PA opposed to self-report measures which tend to overestimate PA levels (Lau, Engelen and Bundy, 2013). The Actigraphs' raw data was converted into relevant variables

including; minutes and percentage time spent in sedentary, light and MVPA for each school day the monitor was worn. Then, an average of the school week was calculated. Data was accepted if the participant wore the monitor for at least three school days, and had both baseline and follow-up data.

During the physical activity measurements at baseline and follow-up, the children engaged in varying lengths of active play sessions and PE sessions. Children typically received two one-hour sessions of 'organised activity', i.e. two active play sessions or one active play and one PE (although there were exceptions to this rule where children participated in less or more). Furthermore, only venture A participants were measured at true baseline, before the intervention began. Ventures B and C participants had started the active play sessions prior to measurement, which may have reduced the amount of change.

FMS were assessed using the test of gross motor development 2 (TGMD-2) developed by Ulrich (2000) which is split into two subtests; locomotor and object control with six skills assessed in each subtest. A summary score is then calculated which is adjusted for age. The TGMD-2 is a valid field assessment of children's FMS and has been widely used by researchers to determine children's gross motor development (Ulrich, 2000). FMS was assessed in a sub sample of the children from all three ventures who consented during the first few weeks of their active play sessions at baseline. FMS data was accepted if the child had both baseline and follow-up FMS data.

At follow-up (February and March 2016), PA and FMS were assessed again to explore changes in physical activity and FMS over time.

Appendix 3: Additionality of Active Play

The tables below show where Active Play has been substituted for PE classes and where it is additional to PE. In the majority of cases, Active Play is substituting for PE.

| School | Age Group | No of Active Play Sessions Per Week | No of PE Sessions Per week | Additionality of Active Play |
|--------------|-----------|-------------------------------------|----------------------------|------------------------------|
| Castleton PS | P3 | 2 x 1 Hour | 0 | No |
| Castleton PS | P4 | 2 x 1 Hour | 0 | No |
| Miller PS | P2/3 | 2 x 1 Hour | 1 x 1 Hour | Yes, 1 hr |
| Miller PS | P3 | 2 x 1 Hour | 0 | No |

| School | Age Group | No of Active Play Sessions Per Week | No of PE Sessions Per week | Additionality of Active Play |
|------------|-----------|-------------------------------------|----------------------------|------------------------------|
| Rigside PS | P1-4 | 1 x 1 Hour | 1 x 1 Hour | No |
| Rigside PS | P5-7 | 1 x 1 Hour | 1 x 1 Hour | No |

| School | Age Group | No of Active Play Sessions Per Week | No of PE Sessions Per week | Additionality of Active Play |
|-----------------|-----------|-------------------------------------|----------------------------|------------------------------|
| Plains PS | P2 | 1 x 1 Hour | 2 x 1 Hour | Yes - 1 hour |
| St David's PS | P3 | 1 x 1 Hour | 1 x 1 Hour | No |
| Kirkshaws PS | P2 | 1 x 1 Hour | 1 x 1 Hour | No |
| St Timothy's PS | P2 | 1 x 1 Hour | 1 x 1 Hour | No |

Appendix 4: Physical activity measures for each venture

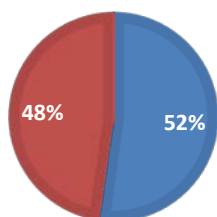
These results were produced by Strathclyde University. The diagrams show the percentage of time spent sedentary and in LMVPA over the school day at baseline and follow-up for each venture.

The percentage of time spent sedentary and in LMVPA over the school day at baseline and follow-up for each venture.

Venture A (2 Active Play Sessions Per week-)

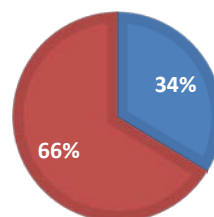
BASELINE

■ Sed ■ LMVPA



FOLLOW-UP

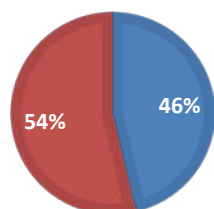
■ Sed ■ LMVPA



Venture B (1 Active Play Session Per Week)

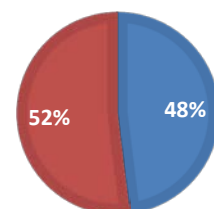
BASELINE

■ Sed ■ LMVPA



FOLLOW-UP

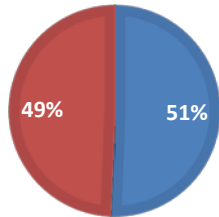
■ Sed ■ LMVPA



Venture C (1 Active Play Session Per Week)

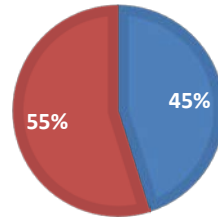
BASELINE

■ Sed ■ LMVPA



FOLLOW-UP

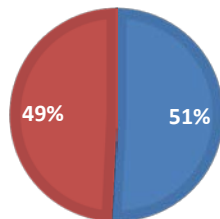
■ Sed ■ LMVPA



All Intervention

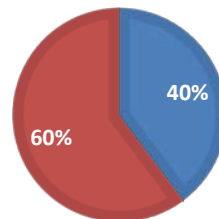
BASELINE

■ Sed ■ LMVPA



FOLLOW-UP

■ Sed ■ LMVPA

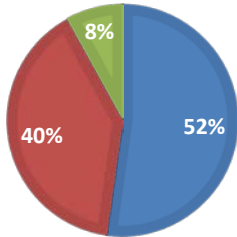


The percentage of time spent sedentary, and in light and MVPA over the school day at baseline and follow-up for each venture.

Venture A (2 Active Play Sessions Per week- true baseline)

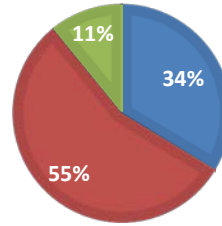
BASELINE

■ Sed ■ Light ■ MVPA



FOLLOW-UP

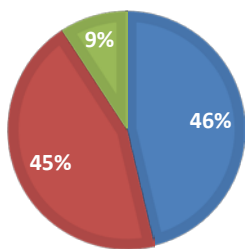
■ Sed ■ Light ■ MVPA



Venture B (1 Active Play Session Per Week)

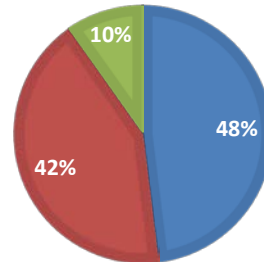
BASELINE

■ Sed ■ Light ■ MVPA



FOLLOW-UP

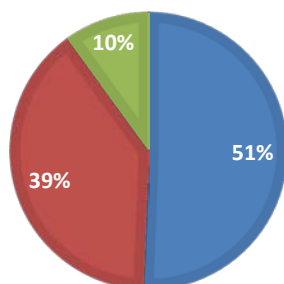
■ Sed ■ Light ■ MVPA



Venture C (1 Active Play Session Per Week)

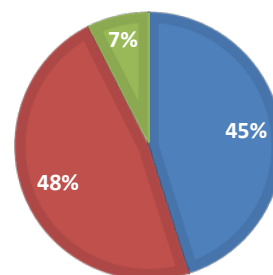
BASELINE

■ Sed ■ Light ■ MVPA



FOLLOW-UP

■ Sed ■ Light ■ MVPA



*Note: Follow-up measurement at Venture C was hampered by poor weather conditions which may have affected the follow-up activity measurements.



Level 1 Riverside House
502 Gorgie Road
Edinburgh
EH11 3AF
0131 442 8760

www.inspiringscotland.org.uk



Inspiring Scotland is a Company Limited by Guarantee registered in Scotland No. SC342436 and a registered Scottish Charity, No. SC039605