



Research report
summary

Rethinking how we use bikes in the nursery

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Date: May 2021

Abstract

London Early Years Foundation (LEYP) operates as part of a social enterprise designed to provide at least one third of the 4,500 available nursery places to children from poor and disadvantaged families/communities as identified in the Income Deprivation Affecting Children Index (IDACI).

The organisation uses a specific social pedagogy concentrating on the health and well-being of children; particularly those who are at higher risk of child obesity. A 2015 UK All Party Parliamentary Group report on a Fit and Healthy Childhood referred to the need to emphasise the importance of physical activity in the early years. It referenced a UK study of 500 mothers and 4-year-olds, which showed that only one in ten 2–4-year-olds meet the Chief Medical Officer's activity requirements. This implies there is a need to increase the amount of quality physical activity in the early years and that parents and carers have a crucial role in developing healthy habits early on in life.¹

The organisation's action research model encouraged staff to initiate and lead small-scale studies to review how bikes were used by children and the benefits that were emerging.

The research paper records the process of the internal action research on how children used bikes, and parents' opinions on whether bikes were helpful to their children, with a view to creating a bike-lending scheme.

The paper concludes that staff see many physical and sociolinguistic benefits to using bikes, but that there are barriers to usage including cycling surfaces and the state of bike repairs. Parents understand the physical benefits their children gain as they learn to ride bikes and they see bikes as a key part of their children's nursery life. They are almost evenly divided as to whether they could use a bike-lending scheme. The weather and limited time were the main reasons given for the lower usage of bikes outside.

Key words

Social Enterprise, Social Pedagogy, Child Obesity, Physical Development, Bicycles

¹<http://www.bhfactive.org.uk/beststart/index.html>

Introduction

In 2020, a group of eight London Early Years Foundation (LEYF) nurseries concerned about rising rates of child obesity decided to explore if staff were missing an opportunity to create a positive attitude to fitness by making better use of bikes. They undertook a six-week pilot study which included seeking parents' views about the benefits of bikes to their children in nursery and whether they would support a nursery based bike-lending scheme to improve access to bikes especially where space and finance were barriers to having bikes.

The rise in child obesity is increasing.² In 2014, 41 million children aged 0–5 were obese and the predicted figure for 2040 is 75 million. Recent statistics for the UK showed that 13% of children aged 2–4 are obese and a further 16% are overweight.

The nurseries wanted to understand how they could support positive attitudes towards healthy lifestyles and began by testing whether better use of bikes would build this healthy attitude.

Parents agreed with the view, but as many families could not afford bikes, they wanted to use the findings to decide whether to develop a bike-lending scheme.

The pilot nurseries are part of a social enterprise in London providing early childhood education and care to 4,500 children aged 0–5. Social enterprises are revenue-generating businesses aiming to support social, cultural, community economic and/or environmental outcomes and to earn revenue. This social enterprise uses a subsidised sustainable fee structure to fund nursery places for disadvantaged families and run nurseries in deprived neighbourhoods.

The role of physical development in reducing child obesity

Physical activity plays an important role in the prevention of obesity in childhood and adolescence and reduces the risk of obesity in adulthood. A large proportion of children and adolescents do not meet recommended physical activity guidelines. García-Hermoso et al. (2019) recommended that interventions to prevent obesity should be directed towards improving the physical fitness of preschool age children.³

According to the cycling charity Sustrans, cycling can help children get the recommended 60 minutes of physical activity per day, which one-third of children do not currently achieve. It lists the benefits of cycling on its website and highlights that many children find cycling enjoyable. In addition, teachers note that children who walk and cycle to school are more alert and ready to learn than those who arrive by car.

² Manners, L. (2019) *The Early Years Movement Handbook*. Routledge

³ García-Hermoso, A., Alonso-Martinez, A.M., Ramírez-Vélez, R. et al. Effects of Exercise Intervention on Health-Related Physical Fitness and Blood Pressure in Preschool Children: A Systematic Review and Meta-Analysis of Randomized Controlled Trials. *Sports Med* 50, 187–203 (2020). <https://doi.org/10.1007/s40279-019-01191-w>

The Play on Pedals report (2017), found bike riding had the following benefits:

- It increased physical activity and improved children's motor skills, balance, coordination, strength and general control.
- It also increased parents' physical activity and built their self-confidence, enhancing family relationships.
- It improved children's behaviour, increased concentration, listening and perseverance and children's sociability and fostered a sense of responsibility, ownership, and awareness of safety.⁴

Lala Manners (2019) argues the importance of physical activity for children's well-being, and the need to create a policy for physical activity and guidance about time spent outside. She reflects on a comment by Thomas Weaver (2015) who calls for us to return to the poetry of the back garden.⁵ This ties into the views of the nursery staff who often talk about our 'urban outdoors' and how we use it to benefit our children's ability to become confident cyclists.

The context of the pilot study

Child obesity issues are complex. There have been 14 Government Obesity Strategies since 1992 leading to the introduction of 689 policy reports and yet obesity rates have increased.⁶

The London Mayor's Child Obesity Taskforce was set up in 2018, to bring about a transformation in London so that every child can grow up eating healthily, drinking plenty of water, and being physically active.

According to a Trust for London Report⁷ childhood obesity was more prevalent in London than in England generally in 2018/19, with 23.2% of children in Year 6 considered obese in London, compared to 20.2% in England. Barking and Dagenham had the highest proportion of childhood obesity of the London boroughs at 29.6% (a 5.5%-point increase since 2008/9). Only 10.7% of Year 6 children in Richmond upon Thames were obese (almost a percentage point rise since 2008/09). Others experienced slight or no change at all; for example, the rate in Westminster remained at 24.2%. Given this information, we chose to include nurseries in all three of these boroughs in the project.

Research conducted by the University of Bristol for Fit for Sport (2019)⁸ found that 78% of primary school pupils across the UK measured through their Healthy Active Schools System (HASS) were failing to meet the recommended fitness levels for their age group.

Given this emerging evidence, LEYF began a partnership with Bikeworks in 2018. Bikeworks is a non-profit social enterprise set up in 2006 to provide cycling opportunities to those most likely to be excluded. Since 2018, Bikeworks has donated over 200 brand-new bikes to LEYF nurseries. Nurseries did not want only to use the bikes as part of the nursery provision, but also considered how they could be used as part of the home-learning approach, which is the sixth strand of the LEYF Pedagogy.

⁴ Play Together on Pedals' in Glasgow Report. <https://www.cyclinghub.scot/mediaLibrary/other/english/17311.pdf>

⁵ Weaver, T. (2015) Returning to the Poetic: *EYE (Early Years Educator)* 17. 7 November 28-30

⁶ <https://www.politicshome.com/thehouse/article/can-the-governments-obesity-strategy-tackle-the-uks-weight-crisis>

⁷ <https://www.trustforlondon.org.uk/data/child-obesity/>

⁸ <https://www.fitforsport.co.uk/blogs/detail/78-of-uk-children-failing-to-meet-recommended-fitness-levels#>

The idea of a bike-lending scheme began to emerge through conversations with parents and children. Staff noticed how few children had a bike at home, that parents commented on how expensive bikes were and that there were storage issues in small flats. The nurseries decided to lend children the bicycles with the aim of using bikes to encourage physical activity and to identify whether using bikes would improve children's health, physical skills, and confidence.

The nurseries started a small-scale lending scheme to give children access to a bike without the added expenditure of purchasing a bicycle they would outgrow. The lending scheme also enabled nurseries to reuse the bicycles, creating environmental benefits by reducing landfill waste.

The unintended learning and health and well-being outcomes from the Play on Pedals project included an observation of the positive effects on children with behavioural problems and increased engagement in activities for children with additional needs and disabilities such as autism and hearing impairments. Also, it provided parents with advice on bicycle maintenance, helmet fitting, and how to turn the bike into a balance bike.



The purpose of the study

Staff from the nurseries wanted to explore whether bikes could be used more effectively as part of children's healthy lifestyle, so they agreed to observe how the children used the bikes and sought parents' views about the benefits of bikes. The aim was to gather information on whether it was worth developing a bike-lending scheme across the whole organisation.

The study participants

In total, eight 50-place nurseries were invited to become part of the pilot.

Each of the eight nurseries identified one or two staff who were called 'Bike Champions' to lead the project. The Bike Champions were invited to attend a Zoom workshop on the pilot to explain the rationale for the research including providing support materials including a PowerPoint presentation. The champions shared their learning and considered the wider implications from the project at the end. The nursery managers oversaw the delivery of the project and the Area Manager responsible for each pilot nursery added the bike research to their monthly audit and monitored progress.

Ethical issues and consent

This study was conducted in line with the research ethics guidelines provided by the British Educational Research Association, Ethical Guidelines for Educational Research fourth edition (BERA 2018).⁹

Voluntary consent was obtained from the staff in the nurseries and managers spoke informally to each parent explaining the research and the rationale for the project. The children were asked about how they used the bikes in the nurseries in their weekly

planning meetings, in which they discuss what interests them or what new equipment or resources they want in their nurseries. The actions were agreed at the end of the session and read back to the children to gain their consent.

It was agreed that the pilot would need at least six weeks and that parents and staff details would remain anonymous. Informed consent from parents was gathered after they had been given written information about the project and how data was to be handled and disseminated.

We used a mixed method approach to collecting data. We decided on observations because they are effective mechanisms for collecting data about physical development especially audio and visual recordings.¹⁰

The research methods also included questionnaires, feedback sessions, semi-structured interviews, and focus group conversations. Cross-sectional questionnaires were distributed via Survey Monkey to both parents and nursery staff. The questionnaires were anonymised to encourage respondents who might otherwise be hesitant and to reduce social desirability bias and consisted of both closed questions (where possible) and open-ended questions.

⁹ BERA-Ethical-Guidelines-for-Educational-Research_4thEdn_2018.pdf

¹⁰ Manners, L. (2019) *The Early Years Movement Handbook*. Routledge



Evaluation of the action research project was achieved through individual interviews with all teachers involved in the eight nurseries. The interviews were interactive and conversational and were transcribed verbatim. Copies of transcripts were provided to the teachers for checking.

The observations were transcribed and coded using a hybrid thematic approach.

How did children use the bikes?

The observations suggested that children mostly used the bikes in group-led activities, rather than in solitary play.

In Leys Nursery & Pre-School, the children were observed using other tools in creative ways alongside the bikes, such as tying a ribbon, or a walking stick to the bike. One child even connected a scooter to a bike. The use of bikes for purposes other than cycling was rare, but activities such as playing with the pedals and using the bike as a seat in the sand tray while collecting objects were observed.

In both Bushy Tails Nursery & Pre-School and Barking Riverside Nursery & Pre-School, children showed high engagement with the bike fixing station. In Barking Riverside Nursery, this was after the children's plan-

ning meeting, and the children used a variety of tools to fix and clean the bikes. In Bushy Tails Nursery, the children added their own props in addition to the tools provided. Similarly, children engaged well in car washing provocations.

Playing with the bikes encouraged learning about bike mechanics and bike safety

In Soho Nursery & Pre-School, for example, one provocation activity involved placing a wheel pump in the nursery and telling the children that it was used to pump the wheels with air. The children worked together to figure out how to use it and they also turned the bike upside down, discussed where the brakes were, and moved the handlebars to understand the mechanics of the bike.

The observations also demonstrated the children's awareness of bike safety. One child called out that they needed a helmet. They were observed saying that if they fell off the bike going too fast, they were going to bang their heads.

Provocations encouraged children to share experiences and reinforced role play

Some form of child-initiated role play was observed in seven out of the eight nurseries, with most of these role-play activities using the bikes to simulate being in traffic. The table below showcases the children's responsiveness, detailing the provocations and the corresponding role play:

Nursery	Provocation	Role play
Marks Gate	<ul style="list-style-type: none"> • Road with bus top and zebra crossing • Tunnel • Tyre shop 	<ul style="list-style-type: none"> • Bus conductor asking for tickets • Ambulance • Pretending to fix tyres
Barking Riverside	<ul style="list-style-type: none"> • Fuel station with watering cans 	<ul style="list-style-type: none"> • Two boys pretended to fill up each other's bikes with fuel.
Soho	<ul style="list-style-type: none"> • Obstacle course 	<ul style="list-style-type: none"> • The children used the obstacle course as a traffic light game, as well as to role play travelling on the road, including as a delivery man.
Furze	<ul style="list-style-type: none"> • Mud kitchen 	<ul style="list-style-type: none"> • Used mud to clean bikes as a car wash activity.

Use of bikes promoted knowledge of roads and traffic

Traffic light and physical road games using the bikes appeared to be effective at teaching the children the rules of the road in Ford Road, Bushy Tails and Leys nurseries, with children relating games to other relevant experiences, such as in the traffic light game where they showed an understanding of traffic light colours, saying:

"It's red, STOP!"

"Green, let's go!"

In Bushy Tails Nursery, some children showed further knowledge of road rules, often resulting in *cautious behaviour*, such as moving slowly in response to 'an accident'.

Conflict was sporadic, and sharing bikes was the most common form of conflict

Conflict was observed at five nurseries and it occurred sporadically across the six-week period. The most common source of conflict was sharing and taking turns. In certain situations, children appeared capable of resolving this conflict without adult intervention through conversation and negotiation.

However, conflicts in which a child attempted or was successful in taking another's bike, were not resolved easily, and often required adult intervention to explain to the children that they must wait their turn.

Despite incidents of occasional conflict, children were able to share and take turns

Many observations contained positive references to children sharing and taking turns without conflict. Children became more confident in allowing each other to take turns with the bikes, over the time period, particularly after adult intervention and encouragement.

Observations about physical skills were few and far between

Observations contained few references to physical skills, and when found, were often too few and far between to detect any physical skills development over the six-week period. Six out of the eight participating nurseries made observations on physical skills.

A few challenges were observed but children often cooperated to solve them together

Challenges were observed in seven out of the eight nurseries and the majority related to pedalling the bike, for example because the bike was faulty (the tyres were becoming flat) or the grass was too thick.

The resulting difficulty in moving the pedals led to reduced interest and subsequent change in activity, or frustration. However, over the time period, more effort was made to move the bikes, and consequently, children either learned to push themselves with their feet, or, cooperated by pushing their peers on their bikes. Some became able to pedal.

Other challenges were tackled through cooperative problem-solving, for example, when two bikes were stuck under a bench in LY, two boys worked together to pull it out. In addition to cooperation, sharing, and problem solving, children showed empathy and apologised when bike crashes occurred.

Seven nurseries organised, children's planning meetings over the six-week period, which aimed to give children a say in what they wanted to do with the bikes and/or what they liked to do on the bikes.

The top nine answers are listed below:

Activity of interest	Number of mentions
Role play: dragon/car, bear hunt, superheroes, police chasing robbers	4
Catch me if you can/tag	4
Ride bikes outside the nursery: to the shop, in the park, on the road	3
Drawing with/pictures of the bikes	3
Riding on/down a hill	3
Racing	2
Going fast	2
Fixing bikes	2
Exercises	2

At Marks Gate and Soho nurseries, children were asked if they had bikes at home. All the children involved in Soho Nursery's planning meeting on 5th March said that they had bikes at home and that they rode their bikes to the park. At, Marks Gate Nursery two children out of the eight that were asked didn't have bikes, but both said they liked playing with the bikes at the nursery. One of the children said they would like a bike at home.



Action Research Overview

High engagement with bikes

The reflections of nursery practitioners revealed the children's high engagement with the bikes and provided details on what activities children particularly engaged in and enjoyed.

Some nurseries said that role play was as an activity the children enjoyed. In Soho for example, the role play was child-initiated, as they liked to 'make up scenarios'. Role play was linked to the mud kitchen, as soil was applied to the wheels and washed off. It became a 'car-wash' activity. Therefore, it could be worth exploring introducing more props alongside bikes to increase engagement. Two nurseries cited the children's *interest in taking bikes home*, to ride them to nursery or at the weekend.

There were some *gender differences in engagement with the bikes*. More boys played with the bikes at Soho Nursery, and more boys 'wanted to ride the bikes first' at Furze. Yet, this may be because Furze Nursery has more boys. Despite boys outnumbering girls in bike usage in Soho, the girls were 'more active and came up with more elaborate play scenarios'.

Variation in bike skills

Marks Gate Nursery noted that the children 'are learning how to ride a bike quicker [and] avoid obstacles'. Contrastingly, Eastbury observed that the children 'find it too difficult to use them effectively' due to the thick grass, consequently, only a couple of children could pedal.

Social skills development

In Furze Nursery & Pre-School, at the beginning of a session, children would use the bikes in solitary play, but after ten minutes would play more collaboratively, which increased conversation. Soho Nursery noted that while playing with the bikes, the children were 'able to communicate their thoughts and feelings with each other, discussing and extending, through trial and error'.



Actions that need to be taken

Need for bike repair

There is a clear need for regular bike repair. Soho, Eastbury and Marks Gate nurseries all cited issues with their bikes, reducing the number of bikes available for children.

Adapt the nursery setting for ease of cycling

Both Eastbury and Soho nurseries noted the need for more space for the children to manoeuvre the bikes, particularly in Eastbury Nursery, where the grass is too thick to cycle on. Consequently, Eastbury recommended installing a paving area or track.

Adapt the nursery setting to enrich learning opportunities

Some nurseries recommended strategies to 'incorporate multi-layered learning', using *more props* to 'build a story around the bikes' and support role-play activities. Furze. recommended 'visual prompts such as colour-coded flash cards' – presumably for traffic light games. Leys recommended more adult involvement in bike activities such as role play. Increased use of sand timers to encourage sharing and taking turns was also recommended by both nurseries.

Continue bike-lending scheme

Both Barking Riverside and Marks Gate nurseries advocate continuing or restarting the bike-lending scheme and discussing the benefits of riding a bike with parents or guardians.

Conclusion and implications

The following identifies the specific commentaries from the participating nurseries and the recommendations follow on from the conclusions.

The research was conducted during the COVID-19 pandemic; therefore lockdown may have affected some of the results we received particularly from parents and how and when they allowed their children to cycle. For example, for two months, the parks were closed.

There were two changes to the nurseries from the original group. Two of the original nurseries were closed due to lockdown and replaced by two other nurseries of similar size and demographics. The other nurseries remained open although the groups operated in bubbles which meant they remained within their own specific space. In one nursery the bubbles extended outside because of the design of the building which limited the space available for the children to use their bikes. It is also worth noting that staff tended to describe all wheeled toys as bikes.

According to staff, bikes were used frequently and supported many elements of learning including building confidence. The children had a variety of abilities in using the bikes but learning to brake was considered the biggest challenge. While most staff thought they had sufficient space to enable the children to use their bikes, there were some issues regarding the type of ground for cycling.

One nursery noted that after COVID they were going to take the children outside to cycle around the neighbourhood on pathways, and other nurseries changed their outside spaces. They all agreed that the research had made staff carefully observe more how bikes were used to support children's learning.

One staff member also commented about the bikes needing to be repaired. Most parents said their child had a wheeled toy at home mentioning bikes and scooters most often.

There was a mismatch in what parents said about the frequency that they used the bikes. Parents stated they used their bikes weekly but when asked about taking the bikes outside the number differed and was much lower with the main reasons being bad weather and limited time. Reasons such as the child not being interested in cycling, darker evenings and a concern about street safety were also mentioned but by very few respondents.

In terms of the types of learning children gained from bikes, responses ranged from physical development, coordination, motor skills to spatial awareness. Some staff also noted the importance of balance bikes as a precursor to learning to cycle.

Sociolinguistic skills were also referenced as well as taking turns, teamwork and negotiation, and role play. Staff found that while children responded well to their ideas about, for example, making traffic lights with them, the children's ability to extend their own play more was interesting.

Parents' responses were much more focused on the physical skills needed to learn to ride a bike, with many parents suggesting children would be learning these at nursery. They listed concerns about their children learning to ride, including the ability to stop, start, steer, navigate, control speed, and predict danger. The staff only mentioned braking as a challenge.

With regards to a bike-lending scheme, approximately 30% of the respondents already operate a bike-lending scheme. The others were considering one or had put the decision on hold during the pandemic.

54% of parents rejected the idea of a bike-lending scheme, citing the fact that their child already had a bike or the distance between home and the nursery was too long.

Of the respondents who wanted a bike-lending scheme, half did not give a reason for why they answered yes. The two most common reasons given were that their child enjoyed cycling and that they wanted their child to learn how to ride a bike. One nursery had a follow-up conversation with parents who had become more inclined to borrow bikes during COVID. The families had started meeting in the local park and they borrowed the bike so their child could cycle in the park.

Recommendations and Next Steps

The staff leading the research agreed they were much better informed about how they could use bikes to support children's learning and development. It made them consider doing similar research on how we use other standard nursery resources as part of the nursery experience. Being part of the study improved staff's observation skills as they were much more motivated to meticulously watch the children in action.

The Bike Research had also extended the conversation about being outside and the importance of connecting with nature. This was particularly driven by being outside with the bikes and using parks and green spaces more.

Staff all agreed that the research had made them reflect and consider their teaching, and they recommended that the study should be extended across all 42 nurseries in the organisation. They agreed there should be a greater emphasis on the

link between bikes and a healthy lifestyle. They also suggested we focus on examining other 'Sacred Cows' of Early Years such as sand trays, dolls, and mud kitchens.

They also recommended we review our Outdoor Policy and develop an organisational training programme called Connecting to Nature to help staff see the benefits of weaving ways of learning about nature into the daily teaching activities.

Finally, they recognised the challenge of how to embed action research robustly and consistently across the organisation and suggested that we give individual staff small action research projects so they could learn by doing and use the language of action research with greater confidence and strengthen their pedagogical leadership.



References

For references, online sources and questionnaires, please see the main report: LEYF (2021) *Bikeworks Research Academic Paper*

¹ <http://www.bhfactive.org.uk/beststart/index.html>

² Manners, L. (2019) *The Early Years Movement Handbook*. Routledge

³ García-Hermoso, A., Alonso-Martinez, A.M., Ramírez-Vélez, R. et al. Effects of Exercise Intervention on Health-Related Physical Fitness and Blood Pressure in Preschool Children: A Systematic Review and Meta-Analysis of Randomized Controlled Trials. *Sports Med* 50, 187–203 (2020). <https://doi.org/10.1007/s40279-019-01191-w>

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⁹ [BERA-Ethical-Guidelines-for-Educational-Research_4thEdn_2018.pdf](#)

¹⁰ Manners, L. (2019) *The Early Years Movement Handbook*. Routledge



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