# Active Travel to School: The Effectiveness of School-based Travel Interventions

SASNet Fellowship

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Urban Big Data Centre

An ESRC Data Investment

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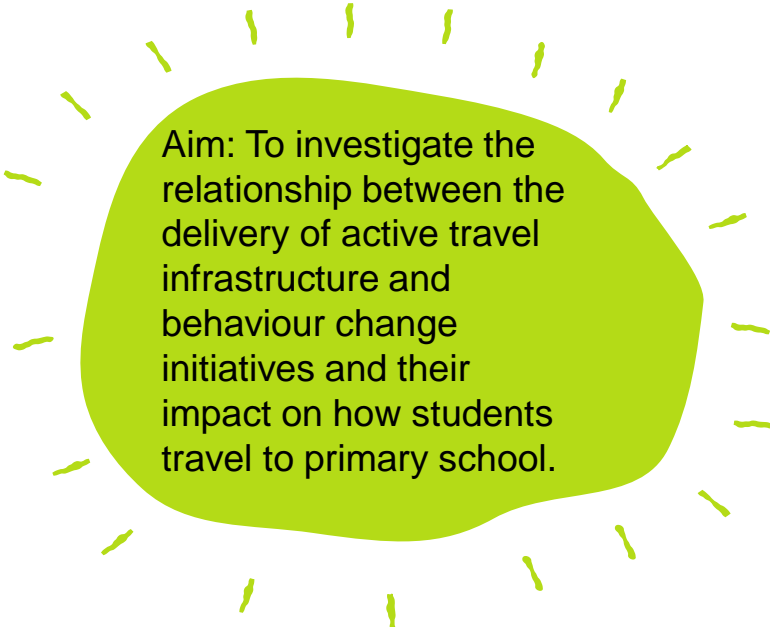
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# SASNet Fellowship Programme

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The fellowship has enabled Sustrans to attend training sessions, receive advice on research approach and method as well as accessing UBDC data.

This research partnership has sought to make best use of school travel data from the Hands Up Scotland Survey (HUSS) Official Statistic, Sustrans project-level data on primary school-based interventions and spatial data on green space from UBDC.

Aim: To investigate the relationship between the delivery of active travel infrastructure and behaviour change initiatives and their impact on how students travel to primary school.

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# Sustrans – What does our schools work involve?

Our Education and Young People Team works with Local Authorities, schools and other key partners in Scotland to encourage and empower pupils, parents and teachers to make the journey to school as active as possible.

Supporting schools to develop School Travel Plans

Big Pedal – UK's largest inter-school cycling and scooting challenge

I Bike programme in 12 LAs across Scotland

# Key research questions

1. What is the individual effect on active travel to school through the delivery of behaviour change interventions and small scale infrastructure as shown by HUSS data?

2. What is the combined and cumulative effect on active travel to school of the above interventions as shown by HUSS data?

3. Is there a sustained effect on pupil active travel to school from any one or mix of the above behaviour change interventions?

# Hands Up Scotland Survey (HUSS)

Established in 2008, the Hands Up Scotland Survey looks at how pupils across Scotland travel to school and is the largest national dataset on school travel.

Active travel definition:

Percentage mode share occupied by walking, cycling and scooting/skating to school

49.3% of pupils travelled actively in 2016

1,938 schools responded in 2016

31 local authorities

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# Data sources

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Active travel measure:

HUSS 2013-2016

Interventions:

- I Bike

- School Travel Plan

- Big Pedal

- Bikeability (Levels 1 and 2)

- Cycle parking

- Scooter parking

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# Additional data sources

Urban rural classification

Proximity to a cycle route (NCN)

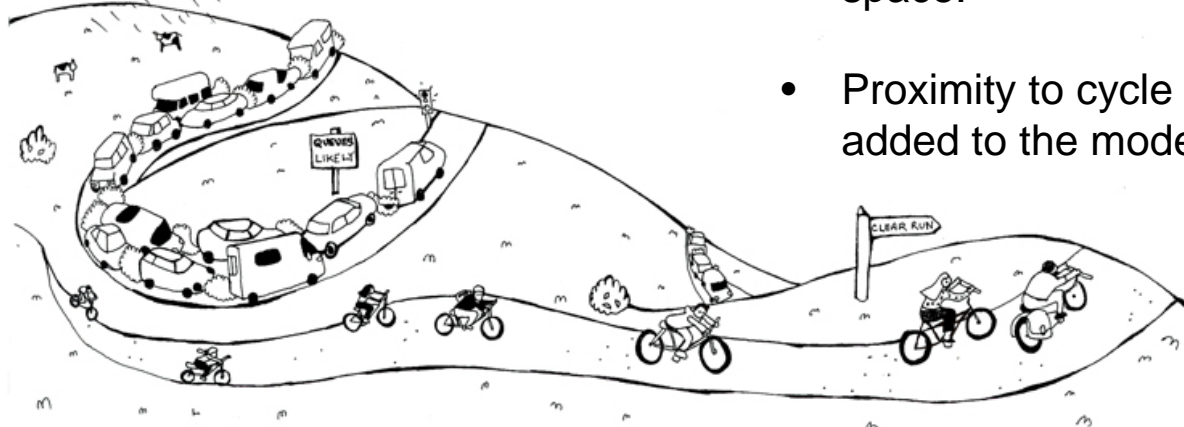Proximity to green space

Pupil deprivation

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# Methodology

**HUSS and intervention data for 2,063 primary schools**

- Tested the findings of the descriptive statistics using a panel model.

- Active travel showed no correlation with interventions. Cycling became the focus due to the nature of the interventions.

- Spatial analysis of cycle routes and green space.

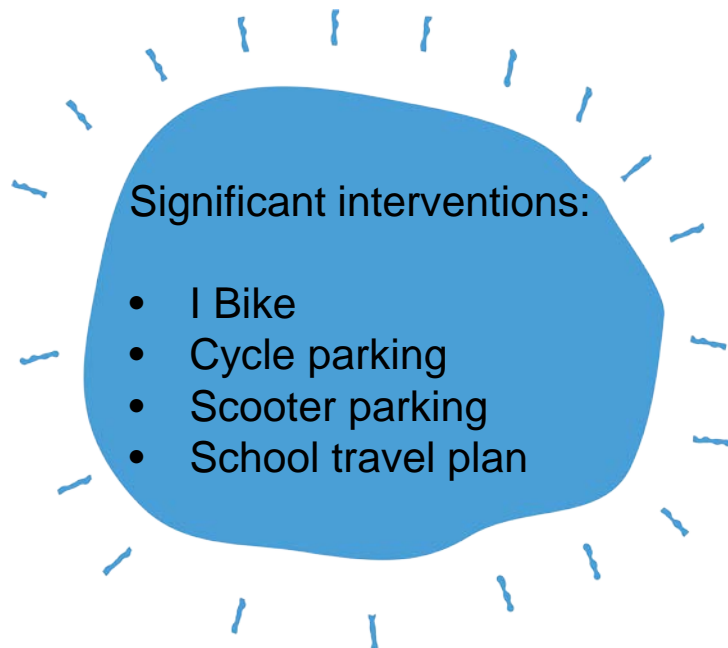- Proximity to cycle route and green space added to the model for statistical testing.

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# Results

Schools with no intervention:

46% active travel mode share

| Intervention | Active travel to school (%) | Percentage point change from no Intervention |
|---|---|---|
| I Bike | 57% | 11% |
| Big Pedal | 56% | 10% |
| Scooter parking | 56% | 10% |
| Bikeability | 50% | 4% |
| Cycle parking | 49% | 3% |
| School Travel Plan | 47% | 1% |
| No Intervention | 46% | |

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# Results

Significant interventions:

- I Bike
- Cycle parking
- Scooter parking
- School travel plan

One intervention with cycling as the dependant variable

| Intervention | Coefficient | P value |
|---|---|---|
| I Bike | 0.15 | 0.01 |
| Cycle parking | 0.12 | 0.01 |
| Scooter parking | 0.12 | 0.01 |
| School Travel Plan | 0.06 | 0.03 |
| Bikeability | -0.01 | 0.73 |
| Big Pedal | 0.01 | 0.90 |

# Results

No correlation between cycling and:

- Pupil deprivation
- Urban rural

Two interventions with cycling as the dependant variable

| Interventions | Coefficient | P value |
|---|---|---|
| I Bike and School Travel Plan | 0.21 | 0.01 |
| School Travel Plan and Cycle Parking | 0.09 | 0.05 |

Three interventions with cycling as the dependant variable

| Interventions | Coefficient | P value |
|---|---|---|
| I Bike, School Travel Plan and Big Pedal | 0.19 | 0.01 |
| I Bike, School Travel Plan and Bikeability | 0.15 | 0.04 |
| I Bike, School Travel Plan and Scooter parking | 0.24 | 0.05 |

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# Spatial analysis



Map of HUSS Schools

Legend
- Green space
- Cycle routes
- Schools
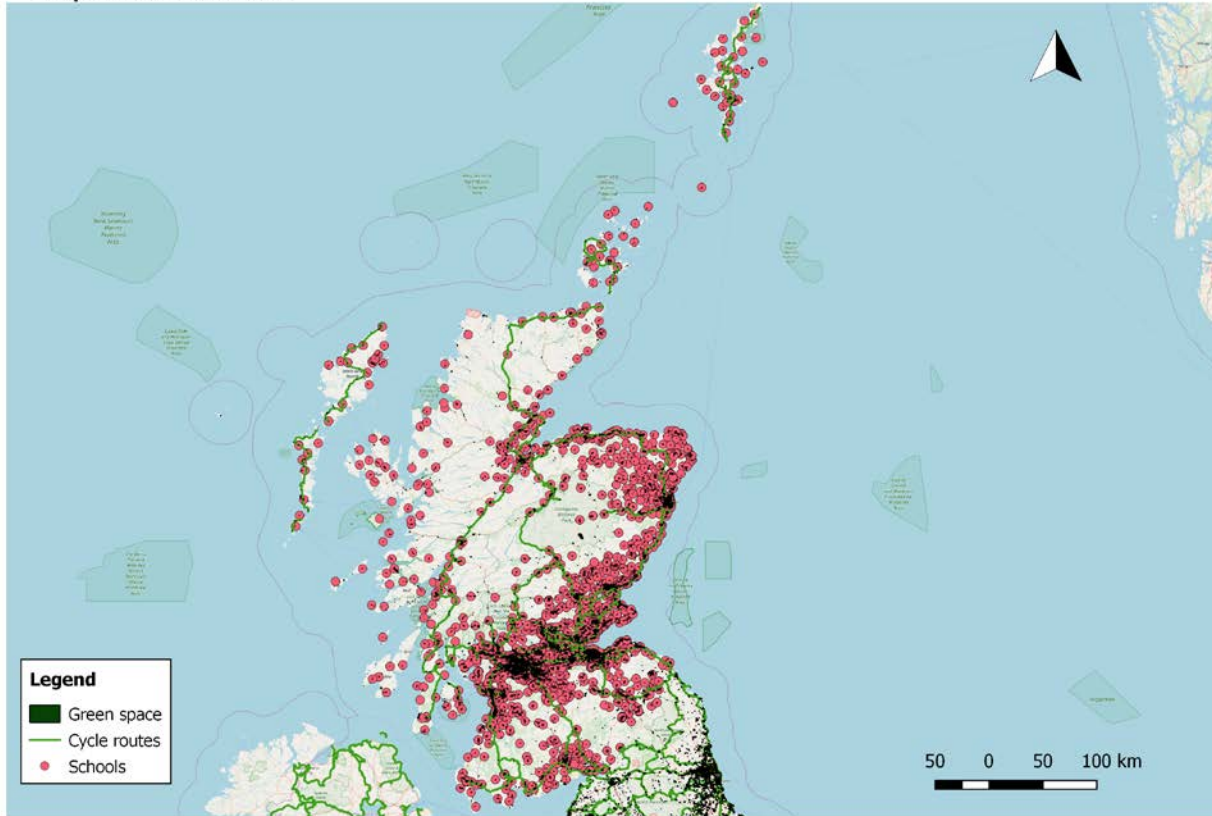
Proximity to cycle routes and green space

| Intervention | Coefficient | P value |
|---|---|---|
| Cycle route within 100m | 0.15 | 0.01 |
| Green space within 500m | 0.12 | 0.01 |

## Limitations

- School postcode location not always exact location of school

- Green space layer includes golf courses, tennis courts and allotments

- Cycle route layer includes main roads, urban roads and on-road cycle routes.

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# Further research

- Cost-effectiveness of interventions

- Community links schemes

- Inclusion of other intervention data from Living Streets

- Excluding green space such as golf courses, allotments, religious grounds. Inclusion of access points.

- Only including off-road cycle routes

# Key messages to take away

I Bike and School Travel Plans are most effective

Three interventions is the maximum

Green space and cycle routes can be effective but there are limitations

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Legend

— Cycle routes

■ Green space

● Schools

Urban Rural classification

■ 1 Large Urban Areas
■ 2 Other Urban Areas
■ 3 Accessible Small Towns
■ 4 Remote Small Towns
■ 5 Accessible Rural
■ 6 Remote Rural