University of Glasgow

Big Data in Education Research: Progress & Prospects

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School of Education, Urban Studies

INSPIRING PEOPLE

1. **Introduction & Background**

2. **Transforming Learning Cities**: Using Glasgow 'Big-Data' to challenge notions of 'Lifewide Literacies'

3. **Place-based Drivers of Inequalities:** Evidence from Secondary School Attainment in the Greater Glasgow Area

4. **Future Research**

Urban Big Data Centre

Educational Disadvantage & Place Team

Good Places – Happy Healthy Citizens

Associations of Lifelong Learning & Place with….

Health
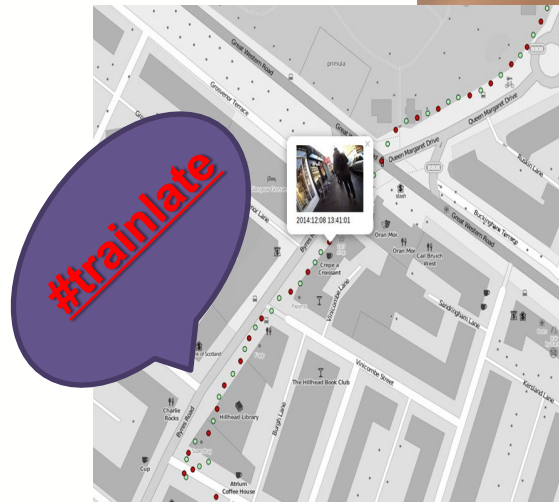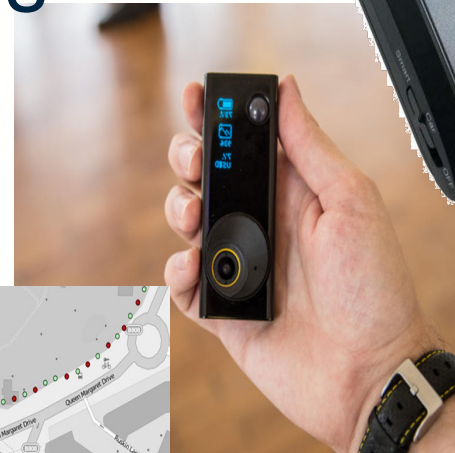
Jobs

Engaged Citizenry

Longevity

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Prof Keith Kintrea
Dr Catherine Lido
Dr Muir Houston
Dr Phil Mason

Transforming Learning Cities: Integrated Multimedia City Data (iMCD) Project @UBDC

Open Data 'Product'

1. Survey- 1500 Households
2. GPS Sensors
3. Lifelogging Cameras
4. Social Media Capture

Project Mngr: Dr. Mark Livingston

'Understanding Glasgow Survey'

Review of National/ EU Surveys + UNESCO Indicators

Attitudes, literacies & Behaviours

- ✓ **Education/ skills**
- ✓ **Sustainability**
- ✓ **Transport**
- ✓ **Cultural/ civic**
- ✓ **ICT/ technology**

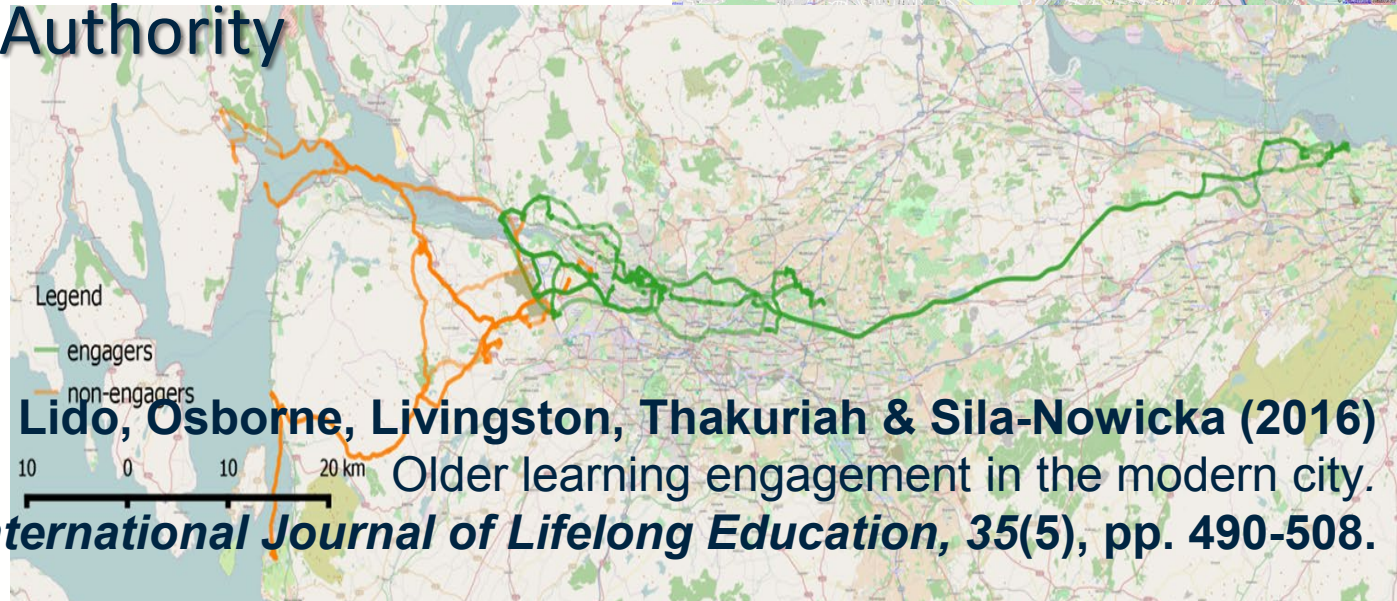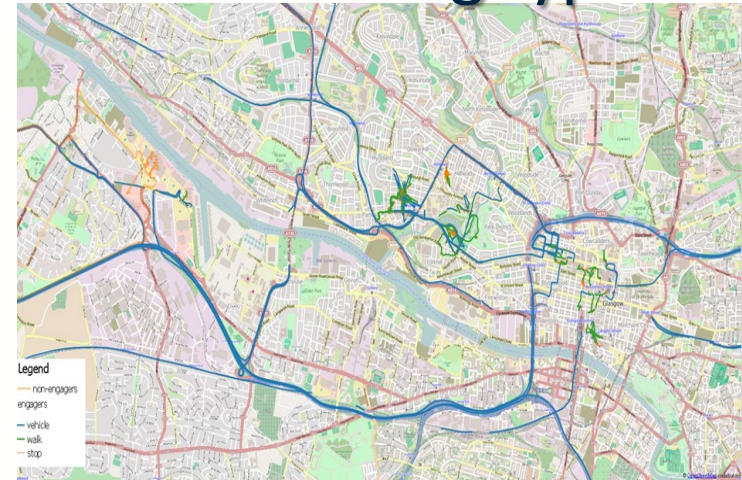*Stratified Random Postcode Sampling (Ipsos Mori)*

n=2,095, 16-102 years (M= 49.42,SD=19), 45.7%Female, 54.3%Male

Transforming Learning Cities: For engaged older Learners in Glasgow

Regression: Older adults engaged less in ALL learning types

1. **Age** (predicts all learning types)

2. Feeling **Safe** Walking at night

3. Sense of **Belonging** to area

4. **Place-** Local Authority

Lido, Osborne, Livingston, Thakuriah & Sila-Nowicka (2016) Older learning engagement in the modern city. *International Journal of Lifelong Education, 35*(5), pp. 490-508.
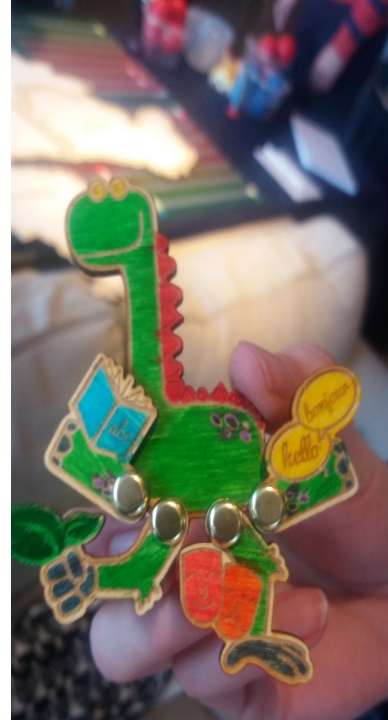
Transforming Learning Cities: Using Glasgow 'Big-Data' to challenge notions of 'Lifewide Literacies'
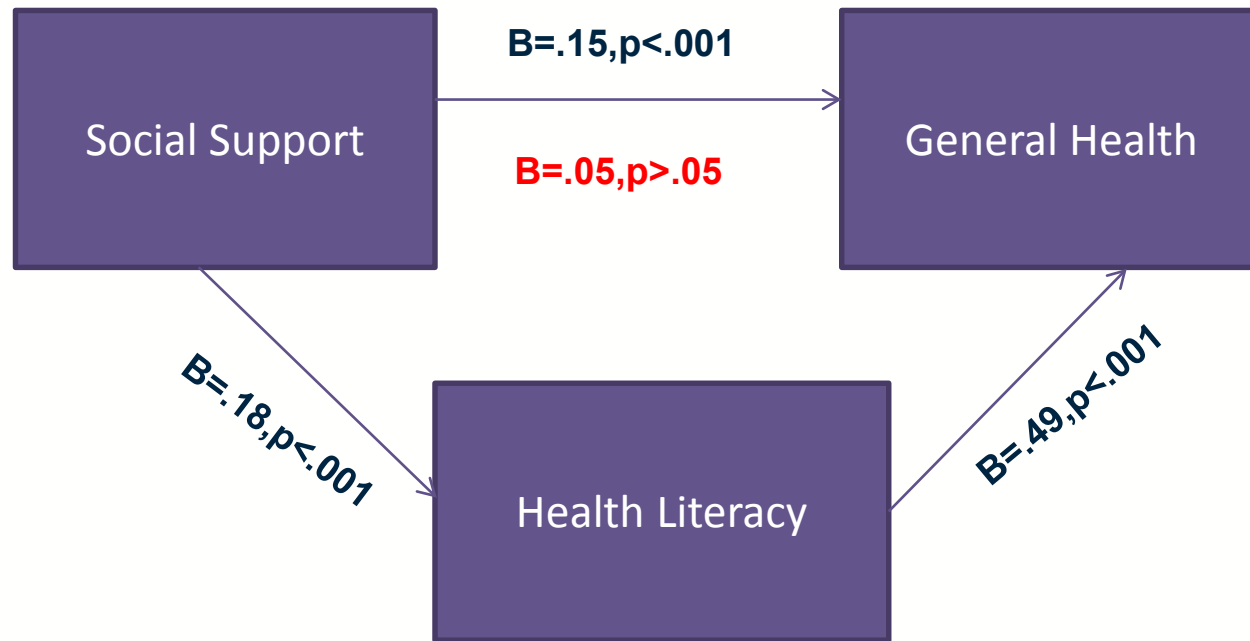
Results: Health Literacy mediates effect of Social Support on General Health

Sobel test= 7.84, p<.001

IMPACT: Knowledge Exchange (@Ikea)

**Place-based Drivers of Inequalities:
British Council school programmes in Scotland,
An Impact Study** (Nov. 2018)

Livingston, Doherty, Lido, Gale, Parker & Cassar

- Qualitative investigation of n=7 case study schools *(**mature** & **recent**, demographically & regionally diverse)- demonstrating varied engagement histories, motivations, enactments & contributions.*

- Quantitative open data analysis of national data

- Quantitative in-depth analysis of Greater Glasgow Area

Quantitative Phase Open Data findings

BC **Engagement** (2007 – 2017; total #programmes**) is weakly, but significantly **correlated** with:

- **Deprivation** (SIMD) for most recent year (2016/17): Higher engagement in less deprived data zones ρ (rho)= .10, p=.001
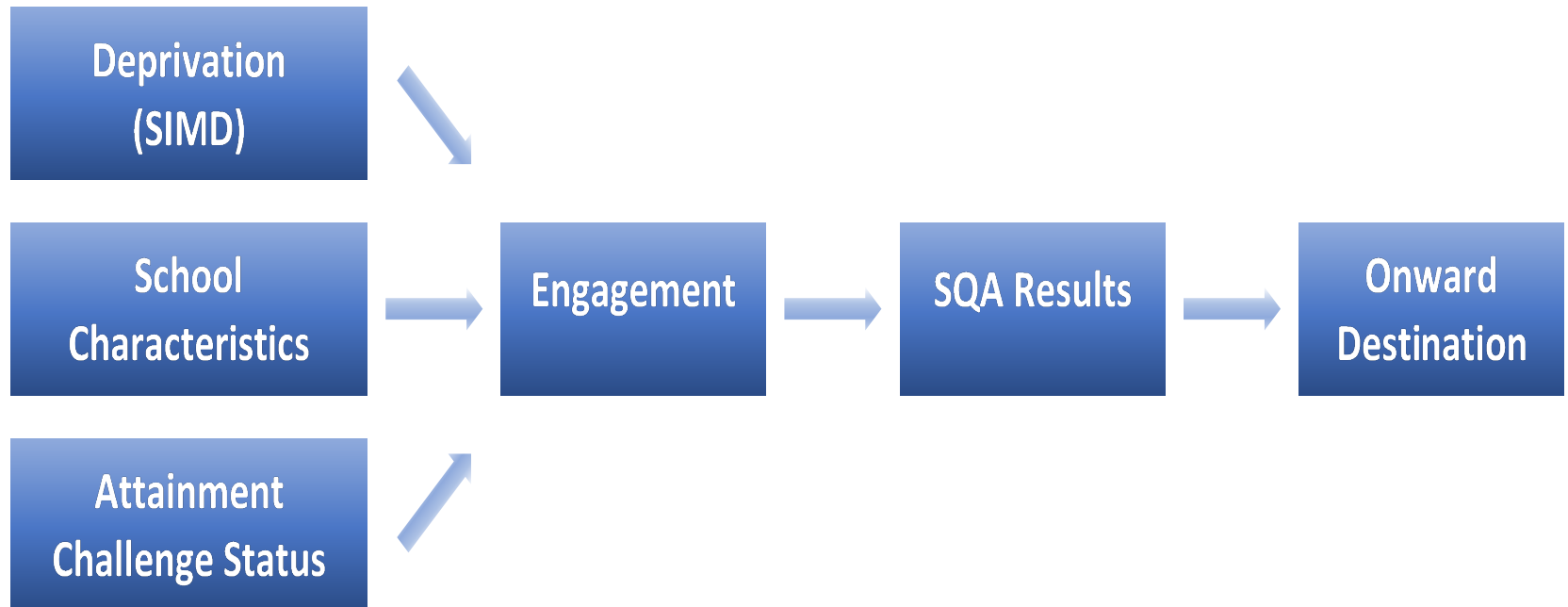
- **CfE benchmarks***

- *Effects of BC Engagement remain significant, even when controlling for Deprivation (SIMD)*

	Effect (Rho/R$_s$)	p
English Reading, Engagement	.22	< .001
English Writing, Engagement	.27	< .001
English Listening & Talking, Engagement	.16	< .001
Numeracy, Engagement	.21	< .001

Quantitative Phase Case Study findings

- Case Study of Greater Glasgow: 8 LA secondary schools analysed in eDRIS Safe Haven (attainment challenge & non-LAs compared):

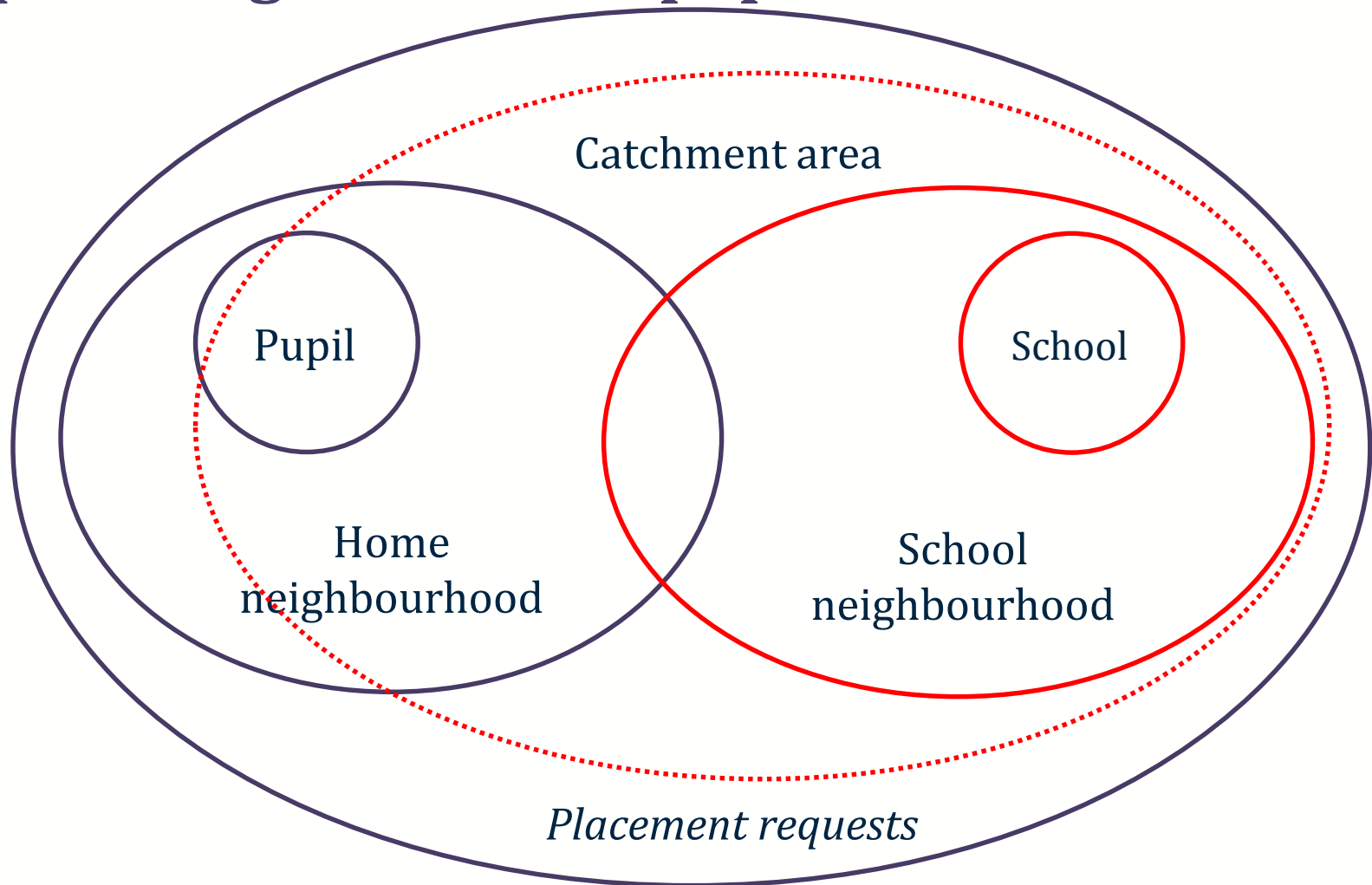- n=107 (80.4% w/ some engagement, 19.6% w/ none)

Engagement X Attainment Challenge LA Interaction on SCQF Level 5*&6** Outcomes

Estimated Marginal Means of Mean number of passes at that SCQF level

Estimated Marginal Means of Mean number of passes at that SCQF level
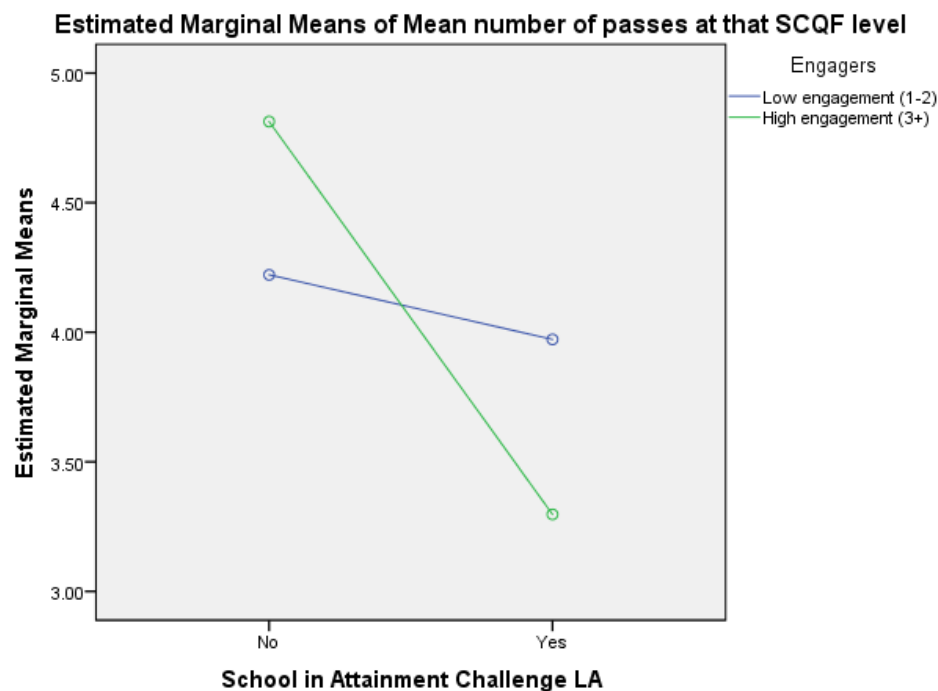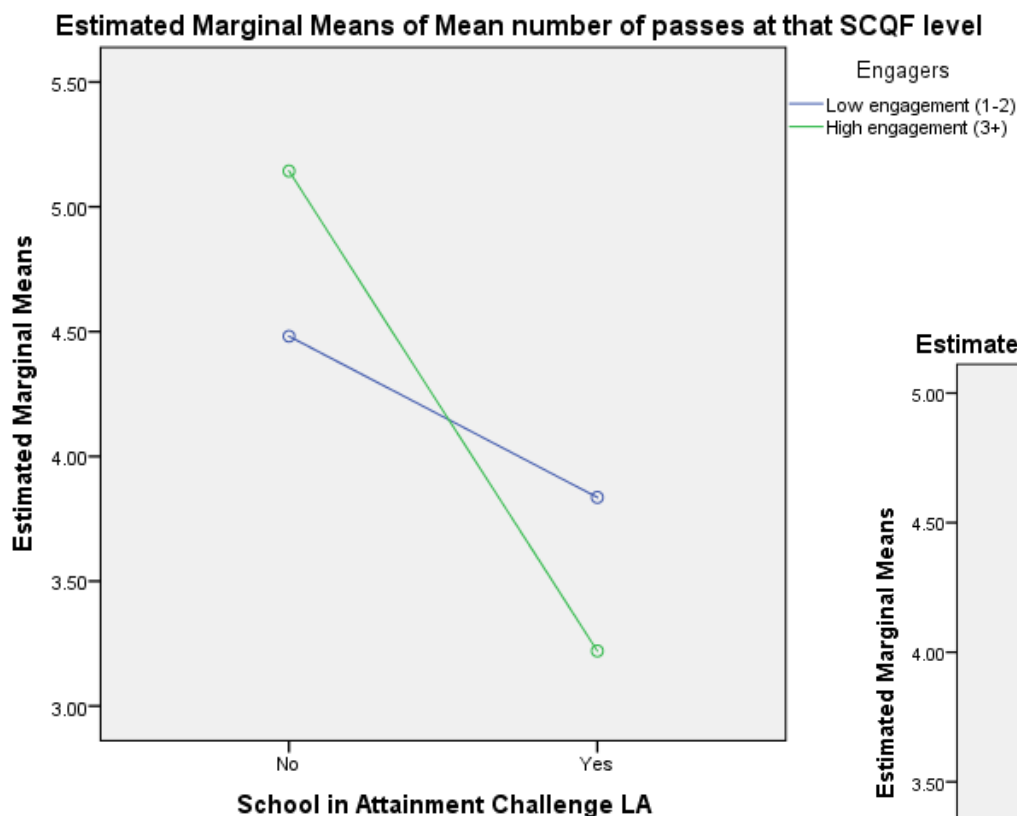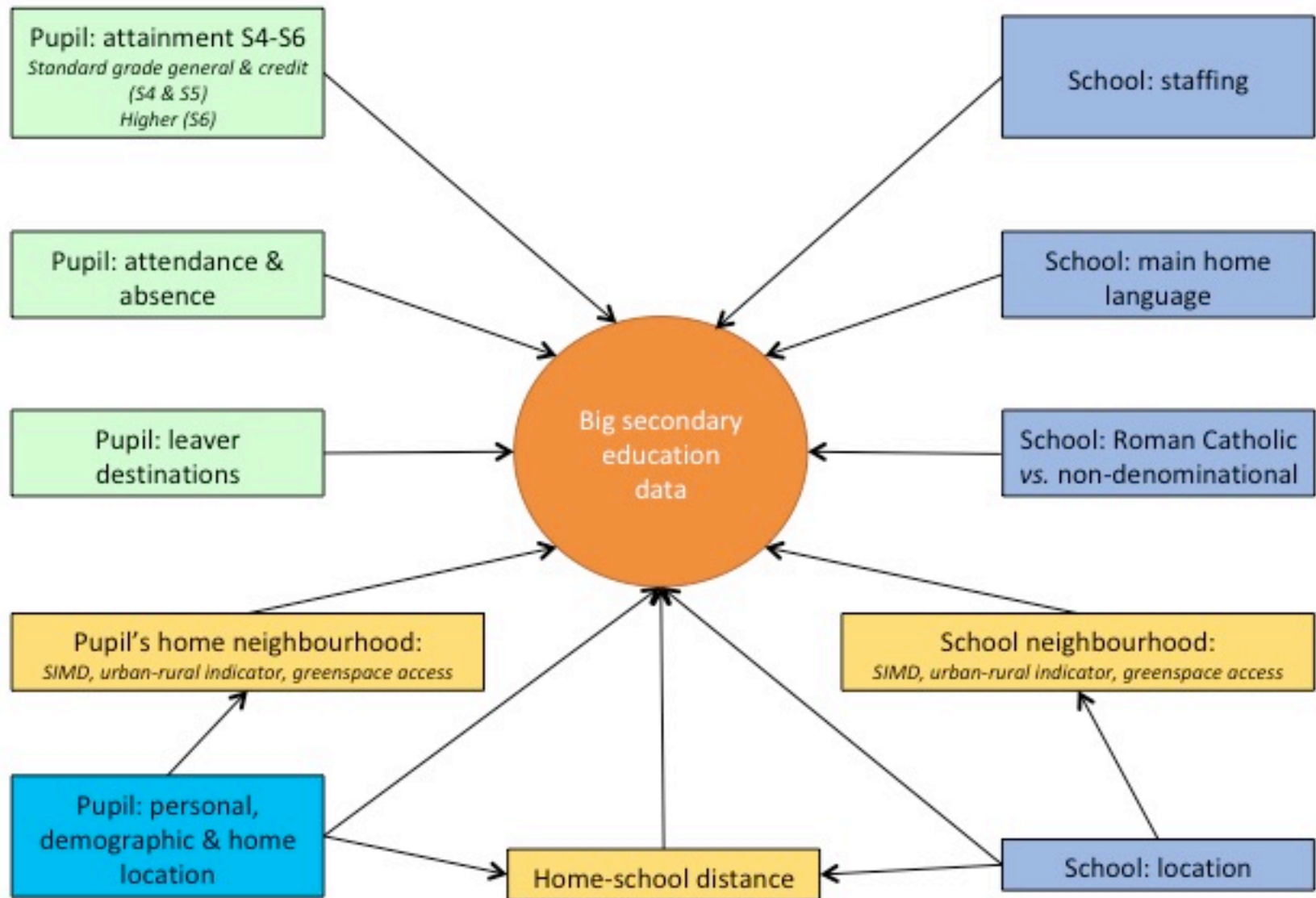
Covariates appearing in the model are evaluated at the following values: SIMD 2012 vigintile: overall rank: school = 9.388

Place-based Drivers of Inequalities:
## Spatial organization of pupil and school data

Catchment area

Pupil

School

Home
neighbourhood

School
neighbourhood

Placement requests

Secondary education data

Initial exploratory findings:
4+ passes at SCQF level 6 (Highers) 2014/5

Variable	Category	Odds ratio	95% CI	
			Lower	Upper
Gender (male)	Female	**1.26**	**1.16**	**1.37**
Age (<=15 y)	16 y	1.02	0.90	1.15
	17 y	**0.06**	**0.04**	**0.08**
SIMD quintile: home (1- most deprived)	2	**1.45**	**1.27**	**1.65**
	3	**1.84**	**1.61**	**2.10**
	4	**2.40**	**2.09**	**2.75**
	5 – least deprived	**3.99**	**3.50**	**4.54**
SIMD quintile: school (1- most deprived)	2	**1.18**	**1.03**	**1.35**
	3	**1.52**	**1.31**	**1.76**
	4	**1.25**	**1.09**	**1.43**
	5 – least deprived	**2.01**	**1.73**	**2.33**
Urban-Rural: School (large urban area)	Other urban area	**0.76**	**0.69**	**0.84**
	Non-urban area	**0.67**	**0.59**	**0.77**
School denomination (non-denominational)	Roman Catholic	**0.81**	**0.74**	**0.88**
Park/garden access <10 min of school (no)	Yes	**1.16**	**1.07**	**1.26**

Future Research:
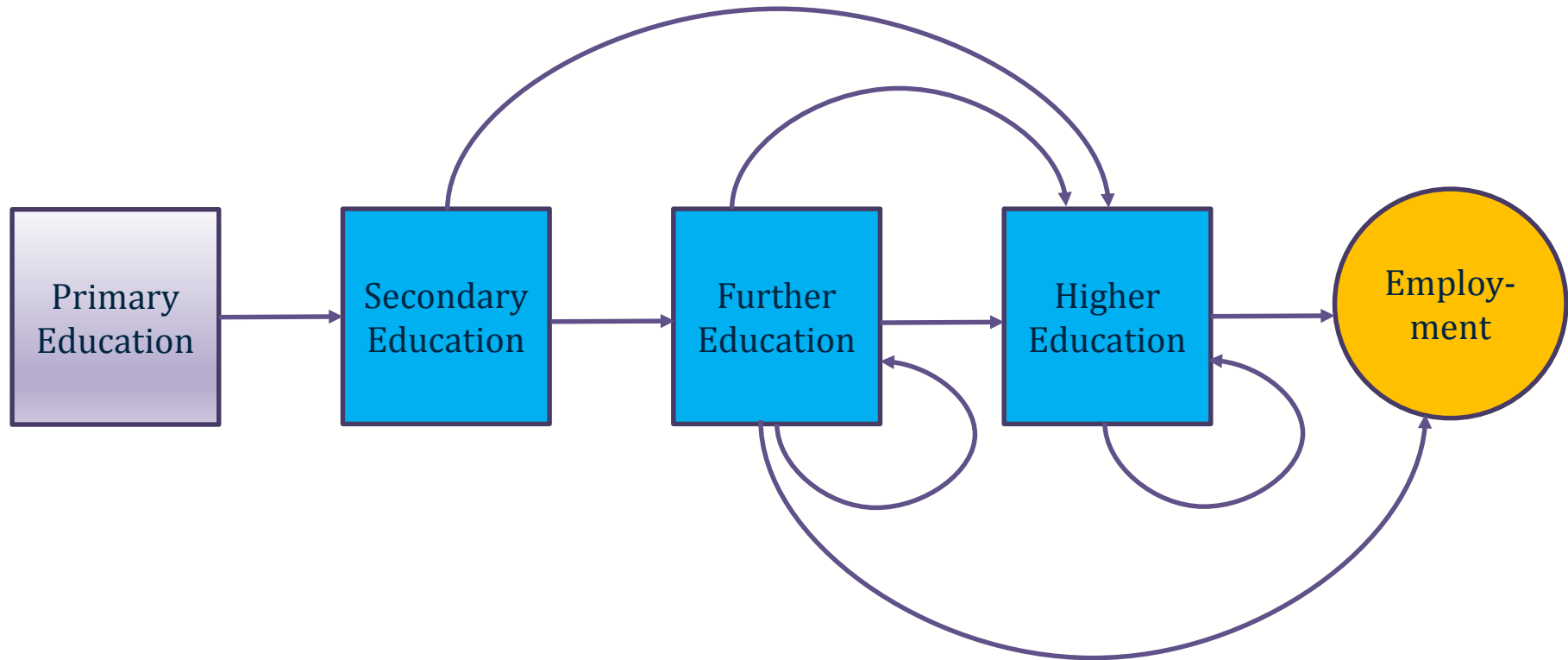
Four strands of Phase 2 research:

1) Place-based Inequalities and Secondary School Attainment and Progression

2) Further Education: Fulfilling Its Purpose?

3) Inclusion in Higher Education: Learner Success in Access, Attainment, and Entering Skilled Employment (with a focus on non-traditional entrants)

4) Inclusive Learning Cities

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