Using mobile technologies to explore the food-water-energy nexus

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Research need

- The food/water/energy nexus and '**urban metabolisms**'
- Neglect of **actual engagements** with the nexus in **everyday life**
- 42% of Brazil's population under 24
- Food/water/energy = **strategic development goals** in Brazil
- A need for:
  - Sustained **cross-disciplinary scholarship**
  - Research on young people's **experiences and contributions**
  - **Education for Sustainability**

- **Main aim:** to examine young people's (aged 10-24) understandings, experiences and participation in the 'food-water-energy' nexus in Brazil

Aims and objectives

- **Main aim:** to examine young people's (aged 10-24) understandings, experiences and participation in the 'food-water-energy' nexus in Brazil

- **Five objectives:**
  - **O1**:To conduct a large-scale baseline survey of young people's understandings, experiences and participation in the 'food-water-energy' nexus in Brazil.
  - **O2**:To examine everyday connections between people and the nexus through qualitative research with diverse young people.
  - **O3**:To critically evaluate the landscape of EfS in Brazil, through the lens of the 'food-water-energy' nexus.
  - **O4**:To situate the Brazilian context within a critical evaluation of education for sustainability, globally.
  - **O5**:To develop a set of evidence-based resources for EfS strategies that could address the 'food-water-energy' nexus in Brazil.

Case study location

- Metropolitan Region of Paraiba do Sul River Basin and Sao Paulo State North Shore (MRPSRBSSNS)

- **population of 2.3 million** (5.5% of São Paulo State population)

- **strategic location** between the two most important metropolitan areas of Brazil (São Paulo and Rio de Janeiro)

- **economically significant** (82.7% of State GDP; 27.7% of Brazilian GDP)

- **socially diverse**: from urbanised cities with richer and poorer populations, to traditional rural communities in the coastal area).

Case study area:
Metropolitan Region of Paraiba do Sul River Basin and Sao Paulo State North Shore (MRPSRBSSNS)
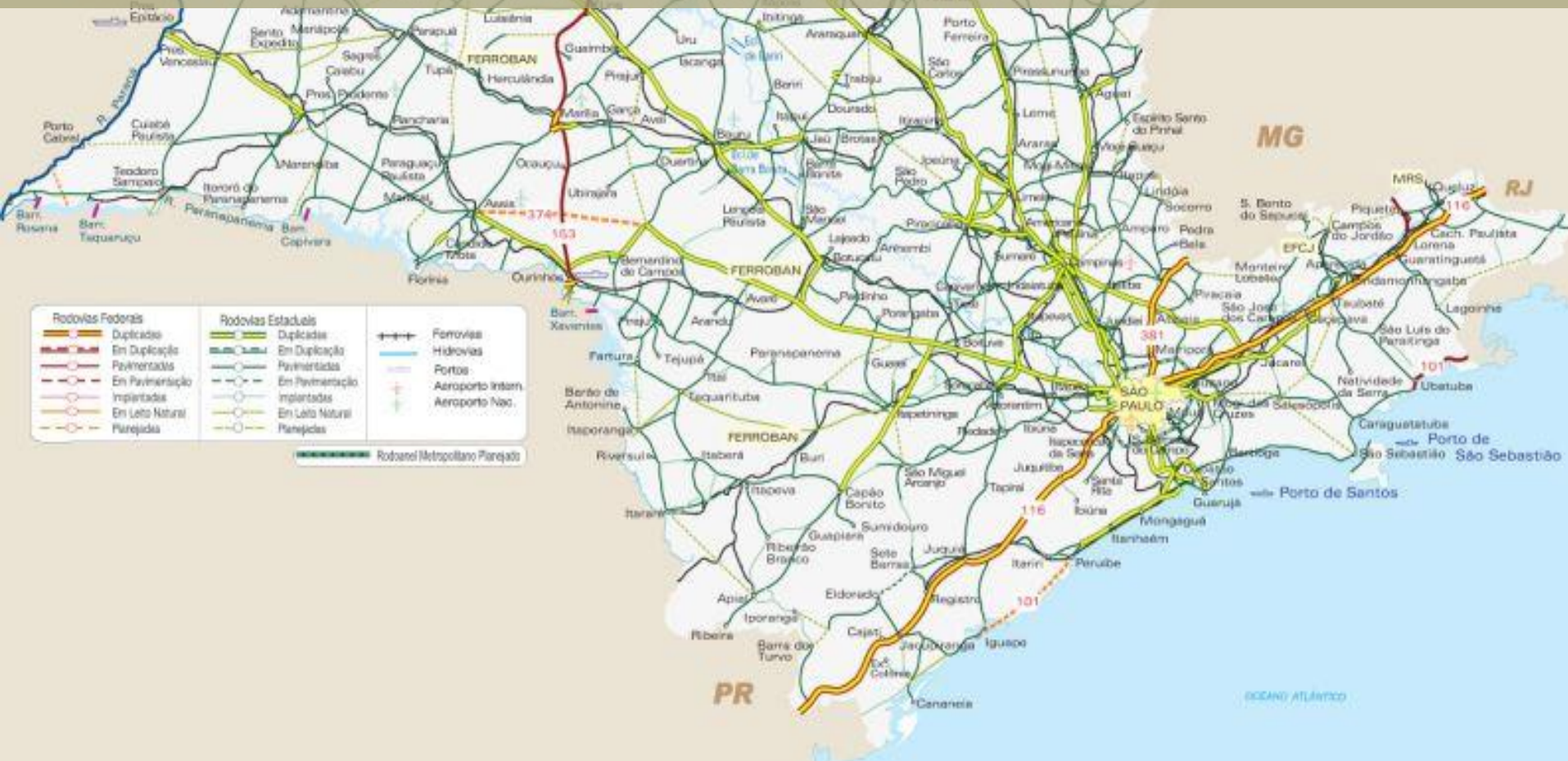
Methodologies

Qualitative interviews with young people

- 100 young people

- Semi-structured interview 1: 'My week'

- *App-mediated research & follow-up interview*

- Visual mapping

- Workshops

Key professional interviews

- 50 semi-structured interviews

- Include policy-makers, government representatives, teachers, academics, NGO representatives

- Major theme: efficacy of focussing on young people and education in addressing nexus 'threats'

Baseline questionnaire

- Detailed 'baseline' questionnaire

- Target – 5,000 children & young people, aged 10-24

- Recruitment through schools, community groups, NGOs

- Covers all aspects of food-water-energy nexus – experiences and learning

Nexus challenge

- Situating the Brazilian EfS globally

- Engage YP globally in cross-cultural conversation
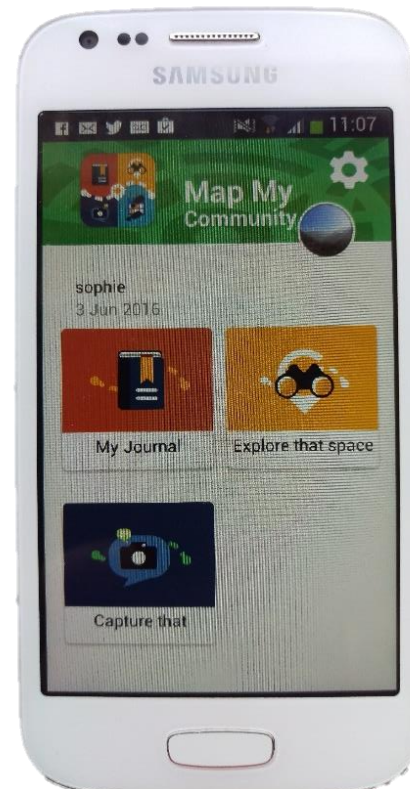
- Schools-based competition:

Mobile technologies
(Project 1: Map My Community)

Aim: to use mobile technologies to research mobility, access to services, experiences and interactions in new urban environments

- In-between spaces of everyday life

- Part of a suite of methodologies

- Co-designing with participants and stakeholders

'Map my week'

'Explore that space'

'Capture that'

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Mobile technologies
(Project 1: Map My Community)

Map My Community

- Photographs taken with the 'Capture that' feature of the app

- Three options: i) I like this space; ii) I think this space needs improving; iii) My use of this space

- These photographs are examples of 'My use of this space' – family practices, working on the farm, playing at home, cooking – all insights which the researcher would not usually have access to.

- The follow up interview going through this data was an important part of the research process

Young participant (Male, aged 10)

Mobile technologies
(Project 2: Map My Community - Delhi)


Map My Community

- Participatory community engagement project

- Young people's everyday experiences of informal urban settlements in Delhi

- Working in 25 low income communities

- Adapt 'Map my community' with the young people and translate into Hindi

- Young people use the app to input their local experiences – which can be used to inform policy and practice

- In partnership with Humara Bachpan Campaign (HBC) to strengthen evidence base to improve living conditions

Mobile technologies
(Project 3 – Sharing Futures)

SHARING FUTURES

Aim: to develop an app to explore the potential of using mobile technologies in research about water and energy. Two components, a water and energy survey and 'Capture that.'
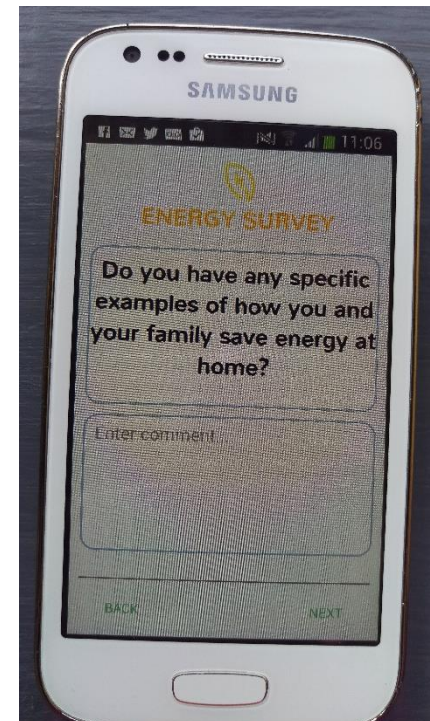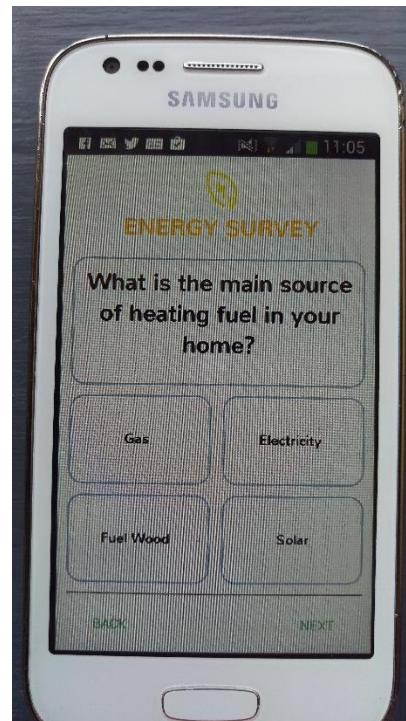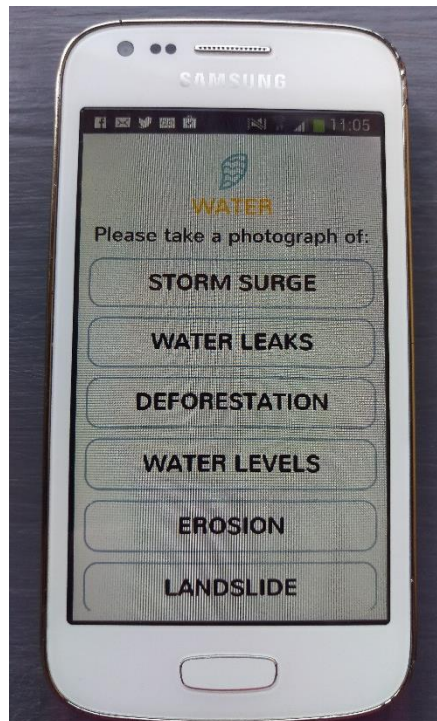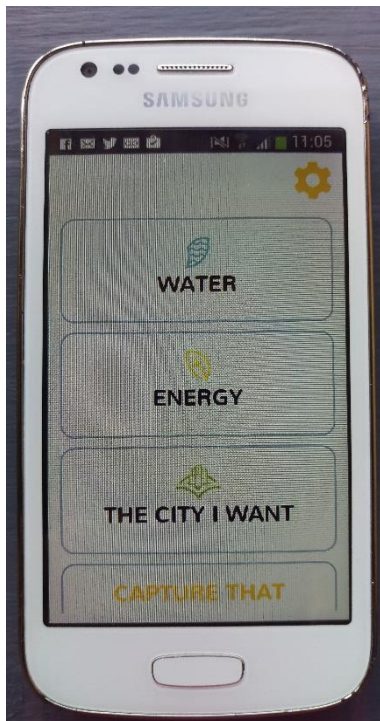
Mobile technologies
(The process)

- Using the template of previous app projects (much of the groundwork in terms of app development has already been done

- Working with an external app development company

- Deciding what we want the app to actually do (in relation to the other methodologies)

- Ethics / consent procedures (parental permission for anyone under 18)

- Formulating the questions and designing the app format for ease of use

- Developing the backend to download, read, analyse and interpret the data

Mobile technologies
(food-water-energy)

Aim: to explore participant's use, experience and interactions with food, energy and water.

My food-water-energy journal
On two days we would like you to take part in a food-water-energy journal using the mobile app. Focus on a day in the week and day in the weekend.

My food: to be completed after each meal if possible
- What have you eaten? [free text box i.e. Breakfast: toast, jam and tea]
- Who prepared this food? [parent / sibling / myself / restaurant / other]
- How was this food prepared? [Tick all that apply: oven / toaster / open fire / no cooking / kettle / unsure / with water / other]
- What energy was used in preparing this food? [Tick all that apply: transport / gas in the house / electricity in the house / unsure / other]
- What did you do with the food waste? [There was none / threw it in the bin / put it in the compost / gave it to someone else / gave it to an animal]
- Who did you eat this food with? [On my own / with my friends / with my family]
- Where did you eat this food? [inside my home / restaurant / in the car / school / other]
- Is there anything else you would like to tell us? [free text box]
- Please take a photograph of the food you have eaten / prepared / wasted

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My energy:
- How have you used energy today? [Tick all that apply: for transport / for cooking / for washing / for studying / for eating / for playing / other]
- Please give three specific examples of where you used energy today [free text]
- What did you do today to save energy?
- Option to take a photograph of engagement with energy

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My water:

- How have you used water today? [Tick all that apply: for cooking / for washing / for playing / for drinking / other]
- Please give three specific examples of your interaction with water today [free text]
- What did you do today to save water?
- Option to take a photograph of engagement with water

Mobile technologies
(food-water-energy)

Aim: to explore participant's use, experience and interactions with food, energy and water.

Capture that - water

- My use of water in the home. Please take photographs of all the ways in which you use water in the home [Free text comment box]

- My use of water outside the home. Please take photographs of all the ways in which you use water outside the home [Free text comment box]

- Positive uses and experiences of water. Please take photographs of all the places where water is positively used or experienced [Free text comment box]

- Negative uses of water. Please take photographs of all the places where water is negatively experienced [Free text comment box]

Mobile technologies
(food-water-energy)

Aim: to explore participant's use, experience and interactions with food, energy and water.

Capture that - Food

- My plate - this is an example of my favourite thing to eat [Free text comment box]

- Me preparing food - this is an example of my involvement with food preparation [Free text comment box]

- Me collecting/buying food [Free text comment box]

- Me growing food [Free text comment box]

- Positive uses and experiences of food. Please take photographs of all the places where food is positively used or experienced [Free text comment box]

- Negative uses of food. Please take photographs of all the places where food is negatively experienced [Free text comment box]

Mobile technologies
(Challenges)

- Can be expensive and time consuming

- Mobile signal, data and electricity needed

- Adaptability for the local context

- Should we be using methods which are dislocated from young people's everyday lives (socially and culturally)?

- Technical glitches

- Consideration of literacy capacity (consent and use of the technology)

Mobile technologies
(Opportunities)

- For interdisciplinary research

- Gain insights into often invisible aspects of everyday life (mobilities, experiences and emotions)

- Should be seen as part of a suite of methodologies

- Designing the app with the community will prompt better interaction and use of the method