Promoting
Low Carbon Healthy Lifestyles
as new opportunities to tackle obesity and health inequality

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Acknowledgements

Contents

Abbreviations

BME – Black and Minority Ethnic groups

IDACI - Income Deprivation Affecting Childhood Index

JSNA – Joint Strategic Needs Assessment

LCHL – Low Carbon Healthy Lifestyles

PCT – Primary Care Trust

1. Summary

Low Carbon Healthy Lifestyles was a pilot research project which has developed methods for community engagement on issues and activities which have co-benefits for health and climate change. With economic as well as environmental constraints, transformative approaches will be needed to support health and wellbeing. 2010 Year of Health and Wellbeing (for Liverpool city region), was such a successful initiative that it has been extended into 2020 Decade of Health and Wellbeing. Tackling health inequality is at the heart of this initiative. The main theme of the Decade; Five Ways to Wellbeing, focuses on mental and physical health, but could also be an exemplar of environment-friendly living. The current work indicates there may be added benefit to emphasising this link between environmental sustainability and health and wellbeing.

Research sessions with primary school children (year 6; 10 and 11 year olds) has shown that young people are enthusiastic about activities such as cycling or walking to school and growing their own vegetables. For some aspects of activities young people showed awareness of health benefits, for other aspects benefit to the environment; but there was less knowledge of the combined benefits. Some of the classes involved were ethnically diverse and some schools were based in areas of high indices of deprivation. Despite this, no differences were evident in the levels of interest or attitudes of children from different schools. This suggests that messages are of broad appeal, and resonate with people from different localities across Liverpool.

The project reinforces the important role that organisations, of different shape and size, have in communicating issues and potentially changing social norms. Community organisations, from clubs to social enterprises, seem to have the advantage of a sense of local ownership and involvement that public services lack. Through promotional activities involving local residents, there is a sense that, gradually, day-to-day family lifestyles could adapt to reduce consumption (with environmental and economic benefits) while at the same time improving health and wellbeing. This work also supports the mutually beneficial interaction of schools with local organisations. However a key threat to this approach is insufficient communication between the community organisations and local schools, resulting in missed opportunities and potential duplication of projects. Recommendations for facilitating and supporting a local network are highlighted in this study. Potential benefits to diverse areas of civil society indicate that this programme would be ideally supported by multi-agency organisations such as the Local Strategic Partnership and Local Enterprise Partnership.

2. Approach

The research team have developed *Low Carbon Healthy Lifestyles* as an aspirational message to promote the health co-benefits of taking action on climate change. The growing public enthusiasm for the latter is the basis of our hypothesis: that these messages can be effective at promoting healthy lifestyle choices among certain target groups. Using a discourse on climate change, we have developed *Low Carbon Healthy Lifestyles* as an approach to community engagement and development. This approach may support communities to increase active transport and healthy diet in order to combat obesity and its long-term medical effects (such as diabetes and cardiovascular disease) as well as social and environmental impacts. This approach has the added value of the overlapping discourses on climate change and health.

The *Five Ways to Wellbeing* message, promoted by *2010 Year of Health and Wellbeing*, and extended until 2020 in *Decade of Health and Wellbeing*, is a great exemplar for *Low Carbon Healthy Lifestyles*, however there is a need to understand and support people's implementation of these messages. Successful uptake is likely to depend on the negotiated context of an ongoing debate on climate change in the media and elsewhere. At a recent World Health Organisation meeting *Protecting Children's Health in a Changing Environment,* a key issue was the impact of climate change on child health[1]. This meeting, together with the recent Lancet mini-series[2] (and other publications[3]) provide political will and a firm evidence base; the urgent need to develop implementation will be supported by the current findings.

3. Introduction

The research team have developed *Low Carbon Healthy Lifestyles* as an aspirational message to promote the health co-benefits of taking action on climate change. The growing public enthusiasm for the latter is the basis of our hypothesis: that these messages can be effective at promoting healthy lifestyle choices among certain target groups. Using a discourse on climate change, we have developed *Low Carbon Healthy Lifestyles* as an approach to community engagement and development.

The increase in prevalence of obesity, described by some as an epidemic, has profound implications for the future of health services and public health[6]. For children in Liverpool, the *Sportslinx* programme has monitored obesity since 1998[4]. The prevalence of obesity amongst Year 5 children has gradually increased from 1998 to 2004 (for boys; 6.15 to 12.13%, for girls; 5.48 to 10.34%). In 2004 the proportion of girls and boys who were overweight was just under 35%. The *Sportslinx* multi-agency programme delivered a free, high profile (including Liverpool Football Club) fitness intervention[5]. An intervention to improve diet, *Taste for Health,* was delivered concurrently in Liverpool. In the most recent years of monitoring (2003-2006) prevalence of obesity has levelled off, which may indicate that these interventions (as well as others) have been effective for part of the population[5].

The *Foresight* report[6] identified causative factors and linkages for obesity from a positivist theoretical perspective. Although this description of causes and effects may have some application for prevention or treatment, the limited success of various initiatives may be due to a lack of engagement with deeper issues relating to value systems and social/cultural contexts. Similar issues may relate to the lack of action on climate change, which may have common underpinning social values, such as personal status being related to material consumption. The *Foresight* report described the overlap as an important area for future research[6]:

> 'The case for action can be strengthened by identifying potential synergies and complementarities with other policy goals, such as climate change, to provide multiple benefits.'

The media discourse on the causes and prevention of obesity draws a parallel with tobacco use and its long term health problems. The recent media debate about tax on 'sugar sweetened beverages' is a good example of the international debate and the strong vested interests involved[7]. Media debates around climate change are also similar and at times connected with obesity issues. While the science of climate change is well understood and close to unanimity; in terms of an appreciation of global warming and its causes, the analysis of the contours of media coverage suggest

that there is more climate scepticism and doubt in press and TV commentary than is appropriate[8]. Although research on the impact of this coverage is scant, survey evidence suggest that a substantial proportion of the public think the scientists are still divided on whether global warming is happening, and humankind contributing to it[9], which one might expect if the climate sceptic message was getting through.

Diet and private car use are two aspects of modern 'western' lifestyles which have impacts on climate change and health. Obesity is associated with poor quality food, including snacks and fast food[10]. Some of the products used in these foods, for example palm oil and beef, are also associated with deforestation and high embedded greenhouse gas emissions[11,12]. The latest edition of the *Quarterly Public Attitudes Tracker* (Food Standards Agency [13]) showed 20% of respondents were concerned about food miles. In comparison, the amount of fat in food was the concern with the highest response rate, at 41%. These data indicate that the effects of food on health and the natural environment are concerns for substantial numbers of people (but by no means the majority).

An increase in private car use has led to a concomitant decrease in active travel. The switch between forms of transport is not a simple choice; and one of many contributory factors that deter people from walking and cycling is the growing volume of traffic[14]. The decrease in physical exercise associated with the preference of car transport is a probable contributor to both obesity and cardiovascular disease. Road traffic collisions are also a significant and avoidable cause of injury and death. Furthermore, the environmental effect of traffic pollution on health is on two levels; on local air quality and global climate change[14]. Taking action on both of these factors creates opportunities to promote children's health through outdoor play and active travel as recently emphasised by Dr Gabriel Scally, Regional Director of Public Health for the South West[15] and also in the recent *Active Travel Strategy* (Department of Health and Department for Transport)[16]. Local interest in cycling, including among children, has been established by a recent evaluation by *TravelWise* (Merseyside Transport Partnership)[17]. We have investigated the use of *Low Carbon Healthy Lifestyles* as an approach to community development to enable more people to take up active transport and gain from the added value of the overlap between climate change and obesity (as well as broader aspects of health).

With appropriate planning, actions on climate change can also have economic co-benefits for individuals or groups, which in turn could have positive impacts on health inequality within the city region. Health inequalities are linked to climate change and sustainability, as highlighted by Marmot's *Strategic Review of Health Inequalities in England post-2010 (Fair Society, Healthy Lives)*[18]:

> 'Globally, climate change and attempts to combat it have the worst effects on the poorest and most vulnerable.'

The new approach tested in this study presents a potentially high impact way to contribute to Liverpool PCT's goals to reduce health inequalities and to commission in new ways, as part of neighbourhood delivery.

An important aspect of the discourse on climate change is to use social marketing approaches to generate positive aspirational messages. Whereas the environmental movement is often viewed as reactionary and relies on moral arguments (using protests and boycotts), new messages emphasise the health and social benefits of moving towards new ecologically-orientated lifestyles. Another common accusation is that environmental issues are voiced by white middle-class people. Thus a key outcome of this study has been to engage with a broad range of Liverpool's population by using

popular activities, such as local food and cycling, to reveal opportunities to deliver benefits both to health and the climate.

4. Aims

The aim of the study was to explore the feasibility and acceptability of using the *Low Carbon Healthy Lifestyles* message to improve public health. We have investigated how these messages resonate with schoolchildren and young people. Opportunities and barriers for children to participate in these lifestyle choices have been explored from children's views and also from informal interviews with key adults in the neighbourhood of the school. The research will inform development of teaching and health promotion materials.

5. Objectives, activities and outputs

- Engage with young people, through Healthy Schools, Eco Schools and Youth Parliament. To publish a reflective account of this process to inform future programmes
  - Novel methodologies were piloted in whole-class sessions
    - A reflective account of the methods developed will be published in a peer reviewed journal
    - Neil Chadborn has been disseminating the approach and methods to local and national networks
- Investigate how *Low Carbon Healthy Lifestyles* resonates with young people and the potential for developing either health promotion or asset-based community development
  - Class-based draw and write sessions were carried out in 6 schools
    - Revealed opportunities for engagement of young people
  - Community leaders were interviewed
    - Indicated there are many current activities consistent with *Low Carbon Healthy Lifestyles* messages
    - These could benefit from explicitly emphasising these messages
  - Communication with an informal network of organisations
    - Indicates there are many community assets in this area
    - Recommendations to strengthen and support this network. This would support children in school and also intergenerational communication
    - Develop findings in an accessible output which may be used to support teaching or social enterprise projects
- Explore opportunities and barriers within young people's social environment
  - Class-based sessions and interviews
    - Revealed opportunities for young people to get involved in *Low Carbon Healthy Lifestyles*
    - The research has revealed some structural barriers in communities, such as lack of cycling facilities, lack of vegetable growing spaces, on the other hand there is an abundance of fast food outlets
    - Recommendations to work with Schools Parliament on developing facilities and managing proliferation of fast food outlets
    - Recommendations to inform PCT commissioning in areas of community third sector engagement, including 2020 Decade of Health and Wellbeing
- Write a full proposal for submission to the NIHR Public Health Research funding stream.
  - Neil Chadborn has contributed to development of an NIHR funding application
    - A full proposal will be submitted for national level funding following reflection on the primary research in this study

6. Methods

The approach of this study was firstly to hear opinions and knowledge from Yr 10 children and secondly to hear from community leaders about local capacity to support the children inside and outside of school. Further to these groups Neil Chadborn also heard views of young people's organisations which enable their voices to be heard in local government and beyond.

6.1. Selection of participants

The study held research sessions in a selection of schools in areas of diverse demographics within Liverpool and interviewed community leaders involved in projects linked to the young people of each school's neighbourhood.

6.2. Research sessions with the whole class

Several variants of the draw and write method were used with the whole class of year six pupils of primary schools in Liverpool. Themes explored were how the messages resonate and how a climate change discourse may add value to health education and promotion. The concept of *Low Carbon Healthy Lifestyles* was presented using an interactive approach. Although there has been some scepticism concerning the competency and legitimacy of children's values and opinions, previous work has shown that focus group research can be effective with 7 year old children[19]. Modified draw and write methods were used, which have been previously applied in a whole class environment[20,21]. Digital audio recording (with consent of the whole class) enabled the analysis of children's responses.

Slight variations of the methodology were piloted with different schools. Photograph prompts were used to stimulate discussion about local issues. The following themes were explored within the whole class exercise (similar topics will be explored in informal interviews with adults in the community, part B):

- introduction to their perception of health and wellbeing
- interest in, and opportunities and barriers for:
  - to grow own vegetables
  - to buy local produce
  - home cooking
  - cycling to school
  - walking to school
- resonance with climate change and sustainability messages
- impact of bringing these messages together as *Low Carbon Healthy Lifestyles*

Children were asked to convey their thoughts and group discussions with drawings and written comments describing their experience and opinions of similar activities to those shown in the photos. Children were asked to annotate their comments, to indicate which aspects of these activities were 'healthy' or 'environment-friendly'. For some sessions, children were asked to draw a map of their route to school, and again their opportunities for active travel (cycling and walking) or difficulties of their journey, for example heavy traffic. Two schools had vegetable growing projects; for these sessions the children were asked to focus on food, their ideas about where food came from, whether they liked growing fruit and vegetables, and whether they got involved in family cooking

The school children were asked some brief demographic data, using a short questionnaire, in order to analyse how different groups (in terms of age, gender, ethnicity, socio-economic background) engage with the different messages.

6.3. School's parliament

Neil Chadborn presented the background and approach of the project to Liverpool School's Parliament (every School's Council is invited to these sessions). As part of 2010 Year of Health and Wellbeing, School's Parliament held a debate on health inequality and environmental issues. In the discussion of links between environment and health, children raised many issues and indicated activities in their schools. The views of the members of the schools parliament were used for sense checking the findings of the present study.

Through involvement with the School's Parliament, Neil Chadborn attended a public event with the Council Cabinet Member for Education and Children's Services, Liverpool. The councillor was very supportive of the approach and the need to tackle issues including climate change and childhood obesity in Liverpool. Also attending this event were members of an organisation which engages and gives a voice to children in care in Liverpool. The group invited Neil to their next meeting. Neil was pleased to attend, present the project, and hear the views of this group, who may often be missed or excluded from research.

6.4. Interviews with community leaders

An understanding of the children's local social and built environment was developed by investigating opportunities and barriers within the locality for *Low Carbon Healthy Lifestyles*. Using teacher's recommendations and other social networks, leaders from the community, social enterprise and other community organisations were interviewed. The term 'community leaders' was applied in a broad way, to include parent-governors, and leaders of community organisations and charities. Representatives of the council or health service, involved in delivering services for young people, were also approached for interview. The interview schedule explored how their programme of work related to the themes of health, climate change and the added benefit of linking the two. A further topic was inclusion of black and minority ethnic (BME) or other excluded groups. Finally leaders were asked for their open input on the project, and whether they felt that any aspects were missing or needed.

Interview schedule:

- Position and role within organisation
- Which junior schools are you involved with
    - Other school projects
- What is your main work on 'healthy lifestyles'?
    - Obesity / Healthy weight
    - Diet and local vegetables or grow-your-own schemes
    - Physical activity, active travel
- Could any of your work be promoted as 'Low Carbon'?
    - Sustainable
    - Less polluting than 'mainstream' alternative

- How do you involve schools and children
  - Do schools and children value your input
  - Do you value schools and children's input
- What's your opinion of the risk of climate change affecting health (locally)?
  - Does your organisation 'hold a view'
  - What's your personal opinion
  - How about health inequality
  - Will mitigation of adaptation policies have knock-on effects on health or inequalities
- Does your work include outreach to BME or socially excluded people?
  - Distinct approach, or styles of messages (culturally appropriate?) – resonance / appropriateness
  - Potential co-benefits to health and climate change for these particular people
- Any opinions on my work or gaps in research that you feel would be appropriate for me to address

Participants were actively recruited from a variety of backgrounds including those of low socioeconomic status and black and minority ethnicity (BME). The aim was to recruit seven schools: four schools in areas with high proportion of BME people, two in areas of high deprivation (the location of the school had a low score for Income Deprivation Affecting Childhood Index (IDACI)) and one in an area with an average deprivation score (compared nationally). This purposive sampling approach aimed to investigate the resonance of these messages amongst people from a range of backgrounds.

Some schools are involved in *Eco Schools Award Scheme[22]*. As well as the growing enthusiasm amongst children to get involved in environment-friendly activity, a school-based programme means that activities connected with sustainability may be more likely to be taken up and 'mainstreamed'. If such activities also improve health, then these opportunities should be emphasised and developed.

6.5.   *Consideration of Ethical Issues*

No research work was undertaken before full ethical approval was granted by LJMU Research Ethics Committee. All data was collected and maintained confidentially and securely, according to JISC/LJMU data protection policies. All quotes and findings were anonymised. Information delivered was designed to be appropriate for the age group.

7. *Analysis and Interpretation*

Discussions for the draw and write sessions with groups with school children and interviews with community members were digitally audio-recorded, and the audio files transcribed by Neil Chadborn. A thematic content analysis approach was used to analyse the data. One researcher (Neil Chadborn) produced an initial coding framework while other researchers (JS, JR, NG, and SD) independently coded a subset for confirmation of themes. Social constructivism theory was used to interpret the data with structure and agency relationships explored. Findings were related to the sense of community, both local and global, against a backdrop of media messages.

7.1.   Reach of study

The aim was to hear views of schoolchildren from areas of social disadvantage and from areas with higher proportions of BME populations. Figure 1 shows the social disadvantage of the areas where each school (labelled 1-6) is based (Lower Super Output Area, 2010). The percentile rank of Income Deprivation Affecting Childhood Index (IDACI), for areas involved in this study varies from most deprived percentile to the 63rd most deprived percentile in England.
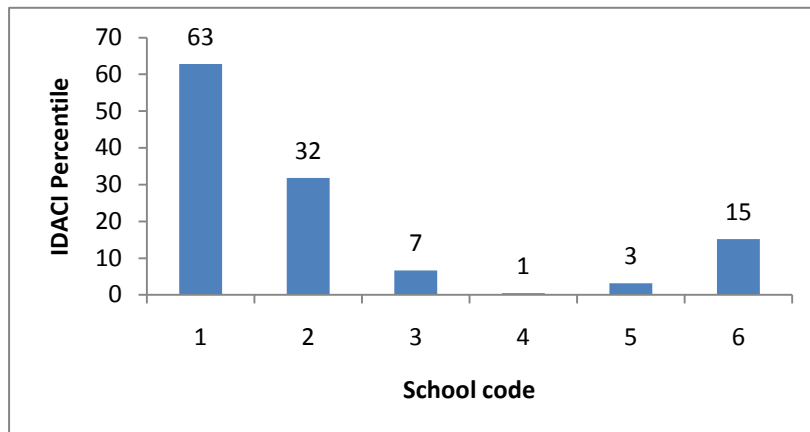
Figure 1 Income Deprivation Affecting Childhood Index (2010) Percentile for the area of each school

Participants in the class sessions were asked to complete a mini-questionnaire, which included a question about their ethnicity. Figure 2 shows the ethnic diversity of the participants involved in the study. These data indicate that the research methodology was appropriate and successful at targeting schools whose catchments include a diverse population, both in terms of socioeconomic status and ethnicity.
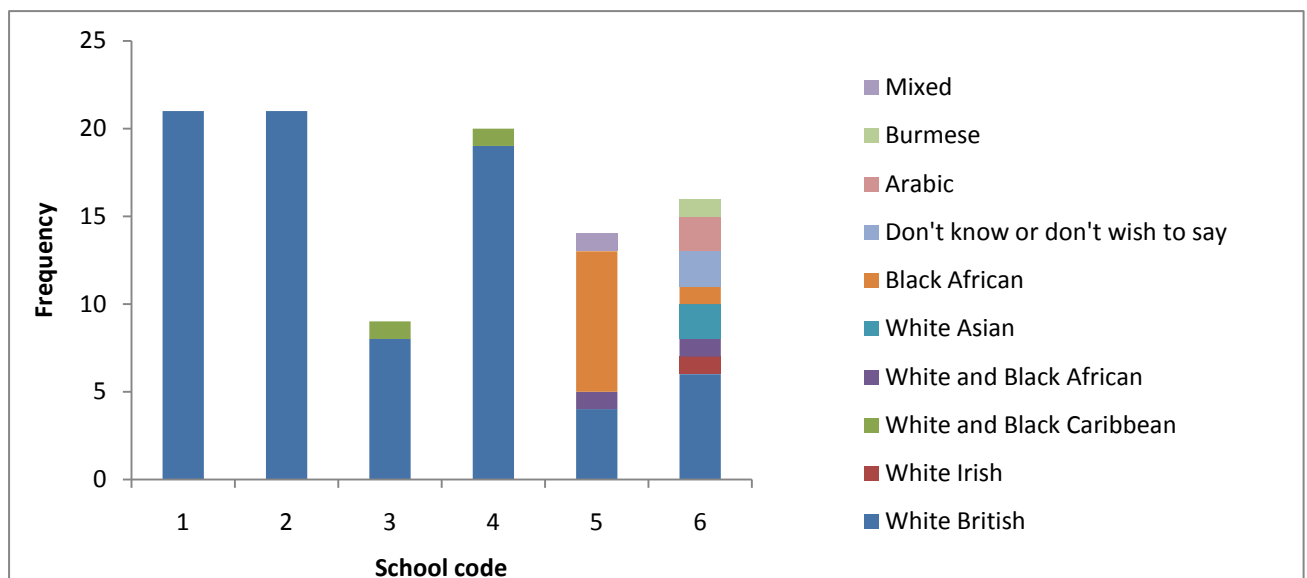
Figure 2 Ethnic diversity of school groups

The schematic map (Figure 3) shows the distribution of schools (stars) across Liverpool city. The green circles show the proximity of the community organisations interviewed to the schools.
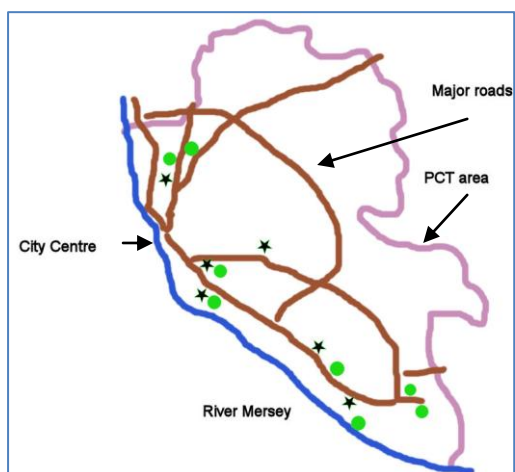
Figure 3 Schematic of locations of schools (star) and community organisations (circle) within Liverpool

7.2.   *Reflective account of methodology*

Public engagement and research approaches were piloted in this study, as this is a new area of work with no established protocols. The following is Neil Chadborn's reflective account of methods used and formative assessment.

7.2.1. *Opportunities and barriers to working with primary schools*

A key challenge to the project was gaining access to schools. I made contact with approximately double the number of schools which participated. Even when I had a face-to-face conversation with a teaching assistant who sounded keen on the school participating, I had little success in following-up such contacts at the school itself. For the majority of schools which did participate, I had a contact within community networks who recommended the school. This seemed useful in being able to engage senior staff within the school (frequently the headteacher). On the other hand, being able to engage a school may have been indicative of schools who were actively promoting health or environmental issues.

Although schools were constrained by time demands, the schools approached were willing to be involved in the study and were satisfied with the research protocol which had been developed. Most schools were satisfied with ethical issues.

For most schools I worked with the whole class of children (Year 6; aged 10 and 11 years), and generally the teacher or teaching assistant was present (doing other tasks). One school insisted on parental consent, rather than opt-out as specified in the protocol, and as several consent forms were not returned, several children did not take part. These children took part in other activities outside of the classroom. For other schools some of the class were involved in other activities during the afternoon (some or all of the time). Although there were reduced numbers of participants in these groups, these groups were still large enough to get a range of opinions and discussion.

I was generally introduced by the class teacher as a visitor, which seemed to imply that I should be given the same respect as a teacher. I was keen to establish an informal rapport with the class, and suggested that they call me Neil, rather than 'Sir'. I felt that an informal relationship was important to encourage sharing of their ideas and opinions. I emphasised that I was keen to hear their open and honest opinions and wanted them to feel comfortable to do this. In relation to this, following gaining informed consent, I set out ground rules. I explained that for an open and honest discussion, everyone should respect other participant's opinions, not talk about sensitive information and not gossip about what other people had said. I conveyed this information in a pictogram which I gave to each group. I felt trying to convey the reasons behind the ground rules may be more appropriate than either giving strict rules, or trying to develop these in discussion.

Although I had informed parents of the research session and had given them opportunity for their child to opt-out of the research session, I felt it was important to give young people an opportunity to give independent consent to being involved in the research.

7.2.2. 'Positive, Interesting and Negative', or 'Healthy and Environmental'

During the sessions I asked children to review their work and annotate their comments. For the first school group I asked them to write which activities they felt were 'low carbon'. While some children did annotate their comments appropriately, for example *"natural"* and *"grow own vegetables and flowers"*, there seemed to be a low uptake of this activity which I attributed to a language difficulty with the term 'low carbon'. For subsequent sessions I described the term more generally and referred to the term 'environment-friendly', which seemed to be familiar to most children.

For the next session I asked the children to note whether items were positive (P), interesting (I) or negative (N) (following De Bono's approach[23]). A good example of this method was one child's drawing showing *"Professor Unpollute"* next to a cycle path with a bike labelled "P". Above the Professor's face are two boxes with a *"bad car"*, labelled "N", and *"good bike"*, labelled "P" (the professor idea seems similar to Professor Fluffy of Aim Higher, which the child may have seen). The drawing of the car was labelled as *"lazy", "you shouldn't get a car it's bad for the air"* and "N". Further examples included *"Exercise Stopping Pollution"* receiving a "P" and also a tick mark and the comment *"both good"*. This shows that these children are making value judgements about these activities, and these annotations could be useful to extend the draw and write method to gain further insight into the attitudes children hold towards the issues raised.

For other sessions I asked children to stick coloured stickers to denote activities which they felt were healthy or environment-friendly. Children generally enjoyed using coloured stickers and were motivated to do this, however if they had stickers for too long, stickers became incorporated in drawings etc. I gave them green stickers to represent environment-friendly activities. For the first group I used red stickers to denote healthy activities. However I realised that the meanings became confused so that red meant bad, compared to green meaning generally good. Therefore for the next session I used yellow stickers to mean healthy along with green.

7.3.   Emergent themes from school groups

The main aim of this study was to explore resonance and attitudes of children. Therefore the first analysis focused on the class-based sessions. Analysis of the interviews with community leaders explored potential support available for children to take part in activities in school and within the community.

Qualitative data from class sessions, including draw and write sheets and transcripts of discussion, were coded using N-Vivo software (QSR). Emergent themes were developed from the codes. Findings from the class-based sessions were used to guide the analysis of the interviews with community leaders. The interview schedule were used as a basis, however this was integrated with the emergent findings from the class-based sessions (in other words, it would not be useful to explore an issue which was not of interest to the children). The analysis therefore contains views from the children and also opinions from the community leaders about similar activities or issues; e.g. opportunities that community organisations have made available to young people.

7.3.1. Picture of health

Children describe people having fun, people picking nutritional food and people being healthy. This indicates that they feel that they have a good idea as to what health 'looks like', even though health is notoriously difficult to define. It suggests that children recognise health, or can describe it when they see it. Children use formal terms in connection with health; *"nutritional"*, but also informal terms – *"having fun"*.

7.3.2. Social shopping

In health literature shopping and access to services is described in quite mechanistic or functional language. Geographers' or nutritionists' description of shopping can sound like the functional acquisition of nutrition including; what fruit and vegetables are available, fresh or frozen, prices, types of shop, fast food, etc. However one child wrote *"People shopping for lovely food"* and drew a face shape around it, which may indicate the personal and social aspect of shopping. This may reflect on the modern shopping experience; the personal interaction, and community involvement, which may be found in smaller shops but lost in modern supermarkets.

At least two other comments from the draw and write sheets refer to shopping with family *"I feel happy when I go with my brother"* or *"…shopping with my nephew"*. Again this shows that shopping is a social, family activity. These comments relate to the social aspects of wellbeing and community integration.

7.3.3. Shopping and eating with Dad

"Going to my Dad's" and *"eating veg"* are two adjacent comments on one draw and write sheet. Several comments indicate activities with Dad. These comments may suggest that parents are separated, although it could refer to Dad working away from home. The comments relate to what

could be described as 'domestic' activities, yet these may have become valued times of interaction with an absent parent. Communication with parent (or caregiver) is essential for development and wellbeing, and these comments suggest that these children experience these opportunities while cycling or during food-related activities.

7.3.4. Productive, natural, personal – garden

Figure 4 From nutritional to social benefits of gardening

Analysis of draw and write data about the school garden can be split into three themes; firstly, the actions and results of gardening, secondly supporting and observing wildlife, and thirdly social aspects. Comments relate to the different stages of the growing cycle; ***"digging", "planting the seed", "growing food", "eating the veg from the garden"***. As well as growing vegetables and fruit, and the more general term of food, children also describe growing plants and flowers, so this is more than a vegetable garden or allotment. Children describe ***"helping the animals"*** and ***"looking for insects"*** in the garden; they are keen to support local biodiversity and enjoy the natural or wild aspects of the garden, as well as their cultivated produce. Finally the social aspects are also important. Children describe ***"working as a team"*** and ***"talking and getting along with each other"*** (Figure 4) which suggest the shared goals of growing vegetables engender team working and that they enjoy this social interaction.

Figure 5 shows the participant enjoying planting seeds with their sister. Children also describe **"getting involved"** which may refer to the physical activity of gardening, similar to digging, above, or again could be about the shared goals of the project of growing vegetables, including eating the resulting produce. Also described as **"fun"**, this indicates that the children acknowledge the social benefit of such a joint project, compared to other more individual activities such as X-box.

Figure 5 Planting with sister

7.3.5. *Awareness of growing food*

A group of children describing pictures showing a vegetable patch (Figure 6) and a pack of vegetables shows a clear awareness of growing and cooking food. Some literature has indicated that some children, particularly in deprived areas may have little awareness or may not be able to recognise the natural or raw forms of fruit and vegetables. However these groups of children had a good awareness of food ingredients. For example, referring to a picture of a pack of root vegetables one comment is **"casserole ingredients"**. Also there was an awareness of the different methods of cultivating **"they grow in pots, boxes and on the floor"**, relating to a picture of a vegetable patch.
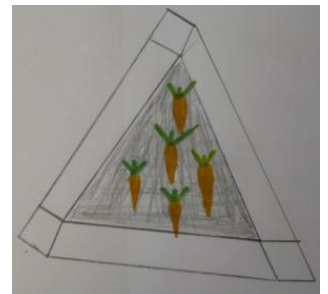
Figure 6 Carrot harvest

One girl in this group showed particular insight about climate because she noticed there was a greenhouse on the vegetable plot and stated that this indicated this was in **"our country"** which contrasted to Malta, where she often visited, being half Maltese. The pictures for this group contrasted grow-your-own with shop-bought which the participants readily took note of and made the corresponding comment **"packaging"**. Relating to both pictures was the word **"natural"**, however **"low carbon"** was annotated on the **"grow own veg and flowers"** whereas **"low carbon"** didn't appear on the picture of the pack of vegetables.

7.3.6. Connection with earth, and sun, enjoying experience, outdoors

A group describing their school garden had contrasting views. When talking to the group, one girl said *"I like getting dirty"* however when I asked if others thought the same, the girl sitting next to her said *"I don't like getting dirty in the soil"*. Other comments indicated that one liked gardening the other didn't. Of course this is no surprise, but emphasises that 'green' activities are not for everyone, and the chances of it improving health and wellbeing are less likely if it is not enjoyed.

One group focused on drawing their school garden and 'Forest School' (an outdoor learning environment). Many of the children in this group drew the sun in one corner. This seemed to relate to a general feeling of enjoying the surroundings and wildlife. A picture of some strawberries was annotated that they were nice because they were fresh and had lots of sunlight (Figure 7).
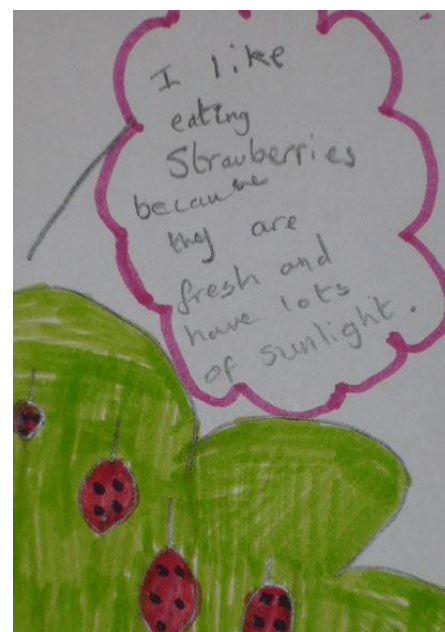
Figure 7 Strawberries and sunlight

Many of the children in this group included birds and squirrels in their drawings. For example one child wrote: *"I love eating strawberries, I like watching birds in the sky, I love planting plants"*. This simple statement summarises the theory of biophilia; that viewing and experiencing the natural world has a beneficial and therapeutic effect on people. The new economics foundation 'Five Ways to Wellbeing'[24] refers to this as 'Take Notice'.

7.3.7. Environment affecting health

Comments written by participating children indicate an awareness that infrastructure and the built environment can influence health. One of the prompt photos showed a cyclist in a town environment cycling along a cycle path and another showed a cyclist in a park. Children commented that the cycle path was good for safety, but there may be pollution in the town (Figure 8). Cycling in the natural environment was connected with getting healthy. When the children were asked to add annotations of high carbon or low carbon, they identified town with high carbon and natural environment with low carbon, which indicates an understanding of the concept.

Figure 8 Cycling in town or park

7.3.8. Body image

One group's comments included; *"getting healthy and fit riding their bikes"* and *"you're burning off fat and calories"*, these were linked to *"low carbon"*. These girls appeared concerned with body image, relating to cycling and exercise to *"you get skinnier"*. When I asked them a little more, the responses were as follows:

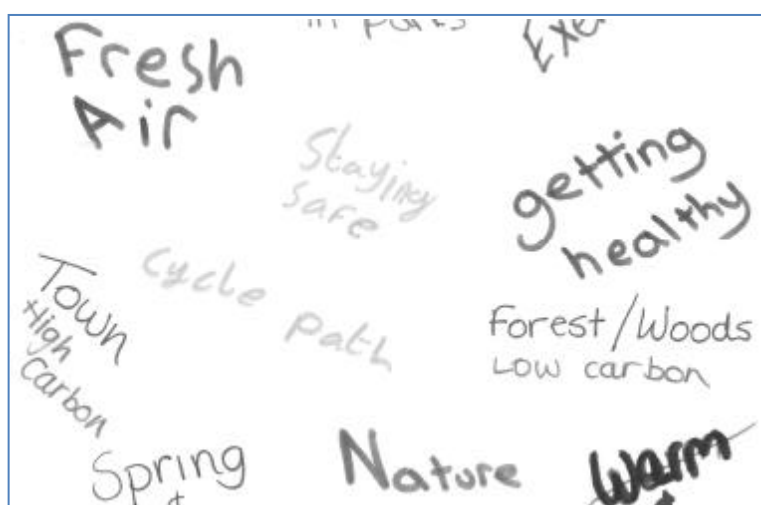|	
Participant A:	[burning?]***calories***
NC :	*what does that mean?*
Participant A:	***getting skinny***
Participant B:	***getting healthy and fit riding their bikes.***
NC :	*would you say that's important – to get fit?*
Participant A:	***Yeah***
NC :	*but would you say you're – as a group – fit?*
Participant A:	***Yeah***
Participant B:	***I'm not.***
Participant A:	***Ah she thinks she's not, but she actually is.***
Participant C:	***I'm skinnier than everyone in the class.***
Participant A:	***Do you know who's the skinniest in the class - ....is the skinniest. She hasn't got any flab anywhere.***

This exchange demonstrates that conversations about body image and dieting are occurring in children of primary school age. The advantage of this research approach is that these children weren't prompted or asked about these issues; this data has captured almost natural conversation about these girl's perceptions. The competitive nature of the discourse about body image is shown here as they argue about *"who's the skinniest in the class"*. The terms flab and fat may indicate concerns that the girls are starting to feel as they enter menarche and puberty. Alternatively they could be imitating the expressions and style of conversation from older family or friends or media. In either case participants appear to acknowledge that activity and exercise can be a way to improve body image, and they relate it with fun and happiness. The latter point is important, because if the girls were too worried about their appearance they may not feel comfortable being seen cycling, which would inhibit this form of exercise. Furthermore if the girls were very concerned about weight loss they may be concerned that exercise would build muscle mass and focus on dieting to avoid this; however this does not seem to be the case. Exercise whilst cycling was also labelled as *"Low Carbon"* following my request for them to label which of their comments was low carbon.

7.3.9. Freedom and accomplishment

Cycling has previously been reported to be an important activity which gives young people a sense of freedom and supports their developing independence ([17,25]). Views expressed in the research sessions appear to support this view. Cycling is expressed as an enjoyable activity, including as a leisure activity in the park with family, as a means of transport to school, but also supporting earning money from paper-rounds. One participant listed their paper-round as one of their 'Five ways to wellbeing', which indicates a connection between the following; active travel, earning money, independence, and self-empowerment. It would not seem unreasonable to make a further link to a

sense of personal achievement in mitigating climate change. Currently, this link may not feature clearly within current media discourse, but could be highlighted by teachers or community leaders.

A sense of accomplishment was also expressed in the 'Draw and write' data, in that participants referred to cycle proficiency. These courses had been delivered either by national (charity) or local organisations (social enterprise) and led to certification, and thus confidence, in children's ability to negotiate road and traffic situations. There is a sense of this learning being a step towards the adult world and may bring greater awareness around the issues of traffic and the various arguments about needs and benefits of travel versus risks of injury and pollution. Again this may be an opportunity to raise awareness of climate change.

7.3.10.   Safety

Several of the photograph prompts in the class research sessions included safety clothing such as high visibility jackets. Children made many comments about these *"Be safe on the road when cycling"*, including whether or not they would wear such jackets.

First participant: "I'm not going to go outside with one of them, I'd be unfashionable."

Second participant: "Unless they have it in red."

Some children said they would wear particular colours but not others, so the issue was more complex than whether or not they would be prepared to wear safety clothing. It seems likely that these safety concerns reflect parental concerns:

"My mum doesn't let me get the bike out"

However other sources such as school may also influence children's perception of safety. It is likely that attitudes of risk aversion, communicated through media as well as many other ways may contribute to lack of uptake of activities such as cycling and walking to school.

Children also expressed concerns about safety in their neighbourhood. For class sessions which focused on travel to school, several contained aspects of risk. For example, Figure 9 shows how the child walked passed rowdy people near several pubs.
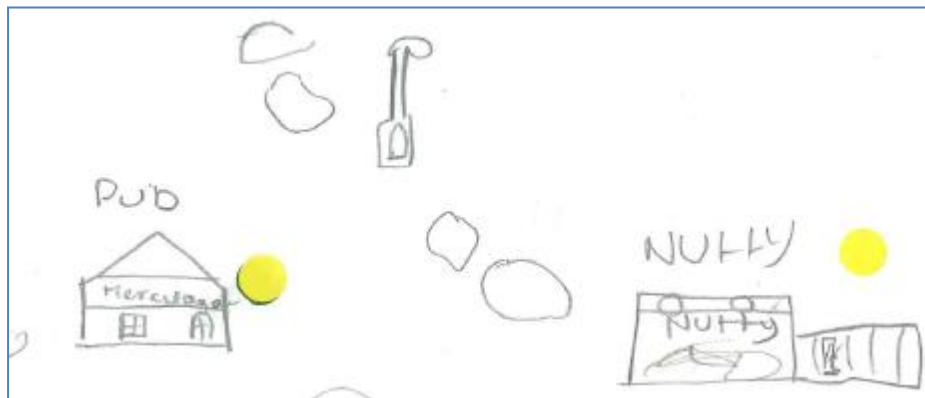

Figure 9 Pubs on route to school

7.3.11.   Available time

For some school sessions participants were asked to draw their routes to school. Figure 10 shows one participant's travel routine. She writes that she gets a lift because she's too tired to walk. However on the way home she writes that she likes walking. The drawing depicts her Dad dropping her off and driving off to work. This may indicate that part of the reason why she has a lift to school is that her father doesn't have time to walk with her, as he has to get to work. Thus simple messages, for example encouraging walking to school, should be developed in awareness of the local context and constraints. In this case extended schools or breakfast club, may enable parents to walk with their child to school, because an earlier drop-off time would allow parents to return home before making their way to work.
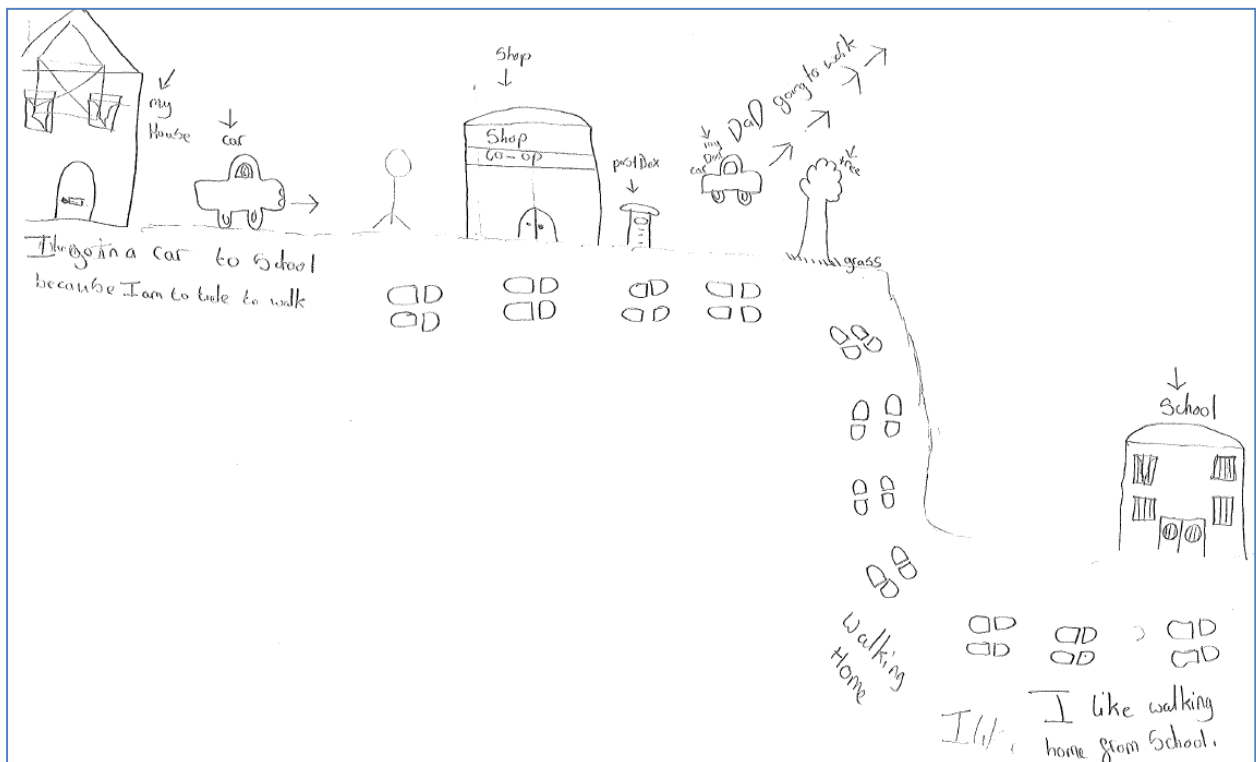
Figure 10 Dad gives lift to school

7.3.12.   Special diets

While discussing food and shopping, one girl wrote: "***When I go to the market I have to get special food because I have diabetes***". When the researcher asked a little more about this, she showed her book which helps her with food information. Children with special diets for health reasons (including allergies) must be very conscious of the links between the ingredients and other food labelling and their personal health. It would be interesting to explore how this group of children perceive home cooking – whether they consider it easier to control ingredients if cooking at home, and whether this may increase or decrease choice and range of foods and menus. Aspects of food choice may also be for ethical or religious reasons. Again food labelling reflects these three groups of choice (health, ethical and religious) in quite disparate ways. For example some supermarkets are starting to label an estimate of the carbon footprint of products.

7.3.13.   For free

Participants felt that activities were good value for money; "***cycling or walking is very important***" and "***for free***" comments were made next to a drawing of a bike (Figure 11). National economic policies (austerity measures) will limit most people's spending power, although it seems those living in areas of deprivation may suffer the most from the combined reductions of local services as well as personal finances. In particular leisure and sport activities will become less accessible, for example free swimming courses have been closed. However Liverpool PCT is supporting access to physical activity with bikes for loan in several localities across the city. There is also a social enterprise which can offer refurbished cycles at low prices.

Figure 11 Cycling for free

7.4.   Five ways to health and wellbeing

Following discussion about Liverpool's '2010 Year of Health and Wellbeing' for which the central theme was 'Five Ways to Wellbeing', classes were asked what their 'five ways to wellbeing' would be. Responses were summarised with the following themes:

- Sports and fitness
- Art, dance, drama, Spanish, reading
- Children's games, electronic games
- Family and friends: health and social
- Pets
- Hospitals / better treatment
- Nutrition / "stop fat food"
- Environment – litter, pollution, gardening, security CCTV, smoking
- X-box, wii-fit
- No drugs and alcohol

One group suggested the following ideas, some of which follow the 'Five Ways to Wellbeing' closely and may have been stimulated by my discussion:

- Thinking,
- Friendship / making people smile
- Giving
- Chillax
- Education
- Singing in the shower

7.5.   Activities facilitated by community leaders

To maintain anonymity of participants, individual organisations have not been identified or described. The following describes some of the opportunities made available to children by the various

organisations within the communities studied. These activities or facilities may be provided by public sector (school, health sector or local authority), social enterprises, community organisations or individuals which support Low Carbon Healthy Lifestyles.

7.5.1. School dinners and fruit

Interviews with a school parent-governors group indicated the value that the school placed on the ethical as well as the health aspects of food. Parents were discouraged from giving their children packed lunches, due to poor nutritional value of many packed lunches, and all children were given meals at school. Meals were procured from an independent local supplier which sourced local produce where possible. The health and educational benefits of a balanced diet were promoted with the supplier providing information and education about their activities.

Over recent years fruit has been provided to school children in class. How many year groups benefit from this programme has depended on funding, with some from national programmes, and local health sector and government providing additional funding. Some schools governors have decided to supplement this from their own funds.

7.5.2. Composting

An interesting link between health and climate change has been made by one organisation collecting fruit waste from schools to be recycled. Again some school children have been involved in this programme, and there has been an educational aspect to the programme for all children at the schools involved.

7.5.3. Growing opportunities, in schools and in community

An increasing number of schools now have vegetable patches to enable children to be involved in growing produce. The staff at the participating schools have had variable input into these programmes. In some cases the parents have supported the project, in other cases community organisations have formed a partnership with the school to support this work. In other cases community organisations have provided a facility off the school site, which has benefitted several schools in the area.

7.5.4. Cookery skills

Community organisations had developed programmes to encourage children and families to cook at home. The programmes aim to inspire people to cook by demonstrating recipes and techniques as well as highlighting health and economic benefits. The organisations often raise awareness of environmental impacts of food supply chains by emphasising the benefits of fresh local produce. Home cooking would generally be expected to have a lower environmental impact than takeaways or pre-prepared (processed) food.

7.5.5. Outdoor learning environment

Forest schools is an growing initiative in the UK which aims to facilitate learning across the curriculum in an outdoor (semi-wild) environment. The aim is for the natural environment to promote

more socially-integrated and participant-led learning opportunities. The location can be within school grounds, but more often is off-site, and generally facilitators are independent of the school.

7.5.6. School partnerships

Some schools valued partnerships with other schools, both within Liverpool, and overseas. Parent-governors said that children were encouraged to communicate with children at participating schools in Africa and other countries. One of the aims was for the children to develop a global outlook and an appreciation of diversity and valuing people of different backgrounds. Specifically this approach was hoped to address social issues in areas of mixed ethnic communities, but also to engender an awareness of global environmental issues.

7.5.7. Representation of young people's views

Most schools had school councils which represented children's views to decision-makers at the school and wider community. The majority of these sent representatives to Liverpool School's Parliament. This facilitated the city council's engagement with young people across the city. Schools also had Eco-representatives or Eco-councils. Children who volunteered for these positions contributed to organising and running some aspects of the schools sustainability programme. Activities included waste and recycling, posters to engage other children and monitoring energy use.

7.5.8. Extended schools and working with families

In connection with this research, extended schools served two functions. Firstly they facilitated travel arrangements to school; extended schools provided a venue for children to wait (or participate in activities) before or after school, which may help parents to walk or cycle to school with their children and allow time to travel to work themselves. Extended schools could provide a healthy breakfast, or activities such as gardening.

Some community organisations work with families rather than directly with children. These programmes may also have an important impact for this area of research, as it may develop opportunities for children to participate in Low Carbon Healthy Lifestyles at home.

7.5.9. Social and cultural activities

Community organisations are aware of the importance of social and cultural activities for health and wellbeing of children and young people in their area. Some community groups facilitated arts projects within schools. Others provide special days or festivals which often feature raising awareness of environmental and health issues. These activities can provide opportunities for different communities to mix and for other social aspects of the 'sustainable communities' initiative.

7.5.10.   Facilitating cycling

Children in most schools had access to cycle training provided by a separate organisation. Some schools had road markings painted on the playground; presumably to aid familiarisation of children with road safety.

7.5.11. Sports and physical activities in greenspace

Community organisations supported children by providing venues for sports and physical activities; some indoors, but others in greenspace. At first analysis, opportunities for physical activity may be related to number of facilities within a neighbourhood. However other factors such as accessibility (perceived as well as physical distance) and club activities are likely to have strong influence on amount of participation. Community organisations have traditionally played an important role in providing opportunities.

7.5.12. Linking up initiatives

Many of the initiatives facilitated by community organisations are interlinked on some level. For example waste from the school fruit is collected for composting. The compost supports the vegetable patches and growing projects. Produce from the latter can be included in cookery demonstrations. This cycle raises two important points, firstly that children can learn an ecological perspective from an awareness of natural cycles. Secondly that all organisations concerned, including schools, may benefit from valuing the whole range of available partners and initiatives. Making explicit a common goal, to benefit health and the environment, may strengthen these relationships and gain more support from the community (and even financial support).

7.6. Analysis of a priori themes

This study has taken a multi-disciplinary approach and therefore findings are interconnected and reticular rather than hierarchical. The core issues relate to the following areas, and these were the basis of the semi-structured interviews:

- Travel to school
- Food, both of which impact on the following two points
- Climate change
- Healthy lifestyles
- Climate change and health, finding the co-benefits of the previous two points
- Sustainable communities strategy, which contains aspects of previous points

The following discursive report includes an analysis of both class-based sessions and interviews with community leaders, around these themes.

7.6.1. Travel to school

Travel to school was discussed with most of the class sessions. Some sessions were focused entirely on travel. The role of one of the community leaders was transport, another two also related to transport. Traffic and cycle safety was a major concern amongst different groups. Children expressed an opinion that parents were worried about their safety in travelling to school. Some children felt that this restricted their ability to cycle; others felt that it wasn't an issue. Some children described cycling as a family activity and described cycling in the park with their parents at weekends.

The photograph prompts used in the class sessions depicted children cycling, people cycling in cycle lanes and bikes in a bike rack. Children appeared enthusiastic about these images – some were

described positively as 'cool'. Safety items were described, including high visibility jackets, helmets and gloves. There was an awareness of the need for infrastructure; the cycle racks, cycle lanes. The photo of cycle racks showed a Dutch school with a large number. Upon further enquiry as to whether there were racks at one school, participants responded that there were. Children commented that one particular week when they had been encouraged to cycle, they had to park their bikes against the railings because the bike racks were full. However, they said that generally there were few bikes parked.

Availability of bikes was another issue. Although most children appeared keen to cycle, when asked whether they did regularly cycle, children reported that they used to have a bike, one said it had been sold, another that they had a flat tyre. When probed further, as to whether the flat tyre could be fixed, the participant said that their neighbour had a pump:

"I've got a flat tyre – I'm waiting to use my neighbours pump."

These are minor details, but they may make the difference between the child cycling to school or not. Furthermore, these details prove the strength of this methodology. A questionnaire would be unlikely to uncover this information and even a semi-structured interview may not create the space and environment to enable the child to talk about details which, on the face of it, are fairly inconsequential. The draw and write methodology allows the children to feel comfortable in their normal surroundings and to express and develop some ideas on paper. At the same time it gave an opportunity to talk to groups and also individual children in depth to uncover more details. In this example, the problem with the flat tyre was a barrier for the child cycling to school. One initiative to tackle this is to have bike workshops in schools, to either fix the bikes for the children, or to enable them to fix their own bikes, for example a Sustrans representative visits Croxteth Primary School for 'bike-it' breakfasts which includes a bike maintenance workshop[26]. Thus if schools could engage with a community organisation or shop owner who could deliver this service (even on an occasional basis) it may enable more children to cycle to school.

One of the pictures in the class sessions was of a walking bus, which is a group of children walking to school lead by a teacher or parent. Again the children noticed that the leader and children in the picture were wearing high visibility safety jackets. Children seemed to be aware of the concept of the walking bus, and whilst this initiative was not available to any of the children on their trip to school, one school did use the walking bus to get to the swimming pool. At this school the teacher related an anecdote, out of earshot of the children; that on one trip to go swimming, one of the children suddenly shouted to stop. He gestured back at the school and said that they had left the light on in class, he was the Eco-rep and insisted that they turned back to switch it off. To address this difficult situation, without marching the children back to school, the teacher pretended to phone another staff member in the school. This anecdote demonstrates that once children identify with an issue they can be very determined about it.

7.6.2. Food

Transport issues interrelate with food issues, in accessibility of shops and takeaways. One of the pictures shown to the classes was of a bike rack outside a supermarket. Some comments related to needing a car to go shopping; supermarkets in particular favour using a car. On the other hand

drawing of routes to school revealed that many children pass food outlets on their way to and from school. These include chip shops, sweet shops and pastry shops (see Figure 12).
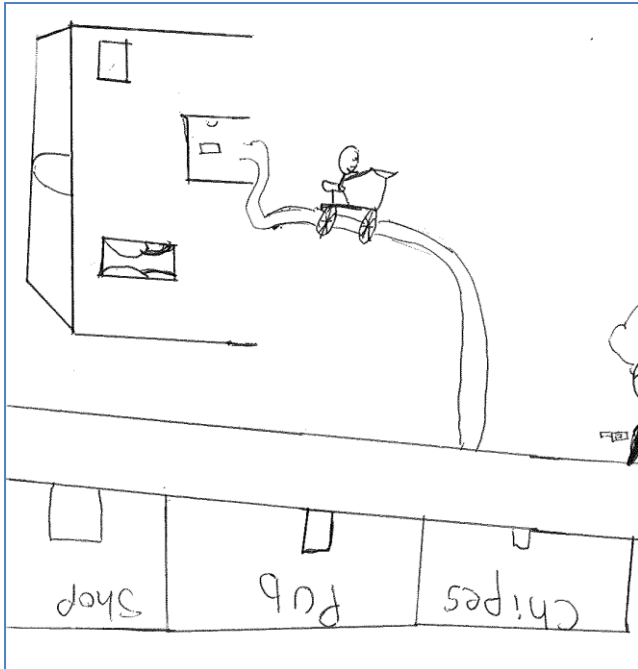

Figure 12 Chips, Pub and Shop on way to school

Whether food deserts exist or not is a controversial issue, however it is clear that 'unhealthy' food outlets are readily available whilst shops selling fresh food, including supermarkets, can be a car-trip distant. Having said that, for two schools large supermarkets were either being planned or built in the locality. One community leader suggested that people's choice of shop or supermarket is limited by transport, but since supermarkets have led to smaller grocers closing he claims that people's choice has been constrained, thus leading to less competition and higher prices:

> *"…the supermarkets know it, that they can't move off that estate."*

The convenience of supermarket shopping was a key factor for some children, however there was an awareness that these foods relied on high energy – for shipping (foodmiles) and storage. There was a general awareness amongst participants of the school research sessions about the environmental impact of food production.

However home-grown food was valued by the children. For example one school benefited from a forest school scheme which included growing vegetables and soft fruit (a forest school is an outdoor learning environment). This research session was focused on the forest schools project and participants were asked to draw and comment on these activities. Many children drew food such as strawberries, potatoes and carrots. When asked whether they preferred fruit and vegetables from the school garden or the supermarket, participants responded that they preferred those from the school garden:

> *Participant: " I like eating strawberries"*
> *NC: "You know when you buy fruit from the shop – is it nicer eating a strawberry from this garden, or nicer from the shop?"*
> *Participant: "In the garden"*

Reasons given were that they were more tasty and fresh (or that they contained more sunlight; see Figure 7) These opinions counter some perceptions that children may prefer commercially presented food and may be put off by home-grown produce. On the other hand, children in one school enjoyed taking part in growing vegetables, but when I asked them whether they ate the produce, it appears that they hadn't grown popular vegetables:

Participant D: "You get to, like, plant stuff and after that you can have a break and go and get a drink."
NC: "What kind of things do you plant?"
Participant D: "Brussel sprouts."….

NC: "and you picked them and ate them did you?"
Participant E: "No, no one likes brussel sprouts."
Participant F: "Except for me."
NC: "Don't you have them for Christmas?"
Participant E: "Yeah but no one eats them."

One community leader was keen to support local people to 'grow-cook-eat', in some ways getting back to ideas of home economics – helping people to understand the whole process of food production, rather than simply buying ready-to-eat food.

"We're going to undertake our own growing in Mar/Apr. We're calling it Christmas in September…we're going to bring them all in here to cook Christmas dinner in Sept then track them to see if they do the same for Christmas."

These ideas could have a shared agenda with sustainability or resilience. A representative of an organisation of young people described how her family had started growing food at home. She explained how it had been difficult to find out how to get started.

"…it was just quite hard to find, I think it was on the back of a magazine and on a website, it was really fun actually."

This indicates that there is a lack of appropriate information available. Whilst there may be a proliferation of information available on the internet or in books and magazines, people may not have access to these, or may simply not know where to start looking.

7.6.3. Climate change

Participants of the school research sessions did have some awareness of climate change, although this seemed particularly dependent on the wording of the phrases and questions. Some schools had eco-champions or eco-committees to lead environmental action, but even in these schools some children seemed to have low awareness:

NC: " How you hear about climate change?"
Participant C: "Hear it on the news."
Participant D: "On the radio."
NC: "What about at school?"

Participant E: "Never hear it at school."
NC: "But you do some things like the Eco-..."
Participant F: "Yeah we have Eco-reps... and I'm an eco-rep."

However even some of these representatives appeared to have less understanding of the words climate change and carbon footprint. This suggests that these terms are not understood in children's everyday lived experiences. On the other hand there was an awareness of renewable energy and pollution.

Children were concerned about factors affecting their local environment, for example litter in the streets and pollution from traffic. A potential dilemma arises when developing messages about climate change; finding the right balance between localising the message to generate interest and engagement on the one hand, while not diluting the global nature of the issue on the other. For example litter is an 'environmental' problem, and may relate to consumption behaviours, but it is difficult to make a direct link with global climate change; while litter may engage local groups, it may not lead to further engagement or understanding of climate change. An equivalent line of argument can be followed for the overlap between health and climate change; should a broad, participant-defined approach be followed, or should responses be questioned as to whether they do relate specifically to climate change and health and wellbeing?

Community leaders emphasised that messages should not be negative 'doom and gloom', but rather positive and 'solutions-focused':

" ...'cos it can come across sometimes like this almighty problem and quite doom and gloom, so I try to relate it more to what can we do..."

The messages of health co-benefits could be a useful approach for this. One school was planning on investing in solar panels and involving students in this project, which may raise awareness of the economic benefit of climate change mitigation.

Several organisations described health impacts arising from the local environment and pollution, however there was less confidence in awareness of health impacts arising from climate change. One community leader commented that there was a personal understanding amongst organisations and the public about local environment and that there was a commitment to cross-agency working on these issues which also included the social environment, for example anti-social behaviour. This probably relates to the aspiration of 'sustainable communities' strategy to support multi-disciplinary community development. While those supporting environmental sustainability encourage this kind of integrated approach, there is a danger that any natural environmental aspects get diluted amongst social and economic aspects.

7.6.4. Healthy lifestyles

Several community leaders were involved in projects and initiatives to support health and wellbeing. These included food, physical activity and social inclusion. Some organisations worked with parents to develop parenting skills. They felt setting examples to children about healthy lifestyles was important. There was also a concern about children who were born to teenage mothers and felt a need for guidance and support from the community. 'Self-help' groups are active in some

communities, for example obesity support groups and workless parents groups. These may be a good approach for mutual support and motivation to improve health and wellbeing in vulnerable families.

In relation to healthy food choices, the community food coordinators are thought to be doing useful work in raising awareness and educating members of the public. However the challenge of convenience food is ever-present (as in 7.6.2. Food). Community leaders had a view that parents perceive fast-food as being affordable as well as convenient.

Several school food initiatives have been successful at improving children's diet. One example given was that certificates were given for healthy lunchboxes. Another school banned packed lunches due to low nutritional value items being brought in. The head teacher admitted that the rule had not been popular with parents to start with, but said that teachers noticed the improvement that the change made to pupils attention and work. The parent-governors of the school commented that it was controversial, but they had 'chocolate days' when children were allowed to take in some sweet snacks. The school contracted to a social enterprise catering company; although there were extra costs, there was also an educational benefit. This supplier is locally based and sources from local suppliers which they promote as environment-friendly. Also the school provided fruit everyday, which was funded by the governors, following cutbacks in the school fruit programme.

The majority of schools are now registered as 'Healthy Schools'. A small number are working on a pilot 'Enhanced' status. The latter receive data from the National Child Measurement Programme with the aim of using this data to improve children's awareness about obesity and other health-related weight issues. The release and use of data from this programme sparked a national controversy in the media. This may be connected to schools not seeming confident in using this data and some having an attitude that it's 'not down to us'. Interestingly, the schools which are given 'enhanced healthy schools' status have a role in collecting data for the Joint Strategic Needs Assessment (JSNA), which in turn should guide local public health delivery. Thus schools do have an opportunity to influence local health policy, and in turn children could also be involved, through schools council or parliament.

National economic cuts as well as policy changes were felt to impact on schools activities. The importance of health and wellbeing has been reduced in Ofsted reporting (since 2010), which means that it may be more difficult to prioritise these issues within lesson time:

"They're changing the Ofsted inspection framework. It looks as if the health and wellbeing aspects of the Ofsted framework will be reduced. Not that they were very visible to start with. They've also removed the schools obligation to produce a self-evaluation form… what we liked about it was it did ask links with community, links with parents and healthy lifestyle."

This may impact on whether schools are motivated to take part in programmes such as Healthy Schools or Sustainable Schools:

"…we could say to schools 'once you've done this piece of work it will help with those other things' [Ofsted], so now if they've taken that away, that will put some head teachers off. And in the meantime the funding for the national Healthy Schools programme ….has gone… and that's the same with extended services…the theory is that the schools will get more money and buy in services…"

Nutrition was considered important to support education, to enable children to be in a fit mental and physical condition to maintain attention whilst learning. Dehydration has been identified as a problem affecting concentration, to address this, two of the schools had a scheme of water bottles on each of the tables in class. As these were refilled from tap water daily; compared to buying bottles of spring water, this scheme has a substantially lower carbon footprint. One comment in the draw and write exercise referred to using showers and also singing in the shower, to reduce water use. This was a good example of the participants developing new ideas for Low Carbon Healthy Lifestyles; having a shower uses less resources (water and energy) than a bath, and singing benefits wellbeing. Whilst such small steps may not make substantial differences to health or climate change, the important aspect is that it may trigger a different approach and stimulate thinking about Low Carbon Healthy Lifestyles in different daily activities.

7.6.5. Climate change and health in schools

One group of children when asked to draw a poster to sum up the session drew a picture of a polluted planet with sick people on it compared to an unpolluted planet:

Figure 13 Unhealthy planet

This suggests that children are aware of the health consequences of climate change. However, when they were asked about the drawing, the concept seemed to be an apocalyptic vision of the future, rather than an understanding that effects are starting to be felt around the world now:

Participant: "It's the world and people dying."
NC: "What do you think about climate change, do you think people will die? Is it scary?"
Participant: "Not that scary."
NC: "People dying sounds scary."
Participant: "Yeah, people dying sounds scary, but no-one's died yet."
NC: "Right."
Participant: "So if people start dying then it'll be scary, but not yet."
NC: "And where do you hear about climate change or environment things?"
Participant: "On the news."
NC: "What news?"
Participant: "On television."
NC: "What programmes do you watch on TV?"

Participant: "You know sometimes you watch some programmes and the news comes on, only a short one, and it says climate change, sometimes."

The school had recently taken part in a charity day for an African aid fund, so the class were asked whether these issues may have been connected to climate change:

NC: "So when you did this Unicef day the other day.."
Participant: "We all had to bring donations in and wear our coats"
NC: "What did you talk about with these other countries? People in other countries do you think they might be suffering now? Do you think their health might be affected?"
Participant: "Yeah because they haven't got nothing to filter water or nothing..."
NC: "So do you think they might be affected by climate change now?"
Participant: "Erm yeah."

This exchange exemplifies the need to increase awareness and understanding about the impacts of climate change. To a large extent these messages are dependent on the mass media, however schools and community groups can also play an important role, as they have the personal connection with the children.

In discussions about how schools are approaching the overlapping issues of health and climate change, one community leader said:

"I'm not sure how far forward the thinking is with schools on that level. … I think the schools are already doing it but they're not necessarily giving themselves credit for doing that…"

However she went on to say that there are good examples. She also said that leadership was important to make this happen; that much was due to the head teacher's involvement:

"…example of a good school… they have doors leading out to sections of the garden, each classroom leads to a section of the garden. The headteacher is very focused on what she's doing."

7.6.6. Diversity and Equality

The schools and community organisations who were included in this research were within areas with high deprivation (see Figure 1). They were also areas of high proportion of black and minority ethnic populations (BME, see 7.1. Reach of study). Although ethnic diversity and deprivation are commonly co-located in inner cities in the UK, it is interesting that this data shows the schools with greatest ethnic diversity (schools 5 and 6 in these graphs) were not based in areas of worst deprivation (school 4). Two of the schools with ethnic diversity had very impressive approach, investing time and effort addressing issues of inclusivity and developing a global outlook. As climate change is a global issue, these schools may have opportunities to link this with social and health inequalities experienced in their local neighbourhood:

"Our biggest link in terms of climate change is with two schools in the city … as part of our community cohesion plan, and we're also linked with three schools in Nigeria and three schools in Zimbabwe and the whole point is learning from them, they have to recycle, they have to reduce their – well they don't have a choice."

Although there has been discourse in the national media of environmental issues mainly appealing to white middle-class people[27], this was not apparent with participants at different schools of this study, in terms of enthusiasm to engage with environmental issues. Neither was there a noticeable difference in attitudes to health and wellbeing.

One community organisation stated that their educational materials were designed for an ethnically and socially diverse audience. Also they frequently have children with a range of physical and psycho-social abilities on visits to their composting site. The participant pointed out that the outdoor environment is a good approach to engaging children of a range of backgrounds and abilities:

"We've had a range of children with different physical abilities and also with issues of health out on our sites regularly. The classes that we have that come out regularly have different abilities and also have behavioural issues and that's another reason why the teacher finds a benefit from them being outside. Another way of learning basically; less structured."

Another community leader expressed the opinion that family background may play a role in children's involvement in activities. When asked about involvement of BME groups they responded:

" I do find there is some Muslim families that don't, they're not that keen on their children doing manual stuff outside, I mean they've got a very high priority of the academic, so, I mean it's not happened that often but we've had a few children, who's parents have come in and said, 'I don't want them in this group' because it's not their main priority…"

7.6.7. Sustainable communities

Many aspects covered in this research study relate more closely to community development than to health promotion. The sustainable communities act (2007) encourages local authorities to take responsibility for local agendas relating to economic, social and environmental sustainability. The act supports transfer of power from central to local government (localism). Liverpool Local Strategic Partnership (including the City Council and PCT) has an active Sustainable Communities Committee which is the most appropriate forum in which to discuss and progress the issues raised in this study[28]. For example community gardening initiatives can support community cohesion and mixing of differing social or ethnic groups.

7.6.8. Structure / agent

Discourses on structure / agent are a critical link between obesity (as an example of health inequality) and climate change. Recently the term obesogenic has been coined to describe the argument that the food environment and the physical activity environment are causative factors for weight gain and obesity[29]. In this study, one community leader initially raised issues connected with local environment. They described the prevalence of takeaways being associated with increasing levels of obesity in the area, whereas areas with few takeaways have stable levels of obesity.

"…why do you allow a proliferation of takeaways and so on. Interestingly in Speke, the diets of Speke people is completely flatlined, obesity doesn't peak or drop, it's just flatlined – there's no takeaways in Speke, there's only 2 to 3 takeaways, whereas if you go to Garston, there's 22

takeaways knocking about, cafes and you know different eateries and so on. Smithdown road by the way is peak, you know obesity is through the roof…"

Also described were issues with transport to outlets of reasonably priced good quality fresh food, which was suggested to be linked to the dominance of supermarkets and suppression of competition (see 7.6.2. Food). While this discussion was primarily focusing on health, following discussion about foodmiles indicated that similar issues constrained local sourcing of produce. These arguments suggest that structural issues are important in determining health in local areas. However as this interview progressed, the participant expressed the seemingly discordant view that obesity and poor nutrition were a matter of personal responsibility. The participant described workshop sessions with members of the public, where he encouraged members of the workshop to consider how they could have made more appropriate food choices, despite the structural limitations.

"I say to people 'it's your fault – how does it feel?' right? And do you know what's interesting, is that everybody gets it."

Applying the agent aspect of the structure/agent discourse; impressing a sense of personal responsibility was felt to be a powerful and appropriate way of engaging and motivating members of the public.

8. Discussion

This pilot study has taken a very broad, open approach to issues relating to climate change and health. A discourse on healthy lifestyles, in relation to diet and exercise, was used to investigate young people's attitudes towards practices that could prevent obesity and it's sequelae. Whilst this broad approach enabled a diverse discussion, a drawback may have been a lack of opportunity to explore particular issues in more depth. Furthermore the method of whole-class draw and write, which was developed for this study, whilst being practical and inclusive, also limited in-depth discussion. It enabled some discussion between the researcher and small groups of participants (captured in audio recording) and prompted individuals to write down (or draw) their thoughts and opinions, however due to managing the whole class session, these opportunities were limited.

The target age group for the study was year 6 of junior school (10 and 11 years old). This was considered a suitable age group because the children are in the senior year within the school and have confidence and ability to discuss issues relating to their daily lives. Views from community leaders suggested that junior school was a suitable environment to discuss these issues, because secondary schools tend to be more focused on curriculum, and less amenable to using class time in this way. Teachers and community leaders also agreed that children of this age were amenable to be engaged in such issues, whereas older young people may be more apathetic. Indeed the participants seemed to engage their creativity with the issues (see all previous drawings and Figure 14– a logo design using the letters of Eco in the shape of a face).

Figure 14 Eco-face

However the research team also considered some disadvantages to this age group; they may not hold strong opinions and may be easily swayed by a facilitator, especially if they perceive the facilitator to play a similar role to the teacher. In defence of the method on this point, one example (see Connection with earth, and sun, enjoying experience, outdoors) was that one girl was adamant that she did not like gardening, against a discourse which was positive about it, suggesting that personal opinions were expressed. Furthermore there is the question of what outcome can be expected from working with this age group. If an intervention approach is taken, it is doubtful whether an intervention at this age would persist in older age, when the individuals are capable of making consumer and political choices. On the other hand if a participatory action approach is taken, then actions available to this age group are limited. Potentially children can influence choices of their parents (pester power) but the effectiveness of this may be short-lived.

Other than parents, the study indicates that there are two key factors which influence the action available to children. First is the 'ethos' of the school; from the findings of this study, this hard-to-define concept appears largely driven by the approach of the head-teacher. This enables initiatives such as the school garden or cycling to school to gain wide support and commitment, in turn allowing children the choice of getting involved. The other important factor is the role played community organisations. Several of the community leaders interviewed for this study worked with the schools in providing children with opportunities to get involved in activities. One school was planning on building extra rooms for use by the extended school; before and after the school day. Several community organisations were invited to work in partnership with the extended school scheme.

With a rapidly changing public sector there are many challenges in supporting community-based approaches to supporting people's health and wellbeing. While political rhetoric promotes local community organisations taking the lead role, at the same time funding is being cut for key organisations which facilitate and support the community organisations. Nevertheless, this research has discovered an array of projects and initiatives, run by various groups and organisations, which could support low carbon healthy lifestyles.

9. Conclusions

Findings from this report suggest that the methods developed have been an effective tool for engaging with schools and community organisations. A diversity of community groups were willing to take part in the study (see7.6). They were interested in the research because the work aligned with their particular interests in either health and wellbeing or climate change. Similarly some schools were particularly interested in health and wellbeing or sustainability, which appeared driven by the agenda of the head teacher. The latter indicates that there is much variability across Liverpool in the extent to which schools and community organisations are engaged in activity consistent with low carbon healthy lifestyles. In turn this may impact on the opportunities, as perceived by the children, to get involved in such activities. In some cases schools and community organisations feel a lack of support or advice on these issues. Strengthening the network of communication between schools and community organisations may support and encourage this work.

Further development of this work could proceed along two potentially contrasting trajectories. The more traditional health promotion approach would be to extend the research in order to develop

media and other resources to convey the benefits of low carbon healthy lifestyles to children. However with the current direction of travel of public health being towards participatory approaches, the favoured approach may be to facilitate an asset based community development in this area. This pilot has shown evidence for current capacity within civil society to support schools and children. Two examples, in this study, of close working between community organisations and schools were extended schools (clubs run before and after school hours) and novel learning environments provided by forest schools initiative.

Development of the participatory approach may be limited for this age group, as many aspects of children's daily life are influenced by their household and school. Thus they may have limited scope to be able to change lifestyles or their environment. On the other hand, organisations such as School's Parliament do give an opportunity for children to voice their opinions and concerns to decision makers within the city. However engaging community organisations and developing links between the groups and the school, may be an appropriate approach to increase opportunities for the children and to change social norms.

Findings from the class-based research session indicated that children were keen to engage in Low Carbon Healthy Lifestyles. Children expressed an awareness of what is meant by 'health and wellbeing' (see 7.3.1. Picture of health) and were aware of the impact of their environment (see 7.3.7. Environment affecting health). Children responded that they heard about climate change on the radio, but there was little evidence that they remembered being taught about it at school (see 7.6.3. Climate change). It may be that children's awareness was specifically linked to wording; i.e. they may be aware of environment-friendly activities, but not connect with climate change, or carbon footprint. This should be investigated in more depth.

Particular themes which emerged from the work should be incorporated into future work in this area. It is important to develop this work within the social context of the target population. Health and environmental public messages can often promote an activity without in-depth insight into how these activities could fit within the social context of daily life. Findings showed that shopping was a social activity (7.3.2. Social shopping and 7.3.3. Shopping and eating with Dad). Thus while pressure groups may promote buying ethically (eg low foodmiles) or healthily, this should be seen within the context of availability and the social experience of shopping as a family activity. Similar themes for travel to school include availability of parents to walk with their children (7.3.11. Available time). Also safety concerns emerged as an important factor when encouraging children to cycle (7.3.10. Safety).

Issues which arose around health and wellbeing were connected with diet and body image as well as the social context. One participant was diabetic and therefore had to pay particular attention to food labels and diet (7.3.12. Special diets). Further work could explore how ethical or general health food choices are perceived by people with special dietary needs. Other participants were concerned about their body image and were keen on cycling as a way to burn calories (7.3.8. Body image). In relation to growing their own food, as well as nutritional aspects of fresh produce, the children appreciated being in the natural environment and team work involved (7.3.4. Productive, natural, personal – garden, 7.3.6. Connection with earth, and sun, enjoying experience, outdoors). The latter aspects contribute to wellbeing.

The evidence from children and community groups in this study shows a resonance with the messages about health and wellbeing and climate change. This will be used as a basis for ongoing work to advise commissioning of community based projects in partnership with Liverpool PCT. A toolkit could be developed which would disseminate information about Low Carbon Healthy Lifestyles; to inform development of community projects, and also guide evaluation in order to test effectiveness of implementation.

10. Recommendations

- Extend research in more depth with the same groups
  - with different areas
  - with older age groups
- Encourage networks of schools and community organisations involving:
  - school clusters
  - community organisations
  - Use above networks to support extended schools and sustainable schools agendas
- Develop a toolkit to
  - inform decision makers about the importance of sustainable health
  - give examples of discussion topics – eg cycling to school, growing veg.
    - encourage groups to think of new topics
    - links between health and climate change
  - support evaluation of community projects; for environmental and health benefits

11. Appendix: Questionnaire

Low Carbon Healthy Lifestyles

1) Tick, how many helpings of VEGETABLES do you eat a day?

0	1	2	3	4	5	More

One helping of vegetables could be: side salad, carrots, 3 tablespoons of peas or beans

2) Do you help grown ups to cook? *(please tick one box)*

Often	Sometimes	Never

3) Which school do you go to?

4) How do you usually travel to school? *(e.g. if you walk and get the bus – tick both)*

Car	Bus	Train	Walk	Bike	Other

5) How long does it take you to get to school?

5 min or less	15 min	30 min	45 min	An hour or more

6) Are you ☐ A boy ☐ A girl?

7) Do you speak English at home with your parents? If not, please write which language you speak?

8) Tick the group that best describes you.

	White British
	White Irish
	White and Black Caribbean
	White and Black African
	White and Asian
	Indian
	Pakistani
	Bangladeshi
	Black Caribbean
	Black African
	Chinese
	Any Other (please write below)

That's all! Thank you very much for taking the time to fill in this form.

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