



## Exploring parental perceptions about school travel and walking school buses: A thematic analysis approach



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### ABSTRACT

Establishing a less car-oriented mobility ethos through initiatives targeting, among others, children's travel to school could be a key for unlocking the potential for a more sustainable future. A Walking School Bus (WSB) is a relatively new and scarcely evaluated commuting mechanism that in theory provides a creative scheme capable of inspiring voluntary travel behaviour change for children and parents. Through a series of in-depth focus group sessions that were conducted in Bradford, UK this article explores the perceptions of parents that are ultimately the decision-makers about how their children go to school. This work improves the understanding of the different challenges and opportunities underpinning travel to school, in general, and WSBs, in particular, by identifying and discussing six thematic areas of critical importance that explain the decision-making behind potential WSB uptake. These are namely: *logistics, safety, trust, health and wellbeing, emotional needs and educational opportunities*. Finally, the paper provides policy recommendations about how WSB initiatives can become more effective and attractive mobility tools for local communities.

### 1. Introduction

School transport has transformed from the moment automobiles became the cornerstone of urban development. Over the last few decades figures from Europe, North America and Australia have shown consistent declines in the proportions of students walking to school and significant increases in proportions being driven (Smith et al., 2015). In England in 1975/76, an estimated 74% of primary age pupils walked to school while in 2000 this rate fell to 56% and in 2017 to 49%; at the same time the proportion of primary age pupils travelling to school by car for the respective time periods increased from 15% to 37% and to 44% (Department for Transport (DfT), 2014, 2016, 2018a). The same trend is becoming a norm in some developing countries too making this a universal problem. For instance, in Beijing driving-to-school trips by car account for 15% of the total number of trips in rush hours (Lu et al., 2017) meaning that the peak hour traffic during the non-school season is notably smoother than that during the school season (Yang et al., 2016). Parents' wish to accompany their children primarily for safety reasons and the convenience of the car have been classified as two key drivers for this car-oriented transport-to-school regime (Westman et al., 2017). The reduction of active transportation nevertheless has negative implications to any policy effort looking to support urban liveability by generating a wide range of concerns that according to Curtis et al. (2015) include health, social connectedness and wellbeing.

The Walking School Bus (WSB) is one of the most distinctive and potentially impactful interventions aiming to reduce problems

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resulting from this car-centric trend (Pérez-Martín et al., 2018). A WSB involves parents or other adults escorting a group of children on a set route to school (Kingham and Ussher, 2007). This is a sustainable mobility initiative meaning to provide a different, more interactive, enjoyable, didactic but structured form to supervised mass walking trips that may relieve parents from a daily duty without this being necessarily bad for their children. Actually, there is evidence to suggest, according to Waygood et al. (2018), that children's travel needs maybe be different than those of adults because of their desire to explore and learn about their environment and the importance they assign on social interaction during travel.

Despite an increasing interest on WSB initiatives across the globe and a number of relevant studies that are examining some of them, WSB programmes as an education-centric transport policy mechanism for voluntary travel behavioural change have merely reached their full potential and may still be severely understudied. There are many critical research gaps that need to be addressed before WSBs become a more mainstream modal choice and one area of particular concern refers to how parents, the key decision-makers for enabling or preventing children participation to WSB schemes, perceive them.

This research study aims to develop a more in-depth understanding of the factors that:

- (i) define parents' travel mode choice for their children's daily transport to school,
- (ii) may prevent or motivate parents to commit to a WSB initiative.

Henceforward, the article provides, in the next section, a more detailed background justifying the need for this study and a critical synopsis of previous studies of relevance. This is followed by a detailed description of the methodology and data analysis employed. The core section of the paper presents a detailed report of the key findings of our thematic analysis. It informs the reader on how parents view travel to school in general and WSB schemes in particular. This section examines perceived opportunities and challenges that parents identify when thinking about their children's (and their personal) potential engagement with a new WSB programme. Finally, the paper provides a discussion section that integrates the key messages of our study and relevant policy recommendations that would be necessary for those with the task to build effective and widely acceptable WSB programmes.

## 2. Literature review

This section aims to provide a background for the primary findings of our study. Relevant points of an emerging but still relatively scarce literature are identified and synthesised in a way that supports the understanding of the study's primary research contributions.

### 2.1. Background

In 2017 total motor vehicle traffic in Great Britain reached a record height of 327 billion vehicle miles travelled (DfT, 2018b). In general, fewer people walk to reach their most frequent destination; commuting has become disproportionately car-centric. Many adults see part of their parental role in getting their children to school in the car (Collins and Kearns, 2010). This is reflected in the decrease in children's walking to school. In England four decades ago, 74% of school journeys were on foot for 5–10 year olds while in 2017 only 49% walked to school and 44% made the journey by car (DfT, 2018a). These statistics are not in line with the Government's ambitious aim outlined in its Cycling and Walking Investment Strategy that states a commitment to have at least 55% of primary school children walking to school by 2025.

This target is timely and meaningful for a number of reasons. For instance, Waygood et al. (2017) suggested that transport plays a role in all domains of children's wellbeing; benefits identified are associated with active and independent travel while negative impacts are associated with traffic. The childhood obesity epidemic has become one of the most serious public health challenges of the 21st century globally being directly associated with a number of immediate, intermediate, and long-term health consequences for children (Wang and Lim, 2012). International guidelines recommend at least 60 min of daily physical activity (PA) for the healthy development of children (Sun et al., 2015). There is also increasing awareness of the adverse impacts of air pollution, a phenomenon highly correlated with the use of conventionally fuelled automobiles, on society in general and on children in particular. Air pollution adds on climate change (Lee et al., 2015; Pidgeon, 2012) and deteriorates health (Lelieveld et al., 2015; Mannucci et al., 2015) and wellbeing (Orru et al., 2016). These problems inspired the launch of many initiatives, spanning from promotional campaigns to infrastructure and policy development, looking to support active travel as an alternative method of transport and to reduce traffic around schools. Some relevant UK examples are the Clean Air for London campaign and the Walk to School Outreach programme sponsored by DfT, which builds on the Local Sustainable Transport Fund (LSTF) initiative.

### 2.2. Introducing walking school buses

Since transport affects children's wellbeing differently than adults (Waygood, 2018) providing mechanisms specifically designed to offer more sustainable ways for travelling to school that may have a didactic element constitutes a priority of emerging importance for transport planning. WSBs have been introduced as a safe, healthy and environmentally-friendly modal choice offering a structured framework that enables children to walk to school with their peers under the supervision of responsible adults. Children benefit from the active travel and increased social interaction and gain practical experience in road safety without the risks associated with unsupervised walking (Smith et al., 2015). From a pro-environmental perspective, WSBs may relieve traffic congestion around schools and reduce pollution from car use (Dirks et al., 2016). Apart from its functional offerings WSBs may also have societal and

symbolic benefits, as these have been introduced by Sovacool and Axsen (2018) for the broader framework of automobility, that refer to WSBs' potential to institutionalise a habitual walking-centric travel behaviour among people at an early stage of their lives and symbolise a progressive intervention by institutions (i.e. schools and transport stakeholders) to decarbonise transport.

### 2.3. Previous research

Although, in line with McKee et al. (2007), influencing school travel behaviour away from cars would be beneficial in many regards for students, Active School Travel (AST) interventions, like WSBs, are not easy to develop, implement and maintain on a long-term basis. Evaluation studies suggest that these interventions, although are in general effective in increasing active travel rates for children short-term (Carlin et al., 2016), can be limited by insufficient follow-up duration, incomplete implementation of planned interventions, little or unequal access to funding resources and lack of formal support from local and regional governments (Larouche et al., 2018). Interventions to promote AST, may be particularly effective in producing shifts in travel behaviour, if tackled at a policy level, tailored towards working parents and are able to address factors such as distance to school and efficient routing (Ahern et al., 2017). Dense built environments, often associated with commercial, institutional and office land uses, have been found to decrease the likelihood of walking and cycling to school (Broberg and Sarjala, 2015). Children's age, mother's unavailability and home ownership have been found to be negatively associated with AST for primary school students (Potoglou and Arslangulova, 2017). Kelly and Fu (2014) on the other hand found that low car ownership rates, students having siblings and living in safe areas encourage the use of active modes over private car drop-offs.

Road safety and social cohesion also determine participation in active travel initiatives according to Panter et al. (2010); on the one hand children whose parents are concerned about dangerous traffic and personal safety en route to school are less likely to walk or cycle and on the other hand neighbourhood support could positively influence AST growth. Parents' concern about children's safety is a recurring theme in all studies exploring children's independent mobility (Francis et al., 2017) while neighbourhood-level factors, which include characteristics of the urban form and structure, may have a range of direct and indirect effects on pupils' travel behaviour (Easton and Ferrari, 2015). Pojani and Boussauw (2014) reported, based on a study of non-westernised settings, that students walking to school do so more often as part of a larger group of schoolmates, attend schools that are located relatively near their house, are faced with relatively few major traffic road crossings during their journey and are from families that are less likely to own a car. Also the presence of supervision, in the form of school crossing guards, has been associated with more walking since they tend to also reduce the negative influences of road design (Rothman et al., 2014).

Despite its potential, little has been written about WSB *per se*. Often WSBs are typically picked up with enthusiasm but then in many occasions rapidly fade and end up failing (NICE, 2008). WSBs typically rely on volunteers, which often makes long-term sustainability challenging (Kingham, and Ussher, 2005). Providing paid WSB leaders may help overcome this issue (Larouche et al., 2018) but creates significant costs when financial resources are usually very limited. Backing from schools can be decisive for achieving a successful WSB programme (NICE, 2008). When the schools take on the ownership and responsibility of running WSB programmes this increases their chances of survival and success. Yang et al. (2014) identified a synergistic effect of WSBs with other intervention components such as an educational campaign designed to improve attitudes toward active travel to school.

Facilitators to WSBs according to Smith et al. (2015) include: children enjoying socialising with each other, children appreciating their independence as they are not accompanied by parents and the increased opportunity to interact with the surrounding natural environment (such as playing in snow or feeding ducks). Hinckson (2016) found that children preferred active travel, enjoyed being with friends, spoke of benefits to health, felt safer to walk in a group as they felt their parents sometimes break the driving rules and wanted to participate to WSBs for social reasons. Neuwelt and Kearns (2006) suggested that the perceived health benefits and social aspects of a WSB were of critical importance for parents, children and teachers. For safety reasons parents are more likely to let their children walk to school on a WSB than on their own (Collins and Kearns, 2001; Kearns and Collins, 2003). According to Smith et al. (2015) the dominant barriers to WSB success were: parental concerns over road safety, difficulties in recruiting enough volunteers to run the WSB, complex family travel arrangements and bad weather conditions. Best practice advice suggests that WSB route lengths need to be physically feasible for most students (Kelly and Fu, 2014) and children should arrive on time at 'bus stops' to allow faster WSB walking speeds (Yang et al., 2014).

Collins and Kearns (2010) taking a longitudinal assessment of WSBs in Auckland, New Zealand, found that more WSBs operate in areas with a higher socio-economic grouping because of an existing tendency towards more protective parenting cultures in wealthier areas. Smith et al. (2015) found that WSBs are associated with increased prevalence of walking to school but there is inconclusive evidence as to whether these had an impact on obesity levels. They also reported that none of the studies they examined looked at linking WSBs with congestion reduction around school gates or the levels of greenhouse gases associated with school transport and their health impact on pedestrians. Collins and Kearns (2005) identified a number of individual and community health benefits accruing from WSBs, but concluded that the initiative has a limited ability to address public health challenges originating within an inequitable and car-dominated urban political system. Dirks et al. (2016) argues that the impact of air pollution on health, with particular reference to active travel and WSBs, has not yet reached a consensus, highlighting the lack of research on this. Grange et al. (2014) provide evidence that carbon monoxide levels have a bigger impact on active commuters than those in cars due to the physical increase in activity increasing breathing rates. Thus, WSB initiatives need to ideally allow for route options that do not go along heavy traffic corridors and if possible they should be supported by travel demand and traffic calming measures.

## 2.4. Research gaps

Despite, some progress in adopting and studying AST and walking to school interventions, in general, and WSB schemes, in particular, both policy-making and research, when it comes to these initiatives, are still in their infancy stage. For evaluating whether WSBs have the potential to transform from usually ill-fated rarities to well-embraced mass modal shift initiatives more research is necessary. In particular, the attitudes of parents, who are ultimately the people deciding on whether their children should participate or avoid WSB schemes, and have the power by volunteering to help WSBs prosper long-term, need to be studied in more depth. Examining opportunities and challenges underpinning their way of perceiving transport to school, identifying barriers and facilitators that the existing literature has not yet identified or discussed enough for WSBs and exploring the multi-dimensional and distinctive roles of trust and emotional needs are critical themes that this paper will cover.

## 3. Research methodology

### 3.1. Site location: Bradford District

The study area chosen was Bradford which is in the Metropolitan Borough of the City of Bradford in West Yorkshire, North England, 14 km west of Leeds and 26 km northwest of Wakefield. The latest population figures produced by the Office for National Statistics (ONS) show that an estimated 534,800 people live in Bradford District (organised in 199,296 households) making it the fifth largest metropolitan district (in terms of population) in England (Bradford City Council (BCC), 2018). There are 123,100 under 16 year olds in the District which is approximately 23.5% of the population; Bradford has the third highest children share in the country (BCC, 2018). The population of Bradford is ethnically diverse; Bradford has the largest proportion of people of Pakistani ethnic origin (20.3%) in England. Bradford is a declining former industrial city, with Bradford District currently ranked as the fifth most income deprived local authority in England (BCC, 2017). Bradford, similarly to the rest of the UK, experiences a maritime climate, with limited seasonal temperature ranges, and generally moderate rainfall throughout the year. Air pollution levels tend to be fairly high but washout of pollutants due to rainfall is also common (Dirks et al., 2016).

Bradford is a notable site for the purposes of this investigation. On the one hand, Bradford hosted for 2016 alone, 705,713 thousand motor vehicle miles with 81.1% of them driven by cars (DfT, 2018c), which provides evidence of a district with significant road traffic congestion concerns that need to be alleviated. On the other hand, Bradford has been in the forefront of child health research because it suffers from high levels of deprivation and has some of the highest rates of childhood illness in the UK. It is home of The Born in Bradford cohort study established in 2007 as a research programme set to examine how genetic, nutritional, environmental, behavioural and social factors impact on health and development during childhood, and subsequently adult life in a deprived multi-ethnic population (Wright et al., 2012). This means that the present research is set at a social landscape that favours the initiation and study of child-related active transportation initiatives.

### 3.2. Case studies: Shipley and Wycliffe primary schools

A case study approach has been adopted. Case studies provide concrete, practical context-dependent examples of what is happening in the field (Flyvbjerg, 2006). Purposive sampling has been used to identify cases, with the cases being selected as they provide particular characteristics (Robson, 2002). The cases chosen are two schools interested in starting WSBs for the first time ever, willing to participate in research and located on busy roads. The case study schools are based in the town of Shipley, a suburb of Bradford. Both Shipley Primary School and Wycliffe Primary School are Victorian schools. There is a lot of traffic passing each school throughout the day and no allowance for parking near the schools.

Shipley Primary is located on the A6038, Otley Road; this is the main road linking traffic from the M1, M62 and the South with the North West.<sup>1</sup> Traffic is heavy especially during commuting times. The road often has stationary traffic as there are several traffic lights located in this area, including a pedestrian crossing outside the school. The school playground is located next to the road, thus increasing the likelihood of high pollution levels in the areas where children play. Wycliffe Primary is located on the A657, Saltaire Road. This busy road links traffic from the Aire Valley towards north Leeds and North Yorkshire. This road has high commuter and heavy goods vehicle traffic. There is a pedestrian crossing outside the school. The school building is adjacent to the road, with playgrounds behind the school.

Shipley Primary has a relatively small catchment area with children mostly living within a mile of the school. The school has 241 pupils aged 3–11 (Ofsted, 2017a). Around 75% are from minority ethnic backgrounds and around 50% have English as an additional language. The number of pupils eligible for free school meals at any time in the last 6 years is 29%, slightly higher than the national average of 24.9% (Ofsted, 2018a). Wycliffe Primary has a much broader catchment, spreading up to and beyond Shipley Primary, as well as extending west towards Bingley. Wycliffe Primary sits in the bottom of the Aire Valley with steep hills leading to most of the residential areas. The school has 318 pupils, aged 5–11 (Ofsted, 2017b). Approximately 60% of the pupils are white British and around 18% of pupils have English as an additional language. The number of pupils eligible for a free school meal at any time in the last 6 years is 20%, below the national average (Ofsted, 2018b).

<sup>1</sup> The “M” and “A” road designations refer to Motorways and to all main roads of the strategic road network not classified as motorways respectively.

The choice of two different schools allows the combined sample to be more representative of the schools of the city and the region and to some degree of other schools in the UK situated in similarly sized cities that have comparable socio-economical and traffic-related characteristics. WSBs have been rarely established and studied in this region.

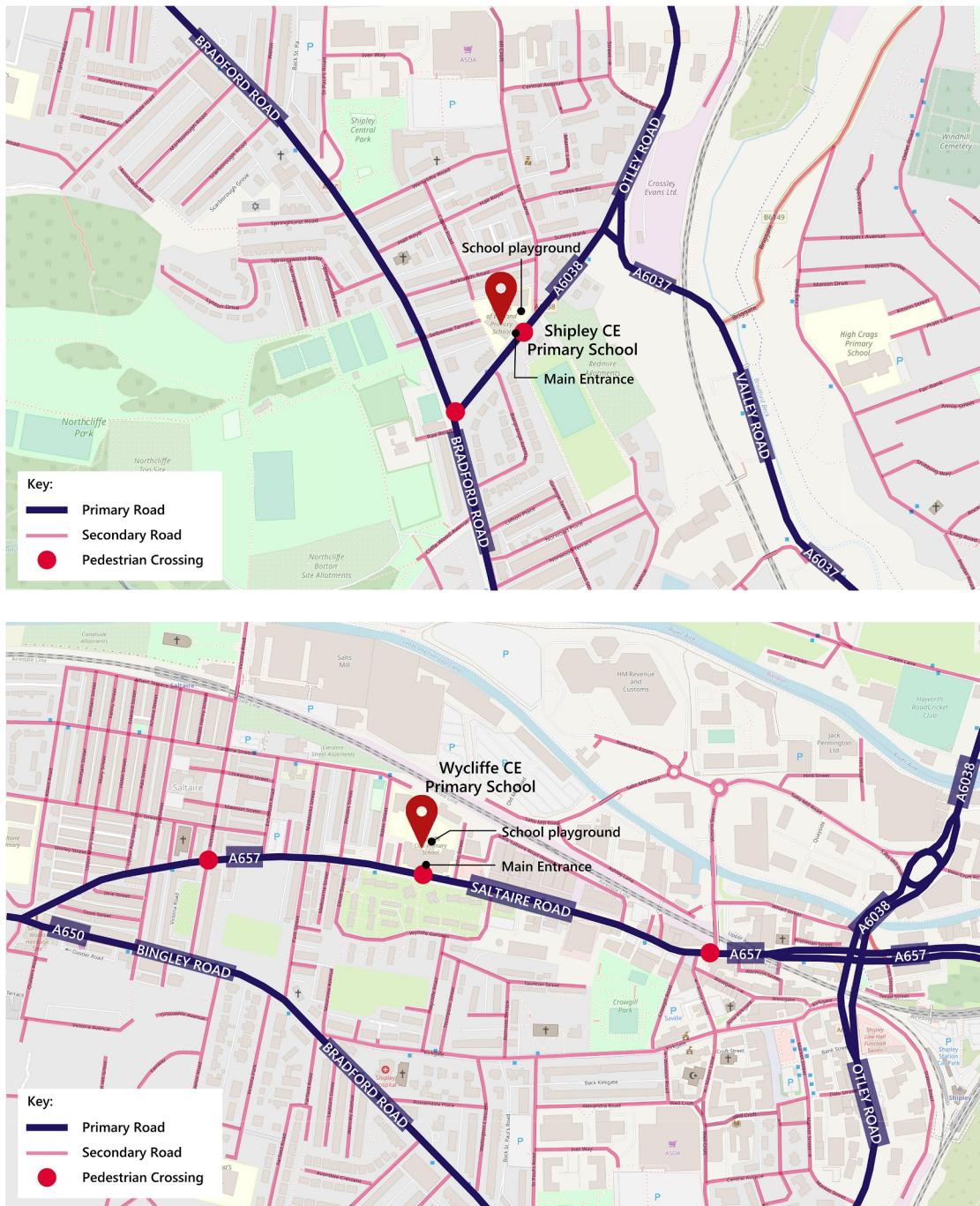


Fig. 1. Shipley and Wyycliffe Primary Schools.

### 3.3. The choice of focus groups

This work aims to develop an in-depth understanding of the parents' perceptions about travel to school in general and WSBs in particular. This explains the study's qualitative nature. Focus groups were chosen over semi-structured one-to-one interviews because of their capacity to allow a large amount of interaction between participants so that they could build on one another's answers,

exchanging anecdotes, views and experiences, expressing ideas that otherwise may have been overlooked and acting as checks and balances to each other identifying factual errors or extreme views (Morgan, 1997). Since the participants had no or limited real-life ‘engagement’ with WSB initiatives, and would not know where to start from, focus groups was the qualitative method helping them the most to involve in meaningful and ‘rich’, in terms of data collection, discussions. The focus groups were conducted by a moderator and an assistant moderator; the latter was taking notes of the discussion in real time and observed the process. A focus group guide defined procedures and ensured a level of consistency between the different focus group sessions. It had seven parts: introduction; ice-breaker; travel to school norms; WSB awareness; attitudes to WSB goodness; social, environment, health and wellbeing questions; and summing up. All the sessions were audio recorded and fully transcribed to ensure the accuracy of the participants’ insights.

### 3.4. Recruitment

The focus group participants were all volunteers answering a call for participation that was distributed in written form from the two case study schools, on our behalf, to all the parents. This recruitment approach was seconded via a scheme of personal interaction administrated by the field researcher; she presented the concept of the study in both schools during parent meetings accessing 50 parents that had received at that stage our written invitation. The authors built a sample that was relatively representative of the population diversity associated with the two schools’ make-up including parents that were non-native English speakers but could speak English. The participants were invited to the focus groups initially via telephone with a follow-up in writing. A second phone-call reminding to each of the volunteers of their focus group commitment the day before this was taking place was used to ensure participation. The participants were informed prior to their involvement about the focus groups arrangements. Access to the final research results was provided to them as a token of appreciation. Prior the participants’ involvement it was communicated to and agreed with them that the sessions would be audio recorded and transcribed but the data would be anonymised and used only for research purposes. Consent for participation and use of the data was obtained.

### 3.5. Method of analysis

Thematic analysis was employed for analysing the data collected. This is a sophisticated qualitative tool that according to Nowell et al. (2017) helps conducting research in a precise, consistent and exhaustive manner through recording, systematising, and disclosing the methods of analysis and the study results with enough detail to enable the reader to determine the credibility and validity of the process. Thematic analysis has been used extensively in transport research (e.g. Chapman and Musselwhite, 2011; Farber et al., 2018; Fishman et al., 2012; Gössling et al., 2016; Hafner et al., 2017; Nikitas et al., 2018) producing robust results. The method chosen is inspired by Braun and Clarke’s (2006) six-step approach that involves: *getting familiar with the data through transcription; generating initial codes; searching for themes; reviewing themes; defining and naming themes; and producing the final written output*. Throughout the analysis, the researchers ensured that the extraction and interpretation of findings were based on the raw data rather than on their own impressions.

### 3.6. Sampling characteristics of the focus groups

The sample consisted of 25 participants split into four focus groups. Two focus groups run with parents of Shipley Primary students and two with parents from Wycliffe Primary. The first Shipley Primary focus group had seven participants while the other three had each six participants. Both sample size and group size choices are consistent with the best practice literature. According to an evidence-based study looking to define best practice for sampling by answering how many focus groups are enough for a project to be accurate (Guest et al., 2017) four focus groups are adequate for the identification of all the key themes; at least 80 to 90% of the totality of themes, even these of marginal importance, are discoverable within three focus groups. Our groups were designed to be small enough for everyone to have an opportunity to share insights and yet large enough to provide diversity of perceptions as suggested by Krueger and Casey (2015).

The focus groups were female-dominated; there were only two male participants. Mothers were significantly more likely to be directly associated with their child’s daily school travel and were easier to recruit. This is in line with other studies’ participant recruitment approaches (e.g. Huertas-Delgado et al., 2017; Veitch et al., 2017) and with the suggestion that interventions targeting an increase in children’s walking to school should focus primarily on the concerns of mothers (Hsu and Saphores, 2014).

Although parents of children walking to school could be the ‘easiest’ targets of a WSB intervention and were slightly over-represented in the four focus groups, a mix sample including many parents driving their children to school was an intentional feature of the research design. This approach meant to encourage more robust, open and diverse dialogue answering questions about the reasons behind modal choice as a whole. Focusing only on respondents walking their children to school could ‘deprive’ these research discussions from identifying and evaluating aspects that could promote or inspire modal shift. Having only parents driving to school could have left out people who could be hypothetically more likely to use a WSB straight away and support it as walking leaders. The balanced mix between people with different approaches to school travel allowed the participants to express themselves without having the pressure of communicating views to an audience that was particularly in favour or in opposition to walking to school in general and WSBs in particular. Hence social desirability bias was reduced.

Table 1 lists key characteristics of the participants providing information about the participants, their children and their primary modal choice for school travel. The profile code of each interviewee consists of the school identifier (S for Shipley and W for Wycliffe), the travel mode identifier since this could according to Ramanathan et al. (2014) reflect and affect to some degree their

**Table 1**

Focus group participants key characteristics.

Focus Group 1 (FG1 – Shipley Primary)					
N	Code	Gender	Travel to School Primary Choice	Number of children	Age of Children
1	SW1	F	Walking	3	4, 7, 9
2	SW2	F	Walking	2	4, 5
3	SW3	F	Walking	1	5
4	SW4	F	Walking	1	8
5	SD5	F	Driving	2	6, 7
6	SD6	F	Driving	1	4
7	SD7	F	Driving	1	6
Focus Group 2 (FG2 – Shipley Primary)					
N	Name	Gender	Travel to School Primary Choice	Number of children	Age of Children
8	SW8	F	Walking	2	6, 10
9	SD9	F	Driving	2	6, 9
10	SD10	F	Driving	1	8
11	SW11	F	Walking	2	5, 8
12	SW12	M	Walking	1	6
13	SD13	F	Driving	1	5
Focus Group 3 (FG3 – Wycliffe Primary)					
N	Name	Gender	Travel to School Primary Choice	Number of children	Age of Children
14	WW1	F	Walking	1	7
15	WD2	F	Driving	1	4
16	WD3	F	Driving	2	7, 8
17	WW4	F	Walking	1	7
18	WPT5	F	Public Transport	1	5
19	WD6	F	Driving	1	9
Focus Group 4 (FG4 – Wycliffe Primary)					
N	Name	Gender	Travel to School Primary Choice	Number of children	Age of Children
20	WD7	F	Driving – walking on summer	1	6
21	WW8	F	Walking	1	7
22	WW9	F	Walking with father – mother drives	1	9
23	WD10	F	Driving	1	10
24	WW11	F	Walking	2	5, 9
25	WD12	M	Driving	1	6

views (W for walking, D for driving and PT for public transport) and a number from 1 to 13 for Shipley participating parents and from 1 to 12 for Wycliffe ones.

#### 4. Results and analysis

Writing up was not a process designed for accumulating and self-interpreting data patterns. It was, in line with [Musselwhite's \(2006\)](#) recommendation, a course of weighing up the dynamics of issues, and identifying structures within the data that have an explanatory capacity, rather than seeking a wealth of evidence. The results reported are based on raw data to lessen analyst-oriented biases; thus the use of one (or multiple) representative respondent extracts for supporting each of the remarks made by the authors. [Vaismoradi et al. \(2013\)](#) and [Nikitas et al. \(2018\)](#) argue that the selection of the most characteristic and convincing individual responses is a prerequisite for adequately reporting thematic analysis findings; this is more fitting from quantitative approaches like theme counts and analyst-deduced summaries of quotes.

There were six core themes that our analysis identified as critical decision-making factors for the stimulus of WSBs: *logistics; safety; health and wellbeing; emotional needs; trust; and educational opportunities*. Each of them has distinctive dimensions that affect and reflect parents' potential to commit to a WSB scheme.

##### 4.1. Overview of findings

None of the study participants had ever been actively involved in a WSB scheme and only one person had seen them in operation. About a third of them had heard of them. A brief description of WSBs was provided along with photos of schemes. Parents then gave their initial response to the concept, followed by more in-depth discussions.

During the discussions individual parents' views developed as others brought up different points. At the end of each focus group views on WSBs remained mixed with some parents being sceptical of their ability to operate or to safely bring children to school, while others were more positive and thought they would use one if there was an opportunity.

*"WD7: I think they are brilliant... because all parents can get involved, but it's not something you have to do daily so you can support it as a volunteer. I think it's a great way to encourage more children to walk and for the children it's more fun... because they are socialising, maybe chatting to children of different ages, making new friends and it's a really positive start and end to the day."*

Several felt that a WSB is a good idea in theory but would not use it themselves for certain reasons.

*"SD10: I think it's a really good concept, but I don't know if it can work for me and my child."*

The factors influencing parents' perceptions towards a WSB intervention include those that affect their current travel to school, plus other factors unique to the WSB operations.

#### 4.2. Logistics

Logistics is used in this analysis as an umbrella term referring to every day considerations about planning school travel. This includes availability of transport modes, distance from school and journey time, speed of transport, capabilities of the children, day structure, employment needs, topography and weather but also the seasonality, timing, routing and convenience of a WSB offering.

The availability of different modes of transport was critical. Some people did not drive, did not own a car or did not have access to a car in the day time, leaving walking, buses or taxis as their options. Those who regularly drove to school often said the distance was too far for their children to walk, especially if they were young. Most of these parents were from Wycliffe Primary, which has a much larger catchment area. Distance was measured in terms of how long it took to walk, rather than in miles. Participants had different perceptions of how far 'too far' was. Most people cited 20 min as being a 'manageable' walking time.

*"WW4: We only live 20 minutes' walk away so it's quite a nice amount."*

For some parents walking was the preference because they lived close to the school. Some parents said it is quicker to walk than drive due to road congestion and parking constraints.

*"SW8: I've always generally walked... the main reason is you live so close... plus you beat traffic and do not need to park."*

The speed of the mode of transport was also important.

*"Moderator: How do you travel to school?*

*WP12: As quickly as possible!"*

The capabilities of the children played a role, with child's age being critical in how far it was thought a child could walk. Parents thought this would change as they got older.

*"WD2: School is about 30 minutes' walk. He's four and he's a tiny four so it's quite a long walk really. When my son gets older he might be able to walk further."*

Along with age, several parents felt that at the end of the day their child was too tired, and too hungry, to walk home, especially if the parent was working so the child was in an after school club which can run until 6 pm.

*"WD6: Walking home is not an option. My daughter needs to eat as soon as she gets home from school or she's melt down straight away. Walking home she just wouldn't make it. It would be tantrums all the way."*

Tiredness and hunger were not mentioned by parents living closer to school. Alternatively, or as well as, it may be also that some parents interviewed did not work and so children skipped after school clubs having a shorter day.

The structure of the day could influence travel behaviour. People who usually walked sometimes drove if they were combining something else, such as shopping. People going on to work after the school drop-off usually drove. Some participants that had children to take to different schools considered that only driving would enable them to get to both places on time if they wanted to supervise all their children on their way to school.

*"SD10: I have a child in secondary school about 5 miles away with no direct bus links between the schools... this is leaving me no choice but using a car."*

WSB was viewed as being good in theory for the convenience of those parents who were working, had multiple drop-offs to do, or did not live near family or friends who could do the school run for them.

*"SD5: If you are trying to get to school and you've got other children that are poorly, and you can't get out of the house that day, you haven't got someone you can fall back on, you can rely on a WSB."*

*"WD3: I think it would work really well for me because while I am available two days a week [working the other three]... with a WSB the children could walk five days a week."*

*"WD12: I do multiple drop-offs, I'm sure there are many people like me thinking 'oh I've got to get a kid here, I've got to get a kid there, how*

*do I do it? A WSB could potentially work.”*

However, it was thought that there were many obstacles to a WSB functioning well. Some said they would not need it since they had already informal supporting mechanisms in place for escorting their children to school when they would not have been able to do it themselves.

*“SD7: For me personally it would be a bit pointless because we’d just text each other... I can’t make it today, could you just drop her off?”*

The topography was mentioned by parents in Wycliffe because of the steep hills of the area.

*“WD2: Ideally I would like to cycle with a tag-a-long for my daughter but we could not get up the hill.”*

The weather and the season had an impact on whether people walked; to some at least.

*“WPT5: If it’s raining we drive as my child would be absolutely soaked if we walked.”*

*“WW1: Yes that’s when we get a taxi.”*

*“WW4: We are stubborn. We just stick to the plan and walk even if it rains.”*

*“WD7: In the summer we prefer walking and would walk but in winter we tend to drive.”*

There was debate if the uptake would be large enough. Many parents mentioned the seasonality, feeling that a WSB would have many more willing participants in spring and summer rather than winter. It was also thought that only those who walked already may opt for the scheme, so a WSB would not reduce congestion or the unsafe roads around schools.

*“WD10: I just think practically there would be many reasons why people wouldn’t buy into it and then you might end up with just the stalwart believers in it rather than having a scheme functioning as it’s supposed to.”*

*“WD6: Those bad drivers aren’t likely to be the sort of people to join a WSB are they? I’m sorry. They are the kind of people to overtake people on a pedestrian crossing.”*

In contrast to this, some parents who currently drove said they would use a WSB if it was convenient for them.

The timing of WSBs was an issue. There was much debate, especially in FG3, about where the routes could go, where the bus stops would be, if the route would be longer than the normal walk to school and what would happen if the bus was late to school.

*“WW1: I’m wondering how feasible this would be? Are you picking them up from certain points?... from where they live?”*

*“WD2: I’ve always imagined they were local, for one little district, where’s there’s kind of one main route. Maybe a village. I can’t imagine it working here.”*

*“WD10: Would it save you time if you were taking your child to a drop-off? Would you have to leave the house even earlier to drop your child off?”*

Children’s capabilities again came up, with concern over the distance and whether younger children could keep up.

*“WD2: He is small and cannot walk at the same speed as older children. So that’s something to consider. How fast can he walk? How big are they? Is he going to slow people down?”*

It was felt that an after school WSB would not work for various practical reasons. Children could be exhausted at the end of the day; children often need to go to other places after school; children sometimes attend an after school club while parents work; parents wanted more time with their children in the evenings; there could be an issue with dropping children off and no parent being there.

*“WP6: I would use WSB on the way to school but not on the way home because it would eat into the evening and that just seems to go.”*

*“WD3: My kids are just really ratty after school to send them with someone else.”*

*“WPT5: What about going home? What if the parents aren’t there on time?”*

#### 4.3. Safety

Safety concerns about WSBs was a major issue for all groups and all participants. Safety had two distinctive dimensions: road safety and ‘stranger danger’.

Road safety came up as a very significant problem for all parents, with long discussions on how bad the driving was from both passing traffic and school traffic. Parents claimed that they have witnessed repeated incidents of cars refusing to stop at pedestrian crossings en route to school and cars regularly driving down the wrong side of the road to get around stationary traffic.

Two parents said that concerns over road safety led them to drive to school as they felt their children were not provided with a safe walking environment.

*“WD12: I wasn’t actually sure my kid would be crossing safely the main road... I think one of my concerns now is safety.”*

*“WPT5: When I walk my child to school I wonder if it’s safe... it’s actually safer to drive because the route we take, the cars, the speed there, it’s just ridiculous.”*

Since road safety was already seen as a problem to then encourage a group of children to walk along the road brought many worries.

*"SW1: I'd be happier if the WSB was off the main road."*

It was felt that children often behaved differently together than when they were on their own. Walking as a group could increase danger if children were not behaving appropriately.

*"SD9: If you've got 20 kids walking down the street and you get one that's a bit mischievous, distracting other children, then you have a serious problem."*

One parent felt her school did not practice an ethos of safe group walking and therefore she could not imagine them operating what she perceived to be a safe WSB.

*"WW8: The issue is with how the children in this school have learnt to walk together and I don't think they do it in a safe way."*

A few parents felt there could be some positive road safety aspects in a WSB. One parent suggested that the high visibility of a WSB could actually make the roads safer as drivers would be more aware of pedestrians due to the high visibility jackets.

The participants felt that safety is not just about traffic accident prevention but it could also relate to some degree to the 'unknown' of the people having the responsibility to lead a WSB. Harm from stranger or 'stranger danger' as defined by Carver et al. (2008) was therefore a second distinctive safety dimension.

*"WW4: Do they get checked? Like criminal record checked?"*

*"WPT5: I think I would be more concerned about the speed of the traffic than this."*

*"SW2: How can you guarantee the safety of all those children?"*

*"SW4: Crossing the road is a dangerous thing."*

*"SW2: Road safety and also children being, umm, pinched."*

Interlinked with safety was the issue of trust and its dimension referring to child behaviour.

#### 4.4. Trust

Trust is a factor that often emerges in transport research underpinning mobility interventions and their potential to be accepted or be successful (e.g. Cottrell et al., 2017; Nikitas et al., 2011, 2018, 2019). Trust was an important driver in defining whether parents, as school travel decision-makers, would be willing to let their children embrace a WSB initiative.

Participants were specifically asked who they would trust to take their children to school. One parent resolutely felt only she could do the job.

*"SD9: I trust only me, it'd have to be me doing this... I'd have to drop them off myself."*

One parent did not want to rule out the WSB but struggled with letting others take her children to school.

*"WD10: It's down to the fact you are not there. The fact that you are not taking them to school yourself and you are relying on somebody else to get them there safely."*

Many parents said they trusted close friends to take their children to school. When asked who they would trust for the WSB many felt the preference was a familiar face.

*"Moderator: Is it a matter of knowing the people?"*

*"SD13: It is because you don't know what type of people you get. You hear so many stories about nursery teachers and, not just around here but in the news, and it really scares you."*

*"SD10: I like my children in front of my eyes but if I know people from my street... or anyone who is coming to school... I make sure, I know they are safe with them, so I can send them as well."*

*"SW1: I think it would make a difference if it was an adult I know because then I'd be happier with it... there is definitely something in it being someone that is familiar to the parent."*

*"WD3: I think if it's a friend I'm ok. My friends can take them any time."*

It was also acknowledged in all sessions that a face would become familiar with time as the bus operated.

Parents were seen by most participants as being acceptable to operate WSBs, following appropriate criminal record checks. Participants discussed if they had a preference for a paid person to lead WSBs or a member of staff. For most it made little difference if the leader was a parent, paid volunteer or a teaching staff member. For few there was greater trust in the leader being a member of the school staff.

*"Moderator: How would you feel about it being a paid person?"*

*SD10: Again, I think you still need to know the person.*

*Moderator: How would you feel if it was a member of staff?*

*SW11: That's ok.*

*SW12: That would be ok.*

*SW8: It's silly really. The same issues may arise there but you kind of feel more comfortable with a qualified member of staff."*

*"Moderator: What about if it's a volunteer or a teaching staff?*

*WW4: Having a teacher feels different.*

*[General agreement]*

*WD3: We trust them. They are with them all day long.*

*WD6: You see that doesn't bother me because I think the traffic is bad whether the person is paid or not... and the person who has volunteered is going to be a nice person."*

In addition to trusting the volunteer, the issue of trusting the children on a WSB was raised highlighting the importance of children behaviour. Thus, trust has two distinct dimensions one relating to the people running WSB and one referring to how children behave in groups.

Some parents felt that they could not trust their child to behave well with someone else in charge. These parents said they did not want their children to be on a WSB as they felt their behaviour was not good enough.

*"SD6: Kids are too naughty. They are not listening to us."*

This was not necessarily behaviour that could cause safety issues, but just general misbehaving or being moody, relating to the desire to meet social expectations of good behaviour. There were also discussions as to whether children were better behaved with people other than their parents.

*"WW4: I'd be worried about the mood. At least when it's you with them you can control things a little bit more but when they meet up with other kids you just have no idea what's going to happen."*

*WPT5: But often they are better behaved with someone else's parents."*

There was some concern that a child could put others in danger. One parent for instance was concerned logically about who would be allowed on a WSB.

*"WD7: I feel that some children's behaviour in school should perhaps automatically exempt them from any WSB."*

Most parents thought a system of warnings would have to apply and that no child could be automatically excluded.

Another potential challenge was if children could be trusted to follow the instructions needed for the WSB. Parents worried that especially young children could find it hard to remember to follow instructions, such as holding someone's hand all the way to school.

*"WW11: Would they remember to follow through WSB instructions from start to finish? It would be hard for them to keep up holding someone's hand for the duration of the trip."*

Issues of authority were highlighted. Parents felt they could not tell off another's child for misbehaving if they were leading the WSB.

*"SD10: I think I can do that [shout] with my own children. I don't think I can do it with anyone else's."*

People were concerned that different parents had different rules. It would be hard for children to remember which rules to follow on which occasion. Another issue was the emotional outcomes for a child being stopped from doing what they normally did when on a WSB.

*"SD13: Every parent has different rules. Can we trust that the children will remember what rules to follow when in a WSB? Would following different rules than the ones set at home and school perhaps unsettle the children a bit?"*

#### 4.5. Health and wellbeing

Many cited health as being a reason to walk to school, for exercise, for fresh air and for mental health, for children but also for parents. So, while WSBs could help children with increasing their walking they could potentially deprive parents from an opportunity to walk too unless they were involved in them.

Many said they chose to walk as it provided an opportunity for exercise for both themselves and their children.

*"WD10: I think of it as a good bit of exercise. It gets you going in the morning and for me it's the school run up and down the hill four times. It's my bit of exercise for us."*

*"Moderator: Do concerns about health and wellbeing affect you when thinking of how to travel to school?"*

*[General agreement]*

*WW4: Here they are trapped indoors. They get about an hour playtime outside. The school is quite good at sending them out in most weather conditions. But still it's not enough. They need that little bit extra.*

*WPT5: That would be my main reason for walking with my child; for her to get more exercise."*

In some cases, walking to school and participation to a WSB were considered as ways to overcome health problems like asthma or fight obesity.

*"SW4: My child has asthma. Exercise is good for it. WSBs can be good in this respect."*

*"Moderator: Do concerns about health and wellbeing affect you when thinking of how you travel to school?"*

*SD5: Definitely with my kid being on the chunkier side."*

For some parents, their personal health conditions, including arthritis, asthma and pregnancy-induced poor health, limited their ability to walk their children to school and so they drove. Not being able to provide exercise through the school run resulted in guilt.

*"SD6: My child is losing out on that... that extra half hour walk every day... I feel very guilty. So that plays on my mind a lot."*

*Another felt guilty for adding to congestion and air pollution.*

*"WD12: I've really felt the effects of air pollution, which I know is all part of the problem because I drive so I'm causing it, but I have to think of my own health and what I can do ... I wish I could make better choices... but I feel constrained by that."*

The issue of air pollution and its impact on health came up in all groups although it was not a worry for all parents. A few people said they tried to avoid walking along a main road but other factors such as time determined their route, rather than air pollution's impact on health.

*"Moderator: So are you not worried about air pollution on this main road?"*

*SW4: I am worried about it. I try to avoid it if I can.*

*SW2: I avoid the main road as much as I can.*

*SW3: I've never even considered air pollution."*

Nearly half of the participants had concerns over air pollution and its effect on their children's health although for many people a prompt was given for the issue to arise. Wycliffe Primary participants seemed more aware of the issue with parents in both focus groups describing the poor air quality on the main road in front of the school.

*"WW11: I notice fumes a lot around the school."*

*"WPT5: Every breath you take is just horrible!"*

*WW4: It's dirty isn't it?"*

There was a feeling across the board that air pollution was an issue but that there was very little a parent could do about the problem.

*"WW11: It worries me. But I don't know what to do about it. Probably very little."*

A few people said their route to school and the route for an eventual WSB could be partly determined by the air quality on certain roads.

*"SW1: I avoid the main road as much as I can and a WSB should be doing the same."*

The perceptions of air pollution were based on smell or visual marks of its presence.

*"WD10: I've noticed you can just smell it all walking down the main road."*

*"SW1: As you get closer to Bradford there's black wall with pollution... sometimes when the kids ask if we walk that way today I will tell them to look at it on the wall... that's why we are not walking down here usually... because I don't want that in your lungs."*

No one said they changed their mode of transport to school or not joining a WSB scheme because of air pollution *per se*; some of them consider it rather a minor issue comparing to other themes discussed.

*"SW4: If I was worried about it I would go in the car because then my daughter who is asthmatic wouldn't be affected by the pollution as*

*much. I am not though.”*

For all our participants ‘getting exercise’ was more important than concerns of air pollution’s impact on health. Environmental issues often needed prompting to enter the conversation whereas walking for health benefits came up as a topic with no prompting.

Health was a critical consideration; but not the most important one. Parents, in all our sessions, ranked safety above health and wellbeing in their school travel decision-making priorities.

#### 4.6. Emotional needs

Many parents take their children to school themselves because it meets their expectations of their roles of responsibility as a parent.

*“SD9: I’d have to drop them off myself, make sure they are standing in line with their teacher.”*

For one mother, seeing her child at school before starting the class was so important she made the journey when she did not need to. The father walked the daughter to school, as this was their special one-to-one time together. The mother drove down, as she would be going on to work after, parked up and went into the playground to see her daughter.

*“WW9: I like to see her go into school, because I’m not going to be able to do it for much longer, and that’s a really special thing for me to be able to be with her when she does this.”*

Many parents said the time spent with their children going or coming from school was special time for them, to have conversations or play games.

*“SW8: I think walking helps you interact with your kids... walking to school literally helped me engage with her because otherwise I’d be stuck in the kitchen or attending to something else... so that was the only time I really got to connect.”*

*“WD10: I do like the walk because you can talk to them and get all sorts out of them on the walks, you’re not directly looking at them and you’re chatting... just nice precious time... and it’s not going to be forever.”*

*“WW9: That’s their time together... my husband really likes that time in the morning just to chat with her.”*

This ‘special time’ was mostly associated with walking to school; far less with driving. Parents felt such interaction was not possible in the car as they had to focus on driving.

It was also seen that children walking to school got to socialise with other children, often ones they would not normally interact with as their ages or genders were different.

*“WD7: They talk with people they wouldn’t normally be friends with otherwise. That’s nice.”*

One parent drove to school as she felt it was too far for her daughter to walk, but stopped to walk part of the way to join in with others.

*“WD6: If she sees someone regularly she’ll say can we walk tomorrow so I say alright we’ll stop half-way.”*

The desire to keep children happy affected the mode of transport. One parent drove her son to school, instead of the 20-minute walk she would prefer to do, so as to provide a ‘good start and end to the school day’, as her son did not like walking. Many children were driven home following school as it was felt they were too tired and hungry at the end of the school day. Some parents specified that their children wanted a particular parent to take them to school and so that was done when possible.

The school run, whether walking or driving, also provided adult socialising opportunities. Many said they liked walking to school as it gave them time to talk to other parents.

*“WD3: Me and another parent call each other every Monday and walk down together. It’s nice to have a chat... we don’t both need to come, but we do because we enjoy it.”*

Even for those who drove ‘playground time’ was crucial.

*“SD10: We as parents get to see each other in the playground, which is good.”*

Similar considerations about emotional needs came up when discussing explicitly the WSB context. A strong benefit of it for many was the socialising opportunities it provided for children and parents alike. For children, they got the opportunity to mix with children of other ages or genders, which they may not often do. Some would have the opportunity of walking to school with friends, which they liked to do.

*“WD7: For the children WSBs will be more fun... a nicer walk because they are socialising.”*

For adults, they also see a chance to socialise with other volunteers on WSBs. This was highlighted as being important for a stay-

at-home dad who felt he had fewer opportunities to mix with other parents as the mothers tended to exclude him from their social groups.

*"WD12: As a parent WSBs would be a great chance to sort of chat more with other parents. They [mothers] wouldn't be able to escape me!"*

However, some parents felt their daily socialising, or 'playground time' to chat to other parents, was something they would not want to forgo and so would not use WSBs.

A small number of people mentioned that WSBs provided volunteering opportunities and a community feel, both of which were assumed to be a good thing.

*"WD7: All parents can get involved... you can support it as a volunteer."*

*"SW8: You don't have to be there every day and it's kind of beneficial to you because you are not the only one. The onus isn't just on you. It's a collective thing that you do."*

However, in every group there were concerns that some parents would be providing all the work while others would not participate.

*"WD3: Would there just be people who will use the bus without helping?"*

As well as providing socialising opportunities, the WSB could give parents more personal space and time to do other things they may need to do, which was also seen as beneficial.

While there was much doubt as to the practicalities of a WSB for younger children, many felt they were a great idea for older children, often citing older children as being more suited to the WSB concept. It was felt a WSB would give them the opportunity for independence, helping them get used to walking without their parents but within the safety of a controlled environment, overseen by a responsible adult. It was felt these children were old enough to walk the distances required, not be too tired at the end of a school day, would not require motivational games along the way and be mature enough to appreciate the freedom.

*"SW1: Actually you can give those kids that bit of independence that they want at that age rather than a total free-for-all pass letting them go by themselves."*

*"SW12: It gives them independence."*

*"WW4: So as a parent if you weren't there you'd feel quite good about that older children doing the WSB and they would like it because it would build their confidence. You are not there with them doing the road safety thing, they are kind of doing it themselves but they are supervised."*

*"WPT5: Yes with WSB they will feel independent."*

There was still the issue that parents really valued their travel time with their children and they would miss out on this if they participated in a WSB.

*"SW2: I feel like I'd be missing out on taking them."*

One parent suggested having the WSB once a week so that all could reap the benefits while not forgoing much of the special time. Some felt WSBs would be good for emergencies but did not see them as an everyday operation.

A few parents expressed the concern that WSBs were too regimented. They felt that their children were in school all day and by using a WSB they would be missing out on free, unstructured time.

*"WD2: They have to tow the line all day at school and with a WSB, looks like the school day is starting earlier!"*

Several parents wondered if WSBs would add additional stress to the ordinary school day. Some felt that they would not like the responsibility of volunteering for the bus, which all automatically assumed they would have to do if they were participating. It felt like too much of a burden to look after the safety of other children as well as one's own, in a large group.

*"SW1: I feel that if I had to look after many children that would stress me out. It's difficult to make sure that everyone is safe."*

Some had volunteered on school trips and they all referred to walking the children in a group as being very stressful. There was also the stress of trying to be on time for the WSB, especially if you were volunteering on that day.

*"WW8: I just think that it's such a struggle to get out on time in the morning, and to add another dimension to that... if you are on a rota to volunteer and some weeks you are actually walking and you've got to be there super early."*

*"SD6: If you are doing the WBS and you are waiting for people to come there's the pressure for people that they have to be there at that time and then there's the waiting for people who are late and making other kids late."*

*"SD10: Would you be part of the walking bus so we can give our kids to you?"*

*"SD9: To be honest no. That responsibility of the kids I wouldn't like it. I'd be too stressed. I'd be shouting a lot!"*

#### 4.7. Educational opportunities

In every focus group a consensus was reached suggesting that walking is the ideal method with which to get to school. Almost all the participants who drove spoke of the desire to walk and were knowledgeable of its benefits and the need to educate their children and create a more walking-oriented mobility ethos at a young age.

Several reasons for walking being 'good' were stated highlighting its value as a teaching mechanism that could forge their children's travel behaviour. A few parents specifically said that they walked their children to school to teach them ethics associated with sustainability and walking.

*"Moderator: Why do you choose to walk?"*

*"SW2: Because it's healthier, cheaper, better for the environment, good for teaching kids about having their exercise."*

*"WW8: It's more about helping children form a healthy habit, a healthy attitude."*

*"WD12: That's a good point actually."*

*"SW8: I feel we need to teach our kids that walking is really good for them, just to take the world in to be honest... just to teach them about their surroundings."*

Several parents felt walking provided some distinct educational opportunities and therefore was an excellent mode of transport to school. People spoke about their children learning about the natural environment around them.

*"SW12: We collect conkers or look at how flowers sprout and learn about them."*

Children also practiced spellings, maths or learnt colours on the way to school.

*"SW8: My younger one, she used to tell me the door numbers. She'd say that's a 2 that's a 4."*

*"SW11: My children learnt their numbering and colours from watching the cars. How many yellow cars? How many minis going up the road?"*

Walking to school was also seen as a way for children to burn off energy before arriving at school. Some were aware of studies that showed children learnt better if they had some exercise before school.

*"SW3: It burns off the energy anyway. He's always like, let's go running! I feel he gets his brain ready for when he gets into class."*

*"WW1: Walking in the mornings sometimes wakes them up a bit more."*

*"WPT5: If they have a walk in the morning they go to school and they're more focussed."*

A small number of parents cited learning road safety as a reason for choosing and a possible benefit of a WSB initiative. A WSB, with its supervised walking structure, can potentially be used as an educational tool for helping accident prevention in younger ages.

*"SW1: Supervised walking will help them learn how to deal with traffic and road crossing."*

One of the educational benefits of the WSB was giving older children the opportunity for some controlled independence as well as different social experiences associated with learning.

*"SW2: They are getting the benefits of being together and learning in a different way."*

However, generally it was felt that children would miss out on other educational opportunities provided by walking one-to-one with a parent, such as learning spellings or numbers.

*"SW4: We play games on the way to school. Might be that my kid wants to do sums on the way to school or spellings. If that isn't something they can do on a WSB... well that's something they will miss out on."*

There was also the missed opportunity to see the class teacher if a parent was escorting one's child to school.

*"WD2: If I don't go I would not speak to the teacher."*

So, the promise that WSBs hold in terms of educational opportunities comes to some expense but only in cases where these schemes will replace parents walking their children to school; a WSB is a powerful teaching mechanism in all other cases especially when it replaces car trips and adopts some of the learning games discussed.

#### 5. Discussion and policy recommendations

Our thematic analysis led to the identification of six themes that are the key factors underpinning parental attitudes to WSBs.

These are namely *logistics, safety, trust, health and wellbeing, emotional needs* and *educational opportunities* and each has different dimensions (listed as their respective sub-themes in Fig. 2). Recognising the diverse nature of these thematic areas could enable policy-makers and school travel providers to understand how feasible is to adopt WSBs in their transport agendas and identify ways to introduce them and improve their uptake.

The WSB was generally viewed as a noble initiative as it encouraged walking, provided opportunities for socialising and learning, reinforced sustainability ethics and gave some form of supervised walking to school for older children while providing independence. As many parents do not allow their child to walk to school without adult supervision (McDonald and Aalborg, 2009) WSB schemes can be helpful for those parents with convenience and time constraints. Despite these potential benefits however not all parents wanted to participate daily or at all. A WSB intervention was framed by many as an alternative travel-to-school mechanism that could be used in an emergency (e.g. when someone was sick or there was an appointment) or just once a week for a change to the norm.

There were some critical reservations about WSB operations and its potential to be a practical and danger-free school travel mechanism that could be chosen in a daily basis over other travel options. Trust in who was walking children to school was an issue for some. Fears of ‘stranger danger’ (which was also one of the two key safety-related obstacles) were somewhat alleviated when people realised that volunteers would pass a criminal record check. Some preferred the involvement of school staff although many were content with other parents ‘walking’ the bus once they had become a familiar face. What perhaps was more pertinent for parents than trust of the leader was the fear of road safety; the significance of road safety concerns is a finding in line with many AST studies (e.g. Ermagun and Samimi, 2015; Oluyomi et al., 2014). Many felt that a group of walking children was just too dangerous in the current driving climate of the area. It was more a lack of trust in drivers than in walk leaders that was an issue. Nonetheless, traffic accident evidence from Japan, one of the pioneering countries in WSB adoption and delivery, suggests that by effectively reducing the use of motorised vehicles, WSBs can increase safety for elementary school-aged children (Waygood et al., 2015). There was also a lack of trust in the children being able to walk safely in a group; children’s group behaviour dynamics were identified as potentially problematic. Bickerstaff and Shaw (2000) mentioned lack of trust as a possible barrier to WSB adoption but did not classify its distinctive expressions.

Few people desired to be WSB leaders as they felt that it would be stressful due to the level of responsibility; setting and monitoring ground rules and having to discipline other people’s children was viewed as a particularly hard, sensitive and unwanted task for most. There was concern that some parents would be ‘freeloaders’, expecting other people to walk their children but not returning the favour. This low volunteering aspect of WSBs that hinders their introduction and more importantly their long-term viability is in line with the findings of other relevant studies (e.g. Kingham, and Ussher, 2005; Larouche et al., 2018). If thus transport policy-makers want to assist the rise of successful WSBs they need to guarantee the presence of incentives for WSB volunteers and support the active involvement of schools and their staff in running these. WSBs, due to their educational potential in terms of traffic accident prevention, increased nature and landscape awareness and walking ethics could potentially be integrated to the daily school structure serving as a Key Performance Indicator for traffic safety and environmental targets. Some of our interviewees also felt that walking in small groups of people they knew already was a better alternative to a classic WSB establishment. This informs the relevant stakeholders that formalising and enriching informal and unstructured group walking initiatives may allow them to create alterations of the mainstream WSBs (thus re-inventing the mechanism to a degree) that could be more practical and attractive for parents and children.

A significant obstacle to participation in WSBs, that has not been covered thoroughly by the relevant literature thus far, was the desire that many parents expressed to walk their children to school to enjoy their ‘special time’ together. This was a ‘bonding routine’ that many did not want to forgo. Earlier literature (e.g. Bradshaw, 1995; Joshi and MacLean, 1995; McDonald and Aalborg, 2009) has reported parents’ desire to spend time with children as a reason for driving children to school but the only prior reference to ‘missing time with children’ being an explicit disincentive for WSB adoption was mentioned in Kingham and Ussher (2005). The responsibility for safely escorting their child to and from school was another important issue underpinning WSB embracement; people thought that this task is strongly affiliated to their parenting role. Fyhri et al. (2011) supports the existence of this line of thinking about parental responsibility and travel by suggesting that in today’s ‘risk society’ it is the norm to stress certain safety concerns and to monitor and keep one’s child under surveillance for being considered a ‘good responsible parent’. Walking and socialising with other parents during the school run or in the playground had also value to some parents so WSB schemes through creating teams of walking volunteers can perhaps support this cause and not eliminate it. Providing supervised independence and opportunities for further socialisation, both paramount for fulfilling children’s special psychological needs, were identified as opportunities that WSBs could be creating for children. Waygood et al. (2017) assigns similar emphasis to the active independence and socialising aspects of AST initiatives. As a whole this research underlines the great importance that ‘emotional needs’, as identified and classified herein, have in the process of WSB uptake.

Awareness of health and wellbeing issues was a key decision-making factor for many, although poor health sometimes resulted in the need to drive. Many who drove to school felt a level of guilt about this, believing that for various ethical reasons driving was not the ‘right thing’ to do but the most practical. Exercise and increased physical activity were found to be positive drivers for WSB uptake. This is in line with the evidence provided by Kingham and Ussher (2007) and Larouche and Mendoza (2018). Awareness of environmental issues was not a significant factor for most in their decision-making process on how to travel to school, although it did affect the choice of route taken for some. Most of the respondents had a low level of understanding of air pollution and its impacts on health highlighting the need for more studies like Dirks et al. (2016). The key exception regarding unprompted environmental concerns was the presence of the underpinning concept of sustainability ethics, a term primarily reflecting the need for reduced car dependence and traffic congestion *per se* and not environmental degradation as a whole. This notion however was more associated with possible WSB educational benefits.

The study is adopting logistics as an umbrella term that describes all the trip-specific determinants including availability and speed of transport modes, travel distance and journey time, children's walking capacity, daily activities, employment restrictions, topography and weather but also the seasonality, timing, routing, convenience of a WSB scheme. Distance from school was a factor in deciding how to travel, usually measured in time, and affected parents' perception of whether a WSB can be a realistic modal choice. Walkable home-to-school distance has been classified as a key for the success of AST interventions before (Yu and Zhu, 2016). The structure of the day and employment-generated restrictions influenced parents' perceptions about their potential fit with a WSB. Previous research actually suggests that children's active transport to school is associated with parental acting travel to work and other locations (Henne et al., 2014; McDonald, 2008; McDonald and Aalborg, 2009). Thus, WSBs need to be tailored according to the needs of commuting parents to be successful. To achieve that, planning efforts should be assigned to enhancing WSB operational efficiency, by setting up compatible walking groups and optimising route and 'bus-stops' location planning.

Although trust issues could hinder their adoption, this study proposes, in line with Leyden (2003), that WSBs and similar efforts to increase rates of walking may promote the development of trust and social engagement in urban neighbourhoods, and help to generate stronger, more liveable local communities. Improvements in reducing distances and traffic speed through street design and regulation, much like Waygood and Susilo (2015) suggested, can alleviate some of the road safety concerns. Introducing safe routes to school projects that include traffic calming measures and signalisation of junctions, in line with Jensen (2008), is a measure towards this direction that could complement WSBs. WSBs need to maximise their educational potential by engaging students in nature, landscape and environmental awareness exercises and even counting or 'learning the colour' games as suggested by our focus group participants. WSBs should also raise awareness of the positive emotional experiences for children and their parents much like Ramanathan et al. (2014) recommends for all AST interventions. WSB schemes should enable the whole family to engage so they need to appeal to the parents too and fit to their schedule. Information provision, pilots and educating parents, school staff and children about the benefits of WSBs and how to run them could be another key enabler. WSBs may have synergistic effects with other intervention components (Yang et al., 2014) such as an educational campaign designed to improve attitudes toward AST or a bicycle train alternative. So WSBs should not operate in isolation from other alternative mobility initiatives but be part of a multi-dimensional strategy meaning to inspire more sustainable travel behaviour.

Since theorisation of school travel behaviour is important in the context of an increasing policy interest towards the promotion of AST among children (Mitra, 2013) and attitude is a key in predicting acceptance and behaviour (Nikitas, 2018) this works fills in a crucial research gap. Fig. 2 combines our key findings and provides a normative model of parental attitudes to school travel and WSBs categorising the factors that play a role in their decision-making process that governs behaviour. In producing this model, the approach was data-driven, and deductively informed by the limited existing WSB literature and the researchers' previous studies on sustainable mobilities. More specifically, the figure identifies the six critical attitude-shaping themes that define and predict parental uptake potential of WSBs and their multiple, diverse and distinctive dimensions (i.e. the sub-themes of the thematic analysis). Some of these dimensions although come under specific themes might be also underpinning or affecting other ones, as thoroughly discussed in our analysis; thus their specific placement in positions where two or three themes interconnect in Fig. 2.

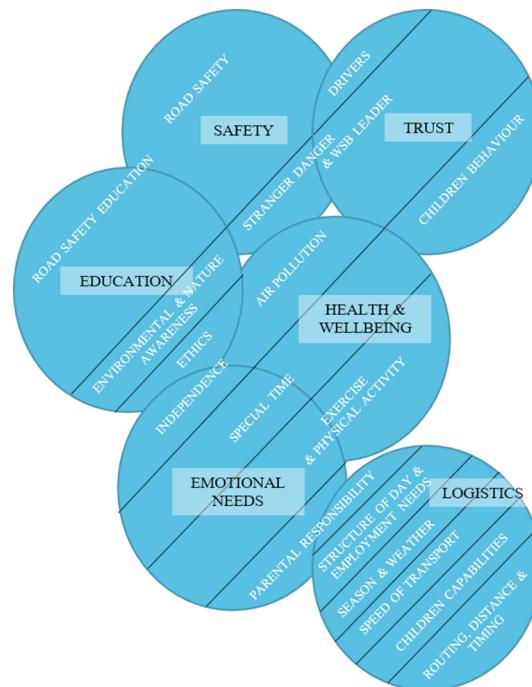


Fig. 2. Travel to school and WSB considerations that shape parental perceptions.

## 6. Reflective commentary

The authors acknowledge that despite the importance of this work's purely qualitative nature and the chosen method's suitability with the WSB topic, a mixed method approach combining qualitative and quantitative (i.e. a survey) methods could have helped, in theory, improving the triangulation and validity of the study results. This was not attained due to prioritising a clear focus about creating an in-depth exploratory framework for understanding attitude development for WSB uptake and the lack of a sample of parents large enough to allow conducting a quantitative analysis that would give statistically significant findings. Also the work concentrated exclusively on parents as they are the key decision-makers for WSB adoption; it is acknowledged however that the perceptions of students, teachers and school leadership are also important.

## 7. Conclusions

This study addresses a research gap referring to the lack of qualitative research on parental perceptions affecting and reflecting the uptake of WSBs. It specifically highlights the importance and diversity of key issues underpinning the adoption process referring to *logistics, safety, trust, health and wellbeing, emotional needs and educational opportunities*. The roles of trust and emotional needs have never been discussed in the literature before in this detail. Our work identified parental reservations as to whether WSBs would reduce traffic congestion around schools as it seems even from people, who appear to be pro-walking, the uptake would be rather limited. Other methods to reduce congestion may be more effective. Nonetheless, some parents who currently drive were willing to participate in a morning WSB; thus there is some potential for modal shift. Afternoon WSBs may not be as functional due to after-school activities and concern of parents not being home. WSBs can be employed with the realistic expectation to operate once or a few times a week, which is an approach that may help to overcome the loss of 'special time' and the lack of volunteering by allowing for personal child-parent time on the rest of the week and volunteers not to commit in a daily basis. Thus, WSBs could be promoted as healthy, learning, socialising and independence pre-school group activities that provide an additional modal choice but are not binding neither resource-intensive. We also suggest that alternative smaller, less structured and more parent-tailored group walking mechanisms could re-invent traditional WSBs and be more trusted. Road safety improvements, funding incentives, information provision about their benefits and planning and the active involvement of schools could be equally strong facilitators for the sustained success of WSBs. Future research should focus on identifying ways of optimising WSBs in terms of route planning and grouping and enhancing their perceived safety, health, emotional and environmental value. Exploring the perceptions of teachers and school leadership as well as those of students and adopting a mixed method approach may help expanding the understanding behind WSB uptake and long-term viability and will be a future complement to the present study.

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## Appendix A. Supplementary material

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.tra.2019.04.011>.

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