COULD A MORE ACCESSIBLE PUBLIC TRANSPORT SYSTEM BE A

BY-PRODUCT OF THE COVID-19 PANDEMIC?

A CASE STUDY OF LEEDS.

(Source: Intararit)

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1. INTRODUCTION

1.1 BACKGROUND AND CONTEXT

The spread of Covid-19 has prompted behavioural changes in all aspects of society. One example of this is the change in commuting patterns, with more people working from home.

The ONS (2020a) reported a large decrease in rail and bus travel since lockdown began in March, shown in Figure 1-1, and public transport usage still hasn't returned to pre-Covid19 levels.
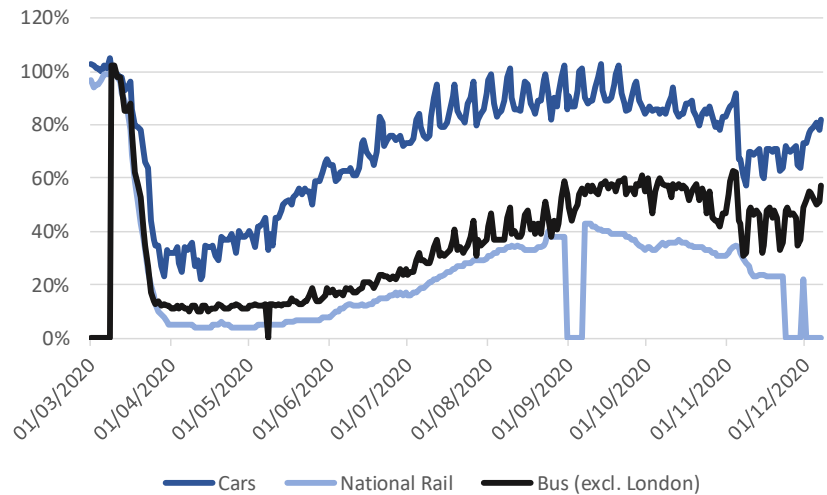
Figure 1-1: Coronavirus and travel to work data (ONS, 2020a)

This is supported by the National Travel Attitudes Survey, which found that 50% of respondents are using trains less than before the pandemic began and 42% are using buses less (DfT, 2020). These results are shown in Figure 1-2.

A reduction in the use of public transport for commuting has also been experienced at a more local level, as summarised below.
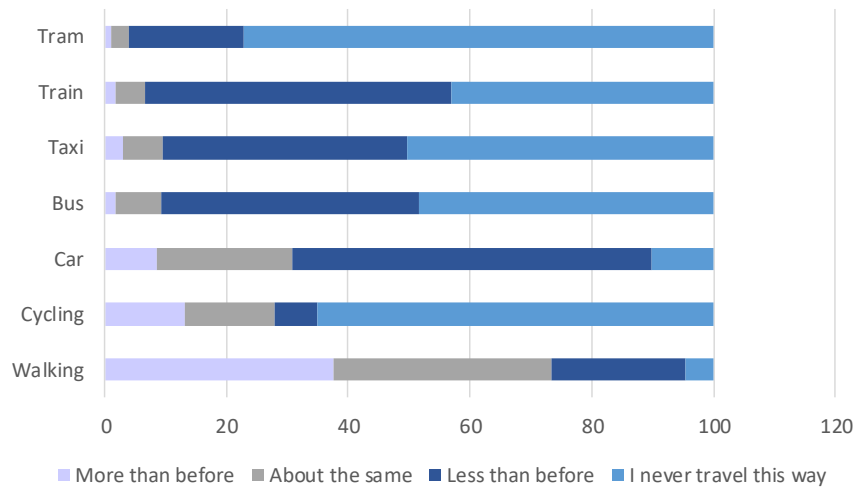
Figure 1-2: Changes in mode, compared to before and after the Coronavirus outbreak (DfT, 2020)

- In Yorkshire and the Humber, the ONS (2020b) reported 37.6% of those in employment worked from home during the pandemic.

- WYCA (2020b) also found that 63% of respondents would be more likely to work from home in the long-term than they were before lockdown.

- For people that are still commuting, there has been a consistent avoidance of public transport for commuting trips (WYCA, 2020b).

1. INTRODUCTION

1.2 AIMS AND OBJECTIVES

This paper aims to investigate whether changes in travel patterns caused by the pandemic have changed behaviour in a way that improves the accessibility of Leeds' public transport system. It is possible that the pandemic may have widened opportunities for people with a disability through changes to how people use the public transport system, as well as through increased acceptance of different behavioural patterns. The combination of these changes may reduce the extent to which travel using public transport acts as a barrier for people with disabilities.

The public transport system in this context refers to Leeds' bus and train networks. This will help to fill the current gap in the literature on the accessibility of public transport in Leeds. It may also be used to inform future policy and prompt further research in this field as we emerge from the pandemic.

1.3 STRUCTURE OF THE PAPER

The structure of the paper is shown in the flow diagram, presented in Figure 1-3.

Figure 1-3: Structure of the paper

2. LITERATURE REVIEW

2.1 INTRODUCTION

This chapter aims to first provide an overview of the existing literature relating to the accessibility of public transport. It is important that the current barriers for people with disabilities are understood, along with potential solutions. Then, an overview of the current trend towards telecommuting will be discussed, focusing on the impact of telecommuting on employees and the impact on accessibility.

2.2 DEFINITIONS

Accessibility is defined as the ability to reach desired goods, services, activities and destinations (Litman, 2007).

For the purpose of this paper, disability will be defined very broadly, in relation to the key abilities impacted: vision, hearing, mobility, learning and mental health.

2.3 ACCESSIBILITY

2.3.1 Possible Barriers

Other studies have found that physical and social barriers exist to make the public transport system less accessible for people with a disability. The issue is also increasing in importance because of the growing population and thus the increasing number of people with disabilities (Bekiaris and Gaitanidou, 2012).

Maynard (2009) highlights several physical barriers which contribute to the 'traditional' exclusion of people with a disability. These barriers include the poor layout or condition of infrastructure, an unsuitable environment surrounding the transport system, and inadequate colour contrast at bus stop waiting shelters or in rail stations.

Maynard (2009) also discusses several social barriers which make the public transport system inaccessible, such as the requirement to pre-book with 24 hours' notice for assistance to be provided on rail journeys or the fear caused by past negative experiences.

Table 2-1: Summary of the physical and social barriers to public transport for people with disabilities

Physical Barriers	Social Barriers
Infrastructure	Pre-booking
Surrounding environment	Fear
Signage	

2.3.2 Possible Solutions

Bekiaris' and Gaitanidou's (2012) solution to these issues are detailed within their research roadmap for the EU, which covers up until 2030. They argue that significant research and implementation effort is required. One focus should be to provide accessible infrastructure elements in stops, stations, hubs and the public transport vehicles. Another focus is to provide improved training for key stakeholders (public transport drivers, operators, equipment/vehicle/infrastructure manufactures). Maynard (2009) also suggests that the focus should be on providing transport that is reliable and communicating this information to the public to increase confidence in public transport.

Table 2-2: Summary of possible solutions to make public transport more accessible for people with a disability

Solutions
Infrastructure improvements
Training for key stakeholders
Reliable services and improved communication

2. LITERATURE REVIEW

However, Bekiaris and Gaitanidou (2012) also acknowledge that trying to offer equal access through public transport services is difficult, requiring a complex set of actions and significant time. This is supported by Maynard's (2009) conclusion that public transport is unlikely to ever be wholly accessible and that the best result would be to have a good door-to-door service, available to everyone, that accompanies a more accessible public transport system.

2.4 TELECOMMUTING

Litman (2007) suggests that the use of mobility substitutes, such as telecommuting, could provide an alternative to using the public transport system. This may offer advantages for people disabilities, allowing them to avoid the journey to work and the barriers accompanied with it (Bekiaris and Gaitanidou, 2012).

This is supported by Adams and Oldfield (2012), who found the option to work from home increased the ability of people with disabilities to find and remain in work. Similarly, The Family Friends Working Hours Task Force (2009), found that flexible working policies increased the talent pool available, resulting in a positive effect on recruitment in 42% of cases.

Other benefits are also provided by workplace flexibilities, including: the opportunity to take more frequent rests, greater control over the working environment (Haddon, 1991) and improved morale and productivity (Spark, 2017). More frequent rests can be particularly important for workers with disabilities which cause fatigue. Similarly, complete control over the working environment allows the individual to match the environment to their specific needs more closely than would be possible in a generic office setting.

However, homeworking increases feelings of social isolation (Haddon, 1991). This is a concern for all employees but particularly for workers with disabilities who may lack other opportunities for social interaction. In addition, there are concerns that an increase in homeworking may be counterproductive. Instead of helping to change attitudes, improve inclusion in the workplace and encourage employers to adapt workspaces to accommodate for a range of needs, homeworking acts to hide people with disabilities from the general public (Haddon, 1991).

Table 2-3: Summary of the advantages and disadvantages of telecommuting

Advantages	Disadvantages
Avoids the need to travel	Social isolation
Control over working environment	Doesn't help change attitudes towards people with disabilities
More frequent rests	
Improved morale and productivity	

2. LITERATURE REVIEW SUMMARY

BARRIERS TO PUBLIC TRANSPORT:

(Source: Milic)

(Source: SkyPics Studio)

Physical barriers include infrastructure, the surrounding environment and signage.
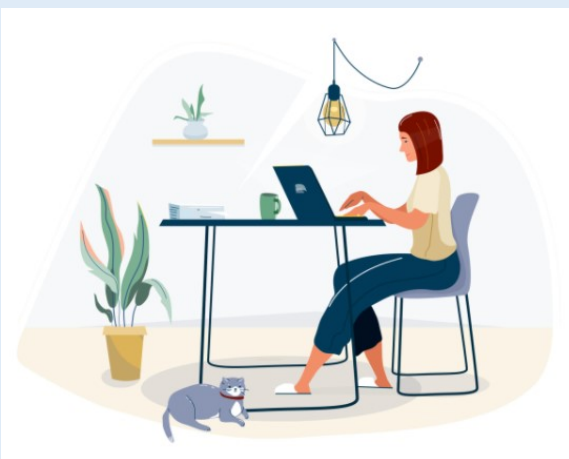
Social barriers include the need to pre-book assistance and fear caused by previous bad experiences.

SOLUTIONS:

- **Improve infrastructure**
- **Increase training provision**
- **Improve reliability of services**
- **Improve communication**

TELECOMMUTING

(Source: Zaie)

Advantages

- No travel
- Control over working environment
- More frequent rests
- Improved morale and productivity

Disadvantages:

- Social isolation
- Doesn't help change attitudes

3. POLICY REVIEW

3.1 INTRODUCTION

To complement the literature review, this chapter will provide an overview of current public transport policies and initiatives in Leeds.

3.2 LOCAL POLICY

WYCA

West Yorkshire Combined Authority (WYCA) are responsible for the transport network in Leeds.

- WYCA coordinate local transport by working closely with bus and train operators.

- WYCA operate travel centres, bus stations, stops and shelters.

- WYCA provide public transport information.

Key initiatives they have implemented include:

- Many bus routes offer low floor, easy access buses;

- Buses have space for one wheelchair user and priority seating;

- Some bus services have audio visual information;

- Concessionary bus fares through the MCard and through the Disabled Persons Railcard;

- Raised kerbs, bus stop marking and clear-way marking eases access on and off buses;

- Staffed bus stations are part of the 'Safe Places' scheme;

- Information is provided in accessible formats; and

- A telephone pre-booking service is available on rail journeys (Wymetro).

> Must book assisted travel at least **24 hours** in advance.

45,000 People with disabilities benefit from free off peak bus travel and half fare off peak train travel.

Free bus and rail travel for blind people.

Travel Planning Apps

Wymetro (2020a) also provide a summary of useful travel Apps for mobile devices, to help people plan their journeys better.

APP NAME (links open in new windows)	COST*	PLATFORM	TRANSPORT MODE/S
Trav.ly	Free	iOS, Android	Bus and train
Moovit	Free	iOS, Android	Bus and train
UK Bus Checker	Free	iOS, Android	Bus
First Bus App	Free	iOS, Android	Bus and train
Arriva	Free	iOS, Android	Bus
Transdev Go App	Free	iOS, Android	Bus
UK Bus Times Live: Bus Scout	Free	Android	Bus
Railboard	Free	iOS	Rail
Next buses from Traveline	69p	iOS	Bus
Bus Times - West & South Yorkshire	99p	iOS	Bus
Live Train Times - Real Time UK	£1.99	iOS	Train

Figure 3-1: Travel Planning Apps (Wymetro, 2020a)

Some of these Apps, such as Moovit, provide audible options that can be helpful for people with vision disabilities to receive real-time journey information.

3. POLICY REVIEW

National Rail Accessibility Map

The Rail Delivery Group have produced an accessibility map showing the accessibility status and accessibility features for all National Rail served stations.
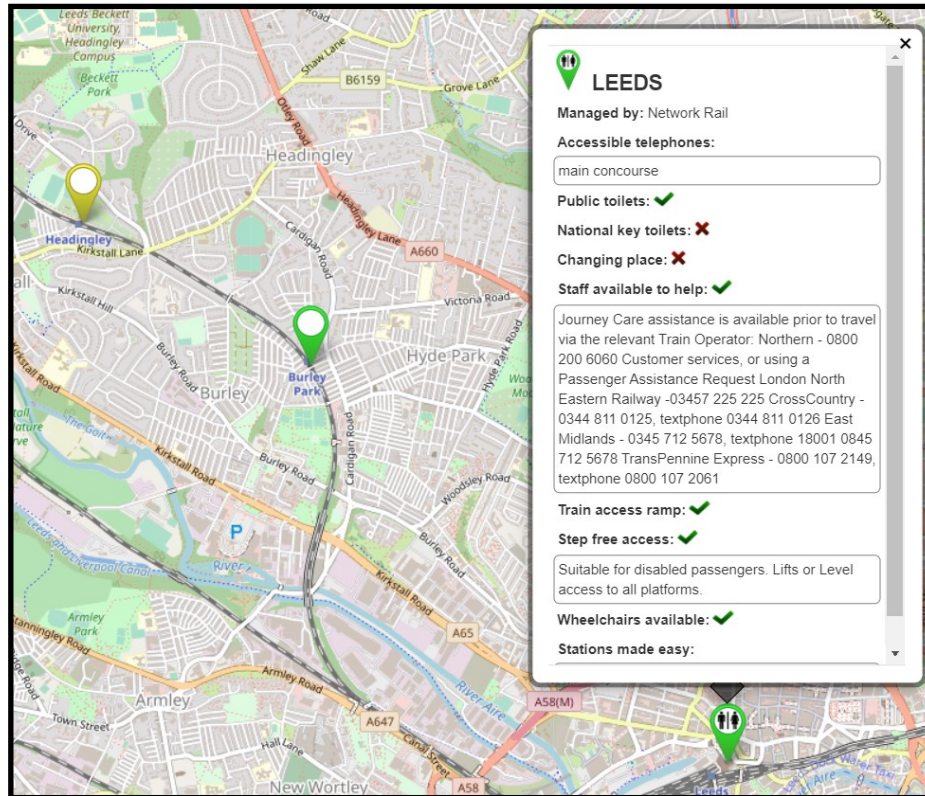

Figure 3-2: National Rail's Accessibility Map (National Rail)

3.3 RECENT CHANGES IN POLICY

In response to the Covid-19 pandemic, there have been some new initiatives introduced by WYCA (WYCA, 2020a; Wymetro, 2020b).

- Assistance cards are available to help people communicate they are exempt from wearing face coverings on public transport;

- To comply with social distancing requirements, the number of seats available on public transport services have been restricted;

- Visually impaired passengers do not need to scan their travel pass on buses whilst social distancing is in place;

- Changes to timetables have occurred, with services operating on a reduced basis;

- The Transdev bus website and App (Transdev Go) allows passengers to check how busy the bus is before boarding. This information is also provided on the front of the bus (Transdev, 2020).

- Additional cleaning at the main customer touch-points (Arriva, 2020);

Passenger assistance services are available as usual on train services.

3. POLICY REVIEW SUMMARY

CURRENT INITIATIVES:

- Accessible infrastructure (on buses and at stops/stations)

- Concessionary fares

- Information provided in accessible formats, online and through Apps

- Assistance services are available on trains

(Source: Elenabsl)

RECENT CHANGES:

- Reduced seating on services

- Timetable changes

- Improved information

- Additional cleaning

- Assistance cards

4. METHODOLOGY

4.1 INTRODUCTION

Primary research was collected using an online survey and semi-structured telephone interviews. The questions for both the survey and the interviews were based on themes identified within the existing literature.

The research request was sent to 24 representatives for the key stakeholders, located within Leeds. The stakeholders which were approached are detailed within Figure 4-1. Except for local transport operators, all other stakeholders responded and shared the research request, including the link to the online survey and the request for volunteers to be interviewed.

4.2 SURVEY

The survey focused primarily on individuals who have experience using the public transport system in Leeds for commuting purposes.

54 responses were received during the 5 weeks that the survey was active. While it is hoped that the sample was as representative as possible, it is acknowledged that some groups may have been excluded by the fact it was distributed online. This is a limitation of the research, although the alternative option to participate in an interview somewhat mitigates the impact this should have on the results.

The questions asked through the survey are provided in Appendix A.

4.3 TELEPHONE INTERVIEWS

To supplement the survey responses, 8 semi-structured interviews were conducted, each lasting on average 30 minutes. An additional discussion was also held with a small group of 11 participants over Zoom. The same questions were covered as in the telephone interviews and the participants discussed their responses to each question amongst themselves.
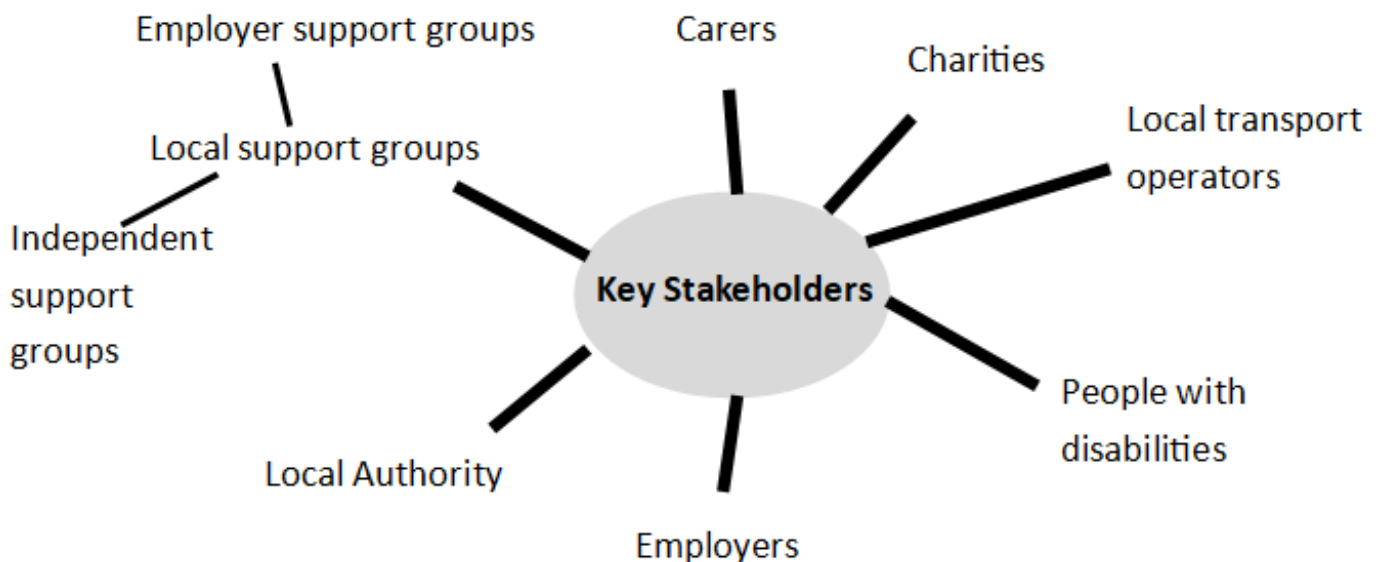

Figure 4-1: Stakeholder map

4. METHODOLOGY

While it was challenging to obtain a response from all stakeholders, purposeful sampling means that a small sample size is sufficient if the participants chosen are likely to hold different views, maximising the potential richness of the data and reducing the likelihood of bias (Boyce and Neale, 2006; DiCicco-Bloom and Crabtree, 2006).

A summary of the interviewees is provided in Table 4-1.

Table 4-1: Summary of interviewees

Interviewee	Description
Interviewee 1	Person with a vision disability.
Interviewee 2	Person with a vision disability and works closely with other people with disabilities.
Interviewee 3	Employer support group representative and carer.
Interviewee 4	Local authority representative.
Interviewee 5	Person with a hidden disability and works closely with people with disabilities.
Interviewee 6	Representative of a disabled people's user-led organisation, which is a registered charity. Also has a mobility disability.
Interviewee 7	Representative of a charity for hearing and visibility disabilities. Also has a vision disability.
Interviewee 8	Representative of a charity for people with a range of disabilities.
Interview Group 1	Support group led by a charity for people with hearing disabilities.

The interview agenda used for this study can be found in Appendix B. An interview agenda is recommended so the interviewer retains control of the overall direction of the interview (Gill et al, 2008), while allowing the opportunity for valuable diversions (Willig, 2013).

4.4 ETHICAL CONSIDERATIONS

DiCicco-Bloom and Crabtree (2006) consider four ethical issues related to the interview process, arguing that actions should be taken: to reduce the risk of unanticipated harm to the interviewee, to protect the interviewee's information, to effectively inform interviewees about the nature of the study, and to reduce the risk of exploitation. To ensure these considerations are met, it is standard ethical procedure to provide an information sheet and a consent form when collecting qualitative data (Miller, 2012).

In line with this, the researcher issued an information sheet (Appendix C) to each participant prior to conducting the interview, including details about participating in the study so the interviewee was sufficiently informed. Interviewees were also issued a consent form to sign (Appendix D), explaining that anonymity would be maintained regarding any information collected during the research process.

For those that participated in the survey, information about the study was provided with the online survey link and the survey was anonymous.

5. DATA ANALYSIS

5.1 INTRODUCTION

This chapter will summarise the results of the online survey, followed by the telephone interview results.

5.2 SURVEY RESULTS

5.2.1 BACKGROUND INFORMATION

A series of background questions established which modes of public transport the respondents use on a frequent basis. 65% of respondents reported that they use the train and 56% use the bus, shown in Figure 5-1.

Figure 5-1: Modes of public transport

Figure 5-2: Types of disability
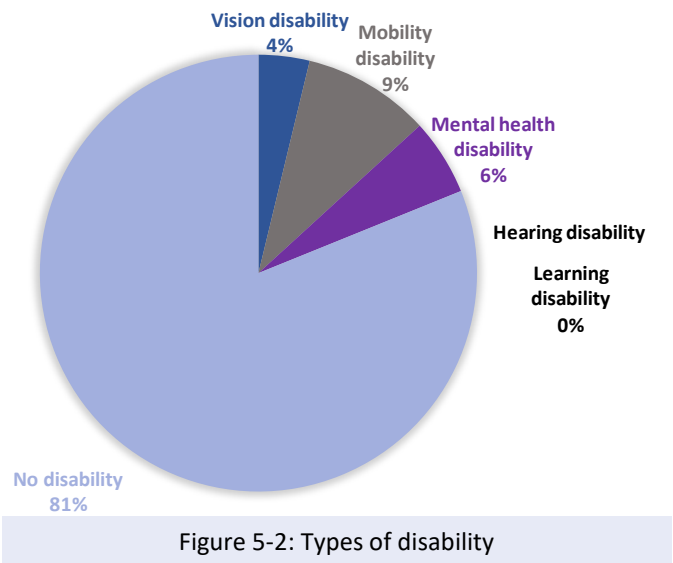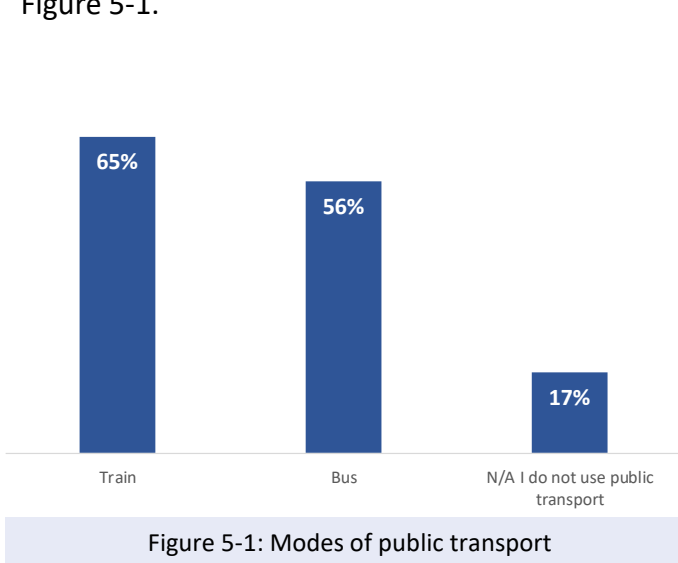
It was also asked whether the respondent considers themselves to have a disability, shown in Figure 5-2. 81% of respondents answered that they do not consider themselves to have a disability. Nobody considered themselves to have a hearing or a learning disability.

5.2.2 ACCESSIBILITY OF PUBLIC TRANSPORT

When asked about the accessibility of the current public transport system in Leeds, the weighted average score awarded was 4.3. Figure 5-3 shows the full split of scores awarded. A score of zero is extremely inaccessible, while a score of 10 is extremely accessible.
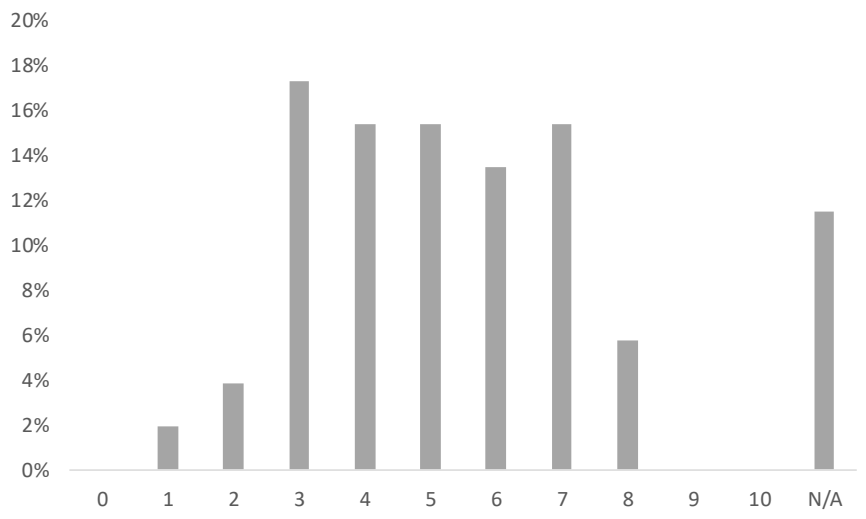

Figure 5-3: The accessibility of Leeds public transport systems

5. DATA ANALYSIS

Respondents also provided reasons for their scores. The most common answers are summarised below.

Reasons why public transport is accessible:

- Physical infrastructure at train stations (ramps, lifts and accessible toilet facilities);

- Physical infrastructure on buses (wheelchair spaces and audio stop announcements);

- Bus drivers help passengers board when necessary;

- Provision of bus passes for people with disabilities; and

- Assistance service at train stations.

Reasons why public transport is inaccessible:

- Limited step free access to platforms at local train stations, including Garforth and Morley stations;

- Buses and trains are overcrowded at peak times, meaning disability designated areas are filled;

- Attitude problems with people blocking empty seats, taking up priority seats or showing hostility for slow movers;

- Infrequent bus services or bus services which do not run to timetables;

- Audio announcements on buses are inconsistently provided;

- Clearer signage needed to educate about people

with 'hidden' disabilities;

- Limited tactile signage;

- Poor communication regarding late services or cancellations;

- Connectivity between modes is a problem.

When asked about the impact of the pandemic on public transport, responses were mixed. Figure 5-4 shows some positive impacts, with 87% of respondents suggesting that the pandemic has reduced crowding and 28% agreeing that public transport has become more hygienic. However, the services offered have become less frequent according to 42% of respondents. It was also suggested there is a fear to use public transport, which may reduce accessibility.

This mixed response is reflected in the fact that only 12% of people voted that the pandemic has made public transport more accessible, while 40% said it had become less accessible and 48% stated they were unsure. The comments offered suggest that some of this uncertainty may be because there is low confidence in the safety of public transport, resulting in reduced usage since the pandemic.
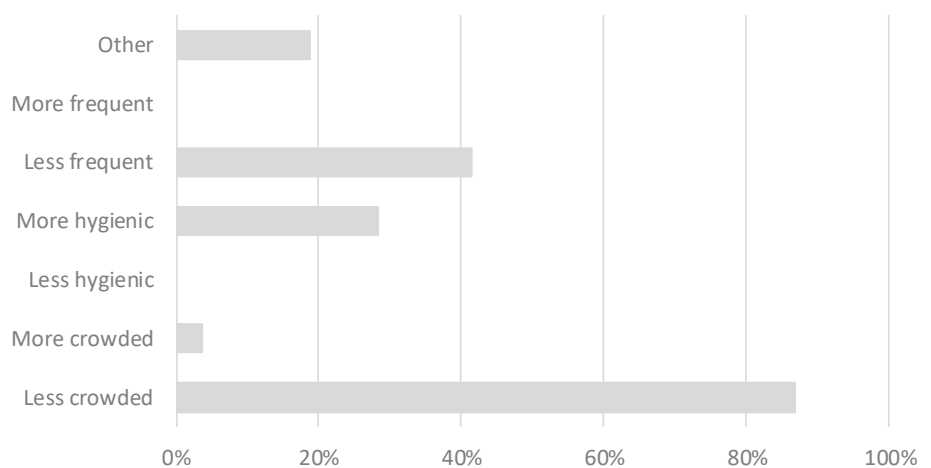

Figure 5-4: Changes to public transport as a result of the pandemic

5. DATA ANALYSIS

5.2.3 TELECOMMUTING

The next set of questions related to the alternative possibility of telecommuting. Figure 5-5 shows 93% of respondents have worked from home, with 67% starting to work from home as a result of the pandemic. This supports the data provided in Section 1-1, about recent changes in travel patterns.

For those who have worked from home, Figure 5-6 shows the advantages of homeworking and Figure 5-7 shows the disadvantages.
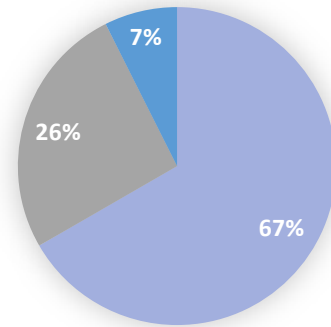
Figure 5-5: No. of respondents that have worked from home
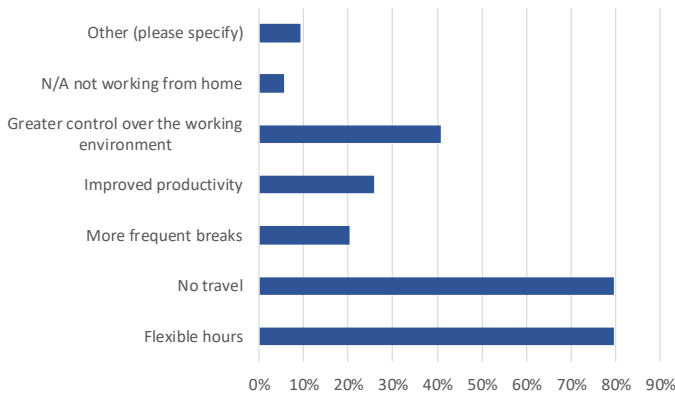

Figure 5-6: Advantages of homeworking
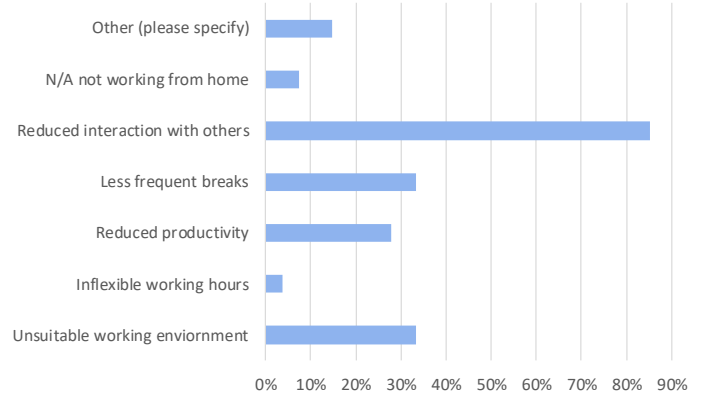
Figure 5-7: Disadvantages of homeworking

The most popular advantages were reduced travel and more flexible hours. In contrast, the most popular disadvantage was the reduced interaction with others.

Additional disadvantages were mentioned as comments. These include:

- Longer working hours; and

- Mental health implications.

Meanwhile, employers have been accepting of the switch to homeworking (Figure 5-8). A score of zero is extremely unaccepting, while a score of 10

is extremely accepting. A weighted average score of 9 was awarded.
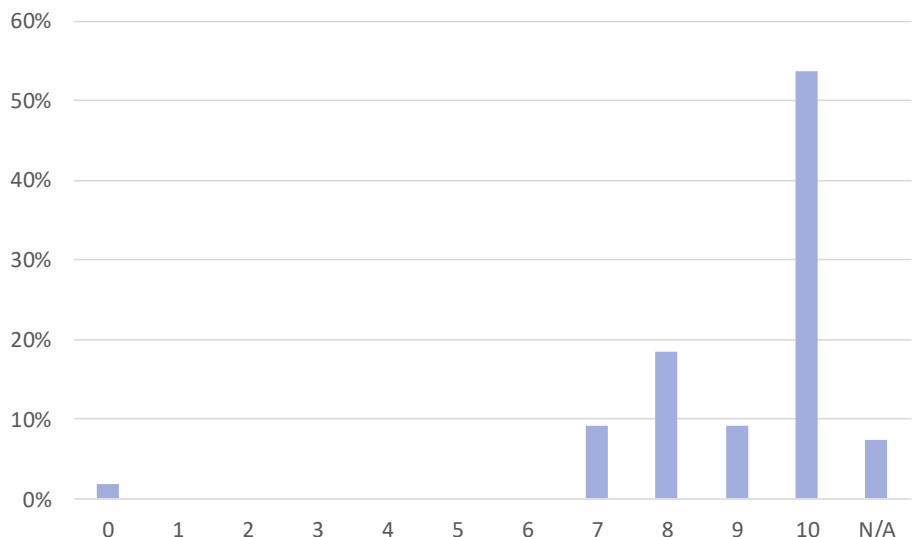
Figure 5-8: How accepting employers have been of homeworking

5. DATA ANALYSIS

A summary of the comments is provided below:

- The pandemic has shown that people can work from home effectively and maintain productivity;

- Perhaps this has caused the employer to have a more open mind;

- It could possibly have been introduced before lockdown, but it needed the pandemic to force the issue;

There was also a mixed response regarding whether the employer has provided office equipment.

5.3 INTERVIEW RESULTS

To analyse the results from the telephone interviews, thematic analysis was conducted. Figure 5-9 presents the three themes which arose.

Figure 5-9: Final thematic map

5. DATA ANALYSIS

5.3.1 Connectivity

The first theme was connectivity, between modes and people.

Connectivity between modes

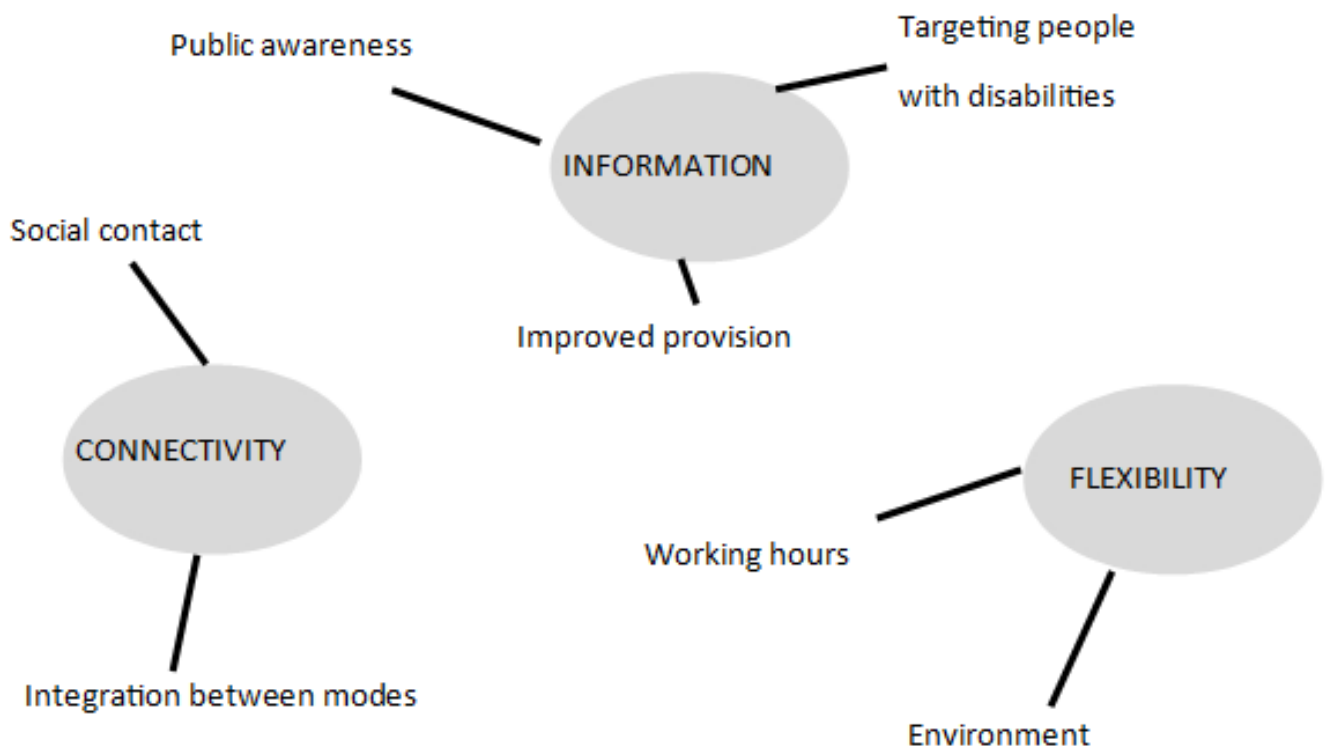Respondents reported that one of the main barriers for people with a disability to commute to work is the integration between each leg of the journey. Interviewee 2 commented:

"The biggest problem is getting to the bus stop. There are inaccessible or no pavements, busy roads with no pedestrian facilities, overhanging bushes, parked cars, unacceptable distances and few places to rest."

This was supported by Interviewee 1, who also commented on the need to improve the walk between the bus stop and the train station to increase connectivity between modes.

In contrast, Interviewee 6 provided an alternative perspective:

"Leeds has a good network. Getting from A to B when it works is actually very good."

With regards to the journey within the station, Interviewee 2, who has a vision disability, reported that:

"It is difficult to use the train station independently – there are lots of opportunities to get lost. The staff are excellent at providing assistance but it can take a while at busy times, doubling the journey."

The desire for improved connectivity was echoed by a number of respondents as a way to improve the accessibility of the public transport system as a whole.

Social contact

The theme of connectivity was also raised in relation to how working from home makes it difficult to connect with others.

Interviewee 2 commented:

"Social contact can't be replaced with online activity. Some contact can be replicated by calls or Zoom but I miss the random incidental meetings in the corridor or in the kitchen."

This was supported by Interviewee 7, who said:

"The disadvantage of homeworking is social contact. Work can be a fundamental part of social contact for disabled people. Without it they can be seriously isolated. Working from home is not a great answer for everybody."

5.3.2 Information

The second theme that arose was about information.

Information targeting people with disabilities

The provision of information was mentioned by the interviewees as one of the main limitations to Leeds' public transport.

Interviewees 1, 2 and 7 have visibility disabilities. There is a consensus between these interviewees that it can be difficult navigating around stations, accessing live departure information and knowing which bus has arrived.

Interviewee 1 suggested that tactile maps or orientation training would help with navigation.

Regarding live departure information, Interviewee 4 highlighted the usefulness of real time journey planning apps with audio options.

Similarly, it was acknowledged that audible announcements have been a great improvement in recent years, though they are not always turned on which is a problem. Interviewee 7 said:

"If all buses had audio announcements that were kept running, that would be a massive step."

5. DATA ANALYSIS

It was also acknowledged by Interviewee 2 that tactile paving at platforms has been another good innovation. Although, crowding on platforms can make it easy to miss.

An alternative issue with information provision for people with hearing disabilities was provided by Interviewee 5:

"Sometimes the platform at the train station will change last minute and this information will be provided by someone shouting. Have to rely on the herd to guess what is happening or on the visual boards, which often lag."

This was supported by participants in the group interview, who discussed the importance of real-time information.

Public awareness

Another key topic was the need for greater awareness amongst the wider public. Interviewee 3 reported that they:

"Feel guilty using priority seats or disabled toilets. Signage around those could be more informative about people having hidden conditions."

Interviewee 4 supported this, saying there is a need for other passengers to:

"be kind or aware that some of the people you are travelling with might have a disability."

Similarly, interviewee 2 commented:

"There needs to be more awareness to give a disabled person a bit of space or help if they look as though they might need it. Not to give hassle about face coverings."

Many of the interviewees reported concerns about how the public would react to an individual being unable to comply with the new Coronavirus rules, by being exempt from wearing a mask or by being unable to social distance due to a vision

disability. It was considered that one bad experience can be very off-putting.

The idea of one bad experience having a significant impact was also discussed in detail during the group interview, with one participant saying:

"I have had bad experiences in the past so now I don't feel comfortable with public transport. I prefer going in car."

A possible solution that was suggested within the group interview that would help people with hearing disabilities have better experiences is for more people to learn sign language.

Improved provision of information

Since the pandemic began, efforts to improve the provision of information have helped to improve the accessibility of public transport.

Interviewee 4 said:

"Bus operators have mobilised a change in the information they provide. For example, letting people know about how many spaces are available. They are looking into providing more detailed information on whether the wheelchair space is available also."

5.3.3 Flexibility

The third theme that emerged was about flexibility, in relation to working hours and the work environment.

Flexibility over working hours

For most respondents, working from home provides the advantage of more flexible working hours.

Interviewee 3 said:

"More flexibility makes it a little bit easier to attend appointments and information sessions."

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It was also mentioned by Interviewee 5 and 4 that increased flexibility allows people to avoid travelling at peak times. Interviewee 5 said:

"This might make it more inclusive because you can choose to travel at a quieter time and have a better journey experience."

The issue of overcrowding at peak times was also discussed by Interviewee 1, 2 and 5. Issues that were raised about overcrowding included:

- Overcrowding can cause anxiety;

- It makes it difficult to be guided and to find a seat if you have a vision disability;

- Wheelchair users less likely to find a space

It was generally considered that overcrowding has become less of an issue since the pandemic began. Although, Interviewee 5 contested this:

"Fewer services result in pent-up demand which counter the drop-off from people working from home."

Interviewee 4 also raised the point that concessionary fares schemes may need to be re-designed if peak spreading were to become more common.

Flexibility over work environment

Finally, the interviewees discussed that a potential barrier for people with disabilities to obtain or remain in employment is the work environment.

Interviewee 2, 3 and 5 discussed how important it is that the employer is able and willing to adapt the physical work environment to meet the particular needs of the employee.

Interviewee 2 highlighted several factors that should be considered, including:

"equipment in the workplace, provision of personal assistance, layout and location of the office."

It was considered by Interviewee 2, 3 and 7 that homeworking can be better in this way because it is more likely to be suited to the individual.

However, Interviewee 7 raised the following issue with the home environment:

"You have to be able to deal with all the new software that has been thrown at you. I use a screen reader so the technology doesn't cause me a problem but a lot of people will not have that level of technology so working from home can be difficult".

This was also discussed within the group interview, with mixed responses regarding whether the majority of people with disabilities are confident using telecommuting technology.

5. DATA ANALYSIS

SUMMARY

Theme 1— Connectivity:

- Physical infrastructure needs to be improved between modes.

- Telecommuting is not a complete solution, due to the lack of social contact is provides.

Theme 2— Information:

- Information provision for people with disabilities has been improved as a result of the pandemic but more progress is needed.

- Greater understanding about hidden disabilities is needed amongst the general public.

Theme 3— Flexibility:

- Flexibility over working hours can help reduce crowding on public transport, making it more accessible for people with disabilities.

- Flexibility over the working environment can be helpful but it is not a complete solution.

6. RECOMMENDATIONS

POLICY MAKERS

Subsidies for operators

The pandemic has reduced crowding on public transport services in Leeds. To maintain the advantages of less crowded services, subsidies may be required to encourage operators to keep providing the same frequency of services, despite the reduction in demand. Subsidies would also help ensure services are consistent, which would help increase confidence in the public transport system.

Educating the public

It is clear that one bad experience is very off-putting for people with disabilities. To stop people losing confidence in the public transport system, greater resources should be channelled into educating public on being understanding towards people with disabilities, remembering that they may not be visible.

Infrastructure

As suggested by the literature, greater funding is needed towards improving physical infrastructure. In particular, improvements are needed for the routes that connect different modes of transport.

EMPLOYERS

Flexible hours

Employers should offer flexibility over working hours. The evidence shows that people benefit from the ability to manage their time more flexibly and the subsequent reduction in demand for transport at peak hours reduces crowding on public transport, making it more accessible for people with disabilities.

OPERATORS

Information provision

The pandemic forced operators to improve the real-time information they provide to passengers. These systems should remain after the pandemic. Further developments to provide greater information about the availability of wheel-chair spaces and priority seats should also be considered.

Audio announcements

Audio announcements are considered to be useful. They should be turned on if they are available.

7. CONCLUSION

7.1 SUMMARY OF FINDINGS

In some ways a more accessible public transport system may be a by-product of the Covid-19 pandemic. Predominantly, the increase in more flexible working and telecommuting reduces crowding on public transport services, which makes them more accessible for people with disabilities. Additionally, the improvement in information provision is really helpful for people with disabilities to plan their journeys and feel more confident about using public transport.

However, the general public may have become less understanding towards people with disabilities since the pandemic began, particularly regarding wearing masks.

Hence, the recommendations focus on the need for employers to remain flexible about working hours, operators to continue providing more information about capacity and for resources to be targeted at increasing awareness amongst the public about hidden disabilities.

It was also found that there are some improvements needed relating to infrastructure. This is not related to the pandemic and thus further research should be conducted to investigate infrastructure issues in more detail.

Further research should also be completed once the pandemic is over to see if any other trends emerge. Conducting further research with a larger sample size would also provide more representative data, which would overcome one of the limitations of this study.

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APPENDICES

APPENDIX A — SURVEY QUESTIONS

Could a more accessible public transport system be a by-product of the Covid-19 pandemic? A case study of Leeds.

1. Which modes of public transport do you use?

☐ Train

☐ Bus

☐ N/A I do not use public transport

☐ Other (please specify)

2. Do you consider yourself to have any of the following disabilities?

○ Vision disability   ○ Learning disability

○ Hearing disability   ○ Mental health disability

○ Mobility disability   ○ No disability

Other (please specify)

3. Using any number from 0 to 10, where 0 is extremely inaccessible and 10 is extremely accessible, what number would you use to rate how accessible the public transport system (bus and/or train) is in Leeds for people with a disability?

	0 Extremely inaccessible	1	2	3	4	5	6	7	8	9	10 Extremely accessible	N/A
Ranking	○	○	○	○	○	○	○	○	○	○	○	○

Please explain why.

4. What are the current issues with the public transport system (bus and/or train) in Leeds for people with a disability?

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5. How has the Covid-19 pandemic changed public transport (bus and/or train)? Please select all that apply.

- [ ] Less crowded
- [ ] More crowded
- [ ] Less hygienic
- [ ] Other (please specify)

- [ ] More hygienic
- [ ] Less frequent
- [ ] More frequent

6. Has the Covid-19 pandemic made public transport (bus and/or train) more accessible?

- ( ) Yes
- ( ) No
- ( ) Not sure

Please provide a reason for your answer.

7. Have you ever worked from home?

- ( ) Yes - since Covid-19 began
- ( ) Yes - since before Covid-19
- ( ) No but I would like to
- ( ) No

8. Which of the following benefits have you found to be true for you when working from home? Please select all that apply.

☐ Flexible hours

☐ No travel

☐ More frequent breaks

☐ Improved productivity

☐ Greater control over the working environment

☐ N/A not working from home

☐ Other (please specify)

9. Which of the following disadvantages have you found to be true for you when working from home? Please select all that apply.

☐ Unsuitable working environment   ☐ Less frequent breaks

☐ Inflexible working hours   ☐ Reduced interaction with others

☐ Reduced productivity   ☐ N/A not working from home

☐ Other (please specify)

10. Using any number from 0 to 10, where 0 is very unaccepting and 10 is very accepting, do you feel your employer has become more accepting of homeworking since the Covid-19 pandemic?

	0 Extremely unaccepting	1	2	3	4	5	6	7	8	9	10 Extremely accepting	N/A
Ranking	○	○	○	○	○	○	○	○	○	○	○	○

Please explain why.

DONE

Powered by
SurveyMonkey
See how easy it is to create a survey.

The survey was designed using Survey Monkey (Survey Monkey, 2020)

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APPENDIX B — TELEPHONE INTERVIEW AGENDA

1. Do you consider yourself to have a disability? Or, do you work closely with people with a disability

2. What is the biggest barrier for people with disabilities to obtain/remain in employment?

3. In your opinion, is public transport in Leeds accessible for people with a disability?

4. In the context of accessibility, what are the advantages and disadvantages of public transport in

    Leeds?

5. In the context of access to employment, have you seen any changes caused by Covid-19?

6. What do you think are the advantages and disadvantages to homeworking?

7. What would an inclusive future look like for commuters with a disability?

8. Is there anything you would like to add before finishing the discussion?

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APPENDIX C — TELEPHONE INFORMATION SHEET

Research Question

Could a more accessible public transport system be a by-product of the Covid-19 pandemic? A case study of Leeds.

Invitation to participate

You have been invited to take part in a research project. Before you decide whether to take part, it is important you are clear about the motivations of the research and what will be involved if you choose to participate. If you have any further questions, then do not hesitate to contact me.

Purpose

The purpose of this study is to assess whether the Covid19 pandemic may have helped to overcome any challenges people with disabilities may face when using the public transport system in Leeds.

Why have you been chosen?

You have been chosen to take part in this research as you have expertise in this field of study.

Do I have to take part?

If you decide you would like to take part in the study, then you will be given a consent form to sign and keep. However, you do not have to take part and may withdraw at any time, without providing a reason.

What do you have to do?

You will participate in a semi-structured telephone interview, where you will be asked to answer several questions. The interview will last anywhere between 20 and 40 minutes.

Will I be recorded and what will happen to the recorded media?

There may be an audio recording of the interview. However, the recording will only be used for analysis and they will be deleted once this analysis has been completed, unless you request otherwise. Additionally, no external parties other than the researcher will have access to the recordings.

Confidentiality

All the data collected will be kept strictly confidential, meaning that you will not be identified in the project. The

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findings of the research may be published in the Transport Planning Society newsletter.

What are the possible benefits of taking part?

There are no direct benefits to the participant but the data collected could help make improvements to public transport or help employers to reform current workplace practices so they are more accessible.

What are the possible disadvantages of participating?

It is possible that this study may lead to the discussion of sensitive information. If you do not feel comfortable with this then you may withdraw at any time.

Contact for further information

If you require further information then please do not hesitate to contact me via email at [Researcher's email address removed for confidentiality purposes].

Thank you very much for taking the time to read this information sheet. If you choose to participate then you will be sent a consent form prior to the interview.

Kind Regards,

Rachel Kirby

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APPENDIX D — TELEPHONE CONSENT FORM

I ………………………………………………………… (print name) give consent to participate in data collection as part of Rachel Kirby's research for the Transport Planning Bursary Competition 2020. The research is focused on analysing how accessible public transport is in Leeds.

I understand the information provided will be:

- Used sensitively and confidentially

- Anonymised such that respondents cannot be identified from the final report

- Secured in a secure digital folder while the research is being collected and then destroyed after the research is complete.

Participant

Signed …………………………………………

Dated …………………………………………

Researcher

Signed …………………………………………

Dated …………………………………………