

# **Air travel: The experiences of wheelchair users and those who help them and implications for service improvements**

**Andrew Philip Davies**

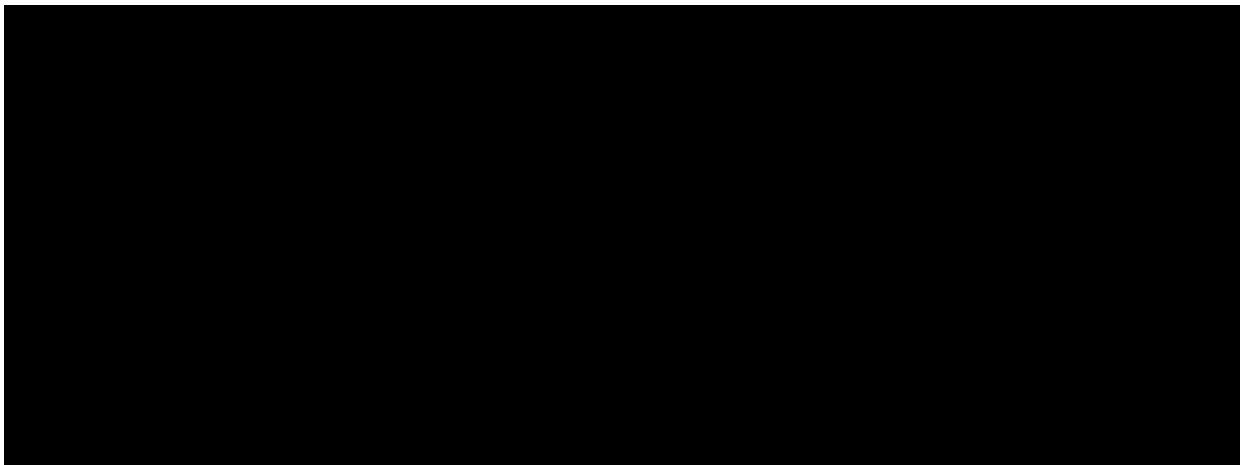
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## **DECLARATION OF AUTHORSHIP**

3<sup>rd</sup> August 2020

I, Andrew Philip Davies, confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.



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## **ABSTRACT**

Air passenger numbers have increased steadily over the last decade and the number of wheelchair users who travel by air has grown at a faster rate. Disability is a protected characteristic under the UK Equality Act 2010. In this research, a wheelchair user was defined as someone who used a wheelchair permanently. Limited research has shown that travelling by air has been a mostly negative experience for wheelchair users and those who accompanied them, and a mixed experience for aviation staff. Most of the issues were associated with the aircraft such as the seating and accessing the toilet. This study aimed to collect the experiences and views of wheelchair users and those who accompany them, the cabin crew, and the special assistance staff who helped them at the airport.

Participants were recruited through opportunistic and convenience sampling via social media and contacts with a travel adviser for disabled people. A qualitative approach using semi-structured interviews was conducted with 11 wheelchair users, 10 people who accompanied them, 11 cabin crew, and 21 special assistance staff. Template analysis and frequency counting were used to code the participant's views. New issues were identified that included how the luggage was moved; air travel processes including parking, check-in, security, airport amenities, and how the special assistance staff move around the airport; information and communication issues; disembarkation; services on board the aircraft; staff training; and how the staff help wheelchair users.

The results revealed that air travel for wheelchair users and those that accompany them was difficult and could be enhanced by improving information accuracy, optimising air travel processes including queueing and resource management, and redesigning physical aspects of the aircraft so they are fit for purpose. This research identified policies and procedures that the aviation industry could adopt when helping wheelchair users who fly.

## **IMPACT STATEMENT**

The findings from this research could formulate a new set of standardised policies and procedures for the aviation industry that will benefit wheelchair users, those who travel with them, and aviation staff. Wheelchair users should directly choose which International Air Transport Association (IATA) 'Passengers with Reduced Mobility Code' (PRM) they belong to, which will improve the accuracy of the information available to special assistance staff. This will allow them to be properly prepared to give the correct level of assistance and improve the overall experience of travelling by air for wheelchair users and those who accompany them. A dedicated special assistance queue could be installed at check-in, security, and immigration, particularly at larger airports for ease of access for wheelchair users and so that the special assistance staff can operate as efficiently as possible. Other airport businesses could be investigated to help wheelchair users such as offering reduced rates in the short term car park, having a dedicated drop off zone at the terminal entrance for safety, ensuring the toilet facilities are fit for purpose, improving the layout of amenities, and a special assistance lounge with facilities that people with disabilities may need. Service providers should collect the experiences of people with disabilities and their staff to identify areas where they can improve.

This research could be used to help improve or redesign terminal transfer buses, the airport buggy used to move multiple people at once, airport wheelchairs, ambulifts, aisle trollies, toileting facilities in the airport and on board the aircraft, and the design of aircraft. Understanding a multitude of stakeholders and consulting with them can lead to solutions that are suitable for all parties without compromising business and economic factors.

Training regimes for staff can be adapted to suit them, as well as offering educational experiences for wheelchair users and those who travel with them. Understanding the processes and options available before flying will be beneficial and allow service providers to explain how they operate and how their staff can help. The educational experience events could be a business opportunity. Knowing what to expect whilst travelling by air will help to identify and correct errors. The UK aviation industry should give awards for services to disability and become the standard to which other countries aspire to in the longer term.

Disability exists within many disciplines in academia. This research could be used as platform for further research of people who travel with a disability. There was a wide spectrum of reasons for why someone was in a wheelchair and that other groups of people had an impact on their lives in some way. Differences in disability and the inclusion of how other people assist them should be considered by curriculum designers and course leaders where appropriate to broaden how disability is thought about. It could also be an example of how to reach several niche or hard to reach groups of people with differing experiences who have a shared purpose to understand the similarities and differences between them.

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# **TABLE OF CONTENTS**

<b>DECLARATION OF AUTHORSHIP</b>	<b>2</b>
<b>ABSTRACT</b>	<b>3</b>
<b>IMPACT STATEMENT</b>	<b>4</b>
<b>ACKNOWLEDGEMENTS</b>	<b>6</b>
<b>TABLE OF CONTENTS</b>	<b>7</b>
<b>TABLE OF FIGURES</b>	<b>13</b>
<b>TABLE OF TABLES</b>	<b>14</b>
<b>GLOSSARY OF TERMS</b>	<b>15</b>
<b>CHAPTER ONE – INTRODUCTION</b>	<b>19</b>
1.1 INITIAL AIMS AND OBJECTIVES	19
1.2 THESIS OUTLINE	20
<b>CHAPTER TWO – BACKGROUND TO THE RESEARCH</b>	<b>23</b>
2.1 DEFINITION OF DISABILITY	23
2.2 PREVALENCE OF DISABILITY IN THE UK	26
2.3 UK AVIATION FIGURES	28
2.3.1 DISABILITY FIGURES AT LONDON HEATHROW AIRPORT	30
2.4 BACKGROUND SUMMARY	35
<b>CHAPTER THREE – LITERATURE REVIEW</b>	<b>36</b>
3.1 LITERATURE SEARCH	36
3.2 THEORETICAL MODELS OF DISABILITY	40
3.3 TRAVEL AND TOURISM FOR PEOPLE WITH DISABILITIES	41
3.3.1 CONSTRAINTS AND BARRIERS OF TRAVEL AND TOURISM	41
3.3.2 PHYSICAL BARRIERS	42
3.3.3 MARKET OPPORTUNITY FOR THE TRAVEL AND TOURISM INDUSTRY	44
3.3.4 TRAVEL DECISION MAKING FOR PEOPLE WITH DISABILITIES	46
3.3.5 ATTITUDINAL BARRIERS TO TOURISM	47
3.3.6 SUMMARY OF THE CONSTRAINTS AND BARRIERS TO TOURISM	48
3.4 FLYING WITH A DISABILITY	48
3.4.1 PREPARING FOR A FLIGHT	49
3.4.2 THE AIRPORT AND AMENITIES	50
3.4.3 BOARDING AND DISEMBARKING	51
3.4.4 SEATING	55
3.4.5 TOILET AND PERSONAL CARE ISSUES	58
3.4.6 WHEELCHAIR ISSUES	60
3.4.7 INFORMATION AND COMMUNICATION	61
3.4.8 SERVICE PROVISION	62
3.5 CONCLUSIONS	64
3.6 RESEARCH OBJECTIVES AND QUESTIONS	66
<b>CHAPTER FOUR – METHODOLOGICAL IMPLICATIONS FROM THE LITERATURE REVIEW</b>	<b>69</b>

<b>4.1 METHODOLOGIES OF CRITICAL PAPERS</b>	<b>69</b>
<b>4.2 WHICH METHODOLOGY SHOULD BE USED?</b>	<b>83</b>
<b>CHAPTER FIVE – METHODOLOGY</b>	<b>89</b>
<b>5.1 QUALITATIVE INTERVIEWS</b>	<b>89</b>
5.1.1 RATIONALE	89
5.1.2 METHODS NOT USED	91
<b>5.2 INTERVIEW DESIGN METHOD</b>	<b>94</b>
5.2.1 TOPIC GUIDE FORMATION (AIR TRAVEL PROCESS)	94
5.2.2 FORMULATING SPECIFIC QUESTIONS	98
5.2.3 REVISING THE QUESTIONS AND PILOT TEST INTERVIEWING	99
5.2.4 FINAL TOPIC GUIDE – WHEELCHAIR USERS (ADAPTED TO INCLUDE THOSE WHO TRAVEL WITH THEM)	101
5.2.5 FINAL TOPIC GUIDE – CABIN CREW	104
5.2.6 FINAL TOPIC GUIDE – SPECIAL ASSISTANCE STAFF	106
<b>5.3 INTERVIEWING THE PARTICIPANTS</b>	<b>109</b>
5.3.1 PEOPLE WHO TRAVEL WITH WHEELCHAIR USERS PARTICIPANTS	109
5.3.2 ETHICAL APPROVAL	110
5.3.3 CHOOSING THE CORRECT SAMPLE SIZE AND DATA SATURATION	110
5.3.4 PARTICIPANT RECRUITMENT AND INTERVIEWS	112
5.3.5 INTERVIEW SETTING	116
5.3.6 AUDIO RECORDING THE INTERVIEWS	117
<b>5.4 INTERVIEW ANALYSIS</b>	<b>118</b>
5.4.1 TRANSCRIPTION	118
5.4.2 INTERVIEW ANALYSIS	119
5.4.3 THE QUANTIFICATION OF QUALITATIVE DATA	121
5.4.5 STANDARDS FOR REPORTING QUALITATIVE RESEARCH	122
5.4.6 PRESENTATION OF RESULTS	123
<b>CHAPTER SIX – WHEELCHAIR USER RESULTS</b>	<b>124</b>
<b>6.1 PREPARING FOR FLYING</b>	<b>127</b>
6.1.1 LUGGAGE	128
<b>6.2 THE AIRPORT</b>	<b>128</b>
6.2.1 THE CHECK-IN EXPERIENCE	129
6.2.2 THE SECURITY PROCESS EXPERIENCE	131
6.2.3 THE SPECIAL ASSISTANCE AREA, SHOPS, RESTAURANTS, AND TOILETS	132
6.2.4 TRANSITIONING TO THE GATE	134
6.2.5 IMMIGRATION, BORDER CONTROL, AND THE BAGGAGE HALL	135
<b>6.3 BOARDING THE AIRCRAFT</b>	<b>135</b>
6.3.1 THE PROCESS OF BOARDING	136
6.3.2 MANUAL HANDLING	137
6.3.3 EQUIPMENT	139
<b>6.4 THE AIRCRAFT</b>	<b>140</b>
6.4.1 SEATING	140
6.4.2 TOILETS	143
6.4.3 LANDING	145
<b>6.5 DISEMBARKING THE AIRCRAFT</b>	<b>146</b>
6.5.1 THE PROCESS OF DISEMBARKATION	146
6.5.2 WHEELCHAIR ISSUES	147
<b>6.6 FEELINGS ABOUT THE STAFF</b>	<b>149</b>
6.6.1 HELPFULNESS	150



6.6.2 LACK OF UNDERSTANDING	150
6.6.3 LACK OF INFORMATION	151
6.6.4 INAPPROPRIATE BEHAVIOUR	153
<b>6.7 FOLLOW UP QUESTIONS</b>	<b>153</b>
6.7.1 USING YOUR WHEELCHAIR AS YOUR SEAT	153
6.7.2 RECOMMENDATIONS	155
<b>CHAPTER SEVEN – PEOPLE WHO TRAVEL WITH WHEELCHAIR USERS RESULTS</b>	<b>157</b>
<b>7.1 PREPARING FOR FLYING</b>	<b>160</b>
7.1.1 LUGGAGE	160
<b>7.2 THE AIRPORT</b>	<b>161</b>
7.2.1 THE CHECK-IN EXPERIENCE	162
7.2.2 THE SECURITY PROCESS EXPERIENCE	162
7.2.3 THE SPECIAL ASSISTANCE AREA, SHOPS, RESTAURANTS, AND TOILETS	163
7.2.4 TRANSITIONING TO THE GATE	165
7.2.5 IMMIGRATION, BORDER CONTROL, AND THE BAGGAGE HALL	165
<b>7.3 BOARDING THE AIRCRAFT</b>	<b>166</b>
7.3.1 THE PROCESS OF BOARDING	166
7.3.2 MANUAL HANDLING	167
7.3.3 EQUIPMENT	167
<b>7.4 THE AIRCRAFT</b>	<b>168</b>
7.4.1 SEATING	168
7.4.2 TOILETS	170
7.4.3 LANDING	172
<b>7.5 DISEMBARKING THE AIRCRAFT</b>	<b>173</b>
7.5.1 THE PROCESS OF DISEMBARKATION	173
7.5.2 WHEELCHAIR ISSUES	173
<b>7.6 FEELINGS ABOUT THE STAFF</b>	<b>176</b>
7.6.1 HELPFULNESS	177
7.6.2 POORLY PREPARED	177
7.6.3 COULD DO BETTER	177
<b>7.7 FOLLOW UP QUESTIONS</b>	<b>178</b>
7.7.1 USING THEIR WHEELCHAIR AS A SEAT	178
7.7.2 RECOMMENDATIONS	179
<b>CHAPTER EIGHT – CABIN CREW RESULTS</b>	<b>180</b>
<b>8.1 POLICIES AND TRAINING</b>	<b>183</b>
8.1.1 TRAINING	183
8.1.2 VIEWS ON TRAINING	184
<b>8.2 INFORMATION AND COMMUNICATION</b>	<b>185</b>
8.2.1 INFORMATION	185
8.2.2 COMMUNICATION	186
<b>8.3 THE AIRCRAFT</b>	<b>186</b>
8.3.1 THE PROCESS OF BOARDING	186
8.3.2 MANUAL HANDLING	187
8.3.3 EQUIPMENT	188
8.3.4 THE PHYSICAL AIRCRAFT	189
8.3.5 SAFETY AND EVACUATION PROCEDURES	190
8.3.6 TOILETS	190
8.3.7 FOOD AND DRINK	191

<b>8.4 DISEMBARKING THE AIRCRAFT</b> -----	<b>192</b>
8.4.1 THE PROCESS OF DISEMBARKATION-----	192
8.4.2 WHEELCHAIR ISSUES-----	194
<b>8.5 DISABILITY DIFFERENCES</b> -----	<b>195</b>
<b>8.6 FOLLOW UP QUESTIONS</b> -----	<b>196</b>
8.6.1 RECOMMENDATIONS-----	196
<b>CHAPTER NINE – SPECIAL ASSISTANCE STAFF RESULTS</b> -----	<b>198</b>
<b>9.1 POLICIES AND TRAINING</b> -----	<b>200</b>
9.1.1 POLICIES-----	200
9.1.2 TRAINING-----	200
<b>9.2 INFORMATION &amp; COMMUNICATION</b> -----	<b>201</b>
9.2.1 SHIFTS-----	202
9.2.2 JOB ALLOCATION AND INFORMATION-----	203
9.2.3 FLIGHT DIFFERENCES-----	204
<b>9.3 THE AIRPORT</b> -----	<b>205</b>
9.3.1 ASSISTING WITH BAGGAGE-----	205
9.3.2 THE ASSISTANCE BUGGY-----	206
9.3.3 THE CHECK-IN EXPERIENCE-----	206
9.3.4 THE SECURITY PROCESS EXPERIENCE-----	207
9.3.5 TRANSITIONING TO THE GATE-----	208
<b>9.4 BOARDING THE AIRCRAFT</b> -----	<b>209</b>
9.4.1 THE PROCESS OF BOARDING-----	209
9.4.2 MANUAL HANDLING-----	210
9.4.3 EQUIPMENT-----	210
9.4.4 SEATING-----	211
<b>9.5 DISEMBARKING THE AIRCRAFT</b> -----	<b>213</b>
9.5.1 THE PROCESS OF DISEMBARKATION-----	213
9.5.2 WHEELCHAIR ISSUES-----	213
<b>9.6 LEAVING THE AIRPORT</b> -----	<b>215</b>
9.6.1 IMMIGRATION AND BORDER CONTROL-----	215
9.6.2 THE BAGGAGE HALL-----	215
<b>9.7 DISABILITY DIFFERENCES</b> -----	<b>216</b>
<b>9.8 FOLLOW UP QUESTIONS</b> -----	<b>216</b>
9.8.1 FLYING USING A WHEELCHAIR AS A SEAT-----	216
9.8.2 RECOMMENDATIONS-----	217
<b>CHAPTER TEN – DISCUSSION</b> -----	<b>219</b>
<b>10.1 DIFFERENCES IN DISABILITY</b> -----	<b>219</b>
10.1.1 STAFF TRAINING-----	220
10.1.2 INFORMATION AND COMMUNICATION-----	222
<b>10.2 THE AIRPORT</b> -----	<b>226</b>
10.2.1 ARRIVING AT THE AIRPORT-----	226
10.2.2 LUGGAGE-----	226
10.2.3 CHECK-IN-----	227
10.2.4 SECURITY-----	228
10.2.5 AIRPORT AMENITIES-----	228
10.2.6 IMMIGRATION CONTROL-----	230
10.2.7 THE PHYSICAL AIRPORT-----	230
<b>10.3 THE AIRCRAFT</b> -----	<b>233</b>

10.3.1 BOARDING THE AIRCRAFT -----	233
10.3.2 MANUAL HANDLING AND EQUIPMENT -----	234
10.3.3 SEATING-----	237
10.3.4 ON BOARD SERVICES, THE TOILET AND PERSONAL CARE ISSUES -----	239
10.3.5 LANDING AND DISEMBARKING THE AIRCRAFT-----	241
10.3.6 WHEELCHAIR ISSUES -----	243
<b>CHAPTER ELEVEN – CONCLUSIONS -----</b>	<b>247</b>
<b>11.1 CONTRIBUTION TO THEORY AND KNOWLEDGE-----</b>	<b>247</b>
<b>11.2 WERE THE RESEARCH OBJECTIVES MET? -----</b>	<b>249</b>
<b>11.3 ANSWERING THE RESEARCH QUESTIONS-----</b>	<b>250</b>
11.3.1 SUMMARY ANSWERS TO THE RESEARCH QUESTIONS -----	252
<b>11.4 RECOMMENDATIONS FROM THE RESEARCH -----</b>	<b>263</b>
<b>11.5 IMPLICATIONS FOR POLICY AND PRACTICE -----</b>	<b>264</b>
11.5.1 INFORMATION -----	265
11.5.2 TRAINING -----	266
11.5.3 THE AIRPORT -----	266
11.5.4 THE AIRCRAFT -----	267
11.5.5 OTHER -----	268
<b>11.6 LIMITATIONS TO THE STUDY -----</b>	<b>269</b>
<b>11.7 FUTURE RESEARCH -----</b>	<b>270</b>
<b>11.8 FINAL CONCLUSION -----</b>	<b>272</b>
<b>REFERENCES-----</b>	<b>273</b>
<b>APPENDICES-----</b>	<b>296</b>
<b>Appendix A – An exploratory study of the experiences of wheelchair users as aircraft passengers – implications for policy and practice-----</b>	<b>296</b>
<b>Appendix B – Ethical approval to interview wheelchair users and those who travel with them -----</b>	<b>301</b>
<b>Appendix C – Ethical approval to interview cabin crew -----</b>	<b>303</b>
<b>Appendix D – Ethical approval to special assistance staff-----</b>	<b>304</b>
<b>Appendix E – Data protection registration email confirmation for wheelchair users and those who travel with them -----</b>	<b>306</b>
<b>Appendix F – Data protection registration email confirmation for cabin crew-----</b>	<b>307</b>
<b>Appendix G – Data protection registration email confirmation for special assistance staff ----</b>	<b>308</b>
<b>Appendix H – Information sheet for wheelchair users and those who travel with them -----</b>	<b>309</b>
<b>Appendix I – Information sheet for cabin crew-----</b>	<b>310</b>
<b>Appendix J – Information sheet for special assistance staff -----</b>	<b>311</b>
<b>Appendix K – Consent form for wheelchair users and those who travel with them -----</b>	<b>313</b>
<b>Appendix L – Consent form for cabin crew -----</b>	<b>314</b>
<b>Appendix M – Consent form for special assistance staff -----</b>	<b>315</b>
<b>Appendix N – Twitter advertisement to recruit wheelchair users and those who travel with them-----</b>	<b>316</b>

<b>Appendix O – A revised and answered topic guide from a participant who was unable to respond verbally-----</b>	<b>317</b>
<b>Appendix P – A full list of themes and sub-themes for wheelchair user participants -----</b>	<b>321</b>
<b>Appendix Q – A full list of themes and sub-themes for people who travel with wheelchair users’ participants-----</b>	<b>326</b>
<b>Appendix R – A full list of themes and sub-themes for cabin crew participants -----</b>	<b>331</b>
<b>Appendix S – A full list of themes and sub-themes for special assistance staff participants ----</b>	<b>334</b>
<b>Appendix T – A highlighted transcript from a participant-----</b>	<b>339</b>
<b>Appendix U – The Standards for Reporting Qualitative Research (SRQR) checklist -----</b>	<b>352</b>
<b>Appendix V – The Consolidated Criteria for Reporting Qualitative Studies (COREQ) checklist -</b>	<b>354</b>
<b>Appendix W – The experiences of parents with children with disabilities travelling on planes: An exploratory study -----</b>	<b>357</b>

## **TABLE OF FIGURES**

<i>Figure 2.1 – Aircraft Movement in the UK 2010 – 2018</i>	<i>28</i>
<i>Figure 2.2 – Passenger Numbers in UK Airports 2010 – 2018</i>	<i>29</i>
<i>Figure 2.3 – Civil Aviation Authority Disability Press Release 2018</i>	<i>30</i>
<i>Figure 2.4 – Mobility Related and Non-mobility Related PRM Codes Used at London Heathrow on Average Between 2016 and 2018</i>	<i>34</i>
<i>Figure 2.5 – Mobility Related PRM Codes Used at London Heathrow on Average Between 2016 and 2018</i>	<i>35</i>
<i>Figure 3.1 – The 15 Seating Positions Adopted by Passengers on a Long-Haul Flight</i>	<i>57</i>
<i>Figure 4.1 – Attributes for Importance and Satisfaction</i>	<i>76</i>
<i>Figure 5.1 – Formulating Questions for a Topic Guide</i>	<i>94</i>
<i>Figure 5.2 – Procedure for Disabled Passengers Using Air Transportation</i>	<i>96</i>
<i>Figure 5.3 – Coding Template for the Wheelchair User Research Group</i>	<i>121</i>
<i>Figure 10.1 – Thematic Map of Cabin Crew and Special Assistance Staff Training and Education</i>	<i>222</i>
<i>Figure 10.2 – Information Flow Diagram Used in The Air Travel Process</i>	<i>225</i>
<i>Figure 10.3 – Thematic Map of the Findings Associated with the Airport</i>	<i>232</i>
<i>Figure 10.4 – The Three Processes of Wheelchair Repatriation</i>	<i>244</i>
<i>Figure 10.5 – Issues Associated with The Aircraft</i>	<i>246</i>

## **TABLE OF TABLES**

<i>Table 2.1 – Passengers with Reduced Mobility Codes</i>	26
<i>Table 2.2 – UK Disability Prevalence</i>	27
<i>Table 2.3 – The Number of Passengers Assisted at London Heathrow Airport 2011 – 2018</i>	31
<i>Table 2.4 – Average Number of Passengers Assisted Per Day at London Heathrow Airport</i>	32
<i>Table 2.5 – IATA PRM Code Usage at London Heathrow Airport 2016 – 2018</i>	33
<i>Table 3.1 – Search Terms Used in the Literature Search</i>	37
<i>Table 3.2 – Reasons for Not Reading Research Papers Past the Abstract</i>	38
<i>Table 3.3 – Reasons for Not Using Research Papers in The Literature Review</i>	40
<i>Table 3.4 – The Eight Scenarios of Assessing the Force of Moving an Aisle Trolley</i>	54
<i>Table 4.1 – The Attributes of Air Travel</i>	74
<i>Table 4.2 – Factors of Importance</i>	75
<i>Table 4.3 – Factors of Satisfaction</i>	75
<i>Table 4.4 – The Attributes of Air Travel for Factor Loading</i>	78
<i>Table 4.5 – The Mean and Rank of Service Attributes of Air Travel</i>	81
<i>Table 4.6 – The Identification of Which Group of Participants Will Be Needed to Answer Each Research Question</i>	85
<i>Table 4.7 – Previous Methodologies Used in Critical Research from The Literature Review</i>	86
<i>Table 5.1 – Topics to Answer the Research Questions</i>	98
<i>Table 6.1 – Participant Characteristics of Wheelchair Users</i>	126
<i>Table 6.2 – Passengers with Mobility Related IATA PRM Codes</i>	127
<i>Table 7.1 – Participant Characteristics of People who Travel with Wheelchair Users</i>	159
<i>Table 8.1 – Participant Characteristics of Cabin Crew</i>	182
<i>Table 9.1 – Participant Characteristics of Special Assistance Staff</i>	199
<i>Table 11.1 – The Identification of Which Section Each Research Question Was Answered</i>	252

## **GLOSSARY OF TERMS**

**Air-Click** – a device used by the special assistance staff at airports to send and receive information about people with disabilities. It can also be used as a means of direct communication similar to a radio or telephone.

**Airport Buggy** – a buggy which can transport multiple people with disabilities around an airport terminal building.

**Aisle Trolley** – a piece of equipment used to transport people who cannot walk from the door of the aircraft to their seat. Designed to be small enough to fit down the aisle of any aircraft.

**Ambulift** – known as scissor lift. A means of transporting a person with a disability to the aircraft from the ground without having to climb stairs.

**Astrocytoma** – A type of brain tumour developed from astrocytes, which control the chemistry and framework of the brain (Brain Tumour UK, 2007).

**Attendant Propelled Wheelchair** – A type of wheelchair that is operated by someone else moving the wheelchair rather than the wheelchair user.

**Cabin Crew** – Members of staff who work on board the aircraft.

**Cerebral Palsy** – a lifelong condition that affects movement and co-ordination, caused by a problem with the brain that occurs before, during, or soon after birth (National Health Service, 2017a).

**Charcot-Marie-Tooth Type III** – A group of hereditary conditions that damage the peripheral nerves (National Health Service, 2016)

**Deep Vein Thrombosis** – a blood clot in a vein, usually the leg (National Health Service, 2019).

**Eagle Hoist** – A medical grade hoist designed to move a wheelchair user to their seat on-board the aircraft (Haycomp, 2016)

**Electric Wheelchair** – A type of wheelchair that is operated through an electric motor. The wheelchair user does not propel the wheels manually but operates the wheelchair independently through other means such a joystick.

**Global Development Delay** – an umbrella term used when children are significantly delayed in their cognitive and physical development (Mencap, 2020).

**International Air Transport Association (IATA)** – a trade association who represent the world’s airlines. They support, promote, and develop aviation activity and policies.

**Jet Bridge** – known as jetway. A corridor that connects the terminal building to the door of the aircraft.

**Long-Haul Flight** – In this thesis, this is a flight that lasts four or more hours.

**Manual Handling** – In this thesis, this is used as a term for when a person or persons helps physically move or lift a wheelchair user by various means.

**Manual Wheelchair** – A type of wheelchair that is self-propelled by the user.

**Motor Neurone Disease (MND)** – A condition that affects the brain and nervous system that causes weakness to the body over time (National Health Service, 2018a).

**Neuromuscular Disorder (NMD)** – a range of conditions that impair the functioning of the muscles (Royal College of Nursing, 2018).

**Oedemas** – a build-up of fluid in the ankles, feet and legs often caused by standing or sitting in the same position for too long (National Health Service, 2018b).



**People Who Travel with Wheelchair Users** – known as people who accompany wheelchair users. Referring to the spouses, parents, or professional carers of wheelchair users.

**People with Disabilities** – known as disabled people. An overarching description of people that have an impairment but are unspecified.

**People with Reduced Mobility** – An overarching description of people who have difficulty in moving around but not necessarily in a wheelchair.

**PRM Code** – known as IATA Code. Passengers with Reduced Mobility code derived from IATA.

**Roho Cushion** – A pressure relieving wheelchair cushion (Permobil, 2015a)

**Short-Haul Flight** – In this thesis, this is a flight that lasts less than four hours.

**Smart Drive** – is a lightweight power assist for manual wheelchairs that helps users without having to push (Permobil, 2015b).

**Special Assistance Staff** – Staff members who help wheelchair users and people with disabilities at the airport.

**Spina Bifida** – when a baby's spine and spinal cord don't develop properly in the womb (National Health Service, 2017b).

**Spinal Cord Injury** – Damage to the spinal cord that affects the communication between the brain and the body resulting in a loss of movement or sensation (Spinal Injuries Association, 2020)

**Spinal Muscular Atrophy** – a genetic condition that gets worse over time making the muscles weaker and causes problems with movement (National Health Service, 2017c).

**Staxi** – known as an airport wheelchair by the special assistance staff.

**Tomato Seat** – an adjustable seat to support children with disabilities (Bergeron, 2018)

**WCHC (Wheelchair Complete)** – known as ‘Charlie’. Passenger needs a wheelchair. (International Air Transport Association, 2017)

**WCHR (Wheelchair Ramp)** – known as ‘Romeo’. Passenger can use stairs but needs a wheelchair or other means of transport for longer distances. (International Air Transport Association, 2017)

**WCHS (Wheelchair Stair)** – known as ‘Sierra’. Passenger cannot use stairs and needs a wheelchair or other means of transport for longer distances. (International Air Transport Association, 2017)

**Wheelchair** – This term can be used interchangeably to describe any type of wheelchair that a user may utilise that are either attendant propelled, electric, or manual.

**Wheelchair Users** – People who use a wheelchair on a permanent basis.

## **CHAPTER ONE – INTRODUCTION**

This research was undertaken because of the personal experiences of the author who was involved in a serious road traffic accident. This resulted in a spinal cord injury (SCI), meaning the full time use of a wheelchair. The use of a wheelchair has had many impacts on daily life, but one of the most challenging was travelling by air. There was a need to understand whether other wheelchair users in the same situation had similar or different experiences. This chapter outlines the initial aims and objectives of this research following the successful completion of the author's Master of Research (MRes) degree.

The MRes degree included a small research project about the air travel experiences of wheelchair users. The author of this PhD and Professor Christie agreed that the research from the MRes degree was exploratory and the findings could be important for the future if they were expanded upon. The notable issues identified in the initial research was the boarding and disembarkation of the aircraft, accessing the toilet on board the aircraft, and problems concerning the communication and attitudes of airline and airport staff. There was a mixture of positive and negative experiences for wheelchair users when booking their trips, getting to and from the airport, moving their luggage, at check-in and security, and navigating the airport. The results from this study were published by the author of this PhD and Professor Christie in the International Association of Traffic and Safety Sciences (IATSS) research journal in an article entitled: 'An exploratory study of the experiences of wheelchair users as aircraft passengers – implications for policy and practice' (Davies and Christie, 2017) and can be read in Appendix A. The results from this paper are discussed in Chapter Three – Literature Review in further detail and its methodology in Chapter Four – Methodological Implications from the Literature Review.

### **1.1 INITIAL AIMS AND OBJECTIVES**

The overall aim of this PhD was to expand upon the findings from the MRes degree which showed that the notable issues involved the staff at the airport and on board the aircraft. Three primary groups of people were identified that will enhance the knowledge gained from the exploratory study:

- **Wheelchair users and the people who travel with them** – people who use a wheelchair on a permanent basis or those who travel in the same party as them which could include their families or carers.
- **Airline staff** – more commonly known as cabin crew or flight attendants.
- **Airport staff** – the special assistance staff that help people with disabilities through the flying process.

From the identification of these three groups of participants, six primary research objectives were established:

- 1) Collect more experiences and viewpoints of wheelchair users and from those who travel with them.
- 2) Collect and explore the experiences and viewpoints of cabin crew about their interaction with wheelchair users and special assistance staff.
- 3) Collect and explore the experiences and viewpoints of the special assistance staff who help wheelchair users through the airport and their interaction with the cabin crew.
- 4) Identify what the cabin crew and the special assistance staff are able to do in terms of helping wheelchair users.
- 5) Use the experiences and viewpoints collected to identify the similarities and differences in issues between the three groups of people.
- 6) Use the identified similarities and differences to propose improvements to the flying process for wheelchair users.

## **1.2 THESIS OUTLINE**

A description for each chapter within this thesis is outlined. This thesis is divided into twelve chapters, including this one:

### **Chapter Two – Background to the Research**

This chapter demonstrates and justifies the scope of this PhD by defining disability and its prevalence from global and national perspective. This was alongside United Kingdom (UK) aviation figures to show the potential number of wheelchair users who might fly.

### **Chapter Three – Literature Review**

This chapter explores the current knowledge and literature about the topic of disability and air travel. Firstly, the barriers and constraints to tourism for people with disabilities were explored. Secondly, the current literature on wheelchair users who use air travel, cabin crew who help people with reduced mobility on the aircraft, and special assistance staff who help people with disabilities are discussed. Finally, the research objectives and questions are formed from the gaps identified in the literature.

### **Chapter Four – Methodological Implications from the Literature Review**

This chapter outlines the methodologies used in the critical papers identified within the literature review that have previously focused on wheelchair users, cabin crew, or special assistance staff in relation to either wheelchair users, people with reduced mobility, or people with disabilities who have flown.

### **Chapter Five – Methodology**

This chapter discusses why semi-structured interviews were used to answer the research questions and what methodologies were considered but ultimately rejected. How the topic guide and questions for the semi-structured interviews were developed are shown. Ethical approval and a sample size for each group of participants was determined. How the participants were recruited and interviewed are outlined. A discussion of how the interviews were transcribed and analysed using template analysis and frequency counting is shown. To ensure the research was repeatable, reliable, and valid the methodology is checked against standards for reporting qualitative research.

### **Chapter Six – Wheelchair User Results**

This chapter shows the results obtained for the wheelchair user participants through semi-structured interviews that were analysed using template analysis.

### **Chapter Seven – People Who Travel with Wheelchair Users Results**

This chapter shows the results obtained for the people who travel with a wheelchair user through semi-structured interviews that were analysed using template analysis.

### **Chapter Eight – Cabin Crew Results**

This chapter shows the results obtained for the cabin crew participants through semi-structured interviews that were analysed using template analysis.

### **Chapter Nine – Special Assistance Staff Results**

This chapter shows the results obtained for the special assistance staff participants through semi-structured interviews that were analysed using template analysis.

### **Chapter Ten – Discussion**

This chapter draws together the findings from this research that are outlined in chapters seven, eight, nine, and ten with reference to the literature review in chapters three and four.

### **Chapter Eleven – Conclusions**

The conclusions clarify whether the research objectives were met and provide answers to the research questions. Implications for policy and practice that should be recommended to the aviation industry are offered. Limitations of this research, future research considerations, and final conclusions about this research are also presented.

## **CHAPTER TWO – BACKGROUND TO THE RESEARCH**

To justify the scope of this research beyond the personal experiences of the author of this PhD, the potential number of people this research may have an impact upon was explored. A history of the definition of disability was investigated to understand what it means. The prevalence rates of people with disabilities and aviation figures for the United Kingdom (UK) were examined to show the potential number of people with disabilities who may experience travelling by air.

### **2.1 DEFINITION OF DISABILITY**

The history of what is meant by disability can be traced back to the Universal Declaration on Human Rights (UDHR). This declaration was chartered by the United Nations (UN) in 1948 after it was formed as a global entity after the end of World War Two. In Article Two of the UDHR (United Nations, 1948) it states:

‘Everyone is entitled to all the rights and freedoms set forth in this Declaration, without distinction of any kind, such as race, colour, sex, language, religion, political or other opinion, national or social origin, property, birth or other status’  
(p.2)

This statement is 70 years old and has been superseded several times and so this definition of disability will not be used in this PhD. Specific rights to people with disabilities were not given by the UN until they chartered the Declaration on the Rights of the Disabled Person (DRDP) in 1975 (United Nations, 1975). The DRDP was superseded 31 years later by the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) (United Nations, 2006). The UNCRPD does not give a definitive definition of disability, but views it as a socially evolving concept where people of all disabilities are not equal in society to others (United Nations, 2006):

‘Disability is an evolving concept and that disability results from the interaction between persons with impairments and attitudinal and environmental barriers that hinders their full and effective participation in society on an equal basis with others’ (p.1)

The UNCRPD aims to protect the equality and inclusion of people with disabilities at an international policy level and has been signed by 163 member states and ratified by 96 of them<sup>1</sup> (United Nations, 2020). The UK parliament ratified this declaration on 8<sup>th</sup> June 2009. A notable absence is the United States of America (USA) who signed the declaration but failed to ratify it by six votes in the USA Senate (Helderman, 2012). The declarations and conventions have helped aid the development of disability legislation because they are idealised concepts, rather than strict definitions, on which countries should base their definitions. The fact that they are conceptual means they cannot be used in this PhD to define disability conclusively. Underpinning the UNCRPDs meaning and concept is the World Health Organisation (WHO) who measure health and disability through a framework known as the International Classification of Functioning, Disability and Health (ICF). Included in the framework is the following global definition of disability (World Health Organisation, 2011c):

‘Disability is the umbrella term for impairments, activity limitations and participation restrictions’ (p.28)

The three terms that cover this definition of disability cover a physical abnormality in the body (the impairment), how the body is affected (activity limitation), and what the body is affected from doing (participation restriction) (World Health Organisation, 2011c). Therefore, an example could be blindness, leading to loss of sight, and being restricted from bird watching. Fulfilling all three categories is not essential, just being part of one of the categories is enough to be defined as being ‘disabled’ under the framework. After the UK ratified the UNCRPD in June 2009 parliament passed the Equality Act 2010 into law which defined disability as (UK Parliament, 2010):

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<sup>1</sup> Signing is where a country agrees the declaration in principal and ratification is where a country accepts it according to its national procedures.



- ‘(1) A person (P) has a disability if—
- (a) P has a physical or mental impairment, and
  - (b) the impairment has a substantial and long-term adverse effect on P’s ability to carry out normal day-to-day activities.’ (p.4)

The definition does not say what ‘substantial’ is, but ‘long-term’ is described in the sub-text of the law (UK Parliament, 2010):

- ‘(1) The effect of an impairment is long-term if—
- (a) it has lasted for at least 12 months,
  - (b) it is likely to last for at least 12 months, or
  - (c) it is likely to last for the rest of the life of the person affected.’ (p.147)

Both of the definitions from the UNCRPD and the UK Equality Act 2010 are loose in the sense that they can be adapted as is needed, but fundamentally agree that an impairment is something wrong with the body that has an impact on what somebody is able to do. Impairments can vary greatly however, hence why a disability should be considered longer term and why the definitions could be considered interchangeable. For example, a person with a broken leg will fit into the WHO definition but not the UK definition as the leg will likely heal within 12 months. Both of these definitions shall be used interchangeably throughout this PhD to define what is meant by a person with a disability, with the following variations:

**People with disabilities/Disabled people** – An overarching description of people that have an impairment but are unspecified.

**People with reduced mobility** – An overarching description of people who have difficulty in moving around but not necessarily in a wheelchair.

**Wheelchair user** – A person who uses a wheelchair on a permanent basis.

The International Air Transport Association (IATA) assign a code to people with disabilities known in the aviation industry as Passengers with Reduced Mobility (PRM) codes

(International Air Transport Association, 2017). They are applicable globally and these codes and their descriptions can be seen in Table 2.1 below:

Code	Description
WCHR (Wheelchair Ramp)	Passenger can use stairs but needs a wheelchair or other means of transport for longer distances.
WCHS (Wheelchair Stair)	Passenger cannot use stairs and needs a wheelchair or other means of transport for longer distances.
WCHC (Wheelchair Complete)	Passenger needs a wheelchair.
Deaf	Passenger with hearing loss.
Blind	Passenger with vision loss.
Deaf/Blind	Passenger with hearing and vision loss.
DPNA	Disabled person needing assistance.

*Table 2.1 – Passengers with Reduced Mobility Codes from (International Air Transport Association, 2017)*

The definition of each code makes it easier for aviation staff to ascertain someone’s requirements. The nature of disabilities means that the variance in one category could be quite large. The code DPNA has been left ambiguous and so providing a service to an unknown disability could potentially cause difficulties.

## **2.2 PREVALENCE OF DISABILITY IN THE UK**

It was estimated by the WHO that one billion people have one or more disabilities, equating to just over 15% of the global population (World Health Organisation, 2011c) based on the definition of disability used by the ICF (World Health Organisation, 2011b). This data was an approximate value collected from the surveys and statistics of disability from 74 different countries, all of whom gave varying levels of detail (World Health Organisation, 2011b). The WHO estimated that 75 million people require a wheelchair, 970 million need glasses and 466 million suffer from hearing loss equating to one and a half billion people. This suggests that people can suffer one or more disability at a time (World Health Organisation, 2011a).

In the UK, data about disability is published by the Office for National Statistics (ONS) in the Family Resources Survey (FRS) on an annual basis. The FRS collects data from a number of

households selected at random and then uses the figures obtained to estimate the number of people with disabilities. The definition from the UK Equality Act 2010 was used for sampling purposes in the FRS. Table 2.2 shows the number of households interviewed in each FRS with the percentage of people with disabilities in that sample and the estimated population of people with disabilities in the UK since the Equality Act 2010 was enacted. The figures in the table are approximated and have been rounded to the nearest thousand, percentage or 0.1 million (Office for National Statistics, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019a, 2019b).

<b>Year</b>	<b>Households Interviewed</b>	<b>Percentage of people with disabilities</b>	<b>Estimated Population (millions)</b>
2010/11	25,000	19%	11.5
2011/12	20,000	19%	11.9
2012/13	20,000	19%	12.2
2013/14	20,000	19%	11.9
2014/15	20,000	20%	12.9
2015/16	19,000	21%	13.3
2016/17	19,000	22%	13.9
2017/18	19,000	21%	13.3

*Table 2.2 – UK Disability Prevalence*

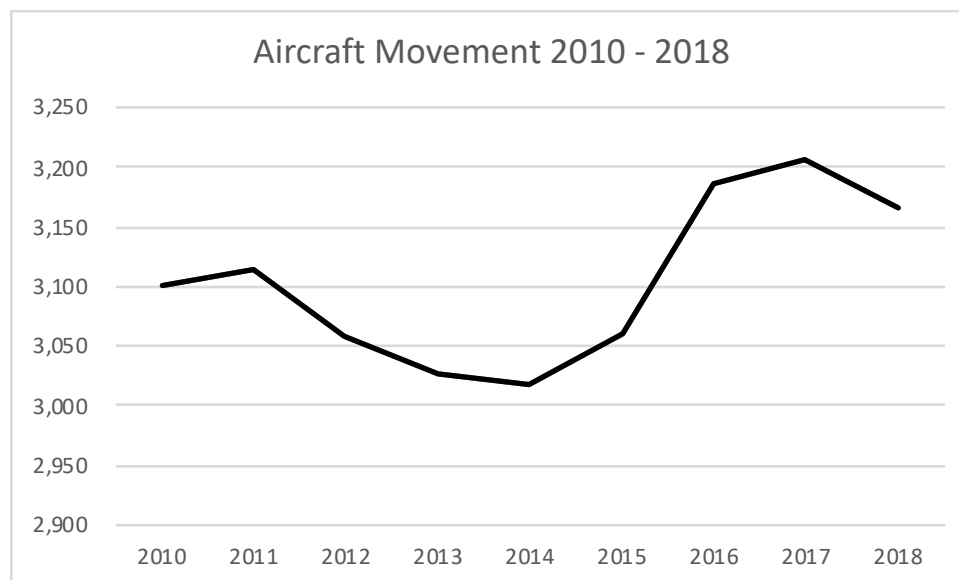
*from* (Office for National Statistics, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019a)

The drop in the number of households after 2010/11 was because the fieldwork was retendered as part of a cost saving exercise (Office for National Statistics, 2013). The numerical rounding had an effect on the figures, where in 2011/12 and in 2012/13 showed the same number of household interviews and percentage of people with disabilities, however the estimated figures for the total population who are thought to be disabled were different. The estimated figures obtained through a random sample of UK households shows that the incidence of disability is becoming more prevalent. The more recent surveys do not suggest why this is, but the 2013/14 report says that it is due to an ‘increasing population’ (Office for National Statistics, 2015:p.40). It is noteworthy that as the sample size has decreased, the population of people with disabilities has increased and so would these numbers be different had the same sample size been used? The FRS estimated that the

population of people with disabilities is one in five people, whereas the WHO estimated it as one in seven people.

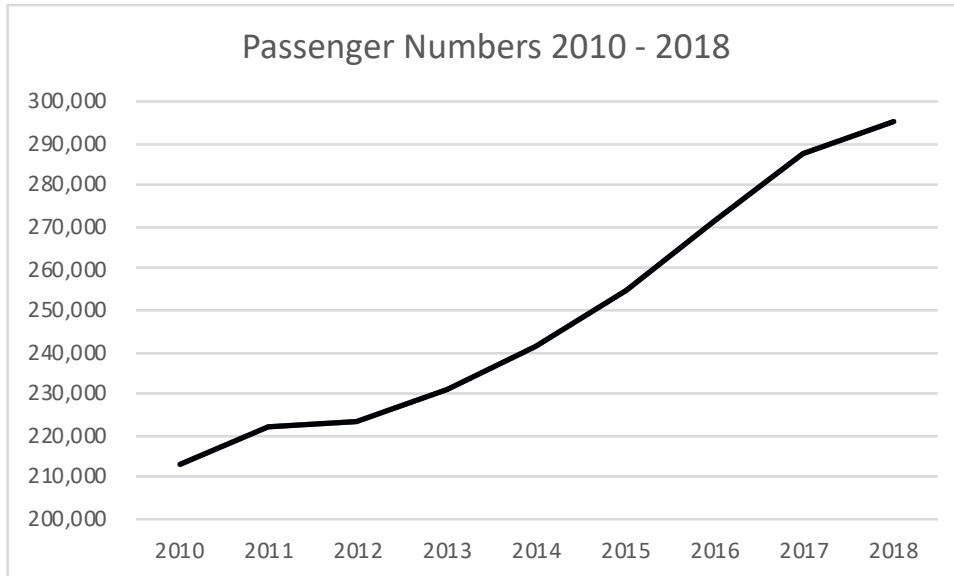
### **2.3 UK AVIATION FIGURES**

The Civil Aviation Authority (CAA) is the regulatory body for the UK aviation industry and is responsible for providing air traffic services. The CAA reports statistics of the number of aircraft and passengers who fly per year. The number of aircraft using UK airports is measured using the number of flights that take off and land per year, so a flight from London to Glasgow would count as two (one take-off, one landing). The number of flights per year can be seen in Figure 2.1, where the figures in the vertical axis are in thousands ('000).



*Figure 2.1 – Aircraft Movement in the UK 2010 – 2018  
from (Civil Aviation Authority, 2018)*

The number of aircraft taking off and landing over the last several years has fluctuated but remained relatively the same. Passenger numbers are counted either by them boarding an aircraft from the terminal, from a connecting flight, or from leaving the airport. Passengers using UK airports have increased dramatically over the same time period as seen in Figure 2.2 below, where the figures in the vertical axis are in thousands ('000).



*Figure 2.2 – Passenger Numbers in UK Airports 2010 – 2018  
from (Civil Aviation Authority, 2018b)*

The CAA does not publish detailed figures about the number of people who fly with a disability. A press release published in July 2018 on social media can be seen in Figure 2.3 (Civil Aviation Authority, 2018c). It reported that there were over three million requests for disability assistance at UK airports, a rise of 80% since 2010. The press release also reported that 83% of disabled passengers said they had a high level of satisfaction regarding the service. The press release was informative, but it was released by the CAA who will likely want to offer a positive representation of themselves. The sources of data are also undefined and so cannot be checked to verify their accuracy. It would also be unlikely that the CAA would have asked all people who received assistance about their level of satisfaction.



Figure 2.3 – Civil Aviation Authority Disability Press Release 2018  
from (Civil Aviation Authority, 2018c)

### **2.3.1 DISABILITY FIGURES AT LONDON HEATHROW AIRPORT**

The number of people using the assistance service at London Heathrow airport can be examined. The disability service provider at London Heathrow airport provided the author of this PhD with passenger assistance numbers since 2011 through personal communication. Passenger growth can be seen in Table 2.3. The number of passengers assisted are included in the total number of passengers who used London Heathrow airport. The figures in columns ‘Total passengers using London Heathrow airport’ and ‘Passengers assisted at London

Heathrow airport' are numerically as stated from the data source (Civil Aviation Authority 2018b; Service Provider One 2018, personal communication, 25<sup>th</sup> March 2019), and the growth figures were calculated by dividing a number for one year against its previous year:

Year	Total passengers using London Heathrow airport	Growth of the total number of passengers	Passengers assisted at London Heathrow airport	Growth of the assisted number of passengers
2011	69,391,000	-	889,510	-
2012	69,983,000	0.853%	901,215	1.316%
2013	72,367,000	3.407%	906,578	0.595%
2014	73,405,000	1.434%	985,759	8.734%
2015	74,985,000	2.152%	1,066,668	8.208%
2016	75,711,000	0.968%	1,150,489	7.858%
2017	78,012,000	3.039%	1,233,269	7.195%
2018	80,100,000	2.677%	1,460,703	18.442%
<b>Total</b>	-	<b>14.530%</b>	-	<b>52.348%</b>

*Table 2.3 – The Number of Passengers Assisted at London Heathrow Airport 2011 – 2018 from (Civil Aviation Authority 2018b; Service Provider One 2018, personal communication, 25<sup>th</sup> March 2019)*

The growth rate amongst the number of passengers being assisted is outstripping that of the total number of passengers at London Heathrow airport. The total growth of nearly 11 million passengers being assisted since 2011 is considerable as Terminal 2 at London Heathrow airport was closed for redevelopment from 2009 – 2014 and Terminal 1 closed in 2015 for the same reason (LHR Airports Ltd, 2019). To further illustrate the growth amongst the number of passengers that Service Provider One assisted over the course of this time, Table 2.4 shows the average number of passengers assisted per day and the growth year on year. The numbers were calculated by dividing the passengers assisted number by 365 or 366 for 2012 and 2016 as they were leap years:

Year	Average number of passengers assisted per day	Number of additional passengers assisted compared to the previous year
2011	2,437	-
2012	2,462	25
2013	2,484	21
2014	2,701	217
2015	2,922	222
2016	3,143	221
2017	3,377	234
2018	4,002	625
<b>Total</b>	-	1,565

*Table 2.4 – Average Number of Passengers Assisted Per Day at London Heathrow Airport from (Civil Aviation Authority, 2018b; Service Provider One, 2018: personal communication, 25<sup>th</sup> March 2019)*

The figures indicated that around 4,000 people with disabilities on average are being assisted per day. A total of 1,565 more people with disabilities are being assisted per day on average compared to 2011. It would be interesting to see if Service Provider One had employed staff at the same rate to keep up with demand and adjusted their operational approach but unfortunately this information was confidential.

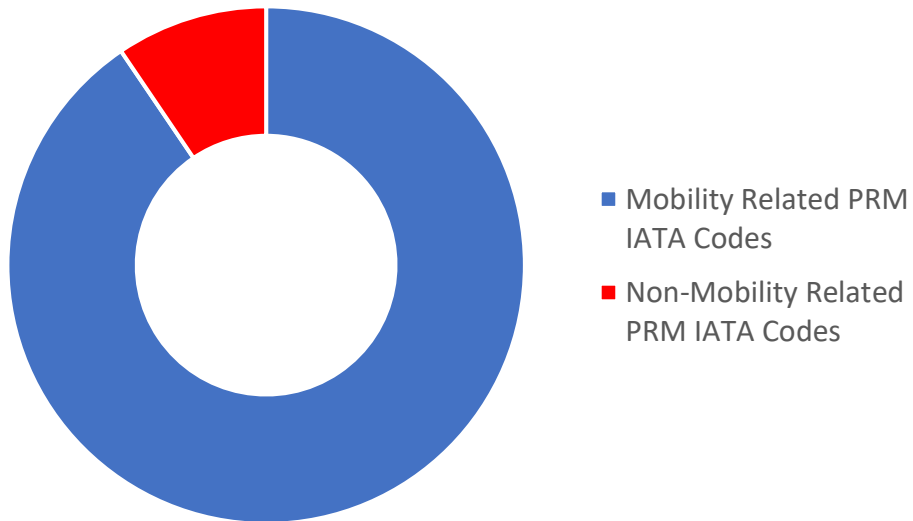
The number of people being assisted can be broken down by IATA PRM code and can be seen in Table 2.5. These figures are from 2016 to 2018 and were given to the author of this PhD by their contact at Service Provider One. Service Provider One used their own code 'Other' in addition to the other IATA PRM codes.



<b>IATA Code</b>	<b>2016</b>	<b>Percentage of 2016 Total</b>	<b>2017</b>	<b>Percentage of 2017 Total</b>	<b>2018</b>	<b>Percentage of 2018 Total</b>
WCHR	723,848	62.92%	769,457	62.39%	942,265	64.51%
WCHS	216,789	18.84%	256,621	20.81%	314,666	21.54%
WCHC	80,107	6.96%	101,901	8.26%	74,258	5.08%
DEAF	5,521	0.48%	5,991	0.49%	9,424	0.65%
BLIND	6,686	0.58%	6,960	0.56%	10,261	0.70%
DPNA	2,774	0.24%	3,243	0.26%	6,530	0.45%
OTHER	114,764	9.98%	89,096	7.22%	103,299	7.07%
<b>Total</b>	<b>1,150,489</b>	<b>-</b>	<b>1,233,269</b>	<b>-</b>	<b>1,460,703</b>	<b>-</b>

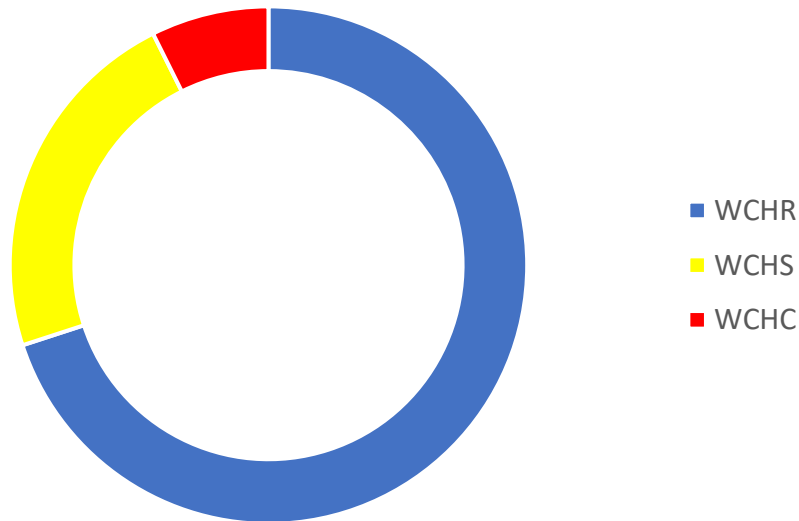
*Table 2.5 – IATA PRM Code Usage at London Heathrow Airport 2016 – 2018  
from (Service Provider One, 2018: personal communication, 25<sup>th</sup> March 2019)*

The use of the extra code ‘Other’ will likely make the data inaccurate to a degree, but the figures expressed as percentages give an impression of consistency that shows the number of passengers being assigned to each PRM code. There was no clear reason for the use of the ‘Other’ code, especially when it could be considered that the ‘DPNA’ (disabled person needing assistance) code is where people with other or unknown disabilities should be categorised. The ‘Deaf/Blind’ code was also not used by Service Provider One and so it is unknown where these people were categorised. The majority of people with disabilities, around 91% on average between 2016 and 2018, who travelled through London Heathrow airport were categorised as having a disability related to mobility issues (WCHR, WCHS, WCHC). This is visualised as a doughnut pie chart in Figure 2.4 (Service Provider One 2018: personal communication, 25<sup>th</sup> March 2019).



*Figure 2.4 – Mobility Related and Non-mobility Related PRM Codes Used at London Heathrow on Average Between 2016 and 2018 from Service Provider One (2018: personal communication, 25th March 2019).*

On average between 2016 and 2018, 7.49% of people with reduced mobility were categorised in to the WCHC category, 22.54% into the WCHS category, and 69.97% into the WCHR category. This is visualised as a doughnut pie chart in Figure 2.5.



*Figure 2.5 – Mobility Related PRM Codes Used at London Heathrow on Average Between 2016 and 2018 from Service Provider One (2018: personal communication, 25th March 2019).*

## **2.4 BACKGROUND SUMMARY**

The focus of this PhD is about people who use a wheelchair on a permanent basis. Therefore, people who take part in this research will need to fit into the ‘WCHC’ PRM code. Nearly all of the figures highlighted in the background to this research have risen since the inception of the Equality Act 2010. It is difficult to assess how many extra people were classed as being disabled as a result of the enactment of the Equality Act 2010 and is beyond the scope of this PhD to answer to this.

The examination of figures at London Heathrow airport provided by Service Provider One in Tables 2.3, 2.4, and 2.5 showed that more people with disabilities are being helped than ever before. These figures only focus on London Heathrow airport however the press release about disability by the CAA and the rise in overall passenger numbers suggest that other UK airports are very likely experiencing similar rises in assistance figures. This evidence justifies the need to investigate and characterise the experiences of wheelchair users, airline staff and airport staff as a result of this increase in wheelchair users choosing to fly.

## **CHAPTER THREE – LITERATURE REVIEW**

The literature review discusses the background to wheelchair users travel by air and will not focus on other means of transport. In 2018, staff at London Heathrow airport helped nearly one and a half million passengers with disabilities who required assistance (Service Provider One, 2018: personal communication, 25<sup>th</sup> March 2019). It would be speculative to try to guess how many people are helped on a global scale, but a likely answer of many millions would not be unreasonable.

This topic has its roots in research that explored the barriers and constraints to travel and tourism that people with disabilities encountered. Specific research exploring wheelchair users who use flying as a means of travel is discussed to identify what is currently known on the subject and to identify the gaps in knowledge. This is supported by exploring previous research into how staff have helped people with disabilities, people with reduced mobility, and wheelchair users on board the aircraft and around the airport.

### **3.1 LITERATURE SEARCH**

This literature review started by using the Web of Science search engine, searching the ‘Core Collection’ (Clarivate Analytics, 2019). Web of Science was chosen as the main search index because it has a robust catalogue of material available from 1900 to present day, allows for searches to be saved and shows article citation activity. It also has a user-friendly search interface that is straightforward and uncomplicated. As the focus of this PhD is about understanding wheelchair user’s experiences of flying, these were the terms that were targeted. Variations of the words flying, wheelchair, and disability were used to increase the number of search results and the \* was used in database searching to find any characters that come after it. The results can be seen in Table 3.1:

TOPIC	OPERATOR	TOPIC	RESULTS
AIR TRAVEL	AND	WHEELCHAIR	9
AIR TRAVEL	AND	WHEEL CHAIR	1
AIR TRAVEL	AND	WHEEL-CHAIR	1
AIR TRAVEL	AND	DISABILITY	37
AIR TRAVEL	AND	MOBILITY IMPAIR*	11
FLIGHT	AND	WHEELCHAIR	17
FLIGHT	AND	WHEEL CHAIR	1
FLIGHT	AND	WHEEL-CHAIR	1
FLIGHT	AND	DISABILITY	188
FLIGHT	AND	MOBILITY IMPAIR*	36
FLYING	AND	WHEELCHAIR	18
FLYING	AND	WHEEL CHAIR	1
FLYING	AND	WHEEL-CHAIR	3
FLYING	AND	DISABILITY	178
FLYING	AND	MOBILITY IMPAIR*	25
TOTAL			527

*Table 3.1 – Search Terms Used in the Literature Search*

This initial search produced 527 results, although after importing them into the Mendeley reference manager software, which removed duplicates automatically, 457 papers were left to be analysed. The titles were read initially to discount any papers that were not or did not look relevant to the topic at hand, of which 307 were discarded because the title did not fit the brief. A common example of this was the study of disabilities in drosophila (fruit flies) or paralysis from venoms. The remaining 150 abstracts were read and 119 of them were dismissed at this point for varying reasons as seen in Table 3.2:

Reason	Number	Description
Ageing Research	19	Research exploring elderly people
Aircraft Maintenance Research	1	Research exploring the planning and time taken to repair aircraft
Biomedical Research	7	Exploration of new mobility aids where the technology is focused on the person such as a wheelchair that allows the user to kneel.
Biophysical Research	15	Research on the bodies of people such as pilots who work on helicopters or eject from aircraft

Communication Research	1	Examined the effects of speech between pilots over the radio
Computer Science Research	3	Explored text converting to images for the visually impaired
Conceptual/Technology Research	1	Exoskeleton research
Conference Report	1	The advancement of assistive and rehabilitation technology in Japan
Education Research	1	A literature review of the ICF as an educational tool
Environmental Research	7	Research into carbon emissions and green initiatives in transport
Laboratory Research	3	Research involving flight simulators and virtual reality
Medical Research	23	Research involving medical specific research such as decompression sickness, arthritis and tumours
Other Air Transportation Research	1	An analysis of aircraft turnaround time based on varying factors
Other Disability Research	12	Research into people with disabilities in other environments that are not transport related
Other Research	6	Research not elsewhere identified such as how pilots are assessed
Paper Unavailable	1	Volume and Issue could not be found in journals back catalogue
Quantitative Research	1	Research that studies passenger movement at airports to optimize resource allocation
Safety Research	2	Research investigating helicopters operating over water and contact lenses for military aircrew
Technology Research	8	Exploration of new mobility aids where the technology is focused on the wheelchair such as a wheelchair that can climb stairs.
Transport Research	3	Research exploring bus services and impact of walking in cities
Wayfinding Research	3	Navigation research for people with disabilities

*Table 3.2 – Reasons for Not Reading Research Papers Past the Abstract*

This left a total of 31 papers that were identified to be read. Three were not read for the following reasons: written in a foreign language, German, despite the abstract being in English (Enck *et al.*, 1995); one was a conference paper from ten years ago, the authors were emailed

twice but did not respond (Liu and Zhang, 2009); and one was from a journal that no longer exists, released in 1993, a copy of which could not be obtained (Flynn *et al.*, 1993), however the study matter was on airline staff who suffered from alcoholism and their return to work after treatment. The remaining 28 were read, with 18 being used within the literature review. The other 10 papers were rejected for the following reasons: Two were wayfinding research that used tablet computers to help guide people with visual impairment but focused on the technology and not the person (Darvishy *et al.*, 2008; Liu and Sanford, 2017); a magazine article (Eales and Peers, 2018); an assessment to see whether a paraplegic man could fly in a supersonic fighter jet (Chahal-Kummen *et al.*, 2016); a focus on young disabled people outside their home environment that made no mention of air travel (Gibson *et al.*, 2017); one analysed the computer code on airline reservation websites to see if they complied with American disability legislation (Gutierrez, Loucopoulos and Reinsch, 2005); an earlier version of another paper that was accepted into the literature review (Tan, Chen and Rauterberg, 2009); an examination of those who need medical clearance to fly at short notice (Jorge *et al.*, 2005); the axiomatic design of an airport for optimal passenger movement and flow; (Arcidiacono, Giorgetti and Pugliese, 2015); and the flying experiences of obese people (Poria and Beal, 2017).

The papers were read carefully, and where a reference within a paper appeared to be relevant, interesting, or the need for more information was needed, it was highlighted. The reference was then searched for on Web of Science or the UCL library where the reference was extracted, and the paper obtained. A further 73 papers were identified through this method, where 40 of them have been included in this literature review. Table 3.3 shows the remaining 33 papers that were rejected for the following reasons:

Reason	Number	Description
Ageing Research	1	Research exploring elderly people
Language Barrier	1	Paper was in Portuguese
Manual Handling Research	4	Research related to the manual handling on non-human objects or the biomechanics of the person performing manual handling
Medical Research	1	Research involving cardiovascular measurements of wheelchair users
Not A Research Article	1	An infographic from the World Health Organisation
Other Disability Research	4	Research into people with disabilities in other environments that are not transport related
Other Research	4	Research not relevant to the topic being explored
Paper Concerning Disability Methodology	2	Papers relating to the methodology concerning disabled people, used in methodology
Paper Unavailable	2	Papers are not online because they are both from the 1980's
Unobtainable Conference Paper	3	Conference papers that do not exist online anymore as the conferences are from 1994 (1) and 2007 (2)
Unread	10	Books that haven't been read because there are only physical copies

*Table 3.3 – Reasons for Not Using Research Papers in The Literature Review*

### **3.2 THEORETICAL MODELS OF DISABILITY**

Many of the previous research background or literature review sections refer to two models of how disability is thought of in theory. As seen in 2.1 *DEFINITION OF DISABILITY*, disabilities are an impairment of the individual whether physical or mental. Barnes (1997) offered the opinion that there is a deep seated psychological fear of impairment because they are considered abnormal and people fear the unknown. Some impairments can be treated in the most basic sense where society will attempt to cure or fix the individual to return them to normality (Parsons and Turner, 1991). This methodology is known as the Medical Model of Disability.

Sociological and political development saw a change in the way disability was thought of, where society disables the individual through not adapting the surroundings to overcome the impairment (Goffman, 1968; Scott, 1969; Miller and Gwynne, 1974; Finkelstein, 1980; Oliver,



1990b). This methodology of thinking was developed by disabled people themselves and disability organisations who wanted to be treated evenly and fairly in society and to have control over their lives (Hunt, 1966; Union of the Physically Impaired Against Segregation, 1975). Oliver (1983) eventually coined this methodology of thinking as 'The Social Model of Disability'. The definition of this is where any individual can be disabled by any means such as the physical environment, cultural differences, political differences, and economic constraints (Oliver, 1990a; Goodley, 2001; Shakespeare and Watson, 2001).

### **3.3 TRAVEL AND TOURISM FOR PEOPLE WITH DISABILITIES**

Much of the early research into wheelchair users who fly can be found in the subject area of travel and tourism for people with disabilities. This research found several constraints or barriers that people with disabilities faced that reduced their participation in a leisure or tourist activity.

#### **3.3.1 CONSTRAINTS AND BARRIERS OF TRAVEL AND TOURISM**

Constraints were 'viewed as factors that preclude or reduce an individual's frequency, rate or satisfaction as a participant in an activity' (McGuire, 1984) as cited by (Turco, Stumbo and Garncarz, 1998:p.79). Crawford and Godbey (1987) identified constraints that people in general have whilst experiencing tourism: a lack of information, interaction with other people, architectural limitations, financial constraints, transportation, time, or a limit of what one can do. This research was not directly aimed at people with disabilities however and research that did focus on people with disabilities used the term barrier instead, despite having many similarities to constraints. No definition of the term barrier existed in the literature that was read, although they offered scope for being self-explanatory.

Several pieces of research identified specific barriers, which were given definitions. The barriers identified are all named slightly differently, however all of them identify problems associated with the physical environment, information and communication difficulties, infrastructure problems such as time and transport issues, and economic barriers.

Smith (1987) identified: 'Environmental Barriers' (p.381) – physical or social barriers associated with leisure activities, which may include architectural, ecological, transport, attitudes or legislative barriers; 'Intrinsic Barriers' (p.379) – those associated with a disability, impacting on the participation or enjoyment of leisure through a lack of knowledge, health problems, social ineffectiveness and physical and psychological dependency; and 'Interactive Barriers' (p.383) – communication difficulties and skill-challenge incongruities involving the disability within environmental conditions.

Murray and Sproats (1990) identified three barriers: 'Physical Barriers' (p.11) – buildings and facilities that are inaccessible for people with disabilities; 'Economic Barriers' (p.10) – transport and accommodation costs; and 'Attitudinal Barriers' (p.12) – a lack of information or poor attitudes from tourism managers or from other tourists.

Gladwell and Bedini (2004) identified: 'Physical Obstacles' (p.690) – covering the physical time and space within an environment; 'Social Obstacles' (p.690) – a lack of resources relating to disability such as a lack of access to support and finances; and 'Emotional Obstacles' (p.691) – adjustments that include fear of loss, freedom or spontaneity.

Similar barriers were found to exist within the research of wheelchair users everyday lives: 'Internal Barriers' (Meyers *et al.*, 2002:p.144) – barriers linked to the self, such as illness or fitness; 'Interpersonal Barriers' (Meyers *et al.*, 2002:p.144) – the attitudes of others; and 'Environmental Barriers' (Meyers *et al.*, 2002:p.144) – those relating to the shortcomings of the physical surroundings (Meyers *et al.*, 2002).

### **3.3.2 PHYSICAL BARRIERS**

The physical problems associated with tourism and travel have attempted to be addressed through the introduction of legislation such as the Americans with Disabilities Act 1991 (US Government, 1991) and the UK Equality Act 2010 (UK Parliament, 2010). These laws were introduced to ensure that the design of new buildings and infrastructure are accessible for all. Smith (1987) described physical barriers as being more than just 'manmade obstacles' (p.382) and can extend to anything that is obstructive such as the weather and the natural environment including desert and water. Matthews and Vujakovic (1995) additionally found

in their study of mapping for wheelchair users, that physical barriers can include high kerbs, inclines with no point to stop and uneven surfaces such as cobbles. Murray and Sproats (1990) described the features that a facility has as being irrelevant if someone is unable to access it independently. It may seem an obvious conclusion that some places are harder to get to than others for people with disabilities, as Jo et al. (2004) found in their telephone survey (N = 25,254) that families who had a member with a disability participated less in outdoor activities, but participated more in certain indoor activities such as casino gaming. Those with mobility related disabilities wanted more access to remote tourism and would participate if the physical barriers were not there or adjusted for purpose (Packer, McKercher and Yau, 2007; Lovelock, 2010). Overcoming structural and physical barriers was vital for people with reduced mobility although by doing this, it creates a greater focus on other barriers people with disabilities face (Marston and Golledge, 2003).

The designers of buildings and the professionals involved in accessibility planning were found to have a 'professionals know best' (Imrie and Kumar, 1998:p.370) attitude and often ignored the opinions and advice of people with disabilities in council and planning meetings (Imrie and Kumar, 1998). Official access groups at the local authority level were found to be a method for people with disabilities to contribute to overcoming barriers, however had no real authority or power and their advice can be ignored (Imrie, 1997, 1999). Access groups were found to often only be consulted on one off projects rather than being engaged to produce change to a wider environment (Imrie, 1999). Architects, surveyors, and property developers were asked about accessibility through a postal survey (Imrie and Hall, 2001). They noted that accessibility was often included in the development of new buildings, but the building regulations had little bearing when buildings were being refurbished, particularly historic or listed buildings (Imrie and Hall, 2001). Commercial buildings were found to be difficult to put accessible elements in as larger toilets, wider corridors, lifts etc. could have a significant effect on the profit margins for property developers (Imrie and Hall, 2001).

The concept of Universal Design is a method of overcoming some of the barriers to tourism. Using this concept will not only help people with disabilities, but able bodied people too such as older people or parents who push children in prams (Bringa, Lund and Ringard, 2008). Initially developed by Ronald Mace in 1985, the concept has evolved and been defined in the

United Nations (2006) Convention on the Rights of Persons with Disabilities (UNCRPD), important global disability legislation as:

“Universal design” means the design of products, environments, programmes and services to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design. “Universal design” shall not exclude assistive devices for particular groups of persons with disabilities where this is needed.’ (p.28)

Darcy, Cameron and Pegg (2010) made the case that Universal Design should be used by the tourism industry to help plan, devise, and develop their services. This was highlighted through a case study of one tourism business who developed their site using the principle of Universal Design. The case study included an analysis of the businesses management information system, an access audit, semi-structured interviews with the owners and their staff, and observational research of the business in operation. The overall occupancy rates of the business increased year on year, as did the growth of disability occupancy which increased from 4% to 18% in the space of five years. The owners were surprised at this information and found that people with disabilities tended to travel with other people, which helped the business maximise their occupancy rates. Furthermore the excellent accessibility by this business meant that people with disabilities used their facilities on more than one occasion and had recommended it to their compatriots as an excellent place to stay. The case study revealed that the accessible provisions provided around 20% of their revenue each year. The limitation to the case study was that it only focused on one business, but did showcase that the accessible tourism market existed and could be tapped into successfully.

### **3.3.3 MARKET OPPORTUNITY FOR THE TRAVEL AND TOURISM INDUSTRY**

Cavinato and Cuckovich (1992) identified three methods that disabled travellers used to book their trips. Going directly through a travel agent was the first method but there was often a lack of information about accessibility. Specialist tour operators were the second method and addressed the majority of issues regular tour operators had but could be expensive as well as the freedom of choice and timings being limited (Cavinato and Cuckovich, 1992; McKercher *et al.*, 2003). Eichhorn *et al.* (2008) supported these findings in a survey of 43 European

accessible tour operators where the information supplied by them was more reliable than a traditional tour operator. The business structure of the tourism industry could be a barrier for people with disabilities where retailers, such as travel agents, sell tour operators package holidays using a high volume, low profit margin business model (McKercher *et al.*, 2003). McKercher *et al.* (2003) found that package holidays can be restrictive to people with disabilities in that they offer little to no flexibility but where changes could be made, travel retailers often charged an additional fee, which may make the trip unaffordable. The final method by Cavinato and Cuckovich (1992) was for a disabled person to arrange their own trip. The advantage of this method was that all aspects of the trip could be controlled, however the drawback was that information was hard to come by and not widely available, although the research was conducted before the internet was more commonplace in domestic environments.

People with disabilities represent a gap in the market for travel and tourism companies. Shaw and Coles (2004) thought that this market was not one big segment covering all disabilities but was made up of many small segments that are disability specific. Disabled people were found to travel less primarily because of financial implications in addition to other factors such as unsuitable accommodation, transport problems, or the holiday being of poor quality and unsuitable (Shaw and Coles, 2004; Shaw, Veitch and Coles, 2005; Huh and Singh, 2007). Other research also found that it was more expensive if they needed a personal assistant to travel with them (Darcy, 2004; Var *et al.*, 2011). Murray and Sproats (1990) found that tourism companies do not allow people with disabilities to take advantage of special offers because of these barriers. Traditional means of transport such as buses and trains are often inaccessible for people with reduced mobility and left the traveller with a choice of using their own vehicle or airlines which were accessible but expensive (Murray and Sproats, 1990). Cheaper forms of accommodation also presented economic barriers as they tend not to cater for people with disabilities, however well-established upper-class hotels that do cater for people with disabilities are often cost prohibitive (Murray and Sproats, 1990; Yau, McKercher and Packer, 2004). Other issues concerning hotel accommodation were identified: rooms were too cluttered with furniture, having an inappropriate bathroom for a wheelchair user, or difficulty in reserving a room altogether (Turco, Stumbo and Garncarz, 1998). Bruns (1998) cited in Burnett and Baker (2001) claimed that revenues in the hotel and hospitality industry

had increased on average by 12% since the implementation of the Americans with Disabilities Act 1991. The noted increase in revenue has made the tourism industry focus on accessibility because of the market potential disabled consumers have to offer (Shaw and Coles, 2004). Var *et al.* (2011) found that 76.2% of 336 participants said they needed to travel with assistance and preferred help from their families and relatives. Gladwell and Bedini (2004) found that whilst family members themselves preferred to help their own, it came at the expense of social and emotional obstacles.

One study showed that the travel and tourism industry were better equipped to cater for people with mobility related impairments than other disabilities as 39 of 43 specialist tour operators provided direct advice for wheelchair users in comparison to the visually impaired (25), hearing impaired (23) and hidden disabilities (0) (Eichhorn *et al.*, 2008). Takeda and Card (2002) studied tour operators in the USA who offered specialist package tours to people who had difficulty walking. They used a postal survey of 173 travel agencies of which 70 were returned but only 40 met the parameters set and were used in the research. Accessibility and attitudinal barriers of four sectors were asked about in the survey: transport, eating-drinking establishments, accommodation, and attractions. Tour operators reported that eating-drinking establishments had the greatest amount of accessibility (80%) and attitudinal (63.6%) barriers. Transport accessibility barriers included air travel (60.6%), ships (69.2%), buses and coaches (80.0%) and, trains (69.2%). Attitudinal issues in transportation were reported by 50% of the participants. Although the response rate was low and that the study had a narrow focus (specialist package tours to people who had difficulty walking), physical accessibility problems were reported more than attitudinal ones.

#### **3.3.4 TRAVEL DECISION MAKING FOR PEOPLE WITH DISABILITIES**

Early research suggested that people with disabilities would have the same experiences of travelling as an able bodied person (Woodside and Etzel, 1980), however Burnett and Baker (2001) found that the more severely someone is disabled, the more careful they are about their decision making for travel and tourism. It was noted that everyone has a set of different disabilities and personalities that dictated the decision making process (Cavinato and Cuckovich, 1992; Burnett and Baker, 2001).

McKercher *et al.* (2003) used semi-structured interviews and focus groups in Hong Kong and discovered that people with disabilities preferred to organise their own trips. Results from two separate surveys of tourists which included a mixture of able bodied people and people with disabilities revealed that word of mouth, travel guides and the internet were the most important sources of information whilst planning a trip (Ray and Ryder, 2003; Huh and Singh, 2007). Jo *et al.* (2004) found that just 40% of their sample of families who had a member with a disability (N = 985) used the internet to plan their trips. People with disabilities spent more time pre-planning their trips than able bodied people to verify the information they had as it was often found to be inaccurate (Yau, McKercher and Packer, 2004; Packer, McKercher and Yau, 2007).

The dissemination of information through the internet has become a vital tool (Eichhorn *et al.*, 2008) where in the span of 19 years since Cavinato and Cuckovich (1992) carried out their research, all 596 participants who had mobility issues in Turkey, answered an online questionnaire about their travel behaviour (Var *et al.*, 2011). Var *et al.* (2011) found that those aged between 26 and 35 took the greatest number of average trips per year and Blichfeldt and Nicolaisen (2011) suggested that the more active someone is, the more motivated they are to take a trip. Disability associations were seen as a crucial source of information that can speed up the decision-making process (Packer, McKercher and Yau, 2007; Blichfeldt and Nicolaisen, 2011). The availability of information through the internet has been considered to be advantageous. However, Eichhorn *et al.* (2008) noted that the higher volume of information has caused contradictions due to different writers and has subsequently caused confusion for people with disabilities when making travel decisions.

### **3.3.5 ATTITUDINAL BARRIERS TO TOURISM**

The attitude of others towards people with disabilities was identified as a potential barrier to travel and tourism (Smith, 1987; Murray and Sproats, 1990) and can be the most difficult barrier a disabled tourist can face (Gladwell and Bedini, 2004; Packer, McKercher and Yau, 2007). Smith (1987) reported that people with disabilities experienced feelings of being isolated, whilst West (1984) cited in Smith (1987) found people with disabilities experienced teasing and a lack of respect from able bodied people. Murray and Sproats (1990) found that staff members in the tourism industry treated disabled people well, but often lacked

knowledge and relevant information about how to help them. McKercher *et al.* (2003) found a wide variation between the attitudes of staff, even amongst those working for the same travel agency. Poor attitudes were found to stem from feelings of discomfort towards people with disabilities, a lack of being in their presence, and a general lack of knowledge about what they might or might not be able to do (McKercher *et al.*, 2003). A lack of knowledge can have an impact on disabled people such as tour operators arranging early meeting times and not realising it can take several hours to get ready (McKercher *et al.*, 2003; Gladwell and Bedini, 2004). It has been found that the more severely a person was disabled, the more negatively they were treated (Miles, 2000; Bi, Card and Cole, 2007). Negativity and knowledge can be improved through disability awareness training (McKercher *et al.*, 2003; Daruwalla and Darcy, 2005), with significant improvements made in both areas after the delivery of training (Daruwalla and Darcy, 2005). Attitudes towards disabled people can also be improved through exposure to them and simulation exercises (McKercher *et al.*, 2003).

### **3.3.6 SUMMARY OF THE CONSTRAINTS AND BARRIERS TO TOURISM**

The constraints and barriers identified in this section relate back to the social model of disability. The constraints and barriers are physical, or resource based and do not consider fixing the impairment of someone who is disabled as per the medical model of disability. There is very little someone with a disability can do to overcome some of the constraints and barriers presented above. People with disabilities prefer to return to what is known or recommended by their peers and the tourism industry can capitalise from this as demonstrated by Darcy, Cameron and Pegg (2010).

### **3.4 FLYING WITH A DISABILITY**

A search of the current literature found ten pieces of research that were directly associated to the topic of people with disabilities who use air travel. They are considered to be critical to the objectives and scope of this research. Five pieces of research directly focused on capturing the experiences of wheelchair users and flying (Darcy, 2004; Poria, Reichel and Brandt, 2010; Darcy, 2012; Saari, 2015; Davies and Christie, 2017). Two papers sought to establish which attributes related to travelling by air with a mobility issue were most important to them (Chang and Chen, 2011, 2012b), whilst other research by Chang and Chen (2012a) collected



the experiences and views of airline, airport, and government staff about people with mobility issues who fly through a selection of attributes. Flight attendants discussed their experiences of helping people with mobility issues (Wang and Cole, 2014). McCarthy (2011) interviewed airport personnel directly responsible for helping people with disabilities. The methodologies of these papers are discussed in *4.1 METHODOLOGIES OF CRITICAL PAPERS*.

These ten critical papers portray flying with a disability or as a wheelchair user as a difficult but manageable experience. There are several crossover points in terms of the results from each paper with ten themes that emerged from them to form a discussion. The results of these papers are discussed below with other relevant literature to support or disagree with the theme. Seven of the themes cover the physical nature of flying: the airport and its amenities, boarding and disembarking – processes, boarding and disembarking – manual handling, seating, the toilet and personal care issues, wheelchair issues, and services on board the aircraft. A further three themes concerning non-physical issues were identified: preparing for a flight, information and communication, and service provision.

#### **3.4.1 PREPARING FOR A FLIGHT**

Wheelchair users tended to take great care in the decision making process when booking a trip (Cavinato and Cuckovich, 1992; Burnett and Baker, 2001), with even more attention to detail and evaluation of the destination being made if it is known to be inaccessible (Ray and Ryder, 2003). The choice of flight could be influenced because of the perceived accessibility of ground transport and hotels (Turco, Stumbo and Garncarz, 1998; Saari, 2015), as well as taking several shorter flights because of the need to use the toilet or not wanting to sit in the airline seat for too long (Poria, Reichel and Brandt, 2010). There was a preference for wheelchair users to arrange all facets of their trip so they had the knowledge of what to expect from their trip (Cavinato and Cuckovich, 1992; Saari, 2015). Heracleous, Wirtz and Johnston (2004) found that customers, in general, tended to compare their current experience directly to their most recent experience which made it important for airlines to get their customer service experience correct.

Chang and Chen (2012) found that people with disabilities were unsure what they could ask the disability service at the airport or the airline reservation staff before taking a trip, which

included seat selection and whether they could request wheelchair services. McCarthy (2011) found that as much information given by travel agents and people with disabilities to the airport staff beforehand allowed them to provide the best service possible. McCarthy (2011) linked the idea of a person with a disability having a better experience if they communicated their requirements effectively, were patient, flexible, and turned up on time.

Even after purchasing their ticket, Darcy (2012) found that people with disabilities were required to inform the airlines about their medical condition that made wheelchair users feel segregated and as if they were being 'interrogated' (p.95). The length of time to make a reservation was criticised as it was believed that the reservation staff may not have the appropriate knowledge about the regulations and the time it took for them to gauge the level of independence a disabled person may have (Chang and Chen, 2012a; Darcy, 2012). People with disabilities may also be refused to fly based upon the staff perception of their abilities (Darcy, 2012). Wheelchair users often travelled with a companion or personal assistant (Poria, Reichel and Brandt, 2010) and when they did, they were required to pay for two tickets which left a feeling of inequality (Darcy, 2004, 2012; Saari, 2015). People with disabilities were also found to be willing to spend more money for a better service (Poria, Reichel and Brandt, 2010).

#### **3.4.2 THE AIRPORT AND AMENITIES**

Ormond (2015) observed a woman travelling for medical reasons in Indonesia. As she was moving around very slowly, her partner was described as being 'laden with hand luggage' (Ormond, 2015:p.297). An interesting question from this observation is how do wheelchair users move their luggage around if they are dependent on their hands and arms for moving their wheelchairs?

Disabled passengers who required assistance at the airport by the ground staff reported that they sometimes had to wait a lengthy amount of time in queues at check-in or at security which meant they missed out on the opportunity of shopping in duty free (Chang and Chen, 2012a, 2012b). Shopping inside modern buildings was found to be an easy experience for wheelchair users however narrow aisles, poor placement of stock, high shelving, and changing rooms caused difficulties (Quick, 1999; Bromley, Matthews and Thomas, 2007).

Chang and Chen (2012a) asked what airport facilities for disabled people were complained about to airport staff in Taiwan. Seven attributes of the airport were complained about with the most complained about issue being the distance between the car park and the terminal building. Barrier free lifts, restaurants, disabled toilets, ramps, the waiting area at the boarding gate, and slippery floors were all other aspects that were complained about.

### **3.4.3 BOARDING AND DISEMBARKING**

Boarding and disembarking can be divided into two distinct areas based upon the results from the research: the processes of boarding and the manual handling involved during it.

#### **PROCESS**

The time it takes able bodied people to board and disembark aircraft has increased steadily over time (Van Landeghem and Beuselinck, 2002; Nyquist and Mcfadden, 2008). The main cause of this was people stowing their carry-on luggage in overhead lockers which may or may not be near their seat (Van Landeghem and Beuselinck, 2002). Seat congestion where someone sat on the aisle seat must get up and move to let others in, and aisle congestion where people are relocating to a different row entirely were other causes that increased the boarding and disembarking time (Van Landeghem and Beuselinck, 2002). Wheelchair users were still a preferred target audience to board the aircraft first because their wheelchairs needed to be stowed in the hold because they were too big for overhead lockers (Nyquist and Mcfadden, 2008). However, observational research by Van Landeghem and Beuselinck (2002) said that this does not always happen.

The idea that wheelchair users were boarded first and taken off last was considered to be advantageous by participants in previous research (Darcy, 2004, 2012; Poria, Reichel and Brandt, 2010; Davies and Christie, 2017). Boarding first allowed wheelchair users extra time to get comfortable without experiencing the pressure of people queuing behind them (Darcy, 2004; Poria, Reichel and Brandt, 2010). Boarding first also allowed privacy from being stared at by others to protect their dignity and to reduce the amount of embarrassment and humiliation that might be experienced (Darcy, 2004, 2012; Davies and Christie, 2017). Moving the aisle trolley along the narrow aisle on board the aircraft and moving a wheelchair user to

their seat meant an easier process for the staff performing manual handling (Darcy, 2004, 2012; Poria, Reichel and Brandt, 2010). When wheelchair users were boarded last, it led to having to ask other passengers to move out of the way or from their seats, the staff having to rush the manual handling procedure, and left them feeling embarrassed and humiliated by being stared at by other passengers (Darcy, 2012; Saari, 2015; Davies and Christie, 2017).

Disembarkation for wheelchair users often meant that they were last to leave the aircraft and could be waiting for much longer than other passengers (Darcy, 2012). The length of this wait led to nervousness and anxiety about what might have happened to their wheelchair or being on the aircraft whilst it was being cleaned (Davies and Christie, 2017). Poria, Reichel and Brandt (2010) found wheelchair users had an advantage in leaving the aircraft last because of the time and space available. Saari (2015) did not discuss the process of disembarkation.

### **MANUAL HANDLING**

The physical nature of boarding had negative connotations for wheelchair users. The aisles being small on aircraft meant that standard wheelchairs do not fit and so an aisle trolley had to be used. The width of aisles on board the aircraft can also cause injury to people with disabilities, in addition to the staff finding it difficult to navigate (Darcy, 2004). Poria, Reichel and Brandt (2010) found that participants reported that the aisle trolley was very uncomfortable as did Darcy (2012) and Davies and Christie (2017) both of whom described it as being very small. Saari (2015) found that the aisle trolley was not always available when required and that it caused participants to either be delayed or miss their flight entirely. An alternative to physical manual handling was to use an Eagle Hoist as suggested by Davies and Christie (2017) to reduce the effort needed by the staff. However, Darcy (2012) mentioned that some people have found it 'to be a humiliating experience akin to being treated like a sack of potatoes' (Paine, 2005) as cited in Darcy (2012:p.96) and that this piece of equipment required significant training for the staff.

Poor manual handling by the staff has been described as a negative issue which led to physical pain and negative medical implications for some participants in previous research (Poria, Reichel and Brandt, 2010; Darcy, 2012; Saari, 2015; Davies and Christie, 2017). Some

participants reported that poor manual handling caused the reopening of pressure sores resulting in pain throughout the flight and had an impact on their vacations (Poria, Reichel and Brandt, 2010). The worry of injury being inflicted where participants cannot feel pain was also reported (Davies and Christie, 2017). Several reasons were given as to why injury could occur. The staff were criticised, with either them not being familiar with the manual handling procedures (Darcy, 2004; Poria, Reichel and Brandt, 2010), being unfamiliar with a wheelchair user's needs (Saari, 2015), having communication issues with the wheelchair users (Darcy, 2012; Saari, 2015; Davies and Christie, 2017), or being described as being physically weak or mismatched to manually handle the wheelchair user (McCarthy, 2011; Saari, 2015). Darcy (2004; 2012) offered the explanation that at major airports a dedicated team of people were available to help carry out manual handling, however at regional airports this role did not exist and so was carried out by staff in other roles who may not have had disability training. The need for boarding first was also emphasised when entry to the aircraft was not via a jet bridge but by an ambulift (Poria, Reichel and Brandt, 2010). When neither was available, participants reported being physically carried up the aircraft stairs (Saari, 2015).

Operating an attendant propelled wheelchair or aisle trolley can be difficult. The risk of injury through the wheelchair user falling is increased during a transfer, as is the strain on the back of the person helping with the transfer (Abel and Frank, 1991). Holloway *et al.* (2015) attempted to find out whether the force required to move an aisle trolley was exceeded in a laboratory setting. The maximum forces allowed by the UK Health and Safety Executive (HSE) were 150 Newtons for women and 200 Newtons for men when pushing, pulling, or turning a wheelchair on a flat surface (HSE, 2008). A convenience sample of ten participants, five males and five females, aged between 18 and 27 took part, however only six of them had experienced pushing a wheelchair. Holloway *et al.* (2015) used a total of eight scenarios. Two simulations were used, one where tape was applied to the floor and another that used a real model of an aircraft vestibule with a ramp, angled at 20 degrees up to the door which was 18cm off the ground. Two weights were used to try and simulate the distribution of body parts, light (94.5kg) and heavy (119.2kg) that included the weight of the aisle trolley (21.2kg). Two movements were tested, going backwards and forwards. Table 3.4 shows the outcome of the eight scenarios used:

Scenario	Simulation	Chair Weight	Movement	Guideline Force Exceeded?
1	Real model	Light	Forwards	Yes
2	Real model	Light	Backwards	Yes
3	Real model	Heavy	Forwards	Yes
4	Real model	Heavy	Backwards	Yes
5	Tape on floor	Light	Forwards	Yes (Female), No (Male)
6	Tape on floor	Light	Backwards	Yes (Female), No (Male)
7	Tape on floor	Heavy	Forwards	Yes
8	Tape on floor	Heavy	Backwards	Yes

*Table 3.4 – The Eight Scenarios of Assessing the Force of Moving an Aisle Trolley  
from Holloway et al. (2015)*

It was found that two of the eight scenarios were within the HSE limits for force, but only for male participants. Female participants exceeded the HSE maximum force in every scenario. There were potential issues with the methodology and the participants used. The weights used for the aisle trolley could have interfered with the results as the arms, legs and head were not fully simulated. A person using these to balance or counterbalance could help the individual pushing and pulling at certain moments. Going backwards up a ramp to a height of 18cm could also be considered dangerous in the real world as people with a low sense of balance or muscle strength may not be able to hold themselves in the chair and could fall forwards or be ejected from the chair completely (Petzäll, 1996). Holloway *et al.* (2015) do not explain why a convenience sample was used and as a limitation describe that a learning effect could have developed as participants were allowed to practice before doing the scenario. Other studies that involved manual handling used participants who were experienced and accustomed to manual handling (Petzäll, 1996; Ciriello, Mcgorry and Martin, 2001; Haslam *et al.*, 2002). Moving the aisle trolley can be difficult for those moving it when navigating over carpet (Abel and Frank, 1991) or over lips and kerbs (Petzäll, 1996).

The process of boarding has established that boarding first was favourable for wheelchair users because there was more space and time. The disembarkation was less established as a process with very little in the description of what happened and requires further exploration. The physicality of manual handling involved the staff as they are required to move wheelchair

users of all capabilities but none of the research has sought to find out the views and opinions of the staff in this regard.

#### **3.4.4 SEATING**

Seating was a major cause for concern that was present across the research and was the third least satisfactory attribute in the study by Chang and Chen (2011). The overall design of seating on board aircraft is designed with safety in mind and not the comfort of the passenger (Brundrett, 2001). Despite seating being designed with safety in mind, Rögglä, Moser and Rögglä (1999) studied whether people could fully adopt the brace position. Only two of 18 people could adopt the brace position fully, both of whom were the shortest participants.

The allocation of seating was seen as a contentious issue in the research. Poria, Reichel and Brandt (2010) found that participants preferred a seat at the front of the plane where there is more leg room. However, there was some doubt over this as Darcy (2012) made it clear that wheelchair users were not allowed in these seats due to them being near or in the way of the emergency exits. This was reinforced by data evidenced in Saari (2015) where one participant stated that he was not allowed a front row seat and another wanted a greater choice of being able to choose their seat. Flight attendants reported that people with mobility issues often requested to sit in seats that were more spacious and comfortable and near the bathroom however, wheelchair users became frustrated with flight attendants if the flight was full and they could not accommodate their request to sit in their choice of seat (Wang and Cole, 2014). A preference on whether to sit in a window seat or an aisle seat was also evident. Poria, Reichel and Brandt (2010) suggested that wheelchair users specifically prefer window seats to minimise contact with other passengers, whereas Davies and Christie (2017) found evidence that wheelchair users disliked the window seat because the additional manual handling caused pain. Saari (2015) found that wheelchair users also disliked the window seat as it made accessing the toilet extremely difficult, in addition to knowing that in an emergency situation they would be the last to be evacuated (Darcy, 2004). A final sense of need from the participants was for wheelchair users to use their own wheelchairs as the seat (Darcy, 2012; Saari, 2015).

Armrests being able to move was identified as important. The potential exposure to injury was found if a wheelchair user needed to be lifted over an armrest (Wehman *et al.*, 1999; Darcy, 2004; Poria, Reichel and Brandt, 2010; Wang and Cole, 2014; Davies and Christie, 2017). It was also perceived as an occupational health hazard for the staff performing the manual handling (Darcy, 2012). Kipp and Pavol (2008) measured the forces of 25 pairs of people who had to lift an anthropomorphic dummy weighing 78kg over armrests in laboratory conditions in a mock aircraft setting. Four different transfers were used: Control (armrest up), armrest (lowered), board and slide, and sling. The person at the rear of the transfer (behind the dummy) was found to exert more effort in the control transfer when lifting, slightly less when using a sliding board or the armrest was lowered and least when using a transfer sling.

People with disabilities can also have difficulties during the flight because they may not be able to reach the service call button on the ceiling or find using the buttons for the in-flight entertainment difficult (Morgado *et al.*, 2016).

Tan *et al.* (2009) used observational research that examined the posture of 15 able bodied passengers (seven male, eight female) on a long-haul flight. Seven different postures were identified, although Tan *et al.* (2009) did not specify what they were. Instead, 15 different seating positions were identified and can be seen in Figure 3.1:



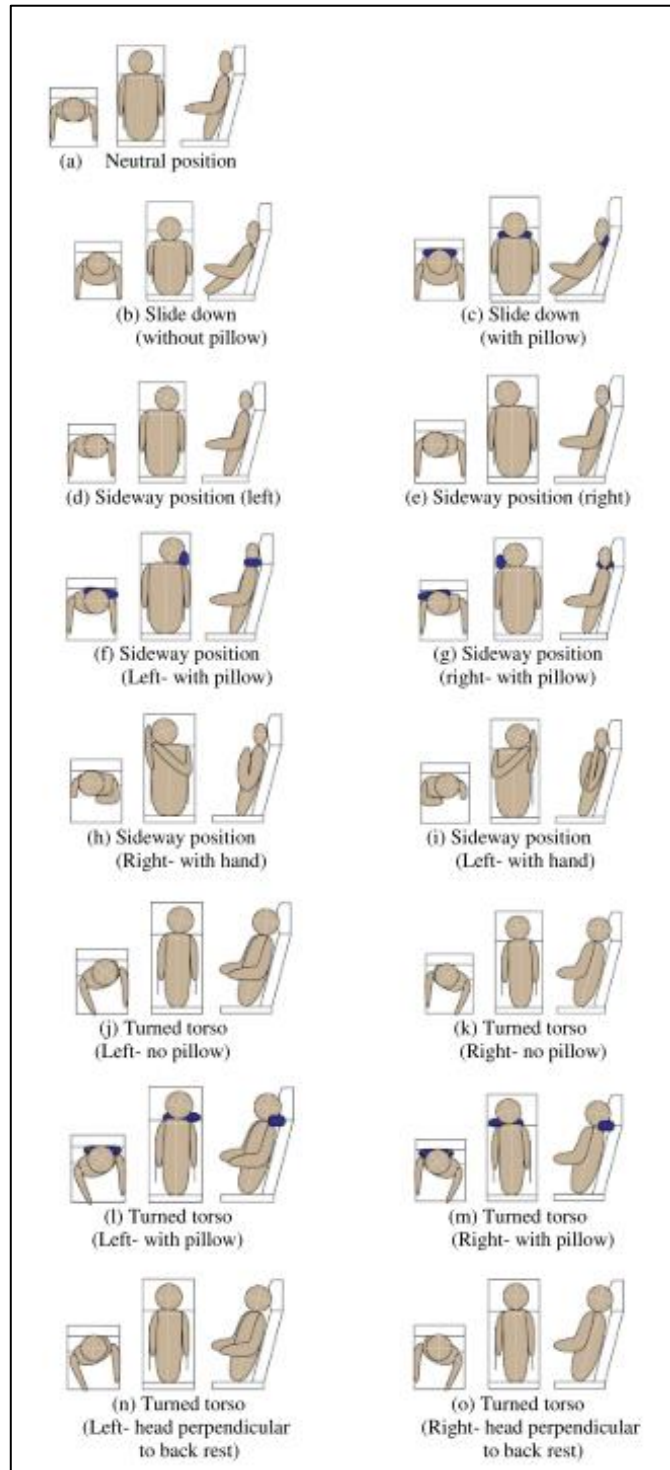


Figure 3.1 – The 15 Seating Positions Adopted by Passengers on a Long-Haul Flight  
from Tan et al. (2009:)

Participants found the turned torso with the head perpendicular to the backrest was the most comfortable position, letters ‘n’ and ‘o’ (Tan et al., 2009:p.68) in Figure 3.1. The results

suggested that people adjusted their posture and position constantly to avoid discomfort (Tan *et al.*, 2009). It not known whether these results would apply to wheelchair users as they may not be able to or want to adjust their position.

Darcy (2004) found that people who were unable to maintain upper body balance required the use of chest belts or harnesses. These would have benefitted participants in research by Davies and Christie (2017) who had to brace themselves hard on the seat in front to prevent injury during landing. A harness would also have minimised the reported physical restraint from people travelling with wheelchair users in Davies and Christie (2017).

Brundrett (2001) found that roughly a quarter of all aircraft had a seat width of less than 17 inches (42cm) and a seat pitch of between 30 and 34 inches (76-84cm) in economy class sections. These cramped conditions can cause discomfort, impede blood circulation and combined with sitting for long periods (applicable to wheelchair users) increases the risk of oedemas and deep vein thrombosis (Brundrett, 2001). It was recommended that oedemas and deep vein thrombosis can be prevented by taking periodic walks, sitting in bigger seats, doing exercises, and maintaining hydration (Bettes and McKenas, 1999).

Davies and Christie (2017) explored whether a business class seat would be a better option if the cost factor could be ignored. The answer was positively received because of the space and seat adjustment, but the limited amount of data collected means that more research is needed for this to be better understood.

#### **3.4.5 TOILET AND PERSONAL CARE ISSUES**

Accessing the toilet onboard the aircraft was found to be difficult. Research suggested that even reaching the toilet itself was felt to be an impossibility (Gladwell and Bedini, 2004; Saari, 2015; Davies and Christie, 2017). There were two methods for reaching the toilet. The first was to be physically carried by whomever was accompanying the wheelchair user which led to embarrassment, humiliation and physical pain (Poria, Reichel and Brandt, 2010; Darcy, 2012). The second method of accessing the toilet was to use the on-board aisle trolley, with the need for cabin crew to aid them to an appropriate cubicle (Darcy 2004; Chang and Chen, 2012b, 2012a). The cabin crew pushed the aisle trolley as it had no means of self-propulsion

for wheelchair users (Darcy, 2012). Transferring onto the on-board aisle trolley was not always seen as straight forward and could involve the use of slide boards, slide sheets, and harnesses (Darcy, 2012). Wang and Cole (2014) found that helping people to the toilet was neither easy nor difficult. Staff reported that they had to 'be really careful' (Wang and Cole, 2014: p. 1247) when helping a wheelchair user transfer to the on-board aisle trolley, and that they could only assist people of the same gender in the toilet. The physical dimensions of the toilet cubicle on board the aircraft was reported as being too small for a wheelchair to get into, even when using the on-board aisle trolley (Poria, Reichel and Brandt, 2010; Darcy, 2012; Saari, 2015; Davies and Christie, 2017).

In order to avoid going to the toilet participants said that they employed strategies to avoid going to the toilet altogether (Darcy 2004; Yau, McKercher and Packer, 2004; Poria, Reichel and Brandt, 2010; Chang and Chen, 2012b, 2012a; Darcy, 2012; Saari, 2015; Davies and Christie, 2017). These strategies included fasting in advance of a flight (Yau, McKercher and Packer, 2004; Poria, Reichel and Brandt, 2010; Saari, 2015; Davies and Christie, 2017), not drinking and risking dehydration and other complications (Darcy 2004; Yau, McKercher and Packer, 2004; Darcy, 2012; Saari, 2015), taking medication (Saari, 2015), using catheters (Poria, Reichel and Brandt, 2010; Davies and Christie, 2017), or wearing incontinence underwear (Poria, Reichel and Brandt, 2010).

Accidental urination and defecation were discussed as being humiliating for wheelchair users due to other passengers staring and the smell involved. The staff did not often have enough equipment such as wipes to deal with such an incident although wheelchair users reported that they often brought these items in their personal luggage (Poria, Reichel and Brandt, 2010). The fear of urination and defecation also influenced the choice of flight a wheelchair user could take, with some opting just to take very short flights or splitting what would be a longer flight into several shorter ones (Poria, Reichel and Brandt, 2010; Darcy, 2012).

The distance between the seat and the toilet was the attribute with the lowest satisfaction score in the study by Chang and Chen (2011) and the on-board toilet itself the second lowest. Chang and Chen (2012a) also found the on-board toilet was the most complained about factor

on board an aircraft, with the space inside the on-board toilet was the second most complained about factor, and the distance from seat to cubicle was ranked fourth.

Accessing the toilet was found to be very difficult by wheelchair users, however the cabin crew may have seen more instances of how wheelchair users access the toilet but only one study on them exists at present with an arguably narrow demographic of participants. The physical design of toilets on board aircraft was considered as a topic to explore but is ultimately outside of the main objective of this PhD. This was because the legislation concerning disabled toilets are different depending on the country and the business and economic decisions of an airline who choose different aircraft specifications.

#### **3.4.6 WHEELCHAIR ISSUES**

The repatriation of a wheelchair to the wheelchair user was found to be an important theme because it allowed them to regain their independence (Darcy, 2012; Saari, 2015; Davies and Christie, 2017). Equipment beyond the wheelchair such as oxygen tanks were also considered to be a loss of bodily function and therefore disabling (Darcy, 2012). Saari (2015) and Davies and Christie (2017) showed that repatriation took place at the aircraft door or in the baggage hall but participants favoured the aircraft door.

Damage to or complete loss of wheelchairs was a major cause of concern and had a big impact on participants trips (Yau, McKercher and Packer, 2004; Saari, 2015), sometimes ending it altogether as a replacement wheelchair was not available at the destination (Darcy, 2012). This included insurance claim discrepancies between the cost of a wheelchair (estimated around \$10,000) and what is actually allowed to be claimed by a wheelchair user (\$1,600) but the article does not say in what currency this is and under which legislation (Darcy, 2004; 2012). The loss of a wheelchair also removed wheelchair users' independence and gave them a loss of dignity (Darcy, 2012). It sometimes placed them in embarrassing situations such as 'a paraplegic man having to crawl off an aircraft' (Paine, 2005) as cited in Darcy (2012: p.97).

Chang and Chen (2011) measured the importance and satisfaction of twenty attributes concerned with air travel for people with reduced mobility two of which were 'wheelchair services' and 'the consignment and retrieval of wheelchairs' (p.1215). The attribute for

wheelchair services does not come with a definition. Wheelchair services was rated as being above average in terms of satisfaction and just below average for importance. The participants scored the attributes evenly for satisfaction however the consignment and retrieval of wheelchairs scored significantly higher in terms of importance and was considered to be the third most important attribute in the research.

People with mobility issues were asked to rate the importance of a different set of 20 attributes in Chang and Chen (2012b). 'I care about the way that the airline consigns and retrieves the wheelchair' (p.45) had an average score of 4.16 and was ranked 11<sup>th</sup> when comparing the mean score for all the attributes and 22% of the participants wanted 'to see an improvement in services related to "consigning and retrieving the wheelchair and baggage"'(p.45).

These findings disagree with each other because the consignment and retrieval of wheelchairs was rated as being very important in Chang and Chen (2011) but then was only ranked 11<sup>th</sup> out of 20 in Chang and Chen (2012b). Just over one fifth of the participants wanted to see an improvement related to this area in Chang and Chen (2012b) despite its high importance and mediocre satisfaction score in Chang and Chen (2011). Neither piece of research focused solely on wheelchair users and so the wide range of mobility issues makes the results difficult to assess and they could be different if they had narrowed their range of participants (Chang and Chen, 2011, 2012b). More research is needed surrounding this area because of the potential negative consequences for wheelchair users and the disagreement between the studies.

#### **3.4.7 INFORMATION AND COMMUNICATION**

The information not being available at the check-in counter was a source of frustration for people with reduced mobility as they had to repeat themselves (Chang and Chen, 2012a). Communication between staff and wheelchair user influenced the flight experience with Davies and Christie (2017) finding staff being described as polite and friendly but often not having enough knowledge to fully help. Saari (2015) found that some participants got treated positively because of their disabilities, being allowed to skip queues and use private transport. However, there were also incidents where members of staff treated wheelchair users

inappropriately such as speaking to them in a slow and loud manner (Poria, Reichel and Brandt, 2010), speaking to the families of wheelchair users instead of them as if they were not there (Saari, 2015), and referring to wheelchair users colloquially in the third person describing them as 'carry-ons' (Darcy, 2012:p.97) loudly to other staff members, leaving the wheelchair user feeling humiliated (Darcy, 2004). Some staff were also critical of the amount of luggage and equipment wheelchair users had whilst travelling (Darcy, 2004).

A breakdown in communication between the airport staff and the cabin crew trying to locate wheelchairs led to long waiting times to disembark the aircraft (McCarthy, 2011; Darcy, 2012; Davies and Christie, 2017). One participant cited a wait of 'three hours' (Darcy 2012:p.98) to disembark the aircraft because of poor communication. Staff participants reported that the radios used to communicate with each other varied in quality, with some being new or others being so old they did not work correctly all the time, leading to miscommunication (McCarthy, 2011).

#### **3.4.8 SERVICE PROVISION**

The background of the research into flying with a disability stemmed from travel and tourism research and focused on the role of the staff (Darcy 2004; Poria, Reichel and Brandt, 2010; Darcy, 2012; Wang and Cole, 2014; Saari, 2015). Wang and Cole (2014) identified that it was not always easy to help people with mobility impairments due to the differing nature of disability. Airport staff who assisted people with disabilities enjoyed helping them, taking great satisfaction from knowing they had helped someone and humanising what can be a difficult experience (McCarthy, 2011). Participants further elaborated that sometimes they thought they might hurt people who appeared frail, and that it can be a hard job when helping people with communication issues (McCarthy, 2011). Some staff participants reported that at times people with disabilities were found to be hard to assist by being rude, impatient, verbally abusing the staff, being intoxicated, or by having poor personal hygiene (McCarthy, 2011).

Staff reported that people with reduced mobility felt they were assisted in boarding the aircraft very satisfactorily and rated their own attitudes towards disabled people as being exemplary (Chang and Chen, 2012a). There could be an element of doubt to this finding

because the staff were the participants and might not have wanted to report that they had been complained about in the questionnaire or people with disabilities may not have told them what they thought truthfully. Chang and Chen (2012b) also found that 39% of participants said they would like to see an improvement in the service provided by support staff. McCarthy (2011) found an issue where the airport staff arrived to assist people with disabilities without the correct equipment, which made them feel embarrassed.

Participants in Wang and Cole (2014) expressed a need to provide an individualised service for people with mobility issues. This included whether to assist them with their food, offering emotional support and reassurance if they were nervous fliers, and providing privacy for them if they had to use the toilet in their seat by screening them off from other passengers. Providing this level of individual service was not possible unless the staff had accurate information and communicated effectively. Additional disability awareness training was recommended to ensure effective communication (McCarthy, 2011; Wang and Cole, 2014). McCarthy (2011) found that airport staff had all received different levels of training depending on whether participants were employed by the airport, airline, or contracted in. Some airport staff relied on 'on the job' (McCarthy, 2011:p.2615) training and participants wanted to have annual refresher training (McCarthy, 2011). However, it was mandatory for cabin crew to have annual training so they retained their eligibility to work (Wang and Cole, 2014). Singapore Airlines placed a great emphasis on the training of their staff, describing it as 'next to Godliness' (Heracleous, Wirtz and Johnston, 2004:p.38) which included soft skills such as personal and emotional interaction to make their staff able to deal with a more demanding type of passenger (Heracleous, Wirtz and Johnston, 2004).

Quilty (2003) discussed the provision of education and training at airports for all staff who worked at airports. Training was seen as 'a response to a need and should stem from gaps in knowledge or performance' (Quilty, 2003:p.4) and was a short term response to fit an individual or organisational need. Education on the other hand was seen as 'a broader, more generalized acquisition of knowledge and development that prepares an individual for a future job or position' (Quilty, 2003:p.5). Quilty (2003) recommended that training and education should be a continuous activity provided by organisations and not one-off occasions. Poor performance by organisations and individuals was attributed to: 'employees

not following proper procedures, or by not having the proper tools, materials or equipment available to adequately perform the job' (Quilty, 2003:p.9).

Poria, Reichel and Brandt (2010) found that participants were ready to be flexible with their schedules and spend more money on a flight and at the destination for a better service. Saari (2015) agreed with this point from the perspective of package holidays, who normally use chartered flights, in that wheelchair users preferred to make their own travel arrangements and hotel choices.

Darcy (2012) found that some airlines had improved in recent times with one participant comparing the service for the same flights seven years apart and noticing a distinct difference between the two experiences.

### **3.5 CONCLUSIONS**

Research into capturing the experiences of wheelchair users and people with mobility issues who fly is still in its early stages. Flying on aircraft is unique in that it is the only form of mass transit system where wheelchair users are required to leave their wheelchairs, with numerous potential issues being identified because of this separation. Flying can be necessary for people to travel overseas or long distances and so alternative transport options may be time consuming or may not be available.

The barriers and constraints identified in the travel and tourism research are applicable to wheelchair users, people with reduced mobility, and people with disabilities who travel by air. Physical barriers included manual handling whilst boarding the aircraft, the seat, accessing the toilet, and the separation from wheelchairs. Attitudinal barriers associated with communication between staff and passengers were evident throughout the themes, as were difficulties in information being shared. Economic barriers such as the choice of when and where to travel, or if a companion or personal assistant was required were present. The shortcomings of the travel and tourism research was that whilst barriers exist, they are all named slightly differently but largely refer to the same underlying issue.



The research from the critical papers was collected in many different countries: Australia (Darcy, 2004; 2012), China (Wang and Cole, 2014), Finland (Saari, 2015), Israel (Poria, Reichel and Brandt, 2010), Taiwan (Chang and Chen, 2011, 2012b, 2012a), the UK (Davies and Christie, 2017) and the USA (McCarthy, 2011). Despite the data being conducted in different countries, similar broad themes occurred. The data evidenced within the research papers was mostly negative in nature and presented few instances of positive experiences. Saari's (2015) research asked the question: 'Have you faced challenges or problems while travelling by air with a wheelchair?' (p.36), nearly half (46.34%) of participants said 'no' (p.36) but there was only a small amount of results that revealed a positive experience.

The emerging themes from the experiences of helping people with mobility issues were similar to the themes identified in the research of the experiences of wheelchair users. The issue of going to the toilet on board the aircraft remained a core issue as did the issue concerning the seat on board the aircraft. The wheelchair user focused research explored some of the issues they had before travelling but ignored what happened inside the airport, with the starting point often being when boarding the aircraft. Collecting the experiences of wheelchair user's journey through the airport is therefore an important gap to fill. Boarding the aircraft was a positive experience when the process worked, however there was not enough information as to why the process fails and this gap needs to be addressed. Disembarking the aircraft was regarded as being similar to boarding the aircraft but was underreported across all of the research and so more research is needed to reduce this knowledge gap, particularly in conjunction with wheelchair repatriation. Manual handling was difficult because of the equipment or the staff not quite getting it right. Understanding the role of the staff and their experiences of manual handling and the equipment should be explored. The theme of seating was established but some disagreement still surrounded the location of where wheelchair users were sat, whether an aisle or window seat was preferred, and whether business or first-class seats are better. Accessing the toilet was the theme where the research agreed with each other the most.

People who travel with wheelchair users such as carers or companions were mentioned frequently but briefly in previous research (Darcy, 2004, 2012; Poria, Reichel and Brandt, 2010; Wang and Cole, 2014; Ormond, 2015; Saari, 2015; Davies and Christie, 2017). Their

views and experiences should be collected alongside wheelchair users. The wheelchair user research to date has also focused on an adult population and the experiences of parents of children who use wheelchairs should be collected to identify similarities and differences.

Research by Wang and Cole (2014) suggested the flight attendants were able to help people with disabilities use the toilet, however the wheelchair users were not definitive on this issue and more research is required into what the cabin crew can do to assist wheelchair users in going to the toilet. The service the staff provided was important to make flying a positive experience for wheelchair users and more research in this area is needed, particularly concerning information and communication.

### **3.6 RESEARCH OBJECTIVES AND QUESTIONS**

Research about the experiences of wheelchair users who fly is still in its infancy. In order to try and fill in some of the gaps identified in the previous literature a series of research questions have been developed rather than using a hypothesis. These research questions will be attempted to be answered using a revised set of objectives from the initial aims and objectives in *1.1 INITIAL AIMS AND OBJECTIVES*:

Collecting the views and experiences of:

- (a) wheelchair users and the people who travel with them, including parents of child wheelchair users, partners of wheelchair users, and people who care for wheelchair users
- (b) the cabin crew who work on board the aircraft
- (c) the special assistance staff who help wheelchair users around the airports

This should be done in order to:

- (d) identify what the staff are able to do, what they are good at and what they find difficult
- (e) use the data collected to identify similarities and differences between the three research groups

(f) use the identified differences to propose improvements to the flying process for wheelchair users.

These revised objectives will try to be met through attempting to answer the research questions identified below:

1. How do wheelchair users prepare their luggage if they need additional medication or equipment and how do they move their luggage around the airport?
2. What are the experiences of wheelchair users and airport staff who help them around the airport of checking in, security and the amenities?
3. What are the experiences of the staff in boarding wheelchair users?
4. What do the staff and wheelchair users think and feel about the seating on board the aircraft?
5. What help can the cabin crew give wheelchair users on board the aircraft?
6. How do wheelchair users and staff feel about the disembarkation process?
7. How does the system for wheelchair repatriation work and how do wheelchair users and staff feel about the process?
8. How do the staff feel about providing services for wheelchair users?
9. How is information about wheelchair users and people with disabilities disseminated?
10. How are airport staff assigned to help wheelchair users and people with disabilities? If there are any difficulties with this, what are they?
11. What training do staff receive in order to provide the service for wheelchair users?

12. What are the implications of this research for the training of cabin crew and special assistance staff?
  
13. What are the overall implications of this research for airline and airport policies and practice?

## **CHAPTER FOUR – METHODOLOGICAL IMPLICATIONS FROM THE LITERATURE REVIEW**

This chapter discusses which methodological direction the research in this PhD should pursue and the methodologies of the ten critical papers that were identified and analysed in 3.4 *FLYING WITH A DISABILITY*. A summary of these papers is presented in relation to how best to answer the research objectives and questions identified in 3.6 *RESEARCH OBJECTIVES AND QUESTIONS*. This chapter concludes with why a qualitative approach should be used for this research.

### **4.1 METHODOLOGIES OF CRITICAL PAPERS**

The literature review has revealed that investigation into wheelchair users who fly is in its infancy with only a small amount of research that focused on the experiences of wheelchair users who fly (Darcy, 2004, 2012; Poria, Reichel and Brandt, 2010; Saari, 2015; Davies and Christie, 2017). A small amount of research quantified the difficulties of people with reduced mobility whilst flying (Chang and Chen, 2011, 2012a, 2012b). Wang and Cole (2014) collected the experiences of cabin crew who helped people with mobility issues and McCarthy (2011) collected the experiences of the staff who help disabled people at the airport.

#### **Poria, Reichel and Brandt (2010)**

Poria, Reichel and Brandt (2010) believed they were the first to carry out research into people with disabilities on board aircraft, although earlier research by Darcy (2004) was found whilst searching for literature. This may have been because their study was a two-part study which took place between 2003-2006 and not published until 2010. Poria, Reichel and Brandt (2010) studied three groups of people with disabilities of which wheelchair users were one of the groups. The other two groups were people who were visually impaired and those who used crutches. The first study was preliminary, a study before the main body of research to test and fine tune the research design (Ritchie and Lewis, 2003), in which 24 participants were interviewed but no further elaboration was made on the methodology of these interviews. The participants who took part in the preliminary interviews included people with disabilities, physicians, flight attendants, and managers of organisations that benefit disabled people in

order to shape the interview questions for the main study. The results from the preliminary study were not outlined anywhere in the paper so it is not clear what different opinions were used or what was rejected from being asked to the cohort of participants in the main study.

The main study collected data through the use of semi-structured interviews, a qualitative method of data collection that follows a framework of questions whilst allowing participants to explore ideas (Burgess, 1984; Bryman, 2008; Green and Thorogood, 2018). Participants were recruited through snowball sampling, a method where participants help recruit other participants and is commonly used to reach audiences that are difficult to target (Ritchie, Lewis and Elam, 2003; Bryman, 2008). There were 45 participants for the main study of the research, all aged 21 or over of which '20 used wheelchairs, 10 used crutches, and 15 had visual impairments' (Poria, Reichel and Brandt, 2010:p.219). The results indicated that three participants were manual wheelchair users (self-propelling) but does not say what type of wheelchair the other 17 participants used. The data was analysed using time frames, divided into pre and post flight and then coded using emotional and physical issues. The results were not presented in this way however, but as central themes that included: boarding and disembarking issues, equipment issues, seating, manual handling issues, toileting, and staffing issues.

The three groups of disability are open to interpretation as they are not defined, although wheelchair users and visually impaired people could be better interpreted by the reader than the users of crutches, as crutches can be temporary or permanent depending on the individual. Each group had different results within the paper. It was found that wheelchair users had greater problems with the physical environment of the aircraft in comparison to the users of crutches who felt unsafe whilst moving around and visually impaired people who felt insecure whilst flying. The researchers were also surprised at the willingness of people with disabilities to take part in the research and share what were sensitive experiences. Recommendations for the airline industry focused on the need for more disability awareness training and tailoring the service appropriate to disability.

### **Darcy (2004)**

Darcy (2004) wrote a doctoral thesis on tourism for people with disabilities in Australia. As part of this in-depth analysis, four data sources were used. Three were surveys and the fourth was in-depth interviews with various stakeholders: the 'Disability, Ageing and Carers Survey 1993' (p.136), a household survey of 42,000 homes, of which 7,075 reported having someone with a disability living there, by the Australian Bureau of Statistics that collected information about people with disabilities that included their holiday activities; 'National Visitor Survey 1998' (p.136), a telephone survey of 80,000 Australian residents about their tourism patterns; 'Tourism NSW (New South Wales) – Survey of People with Physical Disabilities' (p.137), a self-completed postal survey of 2,642 people with physical disabilities who were members of disability organisations originally used as the data source in Darcy (1998); and in-depth interviews with people with disabilities (12), accommodation providers (13) and tourism authority officers (3). There were many findings in the thesis, of which air travel for people with disabilities was one area. The results from this thesis focused on the additional cost of tickets for people with disabilities who needed to travel with a companion, the boarding and disembarking process, seating allocation, access to the toilet on board the aircraft, damage to personal equipment, and the customer service provided by the staff. This thesis was highly detailed, however due to the focus on other travel and tourism findings, the results concerning air travel for people with disabilities were just a small part of a larger analysis, albeit salient.

### **Darcy (2012)**

Darcy (2012) presented the air travel experiences of people with disabilities from the tourist perspective. The paper used a mixed method approach, using unpublished data from three previous studies, all of which Darcy was an author and researcher in (Darcy, 2004, 2010; Darcy and Taylor, 2009). The methodology of how Darcy (2004) collected his data is covered elsewhere in this review of methodologies. Darcy (2010) studied the accessibility of accommodation in Australia that complied with the building codes of Australia. This was achieved through a questionnaire, distributed online as it allows a small but widespread audience to be reached, sent to people with disabilities and expanded by using snowball sampling. 1,070 people took part, of which 566 completed the questionnaire in full. Darcy and Taylor (2009) examined disability and the cultural life that included the arts, sport, leisure,

tourism, and recreation activities in Australia. This was achieved through a quantitative analysis of 500 legal cases: 420 complaint cases made under various discrimination laws, and 80 cases that went to federal court.

The methodology of this paper was to synthesise the three data sources. This included data collected from 2,600 open ended surveys, where participants had the opportunity to say anything about a topic, 19 in-depth interviews and an analysis of 41 complaints made under the Australian Disability Discrimination Act, which were air travel related. A phenomenological approach, the study of real-life experiences from the first-person perspective, was used. The surveys, in-depth interviews, and complaints were coded using continual comparison of the data, a method where the researcher constantly compares the text looking for common themes or outliers, to analyse it. There was some concern by the author of this PhD as to how the datasets were compared because of the differences between short written statements from a large survey, and detailed complaints and in-depth interviewing. Using the complaints data could also lead to a negative skew in the results as it would be fair to say that people only complain if they feel they have been mistreated in some way. The results were presented with the idea of an 'air travel chain' (Darcy, 2012:p.95) using six specific stages of travel: pre-travel planning, boarding and disembarkation, seat allocation, on board personal care issues, equipment handling and customer service.

### **Saari (2015)**

Saari (2015) produced a Bachelor's thesis that attempted to understand the difficulties wheelchair users face whilst flying and whether there were any equality issues in comparison to an able bodied individual. The nature of a Bachelor's thesis meant there was only a short space of time to collect data, just two weeks 'from the 11th of February until the 25th of February' (Saari, 2015:p.26). An online questionnaire was made to do this where participants were recruited through social media, although it does not describe which social media channel(s) was used. In total, 41 participants completed the survey and had a heavy gender split in favour of women (34) but was unable to offer an explanation for such an uneven distribution. Incidentally, the same number (34) of participants were wheelchair users and the rest were people who had travelled with them. It is difficult to say how the results were interpreted as there was no methodology to say, although it does mention the use of statistics



software, but not which one, and there was no definitive process for coding the data. The results are presented poorly because although the central themes were identified in the research, the quotations illustrating each theme are undefined and made navigation of the results difficult. The quotations used from the survey also had no information attached to them so it was almost impossible (some were obvious e.g. 'my wheelchair got broken...' (p.38)) to know if a wheelchair user or companion gave the quote in addition to age, gender etc. The themes identified in the research were: lavatories, wheelchair issues, seating, boarding and disembarking problems, availability of help and staffing issues.

### **Davies and Christie (2017)**

The results of an exploratory study from an MRes degree undertaken by the author of this PhD were published (Davies and Christie, 2017). Semi-structured interviews were conducted with eight participants, all of whom were wheelchair users. The findings of this exploratory study were broadly in line with Poria, Reichel and Brandt (2010), Darcy (2004; 2012) and Saari (2015). The main difference to the research by Poria, Reichel and Brandt (2010), Darcy (2004; 2012), and Saari (2015) was that the eight participants were all full time wheelchair users. The themes identified in the study were: manual handling; seating; equipment; toileting; turbulence and landing; emotional issues that included humiliation, embarrassment, nervousness, and anxiety; and communication problems with the staff.

### **Chang and Chen (2011)**

Chang and Chen (2011) researched the importance and satisfaction of 130 people with mobility impairments about 20 different attributes of air travel which can be seen in Table 4.1:

A1. Barrier-free ramp	A11. Check-in counter staff's service attitude
A2. Slip resistant floors in the airport	A12. Boarding priority
A3. Barrier-free lift	A13. Assistance in boarding an airplane
A4. Barrier-free restroom	A14. Ground staff's service attitudes
A5. Barrier-free telephone	A15. Cabin seat
A6. Service bell	A16. Distance between cabin seats and restroom on board
A7. Airline wheelchair services	A17. User-friendly on-board restroom
A8. Seat selection	A18. Information on emergency evacuation
A9. Exclusive customs counter	A19. Cabin crew's service attitudes
A10. Waiting area at check-in counter	A20. Consignment and retrieval of the wheelchair

*Table 4.1 – The Attributes of Air Travel  
from Chang and Chen (2011)*

Their definition of mobility impairment was to have 'lower extremity function impairment' (Chang and Chen, 2011:p.1214). Participants were recruited through disability organisations in Taiwan where they were asked to self-report their disability as either minor (19.2%), moderate (43.9%), or severe (36.9%). There is no definition for what is meant by minor, moderate, or severe in the journal article.

Although the research was not aimed directly at wheelchair users, a majority (59.1%) of the participants checked in their mobility equipment at the check-in counter where a wheelchair was the example. A questionnaire was used where participants were asked to rate the importance of an attribute of air travel and then their satisfaction of it using a five-point Likert scale. A Likert scale asks participants to rate something, in this case an attribute, between one (poor) and an upper extremity (excellent), in this case five (Wakita, Ueshima and Noguchi, 2012). The total mean score for each attribute was calculated as was the individual mean score for importance and satisfaction. Importance scored significantly higher than satisfaction: 'The mean for importance was 4.25, while the mean for satisfaction was 2.96' (Chang and Chen, 2011:p.1215). No attribute had a satisfaction score that was better than its importance score. Satisfaction scores also decreased on average as the severity of disability increased, highlighting that the more disabled someone is, the less satisfied they are. The top and bottom three factors of importance can be seen in Table 4.2 and the top and bottom three factors of satisfaction can be seen in Table 4.3:

<b>Most important</b>	<b>Least important</b>
A2. Slip resistant floors in the airport	A5. Barrier-free telephone
A12. Boarding Priority	A10. Waiting area at check-in counter
A20. Consignment and retrieval of the wheelchair	A15. Cabin seat

*Table 4.2 – Factors of Importance  
from Chang and Chen (2011)*

<b>Most satisfactory</b>	<b>Least satisfactory</b>
A19. Cabin crew's service attitudes	A16. Distance between cabin seats and restroom on board
A13. Assistance in boarding an airplane	A17. User-friendly on-board restroom
A11. Check-in counter staff's service attitude	A15. Cabin seat

*Table 4.3 – Factors of Satisfaction  
from Chang and Chen (2011)*

Importance-performance analysis (IPA) is a quantitative approach for measuring how people feel about certain characteristics of an issue and presented in a two-dimensional quadrant (Martilla and James, 1977; Sever, 2015). Chang and Chen (2011) used the combined mean scores of importance and satisfaction to place the attributes into a matrix to identify what the aviation industry should focus on. The attributes in Table 4.1 were placed in one of four quadrants: Keep up the good work, Concentrate Here, Possible Overkill, and Low Priority and can be seen in Figure 4.1 below:

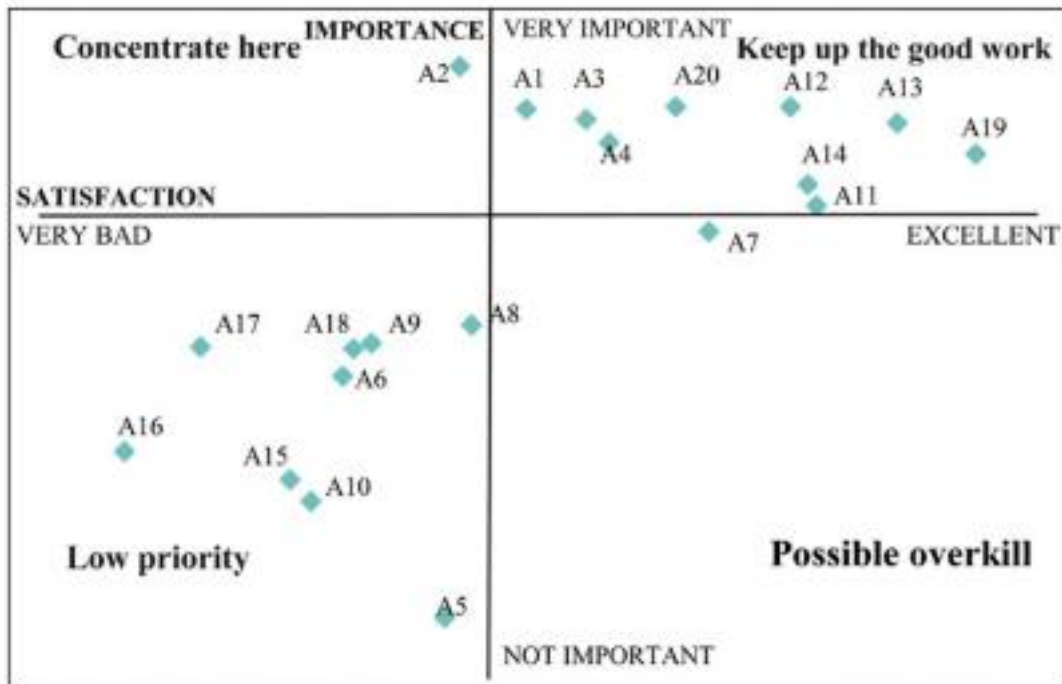


Figure 4.1 – Attributes for Importance and Satisfaction  
from (Chang and Chen, 2011)

The paper did not address why 18 of the 20 attributes were in two of the four quadrants. A2. Slip resistant flooring was the attribute with the most concern (poor satisfaction, high importance) as people with reduced mobility move around slowly and can suffer injuries if they were to slip. A7. Airline wheelchair services was the attribute with the least concern (high satisfaction, low importance). Chang and Chen (2011) identified that a lack of an on-board wheelchair on the aircraft was the possible cause for some attributes (A8. Seat selection, A15. Cabin seat, A16. Distance between cabin seats and restroom on board, and A17. User-friendly on-board restroom) to have scored poorly for satisfaction. Some attributes (A12. Boarding priority, A13. Assistance in boarding an airplane, A14. Ground staff’s service attitudes, A20. Consignment and retrieval of the wheelchair) in the ‘keep up the good work’ (p.1215) quadrant directly disagreed with findings from other research that focused on wheelchair users (Darcy, 2004, 2012; Poria, Reichel and Brandt, 2010; Saari, 2015; Davies and Christie, 2017), probably because their sample had a broader spectrum of people with reduced mobility.

### **Chang and Chen (2012a)**

Chang and Chen (2012a) conducted a preliminary study by interviewing disabled air passengers whose responses were used to develop a questionnaire for aviation staff in the main study. The number of interviews they conducted, or what type of interview was used in order to inform the basis of the main questionnaire was unknown. However, some of the results were discussed from them including: the transfer of information from booking the trip to the check-in desk, having to wait in queues, medical certificate concerns, slippery floors, the need for ramps, difficulty finding barrier free waiting areas, restaurants, and the inaccessibility of toilet facilities both in the airport and during a flight.

The objective of the main study was to survey aviation industry staff about their opinions of people with disabilities from a service perspective. Chang and Chen (2012a) described aviation staff as being a small population and difficult to reach and snowball sampling was used after telephone and email interviews of contacts of the authors to increase the sample size. In total, 180 questionnaires were completed by three groups of staff: airline (73), airport (64) and government (43). The questionnaire was designed into four sections.

The first section measured how staff felt about 31 attributes of air travel, which can be seen in Table 4.4. A five-point Likert scale with a range between one (very unimportant) and five (very important) was used to rate how important they felt an attribute was. Exploratory factor analysis, a statistical method used to uncover the underlying structure of a relatively large set of variables was used to analyse the data (Osborne and Banjanovic, 2016).

A1. Dismissed attribute	A17. Compensation for damaged wheelchair
A2. Service attitudes of supply-side staff	A18. Services on board
A3. Treated as a patient	A19. Information on emergency escape
A4. Avoid taking a flight	A20. Boarding priority for disabled passengers
A5. Medical certificate	A21. Cabin crew's attitude
A6. Trouble the airline staff	A22. Assistance in boarding
A7. Airport facilities	A23. Seat selection
A8. Exclusive check-in counter	A24. User-friendly on-board restroom
A9. Waiting area at check-in counter	A25. On-board wheelchair services
A10. Service attitudes at check-in counter	A26. Barrier-free environment
A11. Dismissed attribute	A27. Complaints counter
A12. Dismissed attribute	A28. Airline reservation phone number
A13. Services at CIQ	A29. Text telephone
A14. Wheelchair services	A30. Protection rules
A15. Dismissed attribute	A31. Communication skills
A16. Dismissed attribute	

*Table 4.4 – The Attributes of Air Travel for Factor Loading  
from Chang and Chen (2012a)*

Five attributes were dismissed because their factor loads were less than 0.5 but does not say what attributes they were. Five central factors were developed using the other 26 attributes:

- Factor 1 – Service and attitudes of supply-side staff (A2, A10, A14, A18, A19, A20, A21, A22, and A23)
- Factor 2 – Compensation and improvement schemes (A17, A26, A27, A28, A29, A30, and A31)
- Factor 3 – Exclusive facilities and services (A7, A8, A9, and A13)
- Factor 4 – Not suitable for taking a flight (A3, A4, A5, and A6)
- Factor 5 – Cabin facilities (A24 and A25)

Analysis of variance (ANOVA) testing, a mathematical method used to see if there is a difference between groups to accept or reject a hypothesis (Rutherford, 2011), and least significant difference (LSD) multiple comparative analyses, an extension of the ANOVA test designed to account for the fact there may be many possible comparisons in the data where

the level of significance may need to be adjusted (Rutherford, 2011), were used to compare whether one group of staff felt more strongly about a factor than another group. The airport staff were more positive about Factor 2 and Factor 5 whilst the airline and government staff were more positive about Factor 4. Airline and government staff would prefer people with disabilities not to fly at all given the attributes for Factor 4 were: A3. Treated as a patient, A4. Avoid taking a flight, A5. Medical certificate, and A6. Trouble the airline staff.

The second section of the questionnaire used close ended questions, where a researcher provides participants with options from which to choose a response (Ritchie and Lewis, 2003; Bryman, 2008), to find out what people with disabilities complained about in relation to the airport and the airlines. The top three most complained about items to staff concerning the airport were 'Distance between parking lot and terminal, barrier-free lifts and barrier-free ramp' (Chang and Chen, 2012a:p.533). The top three most complained about items to staff concerning the airlines were 'A user friendly on-board restroom, space in the on-board restroom and airline wheelchair services' (Chang and Chen, 2012a:p.533).

The third section used open ended questions, a method where questions are asked to encourage participants to talk in-depth (Ritchie and Lewis, 2003; Bryman, 2008), to collect improvements and recommendations that could be suggested to improve the facilities and services for people with disabilities. Further disability specific training was identified as a recommendation. This was needed to provide the correct level of service for people with disabilities, noting that if the service was correct then revenues, business image and reputation would likely be enhanced. The fourth section collected demographic information about the participants.

### **Chang and Chen (2012b)**

Chang and Chen (2012b) examined the perception and travel choices people with reduced mobility made when choosing to fly overseas. This study was a two-stage process where a pilot test, a method of fine-tuning research language, sequence, symbols, and overall format (Ritchie and Lewis, 2003), of the proposed questionnaire was carried out through interviews with people with reduced mobility, airport staff, airline staff, and travel agents. A convenience sample, a type of non-probability sampling that involves the sample being drawn from a

population that is close to hand, of these people was used to test the questionnaire (Ritchie and Lewis, 2003; Bryman, 2008). A site visit to an airport was also used to inform the main questionnaire. The pilot test results found that the international travel procedure for a passenger with reduced mobility can be divided into five parts: 'pre-travel, pre-flight, during flight, post flight and overseas travel' (p.44). The results of the pilot study were included in and discussed as part of *3.4 FLYING WITH A DISABILITY*.

In the main study, participants were recruited through memberships of organisations for disabled people. Interviews were conducted over the telephone or in a face to face setting. The article does not identify what type of disability or organisations were selected and so a wide range of people with disabilities or one disability in particular may only have been sampled. Participants were asked to rate the importance of 20 service attributes about the international travel procedure for a passenger with reduced mobility. In total, 269 questionnaires were collected. The mean score of each attribute, which ranged from 3.59 to 4.52, was calculated and then ranked from one to 20. The service attribute, its mean score of importance, and rank can be seen in Table 4.5:



<b>Service attribute</b>	<b>Mean of importance</b>	<b>Rank</b>
Barrier-free facilities at the airport are important	4.52	1
It is important that the support staff arrange the transport and accommodation for overseas travel	4.49	2
I will report the impairment situation to the airlines when making a reservation	4.48	3
I think the support staff could provide assistance at the check-in, the CIQ check and boarding	4.45	4=
Guide services provided by the airport are important	4.45	4=
It is important that the travel agency provide door-to-door services	4.43	6
Barrier-free facilities is an important factor when selecting a destination	4.42	7
Priority boarding services are important	4.25	8
Mobility assistance from the cabin crew is important	4.23	9
The travel agency should provide the travel information that I need	4.17	10
I care about the way that the airline consigns and retrieves the wheelchair	4.16	11
I feel safe if the travel agency provides a support staff during travel	4.12	12
I feel satisfaction with self-planned travel	4.12	13
I am confident about using barrier-free facilities	4.09	14
I think the support staff could provide mobility assistance on board the aircraft	4.06	15=
Seat selection is important	4.06	15=
Free time for shopping and activities at the terminal is important	3.81	17
I am confident about communicating with the airline staff	3.76	18
The travel information provided by the travel agency is reliable	3.63	19
How long it takes for the check-in and CIQ check is important	3.59	20

*Table 4.5 – The Mean and Rank of Service Attributes of Air Travel  
from Chang and Chen (2012b)*

A mean score of 4.00 or over, taken from 269 responses, was achieved in 16 of the 20 attributes. This seems rather high in 80% of the attributes where a one to five Likert scale was used. The attributes read as statements and perhaps they could be considered as being

agreed with rather than determining whether they were important to the individual or not. This suggests an issue with the methodology and use of a Likert scale or there was an issue in the pilot study where airline staff, airport staff, and travel agents were used in conjunction with people with reduced mobility to develop the attributes.

### **Wang and Cole (2014)**

Wang and Cole (2014) collected the perceived needs of people with mobility issues from flight attendants in Beijing, China. Their research consisted of three focus groups made up of 13 participants, split into one group of five, and two groups of four all of whom were Chinese, and all worked for one airline, KLM Royal Dutch. The participants were recruited opportunistically, a method of using intended participants who are immediately available and willing to take part in the study (Ritchie and Lewis, 2003), all of whom were known to one of the researchers. All of the participants were female and aged between 29 and 37 and did not include male voices. All the participants had been employed as flight attendants for an average of 9.5 years and 12 of them had also previously worked for other airlines. The focus groups were conducted in Mandarin and translated into English by an American graduate student who was not part of the research team. The article says: 'the main researcher reviewed the translation and transcripts to overcome translators' language barriers and prevent data from being lost in the translation process' (Wang and Cole, 2014:p.1243). It could therefore be suggested that the results presented were only as good as the capability of the translator and perhaps the researchers understanding of English. Nvivo9, a qualitative data analysis software package designed for working with text-based information, was used to code and theme the transcripts using constant comparative analysis, a method where data is continually compared with other data to generate a theory (Fram, 2013). The article does not say whether the Mandarin or the English script was used by Nvivo9. The researchers commented that the results may not be transferable because of the culturally focused demographic of the participants.

### **McCarthy (2011)**

McCarthy (2011) interviewed airport personnel directly responsible for helping people with disabilities. In total, 44 participants were interviewed in nine structured focus groups, a method of collecting data with multiple participants in the form of a discussion, that ranged

from having three to ten participants and lasted around two hours in length. The focus groups all took place in the USA in four cities: Portland, Oregon; Phoenix, Arizona; Minneapolis, Minnesota; and Miami, Florida. Participants were aged between 17 and 72 (mean of 44.4), the gender split was 54% male and 46% female, the length of time in the job ranged from 1 month to 29 years, a mean of 5.8 years, and 77% described themselves as 'Caucasian' (p.2614). There was a spread of educational attainment as 42 of the 44 participants had at least a high school diploma and 18 had a college degree or better. The participants were either those who directly worked with people with disabilities or were supervisors of teams but still helped on a day to day basis. Multiple locations were chosen because the researcher felt it would provide a wide demographic amongst the participants. Over half the participants (23) were interviewed in Portland, three in Miami, whilst Phoenix and Minneapolis had nine each. No supervisors were interviewed in Portland and only supervisors were interviewed in Phoenix and Miami. No reason was given for why this occurred. The participants were paid \$30.00 USD (United States Dollar) for their participation in this study and it was noted that this could have biased their responses because they were paid, although the researchers did not find evidence of this. Audio recordings were made of each focus group and were professionally transcribed. A coding system was developed by the principal researcher. The principal researcher and two research assistants coded the transcriptions independently of each other. After the independent coding, they met and finalised the coding system and checked the validity of their work. In total, 43 codes were used and categorised into one of four areas: 'characteristics of the job or system, characteristics of current training, characteristics of service providers themselves, and characteristics of travellers with disabilities' (p.2614). Although 43 unique codes were generated during the analysis it does not say what they were or which broad category each one fell into or if they were categorised into more than one. The sample size was also noted as being small in comparison to the number of total employees who fulfil these job roles and the findings of this research may not represent the wider populous.

#### **4.2 WHICH METHODOLOGY SHOULD BE USED?**

The initial aims and objectives, the background to the research, and the literature review has justified the need to research three different groups of participants. This research will focus

on wheelchair users specifically rather than people with disabilities or people with mobility issues. A confirmation of the three groups are as follows:

- 1) Wheelchair users and the people who travel with them – People who use a wheelchair on a permanent basis or people who travel with permanent wheelchair users.
- 2) Cabin crew – staff who help wheelchair users during a flight.
- 3) Special assistance staff – staff that help wheelchair users through the airport.

Before designing how the data for the research will be gathered, it was important to identify which group(s) of participants will be best suited to answer each research question. This information can be seen in Table 4.6:

<b>RESEARCH QUESTION</b>	<b>GROUP NEEDED TO ANSWER</b>
1. How do wheelchair users prepare their luggage if they need additional medication or equipment and how do they move their luggage around the airport?	Wheelchair users and the people who travel with them
2. What are the experiences of wheelchair users and airport staff who help them around the airport of checking in, security and the amenities?	Wheelchair users and the people who travel with them Special assistance staff
3. What are the experiences of the staff in boarding wheelchair users?	Cabin crew Special assistance staff
4. What do the staff and wheelchair users think and feel about the seating on board the aircraft?	Wheelchair users and the people who travel with them Cabin crew Special assistance staff
5. What help can the cabin crew give wheelchair users on board the aircraft?	Cabin crew
6. How do wheelchair users and staff feel about the disembarkation process?	Wheelchair users and the people who travel with them Cabin crew Special assistance staff
7. How does the system for wheelchair repatriation work and how do wheelchair users and staff feel about the process?	Wheelchair users and the people who travel with them Cabin crew Special assistance staff
8. How do the staff feel about providing services for wheelchair users?	Cabin crew Special assistance staff
9. How is information about wheelchair users and people with disabilities disseminated?	Cabin crew Special assistance staff
10. How are airport staff assigned to help wheelchair users and people with disabilities? If there are any difficulties with this, what are they?	Special assistance staff
11. What training do staff receive in order to provide the best service possible for wheelchair users?	Cabin crew Special assistance staff
12. What are the implications of this research for the training of cabin crew and special assistance staff?	Wheelchair users and the people who travel with them Cabin crew Special assistance staff
13. What are the overall implications of this research for airline and airport policies and practice?	Wheelchair users and the people who travel with them Cabin crew Special assistance staff

*Table 4.6 – The Identification of Which Group of Participants Will Be Needed to Answer Each Research Question*

To decide whether to use a quantitative method, a qualitative method or a mixed methods approach, many factors needed to be considered including the time and resources available within the scope of the PhD. Ultimately, the most important factor to consider is how best to obtain a dataset that will answer the research questions. A secondary crucial factor is to consider the best method to analyse the data effectively. A look at the methodologies of the critical papers identified in the literature review in Table 4.7 can help to inform the method to be utilised in this research:

<b>Study</b>	<b>Preliminary Study?</b>	<b>No. of Participants</b>	<b>Methods Used</b>
Darcy, 2004	No	124,624 28	3 Surveys (Open, Telephone and Postal) Interviews
Darcy, 2012	Yes	2,600 19 41	Open ended survey Interviews Textual Analysis
Poria, Reichel and Brandt, 2010	Yes	24 (Prelim), 45 (Main)	Semi-structured Interviews
Chang and Chen, 2011	No	130	Likert Scale
Chang and Chen, 2012a	Yes	Unknown (Prelim), 180 (Main)	Likert Scale
Chang and Chen, 2012b	Yes	Unknown (Prelim), 269 (Main)	Questionnaire
McCarthy, 2011	No	44	Focus Groups
Wang and Cole, 2014	No	13	Focus Groups
Saari, 2015	No	41	Online Survey
Davies and Christie, 2017	No	8	Semi-structured Interviews

*Table 4.7 – Previous Methodologies Used in Critical Research from The Literature Review*

The majority of the papers above utilise a qualitative approach either in a singular method (Poria, Reichel and Brandt, 2010; McCarthy, 2011; Wang and Cole, 2014; Saari, 2015; Davies and Christie, 2017), a multiple qualitative method (Darcy, 2004, 2012), a combined qualitative and quantitative method (Chang and Chen, 2012b), or a quantitative method (Chang and Chen, 2011, 2012a).

Qualitative research is a scientific method of collecting data that is not numeric where meanings, concepts, definitions and descriptions are used to gather information as to why something may occur (Bryman, 2008; Creswell, 2009; Lune and Berg, 2017). Quantitative research methods, use numerical data and mathematical formulae to test whether or not a hypothesis is true (Bryman, 2008; Given, 2008; Creswell, 2009). A mixed method is a combination of the two. The research questions formulated from the literature review are asking for experiences, points of view, and descriptions, not numerical data or mathematical formulae to test a hypothesis and so a qualitative approach is required.

Deciding what type of qualitative research method to use was important because the current research in this field of study has been limited to date. There are five traditional approaches to qualitative inquiry (Creswell, 2013): biographical, phenomenological, grounded theory, ethnography, and case study. A biographical study is the study of individual experiences from written texts and documents that are often historic and is inappropriate in this instance as there is little data to answer the research questions. The same is true for case studies as it is the examination of information collected over a period of time. A phenomenological study explores the lived experiences of individuals about a concept or a phenomenon. The research questions are attempting to discover new information rather than to expand the experiences about something known (the phenomenon) and, on this basis, this methodology can be discounted. Ethnography is the study of a culture, social group, or system where the data is often collected through participant observation or immersion in the daily life of that culture. This method was not used as ethnographic studies often take place over extended time frames. The author of this PhD is part of one of the intended groups of participants and may have led to bias, in addition to being unable to physically experience the roles of the other two groups. Grounded theory attempts to generate or discover theory in which individuals take action, engage in a process, and react in response to a phenomenon. Grounded theory often uses a series of interviews to collect information until it is 'saturated' and then 'coded' for data analysis. The template analysis approach by King (2012) and Brooks *et al.* (2015) will be used and supported by Hsieh and Shannon (2005), Thomas (2006), Elo and Kyngäs (2008), and Vaismoradi, Turunen and Bondas (2013). It is this method that was considered to be the

most practical method for the researcher and the best method to answer the research questions.



## **CHAPTER FIVE – METHODOLOGY**

The following chapter provides details of the research methodology used. It includes how the research was designed based on the findings from the literature review and their methodologies. A discussion of why semi-structured interviews were chosen as the method to collect data, what methods were not selected and why, how the interviews were designed in a topic guide using the air travel process, interviewing the participants, and how they were analysed using template analysis to provide the findings for this research are in this chapter.

Bryman's (2008) 'Social Research Methods' and Creswell's (2009) 'Research Design: qualitative, quantitative, and mixed methods approaches' were used as the main bodies of text to formulate this methodology. They are both highly respected academics in the field of qualitative research.

There are three cornerstones to effective research design (Bryman, 2008): repeatability, reliability, and validity. The methodology must be designed to be repeatable so that other researchers can carry out the same research. Ensuring that the results obtained by any researcher are reliable and consistent. The repeatability and reliability of the methodology and results mean that the conclusions derived from the research are most importantly valid.

### **5.1 QUALITATIVE INTERVIEWS**

Semi-structured interviews were chosen as the method to collect the data in order to try and answer the research questions developed from the literature review. This section outlines why semi-structured interviews were chosen as the most appropriate method and why other methods were rejected.

#### **5.1.1 RATIONALE**

Creswell (2013) theorised that interviews were 'a series of steps in a procedure' (p.123), whereas Green and Thorogood (2018) described them as a way in which people can 'speak at length, in detail, in ways in which they are most comfortable, on a given topic' (p.285). The nature of how structured a piece of research needs to be can be determined by the level of exploration required and the purposes of the study (Ritchie and Lewis, 2003). Burgess (1984)

was of the opinion that interviews are designed to be either unstructured or structured, are a conversation between two people, and will differ depending upon which end of the 'research continuum' (p.101) they are designed.

A structured interview is where an interviewer asks the same questions in the same order with little to no flexibility (Burgess, 1984; Bryman, 2008). In contrast, an unstructured interview is where a list of issues or themes are discussed in the course of a conversation allowing people to develop answers outside of a structured process (Burgess, 1984; Bryman, 2008). Creswell (2009) suggested that the more unstructured an interview is, the fewer questions there are, and the more open ended they are. A mix of the two is a semi-structured interview.

Semi-structured interviews follow a framework of questions, known as a topic guide that allow new ideas to be explored in a flexible manner by the interviewer (Burgess, 1984; Bryman, 2008; Green and Thorogood, 2018). Bryman (2008) outlined that semi-structured interviews are an ideal method to explore people's perspectives and attitudes, allow related topics to be explored outside of the pre-planned set of questions, and will collect a more detailed dataset with personal insights and experiences being included. Interviews are recommended as the best technique of data collection for people with disabilities because it allows the researcher to effectively capture the experiences and issues they face in relation to the study topic, whilst giving the researcher an appreciation for the complexity of disability (O'Day and Killeen, 2002). Semi-structured interviews were chosen because of this and the need to compare and analyse three different groups of participants.

New ideas can be explored through the use of prompting and probing. Prompting is where the interviewer will rephrase the question where the participant is struggling to answer the question (Bryman, 2008) or where the interviewer wants to bring specific attention to a subject or topic by asking directly about it (Ritchie and Lewis, 2003). Probing is different from prompting in that the interviewer will ask the participant for further information or clarification to an answer given by a participant (Ritchie and Lewis, 2003; Bryman, 2008).

The potential weaknesses in semi-structured interviews, or interviews in general, is that the participant may not hear or understand the question, the participant may feel uncomfortable divulging information to someone outside of their community, the design of the question may not elicit a discussion, participants can be influenced and motivated by being offered something for taking part in the interview, and the relationship between the interviewer and interviewee can also be considered a weakness if they are known to each other or there is a failure to build a rapport (Burgess, 1984; Ritchie and Lewis, 2003; Bryman, 2008).

### **5.1.2 METHODS NOT USED**

Unstructured interviews were not chosen because they are largely used when there is no specific focus on a research area or as the beginning of an investigation (Bryman, 2008; Creswell, 2009). Researchers use just a small set of prompts to help them akin to an 'aide-mémoire' (Bryman, 2008:p.320) and the participants can respond in total freedom. Unstructured interviews are considered similar to a conversation but may not have resulted in the research questions being answered as the conversation could have drifted off topic and hence the need for some structure (Burgess, 1984). Standardised interviews or questionnaires were not chosen as they are too structured and often 'do not provide the detailed data required' Zweig (1948) as cited in Burgess (1984:p.102). Bryman (2008) also offers the opinion that rigidity in structure is primarily used in formal interviews, questionnaires, and surveys with the aim of obtaining answers that can eventually be statistically and numerically analysed using quantitative methods.

A postal survey was rejected as a method of obtaining data. This was because obtaining the addresses of the intended participants would have been impossible to purchase as disability is a protected characteristic under the UK Equality Act 2010 (UK Parliament, 2010). The cost of the postage may also have been expensive. Cabin crew and special assistance staff would also have been difficult to target due to the multiple variation of job titles that exist. Going directly to disability charities may have led to a biased sample, for example wheelchair users with one type of disability. Moreover, previous research has found that the return rate of postal surveys amongst people with disabilities was poor as their disability may hinder them or make it impossible for them to respond (Ray and Ryder, 2003).

An online survey with open ended responses was considered as it allows a targeted audience to be accessed over a wide area, and was used successfully by Darcy (2010) and Saari (2015). Online questionnaires can lack clarity, depth of detail and does not allow the researcher to explore new ideas or to ask probing questions to an answer for further elaboration (Zweig, 1948; Burgess, 1984; Ritchie and Lewis, 2003; Bryman, 2008; Green and Thorogood, 2018).

The alternative to semi-structured interviews was focus groups, which is a group interview of participants whose responses and reactions are studied in guided or open discussions about a topic (Kitzinger, 1994; Ritchie and Lewis, 2003; Bryman, 2008). They offer an alternative to a semi-structured interview in that the participants can challenge each other's views and opinions (Bryman, 2008), whilst observing as a researcher how participants interact with one another to shape their ideas as a collective (Ritchie and Lewis, 2003).

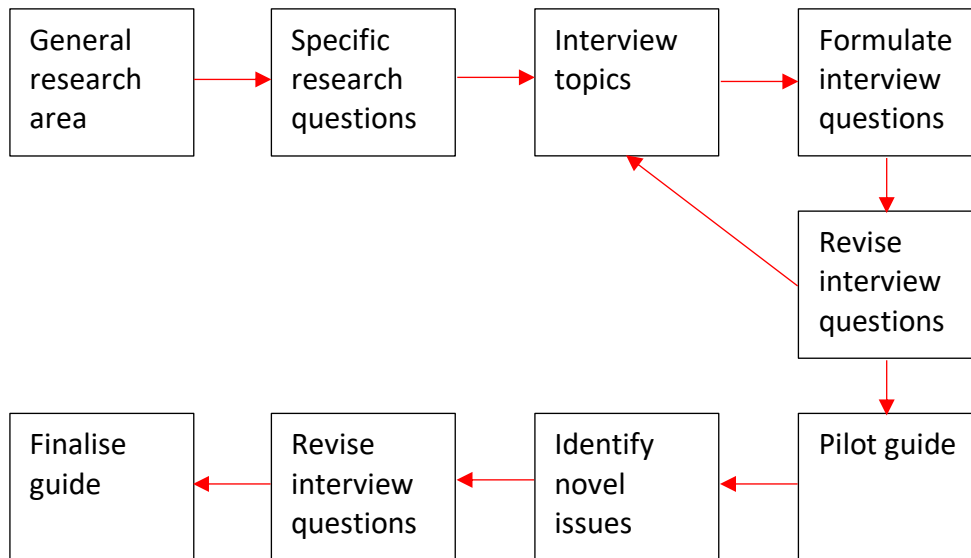
Focus groups can be used to save the researcher time and money (Bloor *et al.*, 2001; Bryman, 2008). A focus group often consists of between four and ten participants (Ritchie and Lewis, 2003; Bryman, 2008), with Bloor *et al.* (2001) stating that 'groups consisting of between six and eight participants as the optimum size for focus group discussion' (p.26) was the ideal number. Group size matters greatly as having too few participants in a group can be problematic in that the focus group may turn into a group question and answer session with the moderator and not produce the desired discussion between participants (Krueger, 1997; Bloor *et al.*, 2001; Ritchie and Lewis, 2003). Small groups can be countered with overrecruiting (Krueger, 1997), but is not recommended as too many people can lead to a loss of control on the moderators part, the topics being diluted, and some participants being more dominant than others (Krueger, 1997; Bloor *et al.*, 2001; Ritchie and Lewis, 2003). In large groups, talking over one another often can lead to problems when transcribing the data as the voices become harder to distinguish (Ritchie and Lewis, 2003). Focus groups would have been difficult to organise due to the difficulty in to recruiting a several niche groups of people and that there were no resources available to incentivise potential participants to attend a one. Other downsides of focus groups are that they can produce vast amounts of data and be difficult to analyse (Bryman, 2008), take significantly longer to transcribe (Bloor *et al.*, 2001), and some participants can be more prominent than others (Krueger, 1997). Given the target audience of participants, they may be sensitive to discussing their experiences in front of other

participants as they may be intimate or embarrassing (Madriz, 2000; Bloor *et al.*, 2001). A lack of anonymity was also considered for the reasons of potential embarrassment and humiliation where participants may not share their experiences in a group situation (Bloor *et al.*, 2001).

A further consideration of conducting focus groups was the number of groups that would be required. Bloor *et al.* (2001) says that the number of groups needed cannot and should not be calculated by statistical means, but the more sub groups being researched, the greater number of groups needed. Deacon *et al.* (1999) recommended between 10 and 15 groups, but too many groups would be a waste of time and resources (Bryman, 2008) although Kitzinger (1994) argued that a large amount of groups offers a greater amount of perspective and diversity. Ultimately, focus groups were rejected as it would have meant recruiting a vast number of participants: 7 participants per group as the optimal number for discussion (Bloor *et al.*, 2001; Ritchie and Lewis, 2003; Bryman, 2008), 12 groups needed as a middle number from Deacon *et al.* (1999), and three groups of participants equals 252 participants in total. This would have been expensive to host, run, organise, and analyse afterwards.

## **5.2 INTERVIEW DESIGN METHOD**

The development of a topic guide with the questions designed to elicit responses to answer the research questions was crucial. Bryman (2008) used the following process in Figure 5.1 to formulate questions within a topic guide:



*Figure 5.1 – Formulating Questions for a Topic Guide  
from (Bryman, 2008)*

Bryman (2008) states that a topic guide should have five basic elements in order for interviews to be successful:

1. A certain amount of logical order to the guide must exist so the questions flow but still allow the order to be altered in the interview if necessary.
2. Formulate the questions so that they answer the research questions without being specific.
3. Use appropriate language that the interviewer and participant will understand.
4. Leading questions must be avoided.
5. Collect participant's demographic information so that the data can be contextualised.

### **5.2.1 TOPIC GUIDE FORMATION (AIR TRAVEL PROCESS)**

The semi-structured interview is structured using a topic guide which has a list of issues, themes or topics to be addressed, or a list of questions to be asked (Bryman, 2008; Green and

Thorogood, 2018). It was decided that each topic guide should be similar in nature so that the comparison of data would be easier during the interview analysis and discussion of results (Ritchie and Lewis, 2003; Bryman, 2008). With this in mind, a topic guide should be designed to allow the topics to be explored systematically but retaining the interviewers flexibility of choice whether or not to pursue a participant for further detail in their response (Ritchie and Lewis, 2003). Green and Thorogood (2018) offer the following 'rules' (p.113) in good topic guide design: avoid asking the research questions directly, avoid technical vocabulary, avoid leading questions, avoid questions that lead to judgement, use open ended questions, and ask about experiences rather than theoretical situations. The topic guide for each group of participants was developed by the author of this PhD and Professor Nicola Christie.

Previous research has found that people with disabilities travel through airports in nearly always the same procedural order (Poria, Reichel and Brandt, 2010; Chang and Chen, 2012b, 2012a; Darcy, 2012; Arcidiacono, Giorgetti and Pugliese, 2015). This was best illustrated by Chang and Chen (2012a) who developed the 'procedure for disabled passengers using air transportation' (Chang and Chen, 2012a:p.533). This chart can be seen in Figure 5.2. These procedures were made up of four distinct stages: pre-travel, pre-flight, during the flight, and post flight.

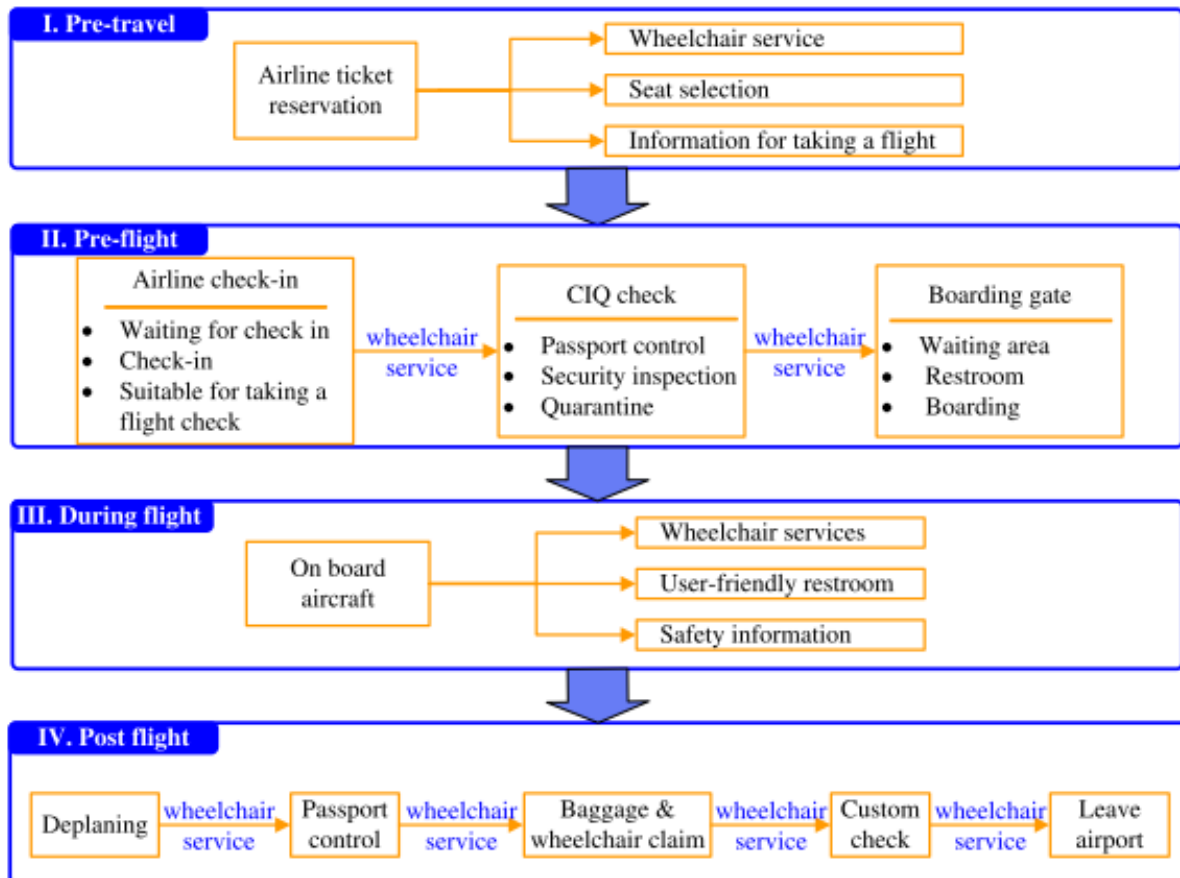


Figure 5.2 – Procedure for Disabled Passengers Using Air Transportation  
from (Chang and Chen, 2012a)

These procedures and ordering acted in a similar way to narrative research, where data is collected through the means of a story (Lieblich, Tuval-Mashiach and Zilber, 1998). The procedures and stages were all adapted slightly for each group, but importantly the procedural order was kept as it was thought to allow the participant not to overlook any issue at any point around the process of flying. The following topics were derived in order to answer the research questions. The wheelchair user and people who travel with them research had seven topics:

1. Individual characteristics
2. Procedures before flying
3. At the airport before boarding
4. The plane
5. Leaving and wheelchair issues
6. Recommendations and concept questions



7. Free discussion

The cabin crew research had eight topics:

8. Individual characteristics
9. Disability policies and training
10. Pre-flight
11. Boarding the flight
12. In flight
13. Landing and disembarkation
14. Recommendations and concept questions
15. Free discussion

The special assistance staff research had nine topics:

16. Individual characteristics
17. Disability policies and training
18. Pre-flight
19. Around the airport
20. Boarding the flight
21. Equipment
22. Disembarkation and leaving the airport
23. Recommendations and concept questions
24. Free discussion

All three groups had three topics in common with each other: Individual Characteristics (1, 8 and 16) – where details about the individual were asked to collect demographic data for the research; Recommendations and Concept Questions (6, 14 and 23) – participants were offered the opportunity to suggest recommendations and other opinions about the transit of wheelchair users; and Free Discussion (7, 15 and 24) – a chance for participants to discuss anything that may have been missed in the rest of the interview and to ask their own questions. The topics were developed to answer the research questions formulated from the literature review and can be seen in Table 5.1:

<b>RESEARCH QUESTION</b>	<b>TOPIC USED TO ANSWER</b>
1. How do wheelchair users prepare their luggage if they need additional medication or equipment and how do they move their luggage around the airport?	2, 3 and 5
2. What are the experiences of wheelchair users and airport staff who help them around the airport of checking in, security and the amenities?	3 and 19
3. What are the experiences of the staff in boarding wheelchair users?	11 and 20
4. What do the staff and wheelchair users think and feel about the seating on board the aircraft?	4, 11, and 20
5. What help can the cabin crew give wheelchair users on board the aircraft?	12
6. How do wheelchair users and staff feel about the disembarkation process?	5, 13, 21, and 22
7. How does the system for wheelchair repatriation work and how do wheelchair users and staff feel about the process?	5, 13, 21, and 22
8. How do the staff feel about providing services for wheelchair users?	9-15 and 17-24
9. How is information about wheelchair users and people with disabilities disseminated?	10 and 18
10. How are airport staff assigned to help wheelchair users and people with disabilities? If there are any difficulties with this, what are they?	18
11. What training do staff receive in order to provide the best service possible for wheelchair users?	9 and 17
12. What are the implications of this research for the training of cabin crew and special assistance staff?	All except 1, 8, and 16
13. What are the overall implications of this research for airline and airport policies and practice?	All except 1, 8, and 16

*Table 5.1 – Topics to Answer the Research Questions*

### **5.2.2 FORMULATING SPECIFIC QUESTIONS**

The topics derived in the section above and the process for developing interview questions by Bryman (2008) as seen in Figure 5.1 were used to develop the interview questions. The questions were developed under each topic that allowed a natural flow of questions to be asked whilst considering the research questions. This resulted in a set of questions for each topic for each group of intended participants.

### **5.2.3 REVISING THE QUESTIONS AND PILOT TEST INTERVIEWING**

The questions were reviewed by Professor Christie to ensure that no obvious errors had been made, that each topic guide complemented the others in order to answer the research questions, that no leading questions were included, and to ensure no bias was present in the questions. Professor Christie also offered advice on changes to some of the language intended to be used, suggested the removal of some questions, and advised to add some questions.

Several studies conducted a preliminary study to form the questions to ask in the main study (Poria, Reichel and Brandt, 2010; Chang and Chen, 2012a, 2012b; Darcy, 2012). This was not done in this study as the study completed in the MRes before undertaking the PhD was felt to be exploratory (Davies and Christie, 2017).

A pilot test interview was carried out with a participant who has extensive experience of travelling with a wheelchair user to ensure that the wheelchair user and those who travel with them topic guide was appropriate and to check for errors. The pilot test was largely successful, with one question being removed as it was repeated in two sections and the test participant found it confusing as they felt they had already answered it:

*To what extent do you feel you need the help of special assistance during this part of the journey?*

Some of the questions were also reworded to reflect the difference between the interviewer's natural speech and written language. Following these minor adjustments, it was decided that the interviewing for wheelchair users should begin.

A pilot test interview was carried out with an acquaintance of the author who was employed as a member of a cabin crew to ensure that the cabin crew topic guide was as correct as possible. The pilot test interview was successful, with only some language being altered to fit the natural language of the interviewer and therefore it was decided that the interviewing should begin.

There was no pilot test interview carried out with the special assistance staff. The topic guide for the special assistance staff was scrutinised by the contact of the author who had a high level of managerial oversight for the special assistance staff at Service Provider One. They decided that the questions proposed were suitable to be asked and that interviewing should proceed.

After revising these questions and making suggested changes, they were all read aloud again to try and ensure that they matched the natural language of the author of this PhD. The questions were then sent back to Professor Christie who approved the final topic guides with the author of this PhD. The finalised topic guides can be seen in 5.2.4 FINAL TOPIC GUIDE – WHEELCHAIR USERS, 5.2.5 FINAL TOPIC GUIDE – CABIN CREW, and 5.2.6 FINAL TOPIC GUIDE – SPECIAL ASSISTANCE STAFF.

## **5.2.4 FINAL TOPIC GUIDE – WHEELCHAIR USERS (ADAPTED TO INCLUDE THOSE WHO TRAVEL WITH THEM)**

### **INDIVIDUAL CHARACTERISTICS**

1. How old are you?
2. Can you describe your gender?
3. What is your occupation?
4. What Illness/Ailment/Disability do you have?
5. How long have you had your Illness/Ailment/Disability?
6. What mobility aids do you use?
7. If yes, please can you describe them?
  - electric or manual?
8. Do you have a personal assistant?
9. Do you fly mainly short-haul or long-haul?
10. Do you fly mainly for business, pleasure, or for other reasons?

### **PROCEDURES BEFORE FLYING**

1. Are you aware of how much notice you need to give before flying and who to tell?
2. Do you know what your rights are when flying?
3. How do you feel in the build-up to a flight?
4. Are there any measures related to your disability that you take in advance of the flight?
5. How does preparing for flying make you feel?
6. Which of the following do you feel describes you best?
  - WCHR (Wheelchair Ramp): Passenger who can walk up and down stairs and move about in an aircraft cabin but requires a wheelchair or other means for movements between the aircraft and the terminal, in the terminal and between arrival and departure points on the city side of the terminal.
  - WCHS (Wheelchair Stairs): Passenger who cannot walk up or down stairs, but who can move about in an aircraft cabin and requires a wheelchair to move between the aircraft, in the terminal and between arrival and departure points on the city side of the terminal.
  - WCHC (Wheelchair Complete): Passenger who is completely immobile who can move about only with the help of a wheelchair or any other means and who requires assistance at all times from arrival at the airport to seating in the aircraft, or if necessary, in a special seat fitted to his/her specific needs the process being inverted at arrival.

### **AT THE AIRPORT BEFORE BOARDING**

1. How do you get to the airport?
  - Public or private transport
  - Type of parking, long haul or short

2. Do you use airport vehicles?
  - If so, are they accessible?
3. What are your experiences of checking in?
  - Do you use the special assistance queue or the first class/priority boarding desk?
4. What are your experiences of going through security?
5. After going through security, do you use the following?
  - Special Assistance Desk/Area
  - Restaurants
  - Shops
  - Toilets
6. Describe your experiences of getting to the gate.
  - Distances or inefficient routes involving lifts
7. How does this part of the journey make you feel?
8. To what extent do you feel you need the help of special assistance during this part of the journey and at which points in particular?

## **THE PLANE**

1. Thinking about boarding the plane, can you describe your experiences of boarding the plane.
  - Is there a difference between a jet way and scissor lift?
2. What do you think about the equipment used in transporting wheelchair users to their seats?
  - Mainly regarding the Aisle trolley, but can try and probe about the Eagle lifter
3. Thinking about seating, can you describe the quality of the seats in terms of position on the aircraft and comfort?
4. Do you think a premium economy/business class seat could offer a wheelchair user a better situation?
5. Can you describe your experiences of going to the toilet on the aircraft?
  - If not, what coping mechanisms do you use to ensure that you don't have to go?
6. How does being on board the plane and flying make you feel?
7. Thinking about your interaction and communication with the staff, can describe your experiences of this?
  - Ground staff/cabin crew/pilots
  - Language barriers abroad

## **LEAVING AND WHEELCHAIR ISSUES**

1. Thinking about landing, have you ever struggled in terms of balance on landing or suffered an injury from it?
  - Seat ejection
  - Hitting face going forward when plane brakes (whiplash?)
2. In general, wheelchair users are the last to leave the aircraft. Can you describe your experiences of this?
  - Waiting Times

- Equipment, such as stairs/scissor lifts etc.
- 3. Have you ever had any issues with your wheelchair coming back to the aircraft door?
  - Broken
  - Gone to baggage hall
  - Missing
- 4. Can you describe your experiences of going from the plane to passport control/immigration and your experiences there?
  - Special queue
  - Speed
  - Problems abroad
- 5. Thinking about collecting your baggage, can you describe this process?
- 6. Overall, how does this part of flying make you feel?

### **RECOMMENDATIONS AND CONCEPT QUESTIONS**

1. What would you recommend to the aviation industry to improve the transit of passengers with wheelchairs?
2. Do you know what is meant by the term “purple pound”?
3. An alternative to having to sit in an aeroplane seat is for wheelchair users to be able to use their own wheelchairs. How do you feel about this concept and do you think it would encourage wheelchair users to fly more?

### **FREE DISCUSSION**

We have covered a lot of issues but is there anything else you would like to comment on or add? Or do you have any questions?

## **5.2.5 FINAL TOPIC GUIDE – CABIN CREW**

### **INDIVIDUAL CHARACTERISTICS**

1. How old are you?
2. Can you describe your gender?
3. What is your occupation?
4. Who is your employer?
5. What airport are you based at?
6. How long have you done the job for?

### **DISABILITY POLICIES & TRAINING**

1. Thinking about passengers with disabilities, are you aware of the disability policies that your company has in place and if so, can you describe them?
2. Have you received training on how to deal with passengers who use a wheelchair?
3. If YES, then: When did you last receive training in relation to handling passengers with a disability?
4. If YES, then: What were your views about the training you were given?
5. If NO, then: Do you feel this should have been provided?
6. If NO, then: Do you feel like you have enough knowledge/experience in helping wheelchair users?

### **PRE-FLIGHT**

1. Are you and your team made aware of how many wheelchair users will be travelling on the flight and does the passenger manifest show their disabilities/needs?  
PROMPT: carry-ons/visual impairment/elderly/injured
2. To what extent do you plan with other departments at the airport to help wheelchair users?  
PROMPT. Cleaners/baggage handlers/ground staff/pilots or cabin crew

### **BOARDING THE FLIGHT**

1. Thinking about passengers boarding the flight, describe your experiences of disabled passengers boarding the flight.  
PROMPT: passengers with disabilities boarding first/last - occurrence
2. What experience do you have of aiding wheelchair users boarding planes?  
PROMPT: Do you think they experience pain/discomfort during boarding?  
PROMPT: Do you think it is an embarrassing experience for them?  
PROMPT: Do you think the equipment available for them is appropriate/adequate?
3. To what extent do you feel that wheelchair users' needs are met when boarding the plane?  
PROMPT: Are they manually handled correctly?  
PROMPT: Is their dignity preserved?

### **IN FLIGHT**



1. Thinking about being on board the plane, describe your experiences of helping wheelchair users.

PROMPT: toilet issues and accidents

PROMPT: help with food

PROMPT: communication

PROMPT: safety announcements and evacuation procedures

### **LANDING AND DISEMBARKATION**

1. Describe your experiences of helping wheelchair users when landing and disembarking the flight.

PROMPT: waiting times

PROMPT: lost/damaged equipment

PROMPT: people coming out of seats

PROMPT: injuries from landing (face planting seat in front)

### **RECOMMENDATIONS AND CONCEPT QUESTIONS**

1. What would you recommend to the aviation industry to improve the transit of passengers with wheelchairs?

### **FREE DISCUSSION**

We have covered a lot of issues but is there anything else you would like to comment on or add? Or do you have any questions?

## **5.2.6 FINAL TOPIC GUIDE – SPECIAL ASSISTANCE STAFF**

### **INDIVIDUAL CHARACTERISTICS**

1. How old are you?
2. Can you describe your gender?
3. What is your occupation?
4. How long have you done the job for?
5. Who is your employer?
6. What airport are you based at?

### **DISABILITY POLICIES & TRAINING**

1. Thinking about passengers with disabilities, are you aware of the disability policies that your company has in place?
2. Have you received training on how to deal with passengers who use a wheelchair?
3. Are you given training on the equipment people with disabilities have such as wheelchairs and mobility scooters/canes etc? X
4. What were your views about the training you were given?  
IF NO TRAINING GIVEN:
5. Do you feel this should have been provided?
6. Do you feel like you have enough knowledge/experience in helping wheelchair users?

### **PRE-FLIGHT**

1. Thinking about helping passengers with disabilities, how are you assigned to a job?
  - PROMPT: Schedule?
  - PROMPT: teams?
2. Are you and your team made aware of how many wheelchair users will be travelling on a flight and does it show their disabilities/needs/IATA code?
  - PROMPT: carry-ons/visual impairment/elderly/injured
3. Is there a difference in helping passengers between short and long-haul flights?
  - PROMPT: due to turnaround times/frequencies
4. To what extent do you plan with other departments at the airport to help wheelchair users?
  - PROMPT. Cleaners/baggage handlers/pilots or cabin crew/wheelchair users themselves

### **AROUND THE AIRPORT**

1. Do you help passengers with disabilities arrive and depart the airport?
  - Public or private transport
  - Type of parking, long haul or short stay
  - Train station
  - Luggage
2. Do you use airport vehicles to help passengers with disabilities?
  - If so, are they accessible?
  - What type of vehicles are they?

3. What are your experiences of helping passengers with disabilities checking in?
  - Do you use the special assistance queue or the first class/priority boarding desk?
4. What are your experiences of helping wheelchair users through security?
5. Describe your experiences of helping wheelchair users get to the gate.
  - Distances or inefficient routes involving lifts
  - Slopes/strain on participant on gradients

## **BOARDING THE FLIGHT**

1. Thinking about passengers boarding the flight, describe your experiences of disabled passengers boarding the flight.
  - PROMPT: passengers with disabilities boarding first/last - occurrence
2. What experience do you have of aiding wheelchair users boarding planes?
  - PROMPT: Do you think they experience pain/discomfort during boarding?
  - PROMPT: Do you think it is an embarrassing experience for them?
  - PROMPT: Do you think the equipment available for them is appropriate/adequate?
  - PROMPT: Are they manually handled correctly?
  - PROMPT: Is their dignity preserved?
3. Is there a difference in the processes and knowledge between being directly connected to the terminal (Jetty) and when it is at a stand (scissor lifts etc.)?
4. To what extent do you feel that wheelchair users' needs are met when boarding the plane?

## **EQUIPMENT**

1. Thinking about the moving and handling of wheelchairs, can you describe the process of loading and unloading wheelchairs from the aircraft?
  - PROMPT: broken parts
  - PROMPT: weight issues
  - PROMPT: labelling or lack thereof
  - PROMPT: strapping down
  - PROMPT: difference between electric/manual
  - PROMPT: difference between hold/cargo crate

## **DISEMBARKATION AND LEAVING THE AIRPORT**

1. Describe your experiences of helping wheelchair users when disembarking the flight.
2. Thinking about helping wheelchair users through border control, can you describe your experiences of this?
3. Thinking about helping wheelchair users in the baggage hall and through customs, can you describe your experiences of this?

## **RECOMMENDATIONS AND CONCEPT QUESTIONS**

1. What would you recommend to the aviation industry to improve the transit of passengers with wheelchairs?
2. An alternative to having to sit in an aeroplane seat is for wheelchair users to be able to use their own wheelchairs. How do you feel about this concept and do you think it would encourage wheelchair users to fly more?

### **FREE DISCUSSION**

We have covered a lot of issues but is there anything else you would like to comment on or add? Or do you have any questions?

### **5.3 INTERVIEWING THE PARTICIPANTS**

This section describes how ethical approval was applied for before a discussion of how the correct sample size for each research group was determined. The recruitment of participants, interview setting, building a rapport with the participants, interviews with the participants, and how they were recorded onto audio devices are discussed.

#### **5.3.1 PEOPLE WHO TRAVEL WITH WHEELCHAIR USERS PARTICIPANTS**

During the data collection phase of the wheelchair users and people who travel with them, it became noticeable that there were two similar but different sets of results emerging. A full analysis revealed several similarities but noticeable differences between those who used wheelchairs and those who travelled with someone who used a wheelchair. Therefore, their results are presented in different results chapters. From this point in the thesis, the four groups of people are known and described as:

**Wheelchair users** – Participants or people who use a wheelchair on a permanent basis.

**People Who Travel with Wheelchair Users** – known as people who accompany wheelchair users. Referring to the spouses, parents, or professional carers of wheelchair users.

**Cabin crew** – Members of staff who work on board the aircraft

**Special assistance staff** – Staff members who help wheelchair users and people with disabilities at the airport.

The research had been designed with the same topic guide to collect the experiences and views of wheelchair users, the family members of wheelchair users, and carers of wheelchair users. The recruitment of people who travel with wheelchair users is included in 5.3.3.1 WHEELCHAIR USER AND THE PEOPLE WHO TRAVEL WITH THEM RESEARCH GROUP.

### **5.3.2 ETHICAL APPROVAL**

Prior to any research being carried out, and under the guidelines of the university, ethical approval was sought for each research group. This was to ensure that the intended research was carried out to the standards expected in professional research. An application for ethical approval was made and granted. An application for a data protection registration number was also made. A copy of the letter informing the researchers of ethical approval for each research group can be found in Appendices B, C, and D, and copies of emails informing that data protection registration numbers had been confirmed can be found in Appendices E, F, and G. In line with ethical approval being granted, participants were given copies of an information sheet about the research found in Appendices H, I, J and a consent form to participate prior to the interview taking place and copies of these can be seen in Appendices K, L, and M.

All participants were guaranteed anonymity which was vital in this research as it allowed participants to explore their perspectives, feelings and attitudes in depth without fear of being identified by their employer or because the topics being discussed could be sensitive (Madriz, 2000; Hammersley and Traianou, 2012). If any names were mentioned during the interview, they were redacted during the analysis of the transcriptions and are not revealed in the final write up of this research.

### **5.3.3 CHOOSING THE CORRECT SAMPLE SIZE AND DATA SATURATION**

Choosing the correct sample size is important to avoid data saturation. Not conducting enough interviews will lead to insufficient data being obtained in order to answer the research questions. Too many interviews may not lead to any further information being obtained, resulting in an oversized sample that can be impractical and time consuming to analyse (Mason, 2010). Where no new information is gathered, it is known as data saturation, the point where the collection of more data does not reveal any further issues (Guest, Bunce and Johnson, 2006; Bowen, 2008; Mason, 2010; Marshall *et al.*, 2013). Morse (1995) described that 'there are no published guidelines or tests of adequacy for estimating the sample size required to reach saturation' (p.147). Guest, Bunce and Johnson (2006) found that data saturation occurred after 12 interviews, but other research has found there is no specific way of knowing when it has been reached (Bowen, 2008; Marshall *et al.*, 2013).

Failure to achieve data saturation can be frustrating for the researcher and potentially lead to invalidating the results, but choosing the correct sample size and method can be used to achieve data saturation (Morse, 1995).

Onwuegbuzie and Leech (2007) found that researchers often pay little attention to deciding sample size from a data saturation perspective. Guest, Bunce and Johnson (2006) theorised that probability sampling, a method of choosing a person at random from a population based on certain parameters (Ritchie and Lewis, 2003; Bryman, 2008), can be used to determine sample sizes but is impractical to do when trying to target 'hard-to-reach, stigmatized, or hidden populations' (Onwuegbuzie and Leech, 2007:p.61). Several researchers suggested the sample size needed to carry out effective qualitative research: Creswell (2013) 20-30; Marshall *et al.* (2013) 15-30; Bertaux (1981) a minimum of 15; Morse (2000) 30-50; Charmaz (2006) around 25; Ritchie, Lewis and Elam (2003) under 50; and Green and Thorogood (2018) around 20. Mason (2010) explored how many interviews should be carried out in PhD theses as universities often ask the candidates what their intended sample sizes are in addition to having a defined time frame to complete their degrees. Mason (2010) carried out a content analysis, 'the analysis of documents and texts that seeks to quantify content in terms of predetermined categories in a systematic and replicable manner' (Bryman, 2008:p.538), of 560 PhD studies in the UK that had used qualitative interviews 'structured, semi-structured, or unstructured' (p.7), where the number of participants ranged from 1 to 95, with an average of 31 interviews per study (Mason, 2010). This is broadly in line with the numbers from the studies cited above. Taking into account the previous research on choosing the correct sample size and the time and scope of this PhD, it was envisaged that between 10 and 15 participants per research group should be interviewed in line with Guest, Bunce and Johnson's (2006) guidance for data saturation in hard to reach groups. This will ideally result in the recruitment of between 30 and 45 participants in total, which meets the opinions of how large a piece of qualitative research should be (Bertaux, 1981; Morse, 2000; Ritchie, Lewis and Elam, 2003; Charmaz, 2006; Creswell, 2009; Green and Thorogood, 2018). The interviews should be designed to last around 45 minutes based on the pilot test interviews.

#### **5.3.4 PARTICIPANT RECRUITMENT AND INTERVIEWS**

Purposive sampling was used as the primary method of recruiting participants for this study. This method is considered a better approach in qualitative research as it allows the researcher to better answer the research questions than through a random sample (Creswell, 2009). A purposive sample is where participants, who are deemed to be experts at the subject being asked about, are chosen through non-probability means that can be assumed to be representative of the views of the population (Battaglia, 2012). A purposive sample method was utilised because of the small number of participants available and expanded on by using snowball sampling where participants who took part invited others they know who are relevant to the topic and gave the contact details of the researcher to them (Ritchie, Lewis and Elam, 2003; Bryman, 2008). This was because the recruitment of participants was difficult as their populations were hard to reach, scattered and potentially vulnerable (Sedgwick, 2013).

The groups of participants needed to fulfil certain requirements. Wheelchair users and those who travelled with them needed to either be a full time wheelchair user, a family member of a wheelchair user, or a professional carer who work with wheelchair users that consider themselves or who they know to belong to the IATA PRM code WCHC - Passenger needs a wheelchair (International Air Transport Association, 2017). This is crucial to avoid doubt over whether the person can manage any stairs or simply struggle to walk any distance. The cabin crew included people who worked on board an aircraft during the flight. The special assistance staff needed to be people whose primary job role it was to help wheelchair users and people with disabilities at the airport.

##### **5.3.4.1 WHEELCHAIR USER AND THE PEOPLE WHO TRAVEL WITH THEM RESEARCH GROUP**

Wheelchair users and those who travelled with them were identified through contacts of the author or through an appeal on a social media platform (Twitter). The appeal was well received and shared by other users 34 times which led to 16 people emailing the author enquiring to take part and a snapshot of this can be seen in Appendix N. The social media campaign also led to potential participants who wished to take part but were unable to because their disability has left them unable to speak coherently enough to participate in a verbal interview. In total, three participants were sent a revised topic guide where they wrote



their responses to the questions instead of answering them verbally. A copy of one of these topic guides and answers can be found in Appendix O. The recruitment process could be considered limited. Social media is a good method for recruiting a hard to reach target audience however it a potential limitation is that the people who participate might be passionate in responding to something they feel strongly about which could lead to a bias (Allsworth, 2015; Harris *et al.*, 2015). Despite the known drawback, disability is a protected characteristic under UK law, and so the need for them to approach the interviewer was required. A total of 11 wheelchair users and 10 people who travelled with wheelchair users were interviewed either via the telephone (14), via Skype (an online video calling application) (2), face to face (2), and by written responses (3). Nobody exercised their right to withdraw from the research as outlined in the information sheet and consent form issued to them prior to, during, or after the study commencing. The data was collected between 29<sup>th</sup> January 2018 and 4<sup>th</sup> March 2018. A further five people agreed to participate however a mutual time could not be agreed. They were not pursued to be interviewed because the targeted number of participants, between 10 and 15, for both groups had been met as derived in 5.3.3 CHOOSING THE CORRECT SAMPLE SIZE AND DATA SATURATION.

#### **5.3.4.3 CABIN CREW RESEARCH GROUP**

Three cabin crew participants were recruited through a convenience sample of personal contacts of the author. Social media was used to recruit two more participants. One of these participants worked for a charity led by cabin crew who provided an upmarket service for events whilst dressed in their work regalia who used snowball sampling to recruit a further seven participants. An appeal on a cabin crew forum yielded one participant. In total, 28 people were invited to participate in this research, but only 15 people responded to the invitation. Of these, 12 people agreed to take part and were interviewed. Two people agreed to participate however a mutual time could not be agreed and one agreed to take part but later exercised their right to withdraw from the research prior to the interview commencing. The interviews took place between 17<sup>th</sup> July 2017 and 28<sup>th</sup> November 2017. The target sample size of between 10 and 15 participants was achieved, and 12 participants was on target for data saturation as suggested by Guest, Bunce and Johnson (2006). Despite the theoretical number of people who are employed as members of cabin crew, they were difficult to recruit. The promise of anonymity was not enough for some people who felt that their participation

in the research may have jeopardised their relationship with their employers if they had found out. The contact at the charity was helpful in recruiting participants and a charitable donation was made by the author of this PhD to their cause. There was concern at the number of participants associated with the charity, however the average length of time employed as a member of cabin crew was 12.55 years over the whole sample and should nullify this concern. One interview was conducted in a face to face scenario as the participant was an acquaintance of the author, however the other interviews were all conducted via means of telephone at the convenience of the participant as no other incentives were offered for taking part.

#### **5.3.4.4 SPECIAL ASSISTANCE STAFF RESEARCH GROUP**

The special assistance staff were identified through a contact of the author who worked for Service Provider One. They provided disability assistance services at several airports across the UK. After discussing the research objectives and the proposed topic guide, it was agreed that the interviews would be carried out at London Heathrow airport. It is the UK's largest airport with four terminals in operation at the time of conducting the research (Terminal 1 was being reconstructed). Interviewing special assistance staff at another airport was requested so different airports could be compared by the researcher. However, the contact at Service Provider One explained that their business model was based on each terminal being classed as one operation and so access to four different disability service operations would be explored, even though the research took place at one airport. Collecting the research data on one large site was advantageous in that the researcher would not have to travel around the country to different airports. It was considered that the contact at Service Provider One aided with the recruitment considerably and that recruitment of these participants would have been extremely difficult otherwise. In exchange for access to the participants, the researcher was to feedback their thoughts and initial findings to Service Provider One. Each terminal was managed by different managers and staff who worked exclusively in one terminal. The participants were selected by management staff at each terminal, who were informed of when the research was being undertaken and given a brief from the contact of the author about the research. Each terminal was visited on a separate day where all of the participants were interviewed in a face to face setting:

Terminal 2 – Wednesday 7<sup>th</sup> March 2018. Six interviews were conducted in an office provided by the terminal manager. A mixture of supervisors, team leaders and staff were interviewed.

Terminal 3 – Thursday 8<sup>th</sup> March 2018. Four interviews were conducted in a busy coffee shop in the terminal building. The day-time supervisor was the point of contact for this terminal who decided which staff could participate as the terminal manager was unavailable. They finished their shift at around 14:00 and their replacement had no knowledge of the research and refused to let anyone else be interviewed that day. One supervisor and three staff were interviewed.

Terminal 4 – Thursday 15<sup>th</sup> March 2018. Five interviews were carried out in a coffee shop in the terminal building. The interviews were supposed to take place in an office provided by the terminal manager however the researcher could not access any of Service Provider One's offices. Two members of the customer experience team and three staff were interviewed.

Terminal 5 – Wednesday 14<sup>th</sup> March 2018. Six interviews were carried out in a quiet corner of a large coffee lounge exclusively for staff. The terminal manager, the operations manager, two members of the customer experience team and two staff were interviewed.

Semi-structured interviews were conducted with a total of 21 participants who agreed to offer their experiences of helping people with disabilities who travelled by air. All of the interviews were conducted in a face to face scenario in their workplace at the discretion of the management when it was convenient for that staff member as no other incentives were offered for taking part. All were offered the chance to withdraw at any time and without giving a reason however nobody did. The participants included different job functions and levels of management which gave a wide range of experiences and views. Although the individual sample sizes were small at each terminal, they collectively had 21 participants that exceeded the targeted sample size and the point of suggested data saturation (Guest, Bunce and Johnson, 2006). The total sample size exceeded the target sample size because of the agreement with the contact at Service Provider One who wanted feedback about all of the terminals.

### **5.3.5 INTERVIEW SETTING**

The interviews were conducted in either a face to face setting or over the telephone. This was at the convenience of the participants who were geographically spread out (wheelchair users, those who accompany them, and cabin crew) or the interviews took place where they worked (special assistance staff). There are differences between conducting interviews in a face to face setting and over the telephone. Telephone interviewing can be beneficial when topics of a sensitive nature are discussed because of the sense of anonymity (Fenig *et al.*, 1993; Greenfield, Midanik and Rogers, 2000; Sturges and Hanrahan, 2004). Holt (2010) found that telephone interviews tended to focus on the issues at hand. This does not mean telephone interviewing is a 'second best' (Holt, 2010:p.120) choice, as other research found that there was little difference between the two methods in terms of data collection (Sturges and Hanrahan, 2004; Irvine, Drew and Sainsbury, 2013). There was a difference found between the average duration of an interview though, with telephone interviews lasting a shorter amount of time than face to face ones (Sturges and Hanrahan, 2004; Irvine, Drew and Sainsbury, 2013). Ultimately, the setting of an interview should be at the convenience of the participant (Opdenakker, 2006; Holt, 2010).

It was important to try and establish a rapport between the interviewer and participant; one of the five basic elements of research design in Bryman (2008). This is to elicit trust between the interviewer and the participant, and is the job of the interviewer to present themselves as being able to be trusted with potentially sensitive subjects (Hammersley and Atkinson, 2007; Hammersley and Traianou, 2012). Striking a balance between over friendliness in such a way that the interviewer becomes too pleased with the responses given and not establishing a good enough relationship so that the participant exits the interview early is crucial. Establishing trust also helps to ensure that the answers given to questions are valid, reliable, and trustworthy (Shenton, 2004). In line with the Information Sheet given prior to interviews commencing, participants were reminded that their anonymity would be preserved, the interview would be recorded, there are no right or wrong answers to the questions asked, questions do not have to be answered if they did not want to answer them, and they could withdraw from the research at any time and for any reason.

### **5.3.6 AUDIO RECORDING THE INTERVIEWS**

Recording the interviews was essential in this research and has several advantages: it corrects our memories and allows us to hear what was actually said; allows a thorough examination of what was said; allows language such as tone or hesitation to be captured; allows the researcher to compare answers; can be scrutinised in a separate or secondary analysis; can prove whether a researcher was biased in asking questions; and allows the data to be used in ways beyond its original intention (Heritage, 1984; Ritchie and Lewis, 2003; Green and Thorogood, 2018). Some issues concerning audio recording devices such as the memory of cassettes or discs running out of storage space, the device breaking (Bryman, 2008), or the microphone being poor leading to transcription issues (Green and Thorogood, 2018).

The audio from the interviews was recorded onto two audio recording devices in the event that one failed during the interview. The audio recording devices used in this research had ample memory (4Gb) equating to hundreds of hours of audio. The audio devices used a AAA battery, of which spares were carried, as recommended in Ritchie and Lewis (2003:p.167), in addition to the audio device's USB cable, which could be used to power the device via a laptop or power pack, which were kept on hand in all of the interviews. Audio device failure happened in Rafaeli *et al.* (1997), however they had taken extensive notes during the interview to overcome the problem. Note taking is seen as a tool and method to help remember what happened in an interview should the audio tapes fail for any reason. It can lead to participants slowing their responses down or taking unintended cues from the interviewer (Ritchie and Lewis, 2003), and is difficult for the interviewer to write, listen, link the next question, plan a prompt or probe, and maintain eye contact or watch the participant themselves (Green and Thorogood, 2018).

In ordinary circumstances, note taking would be highly recommended for this research, however due to the interviewer's disability this was not practical and so multiple recording devices were used. The audio recording devices were faced away from each other so that the microphones were facing opposite directions which became a benefit after the interviews had been transcribed at identifying words where there had been background noise, static, or the interviewer or participant had spoken too quietly. The audio recording devices did not fail at any stage.

## **5.4 INTERVIEW ANALYSIS**

This section explores how the interviews were transcribed and analysed using template analysis and quasi quantification. Standards for Reporting Qualitative Research (SRQR) and The Consolidated Criteria for Reporting Qualitative Studies (COREQ) were used to ensure rigour within the research. This was to ensure that Bryman's (2008) three cornerstones of qualitative research were met to ensure that the methodology can be repeatable in the future if necessary.

### **5.4.1 TRANSCRIPTION**

Prior to any analysis of the data, it was important to transcribe the audio recordings into textualized data. This was primarily because the total audio time recorded was 33 hours and 42 minutes and would be impractical to analyse in this format. The shortest interview was 17 minutes and the longest was 1 hour and 11 minutes. The average time for an interview was 38 minutes.

It has been suggested that it can take around 5 or 6 hours on average to transcribe just 1 hour of audio (Opdenakker, 2006; Parcell and Rafferty, 2017). A professional transcription company was used to transcribe the audio because they specialise in doing it, it can be a laborious process, and there was a budget for it. Using a professional transcribing service allowed the data to be independently textualized as familiarity from the researcher can result in writing down what they think should be there rather than what was actually said (Bailey, 2008).

Despite the professional transcription service being utilised there were still points in the transcription that could not be deciphered or were inaudible for various reasons such as background noise, accents in the language, or the recording either dropping out or having static. This was addressed as best as possible by listening back to audio at the point of error by the researcher to try and fill in the gaps. Although these gaps have been addressed where possible and the level of confidence in them is high, the transcriptions may not be 100% accurate.

#### **5.4.2 INTERVIEW ANALYSIS**

Unlike quantitative analysis, there are no stringent rules or procedures for analysing qualitative data (Ritchie and Lewis, 2003). Template analysis was used as the primary method to analyse the transcripts. It is a version of thematic analysis where themes and codes are developed using a code book (Vaismoradi, Turunen and Bondas, 2013), but uses large elements of content analysis where themes or codes are identified by the frequency of occurrence with continual refinement by comparing and contrasting (Hsieh and Shannon, 2005; Thomas, 2006; Elo and Kyngäs, 2008). Template analysis is defined as ‘a form of thematic analysis which emphasises the use of hierarchical coding but balances a relatively high degree of structure in the process of analysing textual data with the flexibility to adapt it to the needs of a particular study’ (Brooks *et al.*, 2015:p.203). This method of analysis advocates the development of themes in relation to the research questions developed and does not require the themes to be descriptive or interpretative (Brooks *et al.*, 2015). King (2012) outlined six crucial steps that should be followed when carrying out template analysis, adapted by the author of this PhD to describe what happened at each step in this research analysis:

One – Familiarisation: A phase where the researcher becomes immersed in the transcriptions and the data. This involved reading all of the transcriptions, correcting errors within them such as re-listening to audio to correct parts where the transcription could not be discerned first time around, protecting anonymity, formatting in general, and making a backup of the audio and transcription files on an external hard drive and on a cloud data store (Dropbox). Familiarity and understanding of the transcripts meant that computer software was not used to analyse the data as one researcher had carried out all of the interviews and was familiar with the transcripts.

Two – Preliminary Coding: This involves an initial top-level thematic approach whereby a researcher highlights any data they feel is relevant to answering a research question. In some research, it is possible to have some *a priori* themes already in place. This was true in this research because of the air travel process used to formulate the topic guide (Poria, Reichel and Brandt, 2010; Chang and Chen, 2012b, 2012a; Darcy, 2012; Arcidiacono, Giorgetti and Pugliese, 2015).

Three – Clustering the themes: The emerging themes are placed into the parts of the topic guide or groups where they belong with a subset of themes developed within those. King (2012) identified themes that straddle many different themes and are known as ‘integrative themes’ (Brooks *et al.*, 2015:p.204). In this research, part three was done in conjunction with part four.

Four – Define an initial coding template: Identifying the themes and sub-themes within the data is the most important part of the analysis (Thomas, 2006). The themes and sub-themes were placed into a spreadsheet using the first four columns on the vertical axis to identify a broad theme (column A) with narrower sub-themes associated with the broad theme in the columns (B, C, and D) next to it until a total of one broad theme and up to three sub-themes were formed (King, 2012). The participants were labelled horizontally from column E to form a grid. The grid was frozen so that the themes, sub-themes, and participant identifier would always be visible. Three transcripts from each research group were compared to establish four initial coding templates. Each transcript had line numbers added into it. The grid established in the spreadsheet was filled with the line numbers where the theme occurred for easy cross referencing and the potential quote was highlighted within the transcript. To ensure that a similar set of themes and codes had been developed properly a transcript, one from each of the research groups (four in total), was coded and themed by an experienced researcher, Professor Christie, who carried out the same technique on them before the main analysis began. It was agreed that a similar set of themes and sub-themes had emerged when compared and so it was agreed that a full analysis could begin.

Five – Carry out a full analysis, modifying the template as necessary: The initial coding templates were used on the rest of the transcripts. During this part of the analysis phase more codes were added or modified with narrower themes if required. To prevent fatigue and reduce the number of potential errors that could be made, a maximum of three transcripts per day were analysed in full. A total of two iterations of each research group was made developing the full template.



Six – Use the finalised template on all of the data: An examination of the unhighlighted material in each transcript was made to try and ensure that the themes and sub-themes had been best encapsulated and to try and prevent loss of important data. King (2012) says that despite any researchers best efforts, a coding template can never be fully completed. Brooks *et al.* (2015) advised that a template can be sufficiently complete if no more themes or sub-themes can be added to the coding template that are relevant to the research questions. The spreadsheet was used with the transcripts to select a quotation to best convey the theme or sub-theme in the results. A snapshot of the wheelchair user research group template can be seen in Figure 5.3. A full list of themes and sub-themes for each group can be seen in Appendix P, Q, R and S. A copy of a highlighted transcript can be found in Appendix T.

	A	B	C	D	V	W	X	Y	Z	AA		
1	THEME	SUB THEME 1	SUB THEME 2	SUB THEME 3	Participant R	Participant S	Participant T	Participant U	Participant V	Total		
89	Boarding the Aircraft	Process	First		469			438, 467	364	12		
90			Last			182		452-460			12	
91		Manual Handling	Lifting issues		291	197-200, 212-2	146, 157	481, 497		375	18	
92			Passenger size		292						5	
93		Method of Entry	Parents/friends doing it		477, 505, 571		144, 261				10	
94			Jetway		495			180			5	
95			Stairs						170		4	
96			Ambulift	Using		301	95-97		446			12
97		Seat location		Family separatic	359, 477						4	
98			Bulkhead		532		144, 166				6	
99			down the aisle	being touched		672-674, 684		256	459		14	
100				staring							2	
101				Near the toilet					519			3
102				Near an exit								1
103			Back					255			5	
104			Middle								2	
105		Front					165		499	10		
106		Choosing your seat					239	256		6		
107	Equipment	Aisle trolley			521	193	153	492	420	16		
108		Eagle Hoist			502		164			6		
109		Broken/Inadequate			503	194	154		420	11		
110		Missing/not there									2	

Figure 5.3 – Coding Template for the Wheelchair User Research Group

### 5.4.3 THE QUANTIFICATION OF QUALITATIVE DATA

Figure 5.3 shows that the qualitative data has been quantified. The quantification of qualitative data has two main thought processes behind it. The first is that using a qualitative approach is about the discovery of ideas and the quantification of this data is not welcome (Chivanga, 2016; Monrouxe and Rees, 2020). A second approach to it is that the researcher is always counting to a degree to imply meaning to the data collected either through theming

and coding or by using frequencies of what was said (Sandelowski, 2001; Maxwell, 2010; Neale, Miller and West, 2014). Quantifying qualitative data allows for several advantages to the researcher and reader. It can help with making the data transparent by providing the evidence of counting the frequencies of how often a theme or code was used (Maxwell, 2010; Hannah and Lautsch, 2011; Neale, Miller and West, 2014). This allows help with pattern recognition within data sets to establish common or rare occurrences, known as deviant cases (Green and Thorogood, 2018), and to justify why a statement was chosen within the results (Maxwell, 2010; Hannah and Lautsch, 2011; Neale, Miller and West, 2014). Using raw numbers in qualitative data is not advised though as there is a fear that it detracts from the qualities of what was said within the data (Ritchie and Lewis, 2003; Maxwell, 2010). Maxwell (2010) also cautions that the use of numbers can have negative implications in that they may generalise findings when in fact a qualitative study is about a local set of issues.

The research questions generated are qualitative in their enquiry. The use of template analysis, with all of the data referenced within a spreadsheet allowed the themes to be quantified with a simple formula. Counting the frequency of each code and theme is a form of 'credentialing counting' (Hannah and Lautsch, 2011:p.16). The purpose of credentialing counting is to provide confidence in the analysis and findings of the research but that the quantitative elements do not provide any statistical relevance on their own. Whilst credentialing counting was used in this study to select the issues most pertinent to each group, the researcher was mindful of the negative implications raised by Ritchie and Lewis (2003) and Maxwell (2010). Weiss (1994) advises that 'sample numbers or proportions should probably be reported when an issue is central to a study' (p.220). Neale, Miller and West (2014) say that the use of raw numbers should be limited and that where descriptive language is used to describe a number of participants then it should be justified.

#### **5.4.5 STANDARDS FOR REPORTING QUALITATIVE RESEARCH**

To ensure that the methodology meets Bryman's (2008) three cornerstones to effective research design where the methods must be repeatable and reliable to ensure the results are valid, two processes were used to ensure this.

The Standards for Reporting Qualitative Research (SRQR) checklist was used (O'Brien *et al.*, 2014). This allowed the researcher to identify where in the methodology something is by writing the page number next to the item in the checklist. A completed copy of this can be found in Appendix U.

The Consolidated Criteria for Reporting Qualitative Studies (COREQ) is a reporting tool for qualitative studies that have used interviews or focus groups to ensure rigour in the research (Tong, Sainsbury and Craig, 2007; Booth *et al.*, 2014). Designed as a 32-stage checklist, it documents and reports all aspects of the research process to ensure that it is able to be replicated. A completed checklist can be found in Appendix V.

#### **5.4.6 PRESENTATION OF RESULTS**

The themes and sub-themes will be presented over the following four chapters, one for each group of participants. Quotations were selected by the author of this PhD from the transcriptions of the interviews with participants to best illustrate the themes and sub-themes discovered.

## **CHAPTER SIX – WHEELCHAIR USER RESULTS**

Eleven wheelchair users agreed to participate in this research who were aged between 30 and 62 years old. The mean age of the participants was 41.09 years old and the gender split consisted of three males and eight females. Six of the wheelchair users had acquired their disabilities whereas the other five had been born with theirs. Five participants used electric wheelchairs, five used manual wheelchairs, and one participant used a combination of both electric and manual wheelchairs. Five participants received professional personal assistance and six lived independently. Several primary causes of disability were given which included: Astrocytoma (Brain Tumour UK, 2007) (1 participant), Charcot-Marie-Tooth type III (National Health Service, 2016) (1 participant), motor neurone disease (National Health Service, 2018a) (2 participants), spina bifida (National Health Service, 2017b) (1 participant), spinal cord injury (Spinal Injuries Association, 2020) (3 participants), and spinal muscular atrophy (National Health Service, 2017c) (3 participants). This information can be read in Table 6.1. The target sample size was met as outlined in *5.3.3 CHOOSING THE CORRECT SAMPLE SIZE AND DATA SATURATION*.

Two people with mobility issues who did not rely on a wheelchair permanently also took part in the interview process, but it was decided to not include them within the results as they had similar but different experiences and did not consider themselves to be in the WCHC category.

The following characteristics were selected to define a participant in the results: Participant number, gender, and age. Participant numbers were used to protect anonymity and were given by the researcher. Gender and age were the answers given by the participant to the researcher during the interview. This resulted in the following format as an example: [Participant 10, Female, 30].

The following words are used to describe the number of participants responses associated with a particular theme where not explicitly specified:

‘None’ – refers to none of the participants

‘Minority’ – refers to between one and three participants

‘Some’ – refers to between four and six participants

'Majority' – refers to between seven and ten participants

'All' – refers to all eleven participants

<b>Participant</b>	<b>Age</b>	<b>Gender</b>	<b>Disability</b>	<b>Disability Type</b>	<b>Years Disabled</b>	<b>Wheelchair Type</b>	<b>Has Professional Care?</b>
2	42	Female	Motor Neurone Disease	Acquired	9 Years	Electric	Yes
5	37	Male	Spinal Cord Injury	Acquired	15 Years	Manual	No
6	35	Female	Spinal Muscular Atrophy	Birth	35 Years	Electric and Manual	No
8	32	Male	Spina Bifida	Birth	32 Years	Manual	No
9	54	Male	Motor Neurone Disease	Acquired	13 Years	Electric	Yes
10	30	Female	Spinal Muscular Atrophy	Birth	30 Years	Electric	Yes
12	40	Female	Spinal Muscular Atrophy	Birth	40 Years	Manual	No
15	31	Female	Spinal Cord Injury	Acquired	8 Years	Manual	No
16	46	Female	Astrocytoma	Acquired	16 Years	Manual	No
19	43	Female	Charcot-Marie-Tooth Type III	Birth	43 Years	Electric	Yes
20	62	Female	Spinal Cord Injury	Acquired	23 Years	Electric	Yes

*Table 6.1 – Participant Characteristics of Wheelchair Users*

## **6.1 PREPARING FOR FLYING**

The International Air Transport Association (IATA) defined people with mobility issues and wheelchair users into three categories as discussed in 2.1 DEFINITION OF DISABILITY. Participants were asked to categorise themselves, where the interviewer read out a description of each code from Table 6.2 below:

<b>Code</b>	<b>Description</b>
WCHR (Wheelchair Ramp) Known as: Romeo	Passenger who can walk up and down stairs and move about in an aircraft cabin but requires a wheelchair or other means for movements between the aircraft and the terminal, in the terminal and between arrival and departure points on the city side of the terminal.
WCHS (Wheelchair Stair) Known as: Sierra	Passenger who cannot walk up or down stairs, but who can move about in an aircraft cabin and requires a wheelchair to move between the aircraft, in the terminal and between arrival and departure points on the city side of the terminal.
WCHC (Wheelchair Complete) Known as: Charlie	Passenger who is completely immobile who can move about only with the help of a wheelchair or any other means and who requires assistance at all times from arrival at the airport to seating in the aircraft, or if necessary, in a special seat fitted to his/her specific needs the process being inverted at arrival.

*Table 6.2 – Passengers with Mobility Related IATA PRM Codes  
from (International Air Transport Association, 2017)*

All of the participants described themselves as belonging to the WCHC category. Four participants felt an element of negativity to this question as they were being categorised but had no choice but to choose the description that would allow them to receive the correct level of assistance.

Participants were asked if they gave notice before flying. There were four answers given to this question: 48 hours in advance (4 participants), at the time of booking (4 participants), as soon as possible (3 participants), and not knowing that they needed to (5 participants). A minority (3 participants) of wheelchair users gave more than one response to the question preferring to give as much advanced warning in an attempt to avoid problems further in the

process or on the day of a flight. Three participants told the airline when giving notice, one participant told the airport, and one participant told both the airline and the airport before flying.

The participants were asked if they were aware of what their rights were when flying. A minority of the participants responded positively with no elaboration, one participant said that they knew some rights but not all of them, however six participants said that they did not know what their rights were.

### **6.1.1 LUGGAGE**

The majority of participants mentioned that the planning of additional luggage was very important to them before travelling. This additional luggage was for medical supplies and medications of which the wheelchair user had to ensure they had enough of for the duration of their trip:

*'If going for a month there are a lot of other medical supplies that need to be stocked up on, for example blue incontinence pads, syringes, medications, examination gloves, alcohol wipes ... We also take a manual wheelchair as well as an electric one. All of the paraphernalia can amount to a lot and become challenging.'*

*[Participant 20, Female, 62]*

### **6.2 THE AIRPORT**

The majority of wheelchair users travelled to and from the airport by car. One participant said that they used valet parking where they dropped their vehicle off at the terminal entrance and someone would park it for them for convenience. Two participants used the long-term carpark and four participants used the short-term carpark. The short-term carpark was described as being more expensive than the long-term carpark by a minority of participants. Short-term parking was seen as being the preferred choice of parking because of the convenience for wheelchair users and that they are often covered from poor weather conditions. The distance away from the terminal in long-term parking was described as problematic because of the transfer buses that go between the terminal and the carpark. This



was considered a negative experience because of the volume of other people on the bus, moving a large amount of luggage that wheelchair users can have, and not wanting to rely on something. The close proximity of the short-term carpark to the terminal building meant that wheelchair users do not have to wait for and get on and off a transfer bus:

*'I don't like the idea of having to be reliant on something turning up on time, using a lift, you know, there's times ... the lift is broken and you're stuffed then what if that bus then can't take me and I have to wait on another one if things run behind?'*

*[Participant 15, Female, 31]*

Four participants said that they travelled in their own wheelchair accessible vehicle (WAV). These vehicles were described as being large and therefore consideration had to be given to the entrance and exit of the carpark, manoeuvrability around the carpark, and the size of the actual space. Some wheelchair users preferred to get dropped off in their car (6 participants) or take a taxi (3 participants) to the airport. This was so someone else could drive their vehicle home to save money or to prevent their vehicle from being unusable (e.g. flat battery). The drop off areas were described as being difficult to disembark at safely because of time pressure and other vehicles in close proximity.

### **6.2.1 THE CHECK-IN EXPERIENCE**

The participants said they used the special assistance desk (5 participants), the regular check in desk (4 participants), and the first-class desk (2 participants). Two participants had experienced more than one of these desks. Only one participant said that they had no problems whatsoever and the experience was routine. Some of the participants said that their experience of checking in was dependent on the staff working at the check-in desk:

*'They were really, really thorough, they knew what they were doing, they asked loads of questions, they knew what I needed to show them; all in all, it was very positive, my anxieties were allayed at that point.'*

*[Participant 2, Female, 42]*

*'I think it depends a lot on the counter people. Sometimes they are nice; sometimes they are very helpful; sometimes they are very obnoxious; sometimes they are moody. So, it's really a mixture.'*

*[Participant 6, Female, 35]*

Two participants said that they had been directed by the airport staff to a queue, allowing the wheelchair user to be fast tracked to the shortest queue or where special assistance was available:

*'Again, different airports, different things. So, I think sometimes I've been treated like anybody else, so wait in a big long queue and – until I get to the Check-in Desk. I think actually in other places ... the minute I got near the Check-in Desk, someone in a high-vis jacket came and whisked me off and put me through a fast-track system.'*

*[Participant 16, Female, 46]*

One participant had an issue with the height of the check-in desk. Being sat low in a wheelchair meant that some of the staff here could not see them properly. It was felt that this height difference meant that they were treated differently:

*'I can't see you to have a face to face conversation because the desk is too high, you've spoken to me like I'm a two-year-old ... I'm always now very aware of when I go to check-in that you sort of get spoken to like you're a numpty (laughs) is the only way to describe it. And it's annoying'*

*[Participant 15, Female, 31]*

### **6.2.2 THE SECURITY PROCESS EXPERIENCE**

Wheelchair users stated how much easier the process was when the fast track security lanes were available to use. Some of the participants referred to being scanned with a security rod, although they thought some of the security staff were unsure of what they could do to wheelchair users:

*'... they scan you all over with that the metal detector thing, the bar thing. But I think sometimes I think the security officers can be a bit anxious. I'm guessing I don't know how many disabled people they get each day, but it can be like what can I touch, what can I not touch?'*

*[Participant 5, Male, 37]*

A minority of wheelchair users also felt that there were problems when taking certain medications or equipment through the security checkpoint despite the presence of a doctor's letter:

*'I had a fork with a special spoon holder which allowed me to hold my spoon when eating on the airline. If the fork handle is too wide it will not fit in the holder, if the handle is too short, I cannot reach my plate without getting my hands in the food or not reach food at all. Security told me I could not have it even though I had a doctor's note saying that I needed it and why. My husband had to feed me on the airline while he was trying to eat his own food. This puts him in a caregiver role, and less of spouse role with a loss of dignity for me.'*

*[Participant 20, Female, 62]*

Three participants thought that the staff had a lack of awareness and discreetness, asking wheelchair users to expose their catheters and other medical aids which led to embarrassment:

*'I had to have a catheter put in, so I was taken to a side bit where they were patting me down and things because I can't go through the metal detector thing and they were patting me down and she patted on my leg bag and said, "What's this? What's this?" and I said, "It's a leg bag" and her English wasn't great and I said, "It's to help me go to the toilet" and she said, "Can I have a look at it?" and so that wasn't a great experience.'*

*[Participant 16, Female, 46]*

A minority of the participants felt that the security staff were not thorough enough with them whilst going through the security process:

*'Yes, it was fine, yes. They don't quite do as many – how can I word this, they didn't do as many checks as I thought they would, because there's so many places on a wheelchair in my opinion where you could hide anything and they didn't really check the chair or anything.'*

*[Participant 10, Female, 30]*

One participant also said that they had been escorted to a holding room by security staff with no explanation which was a negative experience:

*'I think the only issue I've had is when I went to America. Through security, I was taken by gunpoint - and this is not an exaggeration - by four people, policemen, taken to this secret back-room thing where my passport was taken off me. Asked why I was here and what I was doing ... I was a bit apprehensive ... Then about 45 minutes later, I got handed my passport back with a visa stamp on, and that was it ... No one would reply to any of my questions ... And then you get out the room and you've got a sigh of relief ... That was a horrible experience as well.'*

*[Participant 5, Male, 37]*

### **6.2.3 THE SPECIAL ASSISTANCE AREA, SHOPS, RESTAURANTS, AND TOILETS**

The special assistance area, restaurants, shops, and the toilets were all places inside the airport that were used by wheelchair users whilst waiting for their flight to depart.

## **THE SPECIAL ASSISTANCE AREA**

A minority of participants said they did not use the special assistance area. Five participants did so to ensure that the special assistance staff were aware of their presence so that they were able to get the correct level of assistance at the right time, however the special assistance staff were not always available to help them around the airport:

*'... yes, to make sure they have the aisle chair ready ... It would be nice if they could help more with my massive amounts of luggage, even if it was just watching it while I made a bathroom run.'*

*[Participant 19, Female, 43]*

## **SHOPS**

Shopping at airports was found to be a similar experience to high street stores albeit with greater space and accessibility. The majority of participants said they were difficult to navigate around in a wheelchair because other people often carried backpacks or the distance between the shelves was too close together to manoeuvre comfortably:

*'Everything was, well, what I would call normal. Obviously, you'll have times when you might not be able to reach the top shelf or the top two shelves, but that's fairly standard, for want of a better way of putting it.'*

*[Participant 8, Male, 32]*

## **RESTAURANTS**

The restaurants were reported as being accessible by seven participants but had downsides to them such as the large volume of people in them or that the tables were either too low or too high.

## **TOILETS**

Some of the participants found that the disabled toilets were adequate for them as long as the locks functioned to provide security and prevent embarrassment and three participants said that disabled toilets lacked space inside the cubicle for a wheelchair user. Two

participants said that regular disabled toilets were not fit for purpose and that they were unable to physically use a disabled toilet:

*They usually have a space, a hollow in the front, and that could hurt me. And sometimes they are too narrow. And usually they are too high for me.*

*[Participant 6, Female, 35]*

Outside of the UK, two participants said in some airports the disabled facilities are contained within the gender specific toilet areas and so are difficult to use if the wheelchair user was a different gender to the person helping them:

*'I think the only thing about the airports is I wish they would just make a specific (bathroom) – have the men's bathroom, have the women's bathroom but just have a handicapped bathroom, just for the handicapped.'*

*[Participant 12, Female, 40]*

#### **6.2.4 TRANSITIONING TO THE GATE**

Buggies were used to move people with disabilities around the airport, but wheelchair users were unable to use them. The gates at the airport were said to be some distance away from the central part of the airport by a minority of participants:

*'... sometimes the distances are quite long and you have to go sometimes on the travellator ... which is a bit of an exciting experience (laughs), so I think particularly getting off and on, I don't know if I'm meant to do that or not, but I do, but yes, I think particularly Heathrow strikes me as one where the distance is quite long.'*

*[Participant 16, Female, 46]*

To overcome the physical distance of the airport, one wheelchair user used a powered adaptation that could be attached to their wheelchair to help them overcome the physical distances involved rather than seek help from the special assistance staff as they preferred to keep their independence:

*'I have a Smart Drive<sup>2</sup> which is absolutely invaluable now for me for long pushes like that because Edinburgh in particular one gate oh, it feels like miles and miles and miles away and Stansted too actually has quite a lot of pushing through it so, yeah, it would make me tired. Would I ask for help? Oh, probably not because I'm pretty proud so I'd probably push on myself to be honest if I was flying solo but, yeah, there is a lot of pushing involved.'*

*[Participant 15, Female, 31]*

### **6.2.5 IMMIGRATION, BORDER CONTROL, AND THE BAGGAGE HALL**

The immigration process was straightforward for the majority of wheelchair users with special assistance lanes that allowed them to skip queues. Immigration was not without issue. Some of the desks were too high for a minority of wheelchair users which made it difficult for them to handover documentation and communicate with the person working at the counter. A further minority of participants had difficulty moving their hands and fingers which meant that fingerprint scanners were difficult or impossible to use and had to be processed behind closed doors to verify who they were.

The baggage hall proved challenging for wheelchair users. The majority of wheelchair users often had a family member, friends, or a porter remove their bags from the conveyor belts. One participant relied on the kindness of strangers to remove their luggage for them.

### **6.3 BOARDING THE AIRCRAFT**

Boarding the aircraft directly via the jet bridge, a tunnel linking the terminal building to the aircraft door which bypasses using stairs or going on the tarmac, was the preferred method of entry for wheelchair users. When there was no direct jet bridge to the aircraft, wheelchair users had to board the aircraft from the tarmac via an ambulift. It was described by wheelchair users as being a big cherry picker, a scissor lift, or a forklift truck with a box that took the wheelchair user from the floor to the aircraft door. An issue when the ambulift was used, was when one wheelchair user became separated from their family:

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<sup>2</sup>A device that attached temporarily to a wheelchair and moves it for the user without input (Permobil, 2015b).

*'Again, the scissor-lift, it's just something else you've got to wait for, so you can only have one person with you at the time, so it's – that's just been a bit complicated because I've got a much older son and a much younger son and so, my husband has to be with my much younger son, so I've had to take my older son as my companion and so he's had to do stuff for me that he wouldn't normally do for me, that my husband normally does'*

*[Participant 16, Female, 46]*

A minority of participants were carried down the stairs when the ambulift was broken, which was found to be uncomfortable and embarrassing:

*'I found it incredibly embarrassing to have to be lifted down the steps but then that was dwarfed by the time it happened to me in Edinburgh because their ambulift had broken, like the thing that looks like a truck that they put you on, and they had to carry me down. It was mortifying really because they took me off before they disembarked all the rest of the passengers, so I was absolutely mortified.'*

*[Participant 15, Female, 31]*

### **6.3.1 THE PROCESS OF BOARDING**

Wheelchair users preferred to board the aircraft first so that there was extra time and space for the staff to assist them and to reduce the level of embarrassment and humiliation experienced in this process. Boarding the aircraft last was a negative experience for wheelchair users. The majority of participants said that they would often be touched whilst moving down the aisle, with one wheelchair user stating that they felt like they were being stared at by other passengers when having to board after everyone else:



*'... when I was going down the aisle, obviously you tuck your arms in, but you're still bumping into people's arms and that. And it was horrible, a really, really, really horrible experience, something that I didn't want to repeat ever again.'*

*[Participant 5, Male, 37]*

*'If there's a whole plane full of people and you've got to be boarded on an aisle chair and get people's legs and arms out of the way and then transfer in to your seat which you might be having some difficulty with and everyone's staring at you; it's much better to go first.'*

*[Participant 16, Female, 46]*

### **6.3.2 MANUAL HANDLING**

Nine participants had experienced issues during manual handling, the main cause given being the special assistance staff not being able to lift them properly:

*'... the guys who'd been employed to wheel me on to the plane clearly weren't that practised at it'*

*[Participant 2, Female, 42]*

One participant mentioned that their size influenced how the staff manually handled them:

*'I'm not the smallest of women and I was also about 23/24 at the time and I was in this child's toy sling, there were six people lifting me and I say "lifting me" loosely, basically they (laughs) almost dragged me on the floor from the cherry picker to the seat, so yes it was horrid – horrid'*

*[Participant 10, Female, 30]*

Wheelchair users felt that the special assistance staff often lacked knowledge about how to position them, preferring to ask the people they were travelling with to assist them instead (5 participants):

*'I don't need lifting into a chair, but I do need them to pick my feet up off the floor, it's just little things like that, isn't it? I don't want to be man-handled; I want to be helped.'*

*[Participant 2, Female, 42]*

*'My husband does a one-person transfer into the bulkhead seat. If I am assigned to a non-bulkhead seat, then my husband gets help of an airline staff member. Airline staff DO NOT KNOW HOW TO POSITION MY BODY so that I am not sitting on my lower back or tailbone.'*

*[Participant 20, Female, 62]*

Where the seat was located on board the aircraft in terms of class category (e.g. first-class, business, economy etc.) also had an impact on the manual handling of wheelchair users (7 participants):

*'Now, the difference between first class and economy is with first class, horizontally you've got three, three, three seats, so there's lack of space for any wheelchair to move. With first class, you've got two, two, so there's buckets of space.'*

*[Participant 5, Male, 37]*

Six participants said that their seat was often at the front of the aircraft, three participants said they were predominantly at the back and one said that they were located in the middle of the aircraft. Three participants liked to choose their own seat, saying they preferred to be located near an exit. Primarily for the reasons of space, a minority of participants wanted to sit in the bulkhead seating, although one participant believed that it is no longer a realistic option as the airlines considered being in those seats a safety issue and sell the seats for additional revenue:

*'... special assistant seats were the front couple of seats, you know? Then it became a thing that you could buy those for a premium so special assistance seemed to move down, they said it was a safety issue but it obviously isn't, it's a revenue issue because it used to be that you sat there.'*

*[Participant 15, Female, 31]*

### **6.3.3 EQUIPMENT**

The aisle trolley used to transfer a wheelchair user to their seat was disliked by the majority of participants. It was felt that it was uncomfortable and small in size. This was in addition to a lack of lateral support which could have led to injury. Other dislikes included not being able to control the aisle trolley, which meant a removal of independence:

*'It's very uncomfortable. It's very hard. It's very narrow. They are not very gentle when moving around so you get hit a lot.'*

*[Participant 6, Female, 35]*

*'Oh, I hate it (laughs), I really hate it. I hate – the transferring on to it is fine but I'm – because I'm an independent wheelchair user, I hate people pushing me or wheeling me anyway, so to be strapped into it and feel like you've got absolutely no control'*

*[Participant 16, Female, 46]*

Two participants said that the aisle trolley was not always available to use, which meant that they could not board the aircraft:

*But then a few instances happened where I get to the gate and there's no aisle chair. So, everyone's panicking, "Where's the aisle chair? I don't know where it is." And as you probably will be aware, a lot of these airlines have got a tight turnaround. One minute, two minutes late, costs them money. So, you're obviously sat there thinking what the hell is going on: where's this aisle chair? Without the aisle chair, I can't get onto the plane.*

*[Participant 5, Male, 37]*

A minority of participants referred to the Eagle Hoist that can be used by staff without having to do any manual lifting. This helped people with complex needs or those who were difficult to handle manually, however these were not always available:

*'I don't fly to airports without an Eagle Lifter, there is no manual handling lifting for me. That is what put me off flying when my condition deteriorated, and my speech went, and I couldn't tell the PRM teams they were hurting me.'*

*[Participant 9, Male, 54]*

## **6.4 THE AIRCRAFT**

The following section of the results shows findings about the physical aircraft including the seat, the toilet facilities on board and the landing process.

### **6.4.1 SEATING**

Before physically moving onto the seat itself, wheelchair users had to consider whether they were sat in the aisle, middle or window seat. There was a preference from participants to sit in the aisle seat (5 participants) compared to the middle (2 participants) or window seat (2 participants) as it meant additional transferring:

*'Yeah, I mean it's a faff, you know, and it's just, it's harder work and I like to sit on my cushion if it's a long flight so you've got like three lots of shimmying to do because you get off that aisle chair thing, shimmy, shimmy, put your cushion, shimmy onto that, you know, and it's not ideal, I feel a bit hemmed in.'*

*[Participant 15, Female, 31]*

Some of the participants said the armrests were also a consideration when moving from the aisle trolley to the seat. Wheelchair users found it easier when they were able to be lowered and difficult if they did not move, a problem found in business class seating:

*'I actually prefer the economy standard seats because their armrests lift so then I can lie down, either to the side or on my back if we have the middle seat free and that doesn't happen in business class. The armrests are fixed.'*

*[Participant 6, Female, 35]*

Ten participants commented on the lack of comfort the seats offered and the small space surrounding the seats. A lack of leg room was also a problem for a minority of wheelchair users, contributing to being uncomfortable:

*'It wasn't desperately comfortable; there wasn't a lot of leg room. For somebody that hasn't got an awful lot of leg movement, it could have been better.'*

*[Participant 2, Female, 42]*

Four wheelchair users used their wheelchair cushions to maintain their posture and to prevent other negative medical implications such as pressure sores instead of sitting directly on the seat:

*'I always use my wheelchair cushion under me before I am put into the aircraft seat then you put up with the backrest it will be never as good as the wheelchair seat until wheelchairs can be taken on-board the aircraft.'*

*[Participant 9, Male, 54]*

Using a wheelchair cushion meant being raised up in the seat. Items were placed under their feet to prevent a poor posture and maintain balance. One participant said that because they sat on their own cushions, this also prevented them from being able to access the in-flight entertainment controls:

*'I sit on my Roho<sup>3</sup> cushion which is placed upon the seat and have a second Roho cushion under my feet so they don't swing. This brings me above the armrest of the seat. Sitting that high I do not have the armrest to help me balance, it prevents me from using the TV controls which are on the side of the seat panel and below my legs.'*

*[Participant 20, Female, 62]*

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<sup>3</sup> A pressure relieving wheelchair cushion (Permobil, 2015a)

A minority of wheelchair users found it uncomfortable when other passengers in front of them reclined their seats, limiting their space and reducing the comfort that they experienced:

*'... if the person in front of you puts their chair back or whether they put their chair back or not, you don't have a lot of room to move the person, but if they put their chair back, it's really impossible to move somebody to make them more comfortable.'*

*[Participant 12, Female, 40]*

Business class seating offered an advantage for the majority of participants. More space and the ability to adjust the seat from an upright position into a full bed were factors wheelchair users preferred so that they could move or be moved more to maintain posture and to prevent negative health implications:

*'Yes, they're wider, they're more comfortable, there's more leg room, so you can wiggle around a little bit more and it gives you more opportunity for moving. Yes, just the more you can change position, the better to just cope with skin pressures and that sort of thing...'*

*[Participant 16, Female, 46]*

A minority of wheelchair users thought that business class seating was either too expensive for them (2 participants) or thought that the size of the seat could be too big and not offer enough postural support (1 participant):

*'In some ways that would indeed be helpful; the extra leg room would mean that I have more room for my ventilator, batteries, and other equipment. However, a wider seat would offer even less support.'*

*[Participant 19, Female, 43]*

#### **6.4.2 TOILETS**

Just one wheelchair user had used the toilet on board the aircraft. They described it as an undignified experience finding it difficult to navigate down the aisle, the cubicle itself was small in size, the width of the door was too narrow, and had a lack of grab rails inside:

*'... you've got to wait for the cabin crew to bring the aisle chair and then you've got to get in to the chair and then they wheel you all the way down the aircraft, past everybody else, moving people's legs and pushing people back in to their chairs when they're asleep. Then there is absolutely no space to get that (aisle) chair into the toilet at all, so they have a double curtain, one each side of the gangway and you're left to get yourself from the (aisle) chair onto the toilet. There're no proper grab rails in the toilet ... I can stand if I'm supported but not without grab rails and not on my own. Yes, it was an undignified experience and it was very difficult.'*

*[Participant 2, Female, 42]*

The other wheelchair users felt that going to the toilet on board the aircraft was impossible because they could not get to it (10 participants):

*'I've never used a toilet on an aircraft, first simply because you can't if you're in a wheelchair. It's just undoable.'*

*[Participant 5, Male, 37]*

With the majority of participants feeling that going to the toilet on board was an impossible task, the following coping strategies were employed using several methods:

#### **CATHETERISATION:**

*'I have a supra pubic in-dwelling catheter and do not go to the public washroom on board the plane. We have a cloth bag which contains an empty container or "pee jug", which my husband uses to drain my leg bag as it becomes full. A bag covering my container allows for husband to transport the "pee jug" to the washroom while maintaining discreteness.'*

*[Participant 20, Female, 62]*

**DRUGS/MEDICATION:**

*'The day of the flight and the day before I don't eat anything, and I take two Imodium instant the day of the flight. Because I wear a leg bag, I drink a lot to take the hunger off.'*

*[Participant 9, Male, 54]*

**NAPPIES/INCONTINENCE UNDERWEAR:**

*'I might sometimes wear pads and things just in case there was some leakage, because much as you can dehydrate yourself, there might be a bit of a leak so yes, I would definitely wear pads if I was travelling on a plane.'*

*[Participant 16, Female, 46]*

**DEHYDRATION/STARVATION:**

*'I start dehydrating myself a couple of days in advance. I start by first only drinking half of what I normally drink, then nothing at all during the day of the flight. I have a friend who was a dialysis nurse who is absolutely horrified by this, and he keeps urging me to wear a diaper instead. I asked him how would I change it, and how would I keep my skin from breaking down after all that time sitting in my own waste?'*

*[Participant 19, Female, 43]*

**BOWEL MANAGEMENT:**

*'... you make sure you empty your bowels before you leave on the day because there's no way in hell, you're going to get onto any aeroplane toilet or get in there.'*

*[Participant 5, Male, 37]*



## ENSURING NOT NEEDING TO GO DURING THE FLIGHT:

*'At the time, it was rocking back and forwards. (Laughing) And telling myself, "You don't have to go. You don't have to go. You don't have to go.". It wouldn't really be an issue for me now. I would have better control, for want of a better way of putting it. You know, I would always be aware of the timing of the flight and when we have to board so that I would kind of go before boarding and it would be safe in the knowledge that I wouldn't really have to go again at least until we had reached the other airport.'*

*[Participant 8, Male, 32]*

### **6.4.3 LANDING**

During landing some wheelchair users who had issues with balance had to brace against the seat in front of them or gripping the armrests tightly to avoid injury:

*'Landing is always a stressful experience for me as my body wants to fling forward. If I am put in a non-bulkhead seat I can hang and brace myself on to the seat ahead of me, otherwise I hang on very tightly as much as I can to the armrest. I sometimes bring a binder which straps my chest to the backrest of my seat... This is frowned upon by many stewardesses who don't want you to be restricted sitting up.'*

*[Participant 20, Female, 62]*

No participant mentioned any injury from landing, but some were caught off guard when they first experienced it. Some participants said they needed to be restrained by who they were travelling with during landing because their balance was poor:

*'I didn't have an injury, but yes, I have balance issues. My mum usually has to hold me.'*

*[Participant 6, Female, 35]*

*'I nearly hit my face a couple of times, but my mother would fling her arm out to stop my forward motion.'*

*[Participant 19, Female, 43]*

## **6.5 DISEMBARKING THE AIRCRAFT**

The following section discusses how wheelchair users are disembarked from the aircraft and the issues that surround it, including wheelchair repatriation.

### **6.5.1 THE PROCESS OF DISEMBARKATION**

All of the participants said that they were last to disembark the aircraft, being told to wait by the cabin crew for the special assistance staff to arrive and to avoid a crowd of able-bodied passengers disembarking. Being the last to leave the aircraft meant that the majority of participants said that they had to wait a long time before they could leave the aircraft either waiting for their wheelchair or because there was a lack of staff at certain times of the day:

*'We have been left on the aircraft up to an hour because of the lack of staff for that night.'*  
[Participant 9, Male, 54]

Five participants felt the frustration of the cabin crew waiting with them on board the aircraft. The cabin crew were stuck waiting too as they were not permitted to leave the aircraft until all the passengers had disembarked:

*'So, it was soul destroyingly frustrating for everyone because the crew as well it was their last flight and they couldn't leave until I did'*  
[Participant 15, Female, 31]

The waiting and tight turnaround of the aircraft meant that one participant experienced the aircraft being cleaned by the cleaning staff before being disembarked:

*The cleaning staff had come on, had realised that there were people on the plane waiting, but they began cleaning up around us.*  
[Participant 8, Male, 32]

### **6.5.2 WHEELCHAIR ISSUES**

Being separated from a wheelchair was found to be a source of fear and anxiety for the majority of wheelchair users because of the implications involved if it was damaged or went missing:

*'There is always a feeling of dread while you wait for your wheelchair to reappear. Did they put it on the wrong plane? Did they break it?'*

*[Participant 19, Female, 43]*

After exiting the aircraft, ten wheelchair users discussed being reunited with their wheelchairs. This took place at the door of the aircraft, which was the preferred place:

*'It's usually not an issue for me, as most hostesses are very quick to phone the tower and ask them to have my wheelchair brought up to plane.'*

*[Participant 20, Female, 62]*

The majority of wheelchair users said that they had experienced a time when their wheelchair was sent to the baggage hall instead of being returned to the aircraft door. Not having their wheelchair brought to the aircraft door meant that wheelchair users had to be pushed through the airport in an airport wheelchair causing them embarrassment and loss of independence. They felt as though that the cabin crew and special assistance staff did not understand the importance of their wheelchair:

*'... the aisle chair came, I jumped on the aisle chair and I was given some knackered, old, 1960s wheelchair, the wheels all bent. So, immediately I'm thinking where the hell's my wheelchair? ... I was pushed by a relative to the airport and had to wait another 45 minutes for my chair.'*

*[Participant 5, Male, 37]*

*'...but a wheelchair's not luggage it's, you know, an extension of me as a person so I really need it to be, you know, handled with care but they're not ... sometimes I've not been able to get in my own chair until I've gone to the like baggage reclaim place and so I've had to transfer off an aisle chair into, you know, like a shopping trolley granny wheelchair and someone push me, which is incredibly frustrating and embarrassing too ... it's embarrassing because to me it feels like me being carried when I can walk ... like why would I not want to just push myself in my own chair?'*

*[Participant 15, Female, 31]*

*'... they tell you that you have to go all the way to the baggage claim on the aisle chair. They have no clue how torturous that is for me.'*

*[Participant 19, Female, 43]*

### **DAMAGE TO WHEELCHAIRS**

Six participants reported that they had experienced damage to their wheelchairs, a few being damaged to the point of being unusable. Wheelchairs are often expensive, and the cost of purchasing and maintaining them was mentioned:

*'My wheelchair always has broken or missing parts upon landing. Only once did I get it back in same condition that I checked it in. Once I had my wheelchair delivered and dropped off in an area not far from baggage pickup. Nothing was connected; they disconnected wires from areas they did not need to. Leaving a \$15,000 wheelchair sitting a bit isolated with no staff around is risky for theft. I was forced to travel throughout the airport in an aisle chair as they didn't even give me a manual wheelchair from plane to baggage area. Humiliating and uncomfortable.'*

*[Participant 20, Female, 62]*

## **NEGLECT**

A minority of wheelchair users reported that their wheelchairs were forgotten about or neglected leading to minor damage or the fabric being wet if it had been left outside in the rain:

*'... they have broken things or scratched it, or even wet it. Once, they gave me my chair really wet.'*

*[Participant 6, Female, 35]*

## **LOSS**

No participant said that they had lost their wheelchair completely, although a minority of participants said that other wheelchair users they knew had lost their wheelchairs. Two participants reported losing parts of their wheelchair and a further minority said it had been temporarily misplaced:

*'Once it went missing for about an hour, which was the scariest hour of my life, but it was just because they had taken it to the wrong like terminal carousel luggage thing'*

*[Participant 15, Female, 31]*

## **6.6 FEELINGS ABOUT THE STAFF**

Travelling through the airport and going on-board the aircraft inevitably meant contact with staff members at various points. Eight participants spoke about their communication with staff. A variety of things were said about the communication between themselves and the staff, some positive, some mixed, and some negative. However, it ultimately depended upon the member of staff:

*'... in New York City I was once stuck with a disability assistance person who didn't speak English very well and was unable to communicate with him that the AISLE CHAIR WAS NOT A WHEELBARROW. And then he insisted on taking us all back to the special assistance centre instead of to the sidewalk where we wanted to go, because he expected us to tip him. You can imagine what we felt about that.'*

*[Participant 19, Female, 43]*

*'I'm constantly having to tell the assistants to not let my legs flop when they are putting me in the aisle chair ... Legs flopping puts me at issue for limb breakage and is a bit humiliating to have legs spread wide apart for a female'*

*[Participant 20, Female, 62]*

### **6.6.1 HELPFULNESS**

The difference between the staff was reinforced by some wheelchair users who commented on how helpful the staff were, and once again depended on the particular member of staff:

*'I think it depends a lot on the personality of these people. Some are really nice, really helpful. Others like these flight attendants I just told you about, are really unhelpful and really, they lack empathy. And so, it's really a mixture.'*

*[Participant 6, Female, 35]*

### **6.6.2 LACK OF UNDERSTANDING**

The majority of the participants said that they felt the staff did not always understand their needs and requirements despite their belief they were trained to help wheelchair users:

*'Oh, it's horrific. Often the people don't know how to buckle you into it (the aisle trolley), I think they're very used to people who just need a little helping hand, I don't think they're that used to, you know, people with spinal cord injury or people who really, you know, cannot move their legs and cannot weight bear. So, often I make sure that ... I'm clicked in because I've had a couple of times where I've not been. It's quite a degrading experience.'*

*[Participant 15, Female, 31]*

*'... the staff and crew are generally nice, but utterly clueless. They don't know how ventilators work, so they're completely intimidated by them. The first time I flew after starting to use a ventilator full time, the pilot confiscated my battery and locked it in a storage closet. An airline mechanic was trying to get an electrical outlet to work at my seat, but even after calling in mechanics from other airlines, they still couldn't get it to work. After half an hour of this, with the low battery alarm starting to sound, the pilot asked my mother what would happen if I just didn't use the ventilator during the flight. "She dies." my mother said flatly. He retrieved my battery straight away.'*

*[Participant 19, Female, 43]*

### **6.6.3 LACK OF INFORMATION**

Even though most wheelchair users provided information before the day of the flight and at various points across the airport, a minority of wheelchair users got frustrated that the information was not disseminated amongst the staff:

*'No one has ever gotten the word of my need for assistance or special handling of batteries, so I'm routinely stopped at check-in while they make phone calls and figure out what to do. This usually takes about an hour.'*

*[Participant 19, Female, 43]*

The lack of information gave the impression to some wheelchair users that they were not properly prepared to help them:

*'I have had a few occasions in Belfast International Airport where no-one's turned up and the plane has been then boarded, everyone else has got on and I've just sat there whilst they've then tried to find someone who was supposed to come, but I've done my bit at the other end, you know, I've gone to them and said I'm here but it's not filtered through.'*

*[Participant 15, Female, 31]*

*'I've always mentioned it when booking, called whatever disability services phone number I could find, and confirmed things 48 hours in advance. And yet, every time I show up at the gate, everyone is clueless, and no one knows what to do.'*

*[Participant 19, Female, 43]*



#### **6.6.4 INAPPROPRIATE BEHAVIOUR**

Five of the participants felt that the staff had been inappropriate either to them directly or indirectly, referring to them in the third person:

*'I think I had a couple of bruises and I was just – oh, it was vile. One of – I think my mum said, because I can't remember it, because it all went through with a bit of a blur, but apparently one of the staff turned around and said, "Well, she's got to go through a bit of pain to get on the plane", what? You don't say that to anybody, let alone a customer who's going to come on your flight!'*

*[Participant 10, Female, 30]*

*'One time the pilot blamed their late take-off on me, announcing that the delay was because of "the handicapped patient who needed oxygen". I do not use oxygen. Even though we ultimately arrived on time due to tailwinds, every single person on that plane gave me a dirty look as they deplaned.'*

*[Participant 19, Female, 43]*

*'We were quite some time (close to one hour) on the plane after everyone had left. The hostess stood at the plane door yelling to the ground crew "GET HER OFF". Very demeaning and frustrating for me to be spoken about in that way.'*

*[Participant 20, Female, 62]*

#### **6.7 FOLLOW UP QUESTIONS**

The participants were asked a set of follow up questions which included the concept of flying in your own wheelchair and recommendations they would make to the aviation industry to improve the flying process for wheelchair users.

##### **6.7.1 USING YOUR WHEELCHAIR AS YOUR SEAT**

All of the participants were asked whether they would like to fly in their own wheelchair and if it would encourage more wheelchair users to fly. This would conceptually mean that they could board an aircraft and have their own wheelchair fixed to the floor and use it as their

seat on board. Seven participants thought that this was an excellent idea. The positives in this concept would be eliminating the need for manual handling, preserving dignity, being able to go to the toilet on board the aircraft if it was big enough, and reducing damage to wheelchairs:

*'Yes, for sure. Yes. And it would make the whole process less stressful ... And because we are very used to our own chair. It is usually made for us, so we feel really comfortable on it; whilst other, regular seats don't provide that for us.'*

*[Participant 6, Female, 35]*

The concept did raise some concerns amongst three of the participants though in terms of the safety aspects, not knowing whether they would like to sit in their chair for a long time, or were on the fence about it and raised questions of their own:

*'I'm not sure that there's space and I'm sure there are an awful lot of guidelines relating to the safety of an aircraft seat'*

*[Participant 2, Female, 42]*

*'I don't know if sitting in your chair the whole way is the right option because if I was at home and I knew I was going to be sitting for, you know, two hours I would transfer onto the sofa I wouldn't sit in my own chair so, yeah, I don't know.'*

*[Participant 15, Female, 31]*

*'How would it fit through the doors and aisles? Would there be room to tilt? I doubt if it would be as safe for wheelchair users and other passengers in event of a crash.'*

*[Participant 20, Female, 62]*

Two participants were against the concept as it could lead to segregation from other passengers, would not be comfortable for them, or they preferred the aircraft seat:

*'... I suppose if you're sat in your chair, the whole world would know oh, he's disabled ... but I think on a plane you'd kind of be segregated, wouldn't you, away from the bulk of the passengers? So possibly a different flying experience.'*

*[Participant 5, Male, 37]*

### **6.7.2 RECOMMENDATIONS**

Participants were asked what recommendations they would make to the aviation industry and policy advisors to improve travel for wheelchair users. In total, ten main areas of recommendation were made: Staff training, better communication, consulting with wheelchair users, using your wheelchair as your seat, disabled toilet on aircraft, more and better equipment, space on the aircraft, process refinement, more staff, and industry awards.

Staff Training – Five participants said that they would like the staff to receive more training in order to help them better.

Better communication – Four wheelchair users would like to see an improvement in communication between themselves and the staff.

Consulting with wheelchair users – Five wheelchair users wanted themselves to be consulted with by the industry so that the policies could be best fit for them.

Using your wheelchair as your seat – Four participants reaffirmed their desire to use their own wheelchair as a seat on board the aircraft.

Disabled toilet on aircraft – Three wheelchair users wanted aircraft to be adjusted to have a disabled toilet on board that is fit for purpose.

Equipment – Three participants wanted a better availability of the equipment available for the staff to use. Furthermore, two participants wanted the equipment available to be better than it currently is.

Space on the aircraft – One participant wanted more space on board the aircraft.

Process refinement – One participant wanted to ensure that the process of boarding was guaranteed to avoid humiliation.

More staff – One participant wanted more staff available to prevent damage to wheelchairs.

Awards – One participant thought that handing out awards to the aviation industry for services to disability was a good idea.

## **CHAPTER SEVEN – PEOPLE WHO TRAVEL WITH WHEELCHAIR**

### **USERS RESULTS**

Ten people who travelled with wheelchair users agreed to participate in this research and were aged between 29 and 61 years old. The mean age of the participants was 44.10 years old and consisted of four male voices and six female voices. One participant had a family member who had acquired their disability, eight participants had family members who had been born with their disabilities, and the remaining participant was a professional carer for people with disabilities who used wheelchairs. One family member used an electric wheelchair, three family members used manual wheelchairs, four family members used attendant propelled wheelchairs, and one family member and the professional carer assisted a combination of both electric and manual wheelchair users. Seven family members of the participants received professional personal assistance, one family member lived independently with their spouse, one family member was a young child and the participant provided the care for them, and one participant provided professional care. Several primary causes of family members disabilities were given which included: Cerebral palsy (National Health Service, 2017a) (4 participants), global development delay (Mencap, 2020) (1 participant), neuromuscular disorder (Royal College of Nursing, 2018) (1 participant), spinal cord injury (Spinal Injuries Association, 2020) (1 participant), spinal muscular atrophy (National Health Service, 2017c) (1 participant), and undiagnosed (1 participant). This information can be read in Table 7.1.

The following characteristics were selected to define a participant in the results: Participant number, gender, age, and relation to wheelchair user. Participant numbers were used to protect anonymity and were given by the author of this PhD. Gender and age were the answers given by the participant to the researcher during the interview. Relation to wheelchair user was whether a participant was a spouse of a wheelchair user, a parent of a wheelchair user, or a professional carer. This resulted in the following format as an example: [Participant 1, Female, 30, Spouse of a Wheelchair User].

The following words are used to describe the number of participants responses associated with a particular theme where not explicitly specified:

'None' – refers to none of the participants

'Minority' – refers to between one and three participants

'Some' – refers to between four and six participants

'Majority' – refers to between seven and nine participants

'All' – refers to all ten participants

Participant	Age of Participant	Gender of Participant	Disability of Family Member	Disability Type	Years Family Member Disabled	Wheelchair Type	Receives Professional Care Assistance?	Relation to Wheelchair User
1	30	Female	Spinal Cord Injury	Acquired	5 Years	Electric and Manual	Yes	Spouse
3	56	Male	Undiagnosed	Birth	15 Years	Electric	Yes	Parent
4	46	Female	Cerebral Palsy	Birth	9 Years	Manual – Attendant Propelled	Yes	Parent
7	46	Female	Cerebral Palsy	Birth	4 Years	Manual – Attendant Propelled	No	Parent
11	36	Female	Global Development Delay	Birth	13 Years	Manual – Attendant Propelled	Yes	Parent
13	61	Male	Cerebral Palsy	Birth	17 Years	Manual – Attendant Propelled	Yes	Parent
14	47	Female	Cerebral Palsy	Birth	12 Years	Manual	Yes	Parent
18	43	Female	Neuromuscular Disorder	Birth	11 Years	Manual	Yes	Parent
22	29	Male	Multiple	Multiple	Multiple	Electric, manual and attendant propelled	N/A	Professional Carer
56	47	Male	Spinal Muscular Atrophy	Birth	40 Years	Manual	No	Spouse

*Table 7.1 – Participant Characteristics of People who Travel with Wheelchair Users*

## **7.1 PREPARING FOR FLYING**

People who travelled with wheelchair users were asked to categorise those they travel with as per the descriptions given by the International Air Transport Association (IATA) in Table 6.2, in 6.1 *PREPARING FOR FLYING*, which were read out by the interviewer. All of the participants described the people they travel with as belonging to the WCHC category.

Participants were asked if they gave notice before flying. There were four answers given to this question: 48 hours in advance (3 participants), at the time of booking (4 participants), as soon as possible (1 participant) and, not knowing that they needed to (4 participants). A minority of wheelchair users gave more than one response to the question preferring to give as much advanced warning in an attempt to avoid problems further in the process or on the day of a flight. Four participants told the airline when giving notice and one participant told both the airline and the airport before flying.

Participants were asked if they were aware of what their rights were when flying. One participant said that they did, three participants said that they knew some rights, and some participants said that they did not know what their rights were.

### **7.1.1 LUGGAGE**

All participants said that they and their family members took additional luggage with them or had to pack it for the wheelchair user. Seven of the participants were parents of children with disabilities and prepared their luggage for them and that planning was essential. A minority of participants, all parents of children in wheelchairs, described the preparation of luggage as a 'military manoeuvre':

*'We have to take a lot of travel equipment ... we've taken eleven plus cases, and the majority of them are [Name of wheelchair user]'s obviously with all of the equipment that we have to take and fit into suitcases and pack and the cross-infection gloves, wipes; everything, absolutely everything – hoisting, the lot.'*

*[Participant 4, Female, 46, Parent of a Wheelchair User]*



The planning of luggage included contingency planning where three of the participants would split the supplies and equipment between several pieces of luggage in the event one bag went missing:

*'Yes, that's a nightmare, we have to have a separate hand luggage just for the medications that if we lost – if all the luggage in the holdalls got lost, at least we had that with us and we have to take extra medications just in case we spill any antibiotics'*

*[Participant 11, Female, 36, Parent of a Wheelchair User]*

## **7.2 THE AIRPORT**

One participant said they had used valet parking where the vehicle was parked by them outside the terminal building and taken away by someone else as it was convenient. Three participants used a taxi to take them to the airport and two participants were dropped off in their own vehicles by someone who was not travelling with them and taken home. One participant said that they travelled with their child to the airport on the train because they found it to be easy, accessible, and allowed a certain amount of spontaneity. The majority of participants used a car to travel to and from the airport, with six participants using their own wheelchair accessible vehicles (WAV) and having the same issues as the wheelchair users had in 6.2 The Airport. One participant said that their WAV was often too large for a disabled bay and had to consider the safety of their child when helping them get out of the WAV. Short-term parking was the preferred method of parking. Long-term parking had similar negative experiences for people who travel with wheelchair users that the wheelchair users had. Aside from the distance from the terminal, parents of child wheelchair users had to consider potential weather issues that may affect their child's health. Using the transfer bus was more of an issue for family members of wheelchair users as they had to move all the luggage and the wheelchair user with no one else to help them:

*'... you don't have any help when you're getting on (the transfer bus), so when you've got five suitcases with you and a child in a wheelchair ... it just seems ridiculous but we don't like to take up more time than we have to, so you get on the bus and then you've literally got to get off two more times to get all the bags on and there's no one to help; the bus driver doesn't help or anything'*

*[Participant 11, Female, 36, Parent of a Wheelchair User]*

### **7.2.1 THE CHECK-IN EXPERIENCE**

Some of the participants said that their experience of checking in was dependent on the staff working in the check-in area. Three participants said that they had no problems checking in. A minority of participants had experienced using a regular check-in desk (2 participants) and the first-class desk (2 participants). Three participants had experienced more than one type of check-in desk. Three participants said they had been fast tracked to the front of a desk or to the special assistance desk, which had been used by the majority of participants. Using the special assistance desk and being fast tracked was important for some participants who were parents of child wheelchair users. This was because their children did not like other people surrounding them in queues and made them anxious:

*'... it's still a lot of queuing which is an anxious time for [Name of child], which again plays on his anxiety. But we still move through the queues quicker going through special assistance.'*

*[Participant 4, Female, 46, Parent of a Wheelchair User]*

*'The actual check-in bit, the queue is quite hard for my son because he doesn't like people being too close to him. Snaking queues are really stressful because then you're surrounded on all sides and the bit of actually getting your luggage scanned is a complete nightmare because there's people everywhere.'*

*[Participant 18, Female, 43, Parent of a Wheelchair User]*

### **7.2.2 THE SECURITY PROCESS EXPERIENCE**

Fast track security lanes were found to be preferable and easier for the people who travel with wheelchair users. Most parents of child wheelchair users felt that security was a negative

experience (6 participants). Four participants said there were problems when taking their children's medication through security because they were often in liquid form and that the security staff ignored the doctor's letter:

*'... when she was very, very little and we had to take special milk with us and they came in prescription bottles ... we're now pulled to the side to speak to the security guys and he was, "This is just unprecedented, we can't let you on". I was, "If you don't let us go with this, we can't go on holiday because that's her food", so he got his supervisor down, came and looked at the letter again, just – yes, that added an extra worry and anxiety to the whole trip, when really they should have been prepared because they already had the letter off the doctors why we needed it' [Participant 11, Female, 36, Parent of a Wheelchair User]*

Separation from a carer or parent was a problem during the security process for five participants. This was of particular issue to the participants who were parents of wheelchair users as they were often their child's primary caregiver too:

*'It's very difficult when you're going through and they're scanning your belongings and your hand luggage and everything and you have to go through the scanner first but then they obviously wouldn't let me go back to [Name of child] and he's got to be in a separate area whilst they're putting all my luggage and things through and checking me and it's really... I'm looking at him the whole time not paying any attention to this, trying to keep talking to him and keeping him calm. There should be a better way of making sure... you know, to be honest, any child shouldn't be separated from their parent but when you've got an extra vulnerable child it is very, very stressful.'*  
*[Participant 18, Female, 43, Parent of a Wheelchair User]*

### **7.2.3 THE SPECIAL ASSISTANCE AREA, SHOPS, RESTAURANTS, AND TOILETS**

The special assistance area, restaurants, shops and the toilets were all places inside the airport that were used by wheelchair users whilst waiting for their flight to depart.

## THE SPECIAL ASSISTANCE AREA

The special assistance area was used by half of the participants. In addition to making the staff aware of their presence in order to get the correct level of assistance, it was found to be a quieter area for child wheelchair users to wait.

## SHOPS

The shops at the airport were used by the majority of participants who thought they were accessible but found the space inside them made it hard for wheelchair users to navigate comfortably and would have to help them avoid hitting other people or products:

*'Shops ... like to cram selling space with the likes of clothes that there's quite often not a lot of room for a wheelchair to move around them ... clothes shops are a problem because clothes get caught in the wheelchair, the handles and so on.'*

*[Participant 13, Male, 61, Parent of a Wheelchair User]*

## RESTAURANTS

The restaurants were reported as being accessible by seven participants. The downsides to them were the same as the wheelchair users encountered. Family members who used restaurants got food and drinks for the wheelchair user whilst they waited at a table:

*'They're good, but usually quite cramped and difficult to get in to; obviously crowded, because they always are, which means that there's not much space, so they don't normally have steps or anything in to them though, normally from a wheelchair point of view they're accessible, but the tables are usually too high ... which obviously aren't at the right level for a wheelchair user so the table would be in-line with their face'*

*[Participant 1, Female, 30, Spouse of a Wheelchair User]*

## TOILETS

Six participants who were parents of child wheelchair users said that regular disabled toilets were not suitable for their child. Their level of care requirements meant that the child and their caregiver(s) needed a medical grade hoist and a height adjustable bench for safety

purposes. Suitable washing facilities were also needed in order to carry out personal care safely in an appropriate environment. This type of toilet was mentioned specifically as a 'Changing Places' toilet:

*'Well, that they don't have suitable facilities for her. You wouldn't put a baby on a toilet floor to change their nappy so just because she's no longer a baby doesn't mean... there are people who require a hoist, a changing bench, in order for their personal care to be done because she can't access the disabled toilets because she can't transfer onto a seat and she can't actually sit up. So, she can't use the disabled toilet. Does that make sense?'*

*[Participant 7, Female, 46, Parent of a Wheelchair User]*

#### **7.2.4 TRANSITIONING TO THE GATE**

Buggies were not used by people who travel with wheelchair users as the wheelchair users cannot use them. The gates at the airport were felt to be far away from the central part of the airport by half of the participants. The distance combined with some gradients meant that some participants felt tired when arriving at the gate, particularly if they had to push a wheelchair user to it:

*'It's pretty stressful because – especially on my back and sometimes my – the muscles in my arms because I have to – because sometimes they're pretty steep and then either way I go, whether I have to hold her up against the wheelchair or lean the wheelchair back, they both hurt my back a lot.'*

*[Participant 56, Male, 47, Spouse of a Wheelchair User]*

#### **7.2.5 IMMIGRATION, BORDER CONTROL, AND THE BAGGAGE HALL**

The immigration process was straightforward for the majority of those who escorted wheelchair users through the special assistance lanes and skipped the queues with them. Two participants had to help the wheelchair user they were with place their hands and fingers on the fingerprint scanners as they could not do it themselves.

The majority of people who travelled with a wheelchair user removed their bags from the conveyor belts for them, with two participants saying that they were often last to collect their bags. A minority of participants got someone from the porter team to help them with the luggage.

### **7.3 BOARDING THE AIRCRAFT**

Five participants who were parents of child wheelchair users had used the ambulift to board or disembark the aircraft and found it problematic. Parents being separated from their disabled children was an issue as only one parent could go with them on the ambulift potentially leading to difficulties in manual handling:

*'...last year when I was still on the aircraft with my husband to get [Name of child] off, helped to do a two-man lift out of his tomato seat<sup>4</sup> and into his wheelchair so he could go on the ambulift and I was told to get off the aircraft and [Name of child] was not moving until I got off, and my husband had to do the whole thing by himself. That I thought was dangerous, irresponsible; it's ridiculous.'*

*[Participant 4, Female, 46, Parent of a Wheelchair User]*

#### **7.3.1 THE PROCESS OF BOARDING**

Boarding the aircraft before able bodied passengers was preferred by some participants who travelled with wheelchair users. Boarding after the other passengers made them feel they were being stared at:

*'I then had to carry my child the length of the plane past... it just felt everybody was looking at you. And I don't take it personally but there was a lot less space and then we had to get her seat fitted onto the aeroplane seat and everything else, and that was tricky.'*

*[Participant 7, Female, 46, Parent of a Wheelchair User]*

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<sup>4</sup> A tomato seat is an adjustable seat to support children with disabilities (Bergeron, 2018)

### **7.3.2 MANUAL HANDLING**

The majority of participants stated that they had seen lifting issues during manual handling with the special assistance staff not being able to lift people properly:

*'When they lift him, as I said, quite often they're not really strong enough to do so or they don't lift him properly'*

*[Participant 1, Female, 30, Spouse of a Wheelchair User]*

Some of those travelling with wheelchair users preferred to perform manual handling themselves, especially the parents of wheelchair users. This was easier when children were younger and able to be easily carried but became more difficult as children aged and grew:

*'... before it was manageable, but as he's got bigger, it's more difficult to physically handle and it's not safe for either the Carer or [Name of Child] in the way that it was when he was younger and lighter and shorter, so it's not realistic from that point of view.'*

*[Participant 13, Male, 61, Parent of a Wheelchair User]*

Boarding the aircraft last meant that some of the participants saw the wheelchair users they were with would often be touched or touch others accidentally whilst moving down the aisle:

*'I think one other person tried to pick her up and I think it might have been pretty bad for her and the other passengers because he kept hitting them in the back of their head with her feet (laughter).'*

*[Participant 56, Male, 47, Spouse of a Wheelchair User]*

### **7.3.3 EQUIPMENT**

The aisle trolley used to transfer wheelchair user to their seat was disliked by some of the participants, feeling it was unsuitable for those who they were travelling with:

*'... you couldn't possibly use the aisle wheelchairs because he's not stable enough to be in those and then it becomes a real problem to lift him out of it in the space into a seat.'*

*[Participant 13, Male, 61, Parent of a Wheelchair User]*

A minority of participants referred to the Eagle Hoist that can be used by staff without having to do any manual lifting. This helped people with complex needs or those who were difficult to handle manually, however these were not always available:

*'...there is an Eagle Hoist to get you on from your wheelchair into the aircraft, which we have used at the Gatwick end, but when you reach your destination they don't have them because it's owned by an airport not by an airline.'*

*[Participant 4, Female, 46, Parent of a Wheelchair User]*

## **7.4 THE AIRCRAFT**

The following section of the results shows findings about the physical aircraft including the seating and the toilet facilities on-board. What happens during landing is described.

### **7.4.1 SEATING**

Four of the parents of wheelchair users preferred their children to sit in the middle seat because then they could provide support for them on either side. All of the parents of child wheelchair users used specialist seating to maintain the posture of their children and sat on their wheelchair cushions to prevent other negative medical implications such as pressure sores (7 participants):



*'Well, what she uses is called a higher-fly go-to seat and what that is a light-weight portable seat with lateral support, which is kind of around her chest and stuff, and it sits on top of the aeroplane seat. So, it fastens around the back of the aeroplane chair and she gets fastened into that.'*

*[Participant 7, Female, 46, Parent of a Wheelchair User]*

*'He needs a five-point seating system, so a lap belt and then four points around his core. He would also need thoracic support on the side and under his body, around that chest area where your ribs are.'*

*[Participant 14, Female, 47, Parent of a Wheelchair User]*

The majority of participants commented on the lack of comfort the seats offered and the small space surrounding the seats. Four participants mentioned that they liked to sit in the bulkhead seating so that they had extra space. Having extra space around wheelchair users made access easier for those caring for them or helping them when required (6 participants):

*'... we've been very lucky and got a bulkhead seat to Florida and back again so it was no problem for us, it was very good with the seats and there was room, like I say, to get him in and out to feed him, we could stand in front of him to feed him, to give him a drink, all of that.'*

*[Participant 4, Female, 46, Parent of a Wheelchair User]*

When not in a bulkhead seat, a minority of participants said that a lack of legroom was a problem for wheelchair users who suffered from strong spasticity kicked the seat in front of them causing injury:

*'We were about four rows back and, wow, [Name of child] was bruised to his thighs with the kicking into the seat in front of him. He was very distressed. Yeah, that wasn't very nice.'*

*[Participant 4, Female, 46, Parent of a Wheelchair User]*

Business class seating was also discussed by the majority of the participants. Some of the participants felt that the extra space and the ability to adjust the seat more than an economy

seat was beneficial to maintain the wheelchair users' posture. A further advantage included parents and carers being able to help with their personal and care needs. Three participants thought that the size of the seat may not offer enough support:

*'I think there's value to be gained, there's good and bad in both. So, for example, to be able to lie down on a red-eye, that would be really good, but I also know say a First-Class seat hasn't – doesn't offer enough postural support, in other words, they're too wide'*

*[Participant 3, Male, 56, Parent of a Wheelchair User]*

*'A business class seat with double the leg room because you need to be able to stand in front of them to help them into their special support seat that sits inside the normal plane seat and sometimes to feed them; there are some kids that are on oxygen that you need to be in front of them and connect them up and everything. You need the leg room in front of you.'*

*[Participant 4, Female, 46, Parent of a Wheelchair User]*

#### **7.4.2 TOILETS**

Four parents of child wheelchair users did manage to help their children go to the toilet on board the aircraft but space inside the cubicle was an issue:

*'Yes, in one word – nightmare, 100% nightmare (laughs). They're not big, they're not set up for disabled people, there's nowhere to lay her down to change her; it is one of the worst experiences ever, it is terrible ... Both of us can't fit in to the toilets to help change her so only one of us can go in and you're stood up and you're literally trying to clean up faeces from dribbling down her leg and up her back and off her things; she's uncomfortable, she can't lay down anywhere or sit anywhere and so you're just hoping you've got it all because you can't even see (laughs); it's ridiculous.'*

*[Participant 11, Female, 36, Parent of a Wheelchair User]*

A minority of parents changed their children on the floor or in their seat with a tent or galley curtain erected around them:

*'I have my other two children and husband make a blanket tent around the front of him to try and hide him from view and I'm in the row behind lifting [Name of child] up in his tomato seat under the armpits so it lifts his bottom out of the seat, and the two carers stand in front inside the makeshift tent and pull his trousers down and change his incontinence pad right there in front of everybody, but they can't see his actual body because he's hidden by the tent. But obviously you can't get away from the fact that there's going to be the smell of urine and poo or whatever's happened because you're changing an incontinence pad. And it's not very nice for anybody. It's very embarrassing for [Name of child], like I say, he's very aware of what's going on. And everyone is looking now going, "What's going on? They've made a tent around that person, what's happened? Have they collapsed?" You can hear it all, all the chatter.'*

*[Participant 4, Female, 46, Parent of a Wheelchair User]*

The majority of the participants said that it was impossible for those who they were travelling with to use the toilet on board the aircraft because they could not access it:

*'He doesn't go to the toilet on the aircraft. He can't – he's wheelchair bound, so he can't get out of his seat. There's no provision of equipment or staff to help him get out of his seat and the toilet is much too small and he would never be able to fit in it.'*

*[Participant 1, Female, 30, Spouse of a Wheelchair User]*

For easiness and convenience, all of the participants said that those they travelled with used some form of strategy to avoid going to the toilet on board the aircraft:

#### **CATHETERISATION:**

*'... my son, he can't use the toilet, end of, so we have to – he has a pad on and he also has a – I attach a catheter, so that he can sit there and the catheter bag fills up while we're traveling by air.'*

*[Participant 3, Male, 56, Parent of a Wheelchair User]*

### **NAPPIES/INCONTINENCE UNDERWEAR:**

*'... he wears a nappy and often we find ourselves changing him on the floor everywhere ... there is no other option ... if there were the accessible toilets, we could use them, but there aren't, so we've given up.'*

*[Participant 14, Female, 47, Parent of a Wheelchair User]*

### **DEHYDRATION/STARVATION:**

*'... if something is going to be a long time, he will just not take fluids, but that's not good'*

*[Participant 13, Male, 61, Parent of a Wheelchair User]*

### **BOWEL MANAGEMENT:**

*'She gets fed every four hours so because of the flight times I'll feed her at the airport about 7am and then her next feed is scheduled for 11am, but that's like halfway through my flight so if I wait until we've landed and disembarked and everything else it's far too late ... And there's no way on this Earth that if I was going on a ten-hour flight – there are absolutely no toilet facilities that would be suitable for my daughter, none. I'll never go on a long-haul flight until that is ever changed ... I actually have no idea. There isn't anything. If the toilets weren't available and her bowels moved mid-flight she would have to sit until I got to the airport at the other end before I would be able to change her.'*

*[Participant 7, Female, 46, Parent of a Wheelchair User]*

### **7.4.3 LANDING**

Some participants said that they were concerned for those they were travelling with during landing, watching them brace themselves and worrying that they may be injured:

*'He's never actually hit his face, but he's always having to brace himself against the seat in front to stop himself from doing that and obviously that can impact on his arms and wrists as well.'*

*[Participant 1, Female, 30, Spouse of a Wheelchair User]*

Eight participants had an instinctive reaction to restrain who they were travelling with during landing. They felt that this provided them with a comfort that they were helping those they were with but also with the knowledge that they were exposing themselves to potential injury by doing so:

*'... he's not got control over his own body, so on take-off and landing, then I would be sitting alongside him and I would have to physically restrain him for both take-off and landing and support his body and hold him. From a Carer point of view, it's not a safe thing and it's also physically demanding'*

*[Participant 13, Male, 61, Parent of a Wheelchair User]*

## **7.5 DISEMBARKING THE AIRCRAFT**

The following section discusses how wheelchair users are disembarked from the aircraft and the issues that surround it, including wheelchair repatriation.

### **7.5.1 THE PROCESS OF DISEMBARKATION**

All of the participants referred to disembarking the aircraft. The majority of participants said that they had to wait for the wheelchair to be returned to the aircraft door, sometimes having to wait for a long time:

*'... the worst was probably best part of an hour and 20 minutes ironically at Heathrow, but yes, typically you're on a plane for at least half an hour waiting for the power wheelchairs to come to the door.'*

*[Participant 3, Male, 56, Parent of a Wheelchair User]*

### **7.5.2 WHEELCHAIR ISSUES**

The wheelchair being separated from the user wheelchair was found to be a source of anxiety for people who travel with wheelchair users because of how essential the wheelchair was and the negative consequence if something was to happen to it (6 participants):

*'... once he's obviously out of his chair, obviously his chair then has to go to – in to the hold and I find that extremely stressful as well, because we've experienced so many times when we – when the chair doesn't come back to the aircraft door at the end of the flight and I feel anxious that we're separated from it because, if he doesn't have his chair, then we – there's nothing we can do, we won't be able to have our holiday, we won't be able to go home; it's an expensive piece of kit and I find that makes me really anxious.'*

*[Participant 1, Female, 30, Spouse of a Wheelchair User]*

Eight participants discussed the wheelchairs being reunited with its user, with a preference for this to take place at the door of the aircraft:

*'...the wheelchairs were there waiting for us as soon as we got out the doors of the plane. So, I was able just to transfer [Name of child] straight into their own chair at the door of the plane.'*

*[Participant 7, Female, 46, Parent of a Wheelchair User]*

A minority of those who travel with wheelchair users said that they had experienced the wheelchair being sent to the baggage hall instead of being returned to the aircraft door, which was considered a negative experience:

*'A few times we've had to wait for the wheelchair to arrive, sometimes the wheelchair's been sent to baggage reclaim which my client never feels happy about ... even though the wheelchair has a label on it saying please return to the side of the aircraft, it hasn't been ... obviously there's been miscommunication or somebody's not paying attention along the line. I'd prefer the wheelchair to arrive next to the aircraft promptly so that I can assist my client back into their wheelchair'*

*[Participant 22, Male, 29, Professional Carer]*

## **DAMAGE TO WHEELCHAIRS**

Five participants reported that they had experienced damage to the wheelchairs of those they were travelling with and mentioned the expense and inconvenience involved when this happened:

*'The power wheelchair came to the door ... it was broken ... crushed in the hold and we've had another issue where they took all the wires out – absolutely every single wire going, despite the fact that I'd made it inoperable, they just carried on taking wires'*

*[Participant 3, Male, 56, Parent of a Wheelchair User]*

*'Well, all four wheels were no longer on the ground, the back was so badly twisted you couldn't have sat him in it, one of the lateral supports was broken, there were sharp edges all over it, it was severely battered ... it was considered a write off by the company that we'd bought it through, they said it was beyond fixing ... the airline did eventually replace the chair. I think it was £4,500.'*

*[Participant 18, Female, 43, Parent of a Wheelchair User]*

## **NEGLECT**

Three participants had experienced the wheelchair being returned wet after it had been left in inclement weather conditions:

*'I've certainly experienced and seen other people experience wheelchairs being taken out of the hold and then left on the runway waiting for somebody and the wheelchair getting absolutely soaked and some fabrics that some wheelchairs have might not be easy wipe-down'*

*[Participant 13, Male, 61, Parent of a Wheelchair User]*

## **LOSS**

A minority of participants said that parts of the wheelchair had been lost, but had learnt through these experiences to remove these parts and store them on board the aircraft:

*'I think they've lost one or two bits of parts of the chair but then we got wise and made sure we detached things that were detachable, like footplates for example which were detachable on one wheelchair and I just made sure I took those off and said we were going to put those in the overhead luggage and they agreed.'*

*[Participant 13, Male, 61, Parent of a Wheelchair User]*

## **OTHER**

One participant also made a sign for their child for the staff to consider how important their wheelchair was:

*'I've made a proper sign up with a big picture of [Name of child] sitting in his wheelchair saying, "Please be careful with my wheelchair"; it's been laminated, it gets attached to the back of the wheelchair so that people just kind of humanise or realise that there's a little boy uses this chair to get around kind of thing'*

*[Participant 4, Female, 46, Parent of a Wheelchair User]*

## **7.6 FEELINGS ABOUT THE STAFF**

Travelling through the airport and on board the aircraft meant that a variety of observations were made about the staff. Six participants spoke about their communication with the staff, which largely depended upon that member of staff, with positive and negative comments being said about them:

*'The interactions with the crew on the plane have usually... well, every time it's been fantastic; the cabin crew have always helped us when we've had to wait for the ground crew to assist to transfer from the plane seat to an aisle trolley we've usually had discussions with the cabin crew.'*

*[Participant 22, Male, 29, Professional Carer]*



### **7.6.1 HELPFULNESS**

The majority of people travelling with wheelchair users thought that the staff were often helpful, treated the wheelchair user with respect and understanding as well as having the appropriate knowledge to be able to assist where needed:

*'They're trying to be so nice; you can't blame the people that work at the airline that are on duty that day. They do their very best to try and help you, but it doesn't stop the stress.'*

*[Participant 4, Female, 46, Parent of a Wheelchair User]*

*'... because we were first to board on the way out there was no pressure and it seemed to be quite seamless; the staff knew what they were doing, and they were extremely helpful.'*

*[Participant 7, Female, 46, Parent of a Wheelchair User]*

### **7.6.2 POORLY PREPARED**

Three participants thought that the staff were sometimes not properly prepared to help wheelchair users by either not sending enough staff to assist with manual handling or lacking the correct equipment to do so:

*'... when they do turn up, quite often there'll only be one of them when there needs to be two, or in my opinion, they're not physically able to lift my husband. They'll either be small or old, so they're often not prepared with the right equipment'*

*[Participant 1, Female, 30, Spouse of a Wheelchair User]*

### **7.6.3 COULD DO BETTER**

A minority of participants felt that there was plenty of scope and opportunity for the staff to improve the service provided:

*'I cut them a lot of slack because you do – could always do better. It's a difficult one to say really because – yes, it could always be better ... they can only use the tools that're in front of them and they're not good enough.'*

*[Participant 3, Male, 56, Parent of a Wheelchair User]*

## **7.7 FOLLOW UP QUESTIONS**

The participants were asked a set of follow up questions which included the concept of flying in your own wheelchair and recommendations they would make to the aviation industry to improve the flying process for wheelchair users.

### **7.7.1 USING THEIR WHEELCHAIR AS A SEAT**

Participants were asked whether they would like wheelchair users to fly using their own wheelchair as a seat and if it would encourage more wheelchair users to fly. The majority of participants thought that this was a great idea that would be advantageous for wheelchair users:

*'The concept will bring back dignity and safety to the passenger; it will bring back dignity, safety and comfort to the passenger.'*

*[Participant 3, Male, 56, Parent of a Wheelchair User]*

Two participants thought that it would encourage more wheelchair users to fly however did not know if the people that they travelled with would utilise the option if it was available:

*'I think that it definitely would encourage some wheelchair users to fly more. The thought of not having to leave their wheelchair I think would be really encouraging, but I know that my husband has mentioned this to me before and it's not something that he feels particularly great about. He's not sure about his chair being strapped into the plane and also means that he himself wouldn't actually be secured, only his chair, so I'm not sure – I think that there would be a lot of pros and cons.'*

*[Participant 1, Female, 30, Spouse of a Wheelchair User]*

*'I think possibly adults, but it wouldn't help us I don't think, because that's still not comfy for such a long-haul, not the one that we've got for our little girl, so I don't – yes, I'm split on that one; possibly for older people but not for children.'*

*[Participant 11, Female, 36, Parent of a Wheelchair User]*

### **7.7.2 RECOMMENDATIONS**

Participants were asked what recommendations they would make to the aviation industry and policy advisors to improve travel for wheelchair users. In total, eight main areas of recommendation were made: Staff training, better communication, consulting with wheelchair users, using your wheelchair as your seat, disabled toilet on aircraft, more and better equipment, space on the aircraft, and process refinement.

Staff Training – Three participants said that they would like the staff to receive more training in order to better help wheelchair users.

Better communication – Two people who travel with wheelchair users would like to see an improvement in communication from the staff.

Consulting with wheelchair users – Two participants wanted wheelchair users to be consulted with by the aviation industry so that policies could be improved upon.

Using your wheelchair as your seat – Five participants reaffirmed a desire for wheelchairs to be used as a seat on board the aircraft.

Disabled toilet on aircraft – Three participants wanted aircraft to be adjusted to have a disabled toilet on board that is fit for purpose.

Equipment – One participant wanted a better availability of the equipment available for the staff to use. One participant wanted an improvement on the equipment currently available.

Space on the aircraft – Two participants wanted more space on board the aircraft.

Process refinement – One participant wanted to ensure that the process of boarding was guaranteed to avoid humiliation.

## **CHAPTER EIGHT – CABIN CREW RESULTS**

Eleven people took part in this element of the research who were aged between 26 and 48 years old and described their job role as ‘cabin crew’ or ‘flight attendant’. They had an average age of 35.73 years old. The participants worked for three employers across three different airports. The length of employment ranged from two years and eight months to 26 years with the average length of service being 12.88 years. This information can be read in Table 8.1. The sample of participants was vastly experienced, many of them having completed their training before the most recent disability legislation came into force. This experience will have allowed them to see multiple examples of wheelchair users. Cabin crew were also required to pass an exam every year to continue to be qualified to fly, of which disability legislation is a part of, and so this makes the sample potentially strong in answering the research questions they are associated with.

Female voices (10) dominated this research although there was one male voice as well. It was considered to try and recruit more male participants, but ultimately was not undertaken as the target sample size had been fulfilled, as discussed in 5.3.3 *CHOOSING THE CORRECT SAMPLE SIZE AND DATA SATURATION*, and other research suggested this field may have a bias towards females being employed in this capacity (Wang and Cole, 2014).

A pilot was also interviewed as part of this research group, as he was an acquaintance of the author of this PhD and insisted on taking part after the main body of data had been collected. It was decided in retrospect after the analyses of the interviews not to include the results of the pilot. This was because the pilot would also be unable to help answer research questions 4, 5 and 8 as they were piloting the aircraft and not in contact with passengers. They were also the only pilot however, interviewing pilots specifically would be worthy of consideration as part of future research in this area.

The following characteristics were selected to define a participant in the results: Participant number, gender, age, and employer. Participant numbers were used to protect anonymity and continued from previous groups of participants. Participant number was given by the author of this PhD, gender and age were the answers given during the interview and employer

was changed to protect the anonymity of the participant and the employer being subjected to potential bias by the reader of this thesis. This resulted in the following format as an example: [Participant 24, Female, 28, Airline 2].

The following words are used to describe the number of participants responses associated with a particular theme where not explicitly specified:

‘None’ – refers to none of the participants

‘Minority’ – refers to between one and three participants

‘Some’ – refers to between four and six participants

‘Majority’ – refers to between seven and ten participants

‘All’ – refers to all eleven participants

<b>Participant</b>	<b>Age</b>	<b>Gender</b>	<b>Occupation</b>	<b>Employer</b>	<b>Airport Base</b>	<b>Length of Service</b>
23	27	Female	Cabin Crew	Airline 1	Gatwick	3 Years
24	28	Female	Cabin Crew	Airline 2	Newcastle	6.5 Years
25	40	Female	Cabin Crew	Airline 3	Heathrow/Gatwick	13 Years
26	39	Female	Flight Attendant	Airline 3	Heathrow/Gatwick	2.66 Years
27	38	Female	Cabin Crew	Airline 3	Heathrow/Gatwick	14 Years
28	40	Female	Cabin Crew	Airline 3	Heathrow	20 Years
29	31	Female	Cabin Crew	Airline 3	Heathrow/Gatwick	12 Years
30	38	Female	Cabin Crew	Airline 3	Heathrow	19 Years
31	38	Female	Cabin Crew	Airline 3	Heathrow	19 Years
32	26	Female	Cabin Crew	Airline 1	Heathrow	6.5 Years
33	48	Male	Cabin Crew	Airline 1	Heathrow	26 Years

*Table 8.1 – Participant Characteristics of Cabin Crew*

## **8.1 POLICIES AND TRAINING**

All of the participants were asked about their knowledge of their employers and industry disability policies that are in place. Ten participants responded that they were aware to some extent of the policies in place. Three participants referred to governing bodies or specific acts of law. Two participants said that they could not recall the policies from memory, but that they could easily find out through employee manuals. Although not directly asked about during the interview, the majority of the participants referred to the International Air Travel Association (IATA) codes for passengers with reduced mobility, describing them to some degree. The descriptions can be seen in Table 6.2, in *6.1 PREPARING FOR FLYING*.

### **8.1.1 TRAINING**

All of the participants said they had received training on how to help wheelchair users and passengers with disabilities:

*'... we have an on-board wheelchair which we have to know how to use if people aren't able to walk to their seats, if they're carry-on passengers ... We're trained on how to demonstrate all the safety equipment verbally and visually; if people aren't able to watch the demonstration, we sort of get them to feel the oxygen masks and everything. We're then told that we have to make them aware of the nearest toilet to them, how many rows to the nearest exit ... just basically looking after their needs; we're told not assume anything with them, they might be more capable than we think.'*

*[Participant 29, Female, 31, Airline 3]*

Despite the disability training that they were given, the majority of the participants felt the training they had been given was inadequate, too technical, or felt that the disability training was more about avoiding legal ramifications in the event where something does not go according to plan:

*'I think in that six weeks it's so full-on and if you've never flown before it's a lot of information to take in from start to finish ... until you're actually in that situation you kind of don't think about it because there's so much going on and there's so much that you're supposed to learn.'*

*[Participant 23, Female, 27, Airline 1]*

*'... a lot of it was too technical, was all about sort of the legal side of it ... I think there's probably been so many incidents where there's been lawsuits and stuff, a lot of it was to cover – to cover themselves ... but the majority of the training on that course I think was to understand people's legal rights rather than their sort of personal needs'*

*[Participant 30, Female, 38, Airline 3]*

A minority of participants reported that they received very basic or no training in helping wheelchair users due to the fact that they had completed their training a long time ago and had forgotten if there was any training of this nature. Some of the participants reported that any changes or updates in policies or to the manuals were released regularly through emails and notices. Seven participants said that they had to complete a yearly exam to continue to be certified to work on board aircraft. Disability awareness and training modules were required to be studied but may not appear within the exam.

### **8.1.2 VIEWS ON TRAINING**

Five of the participants found the training courses a positive experience as it helped them understand the processes that people with disabilities may experience whilst flying. This was especially prevalent during physical practice inside a mock-up of an aircraft:

*'They're really good. We've got a training centre at the main base and it's even got a cabin where you have to like assist a wheelchair Charlie<sup>5</sup> passenger, so someone who hasn't got the use of their legs, to an aircraft toilet or to the door and then back to their seat'*

*[Participant 24, Female, 28, Airline 2]*

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<sup>5</sup> See Table 6.2 in 6.1 PREPARING FOR FLYING



Some of the participants however found their training too basic and felt like they were not given enough information or confidence to help wheelchair users:

*'... it's very basic. It doesn't particularly give you a huge amount of confidence when it comes to helping wheelchair passengers on-board. I think they probably could go into that in more detail for sure.'*

*[Participant 31, Female, 38, Airline 3]*

## **8.2 INFORMATION AND COMMUNICATION**

### **8.2.1 INFORMATION**

All of the participants found out how many people there were on their flight in their pre-flight briefing. Information about people with disabilities and wheelchair users was shown on the flight manifest. Some of the participants reported that the more senior members of staff often have more information about people with disabilities and wheelchair users:

*'... every senior crew member at [Airline 1] has an iPad. We download a passenger information list onto the iPad before every flight and details of every passenger and their needs, whether that's from special meal requests to passengers who need wheelchair access, deaf passengers, blind passengers, anything that a passenger has told [Airline 1] would be on that passenger information list'*

*[Participant 33, Male, 48, Airline 1]*

The majority of participants also felt like they were able to provide a better service if people with disabilities and wheelchair users gave as much information as they could when they booked their flights:

*'I think as long as people are clear from the start exactly what needs they have and that is portrayed to the company the right way and with the right amount of time for the company to be able to allow for those needs then generally I think it does work quite smoothly.'*

*[Participant 31, Female, 38, Airline 3]*

### **8.2.2 COMMUNICATION**

Communication between airline staff and wheelchair users was considered important by nine of the participants. One participant reported that they cannot always spend too much time communicating with the passengers because of the other preparatory jobs they had to do. Speaking to wheelchair users and giving them as much information as possible was considered important to the participants as it reflected on them as an individual:

*'We're taught that actually it's the person rather than talking to family members around them ... I know it's something where I find it really, really important for our customers because it's part of the experience for them'*

*[Participant 26, Female, 39, Airline 3]*

### **8.3 THE AIRCRAFT**

The following section describes the processes of boarding including manual handling and the equipment used. Aspects of the physical aircraft were discussed including seating and space on board. Safety and evacuation procedures, helping wheelchair users to the toilet, and serving passengers with disabilities food and drink during the flight were discussed.

#### **8.3.1 THE PROCESS OF BOARDING**

It was standard procedure for passengers with disabilities and wheelchair users to board the aircraft first according to all of the participants. This was for various reasons which included allowing time for the passenger to get comfortable, avoiding other passengers who may get in the way, having space to move the aisle chair down an aisle, and allowing space for the special assistance staff to help with manual handling:

*'... if they need additional help, they are brought on first. So, generally that's okay. We just sort of get them on, get them comfortable, and then that gives us time when there's not too many people in the aisles to find out if they have additional needs, what level of help they'll need from us during the flight'*

*[Participant 30, Female, 38, Airline 3]*

The majority of the participants had experienced wheelchair users boarding the aircraft after the other passengers for a variety of reasons. The normal method of entry to the aircraft was through a jetway. When not available, the ambulift was used as the method of entry to the aircraft, but two participants said that they were sometimes broken or lacked sufficient staff to operate them. Seeing wheelchair users being carried down the stairs was seen by one participant and was reported as being a negative experience for wheelchair users:

*'... in the Caribbean there aren't any ambulifts so they have to get walked down steep stairs in this wheelchair. And I'm not in a wheelchair and I would be absolutely terrified of having to do that. So, somebody that's already gone through maybe trauma I could only imagine that it is petrifying. And these people are just ground staff; they're just like any normal person. So, I've seen, as I say, women crying going down these steep stairs just being carried essentially on a metal chair'*

*[Participant 23, Female, 27, Airline 1]*

### **8.3.2 MANUAL HANDLING**

Nine members of cabin crew made it clear that it was not part of their job role to carry out manual handling but was the role of special assistance staff instead. Despite this, some of the participants had carried out manual handling with wheelchair users:

*'... if you need to assist them onto the aircraft or assist them to the toilet or whatever, you can do as long as you make sure that you're looking after yourself at the same time so you don't end up with like back injuries or anything if they need lifting off the aircraft seat.'*

*[Participant 24, Female, 28, Airline 2]*

*'I have physically carried somebody off before with a colleague of mine, but it is a very very embarrassing situation for me and the passenger really. And it is something that we try to avoid as much as possible'*

*[Participant 32, Female, 26, Airline 1]*

One participant often saw wheelchair users being manually handled by those travelling with them rather than receiving help from members of staff. Some of the cabin crew considered the welfare of wheelchair users during manual handling whilst in the aisle chair and being moved up and down the aisle, referring to the potential for injury in the confined space:

*'... especially on a certain aircraft the aisles are so narrow and the wheelchair obviously it's got to go up and down the aisle but it is such a narrow space that, you know, arms, elbows, that kind of thing easily knocked really, really easily.'*

*[Participant 27, Female, 38, Airline 3]*

Four participants saw that passengers who were larger in stature or overweight were harder to handle for staff. This caused adverse scenarios for some overweight passengers when manual handling was performed incorrectly:

*'... she was quite a large lady as well and she really didn't have any mobility at all, so they had to use the winch but none of the passenger service team were comfortable using the winch – I don't think they'd had the right training – and unfortunately this poor lady ended up on the floor.'*

*[Participant 31, Female, 38, Airline 3]*

### **8.3.3 EQUIPMENT**

The equipment used for the manual handling of people with disabilities and wheelchair users was discussed. All of the participants described the on-board wheelchair, which was a version of an aisle trolley used to move people who cannot walk up and down the aisles of the aircraft. Opinions varied about this equipment, with the participants feeling it was either fit for purpose (6 participants), thought it was not good but the best method for narrow aisles (1 participant), and the rest did not like it (4 participants):

*'The equipment, the on board wheelchair that we have on board I think if we need to use it is good enough, and the wheelchairs that are provided on the ground are also very good, and so are the electronic mobile ... little cars that take them around, there are a sufficient amount of them that go around frequently as well.'*

*[Participant 32, Female, 26, Airline 1]*

*'The on-board wheelchair is tiny; it doesn't look very appealing, it looks dreadful ... The wheelchair has to be tipped on its back basically – and it just doesn't look very stable. The straps that the passenger has to wear aren't... they can't really do anything. It could easily topple over. You can see that some people are... definitely women I think they are frightened quite a lot, I've seen a few people in tears. So, yeah, I do think there is discomfort and there is worry and I don't think the equipment is the best that it could be.'*

*[Participant 23, Female, 27, Airline 1]*

#### **8.3.4 THE PHYSICAL AIRCRAFT**

Seating and space on board the aircraft was discussed by some of the participants. Six participants thought that the narrow aisles were problematic in boarding wheelchair users onto the aircraft. The position of where wheelchair users are sat on board the aircraft depended upon the policy of the airline. A minority of participants felt that upper class seating offered more space and footrests. The armrests being able to be adjusted made manual handling easier (4 participants). The limited space on board the aircraft meant that helping wheelchair users could be difficult and that wheelchair users might be uncomfortable (6 participants):

*'... we do have people who have quite severe disabilities who I think it's probably really uncomfortable for them because the aircraft is so narrow and obviously it's quite a restricted space.'*

*[Participant 28, Female, 40, Airline 3]*

### **8.3.5 SAFETY AND EVACUATION PROCEDURES**

Cabin crew would deliver a personal safety briefing if a passenger required one. A minority of participants said there was a lack of specific information for what wheelchair users should do in an evacuation scenario in the safety demonstration video. Seven participants stated that if a wheelchair user was unable to evacuate themselves then they would be required to have someone travel with them to assist them.

### **8.3.6 TOILETS**

Helping wheelchair users going to the toilet was discussed by all participants. Two participants having no experience of helping wheelchair users to the toilet. The other nine members of cabin crew said that they helped wheelchair users reach the toilet by guiding them if they could walk or using the aisle trolley to do so. Once the cabin crew had assisted taking the wheelchair user to the bathroom, some of the participants said they would not help them inside the cubicle for the purposes of dignity, and that they would need someone else to assist them inside the cubicle if they were unable to go to the toilet themselves. Four participants discussed the space inside the toilet cubicle, saying it can be small, however newer aircraft offered more space inside the cubicle:

*'On the new aircraft we actually have huge disabled toilets which are much better, and they have a seat, and you can actually fit all your chair in that toilet, so it's made it a lot more convenient and easier for wheelchair users.'*

*[Participant 28, Female, 40, Airline 3]*

In the event that a wheelchair user was unable to physically access the bathroom, some of the participants had helped wheelchair users with alternative approaches to going to the toilet:

*'We also had a young girl actually with spinal bifida I think it was ... She was unable to use the bathroom; she could only go to the bathroom whilst she was in her seat. But what we were able to do was we blocked off four rows behind and almost made a tent, and I happily chatted with her mum and said, "Right, okay, we can do this and do that; whatever you want to do we can do". And so, we just kind of made almost like a toilet tent for her so her dignity was completely intact. Her mum was really happy with exactly what happened.'*

*[Participant 26, Female, 39, Airline 3]*

One participant said that sometimes there were those who cannot use the cubicle or their seat and had to use the floor:

*'... this is one thing that really pisses me: if it's a child or an adult that wears... I don't know what they're called, not nappies but you know what I mean – sort of pants but aren't able to go to the toilet there's nowhere for people to change them, which breaks my heart really, so nine times out of ten they will usually end up on the floor – I mean I will always put blankets down and pull the privacy curtain for them to change on the floor but that's not ideal, I don't like that at all.'*

*[Participant 29, Female, 31, Airline 3]*

### **8.3.7 FOOD AND DRINK**

Five participants said they had never had to help anyone with their food and drink or that they were treated like every other customer. The cabin crew had helped people with their food and drink and there was a consensus that they were able to help with access to food such as opening packaging but not feed them (6 participants):

*'Yeah, cutting up their food ... if they're travelling on their own, we would offer all of that sort of thing, opening cans of drink, pouring it into glasses ... making sure that water is easily accessible.'*

*[Participant 33, Male, 48, Airline 1]*

## **8.4 DISEMBARKING THE AIRCRAFT**

The following section discusses how wheelchair users are disembarked from the aircraft and the issues that surround it, including wheelchair repatriation.

### **8.4.1 THE PROCESS OF DISEMBARKATION**

All of the participants said that wheelchair users would be disembarked after everyone else where the special assistance staff would carry out the manual handling process and help them through the airport. Prior to disembarkation, seven participants discussed how they communicated about the disembarkation process with wheelchair users either through an announcement or in person. The reason for waiting until the other passengers had left the aircraft was so that the special assistance staff had adequate space to work in and for wheelchairs and equipment to be made ready (5 participants). The majority of participants thought that the waiting period could be an irritating time for the cabin crew who were required to wait on board the aircraft until the last passenger has disembarked:

*'I think that's probably what's embarrassing for them is that they're aware of the crew are waiting for them because we don't get off until they've got off.'*

*[Participant 25, Female, 40, Airline 3]*

*'This is when I think we let ourselves down because we've built up a rapport with all our customers hopefully ... if you need help or you've booked a wheelchair then you need to stay where you are kind of thing until the rest of the passengers have disembarked so you're sat there waiting.'*

*[Participant 27, Female, 38, Airline 3]*

Waiting times were also reported by a minority of participants as being worse either very early in the morning or late at night as there were not enough special assistance staff to help take wheelchair users off the aircraft. Long waiting times were also caused by a lack of special assistance staff or equipment as mentioned by eight participants:



*'... when you're disembarking, and the poor passengers sat there waiting and waiting and waiting and waiting whether it be for the high lift or whether there's not enough wheelchairs'*  
[Participant 27, Female, 38, Airline 3]

*'Sometimes there's not enough staff so people are waiting a long time especially if their families have got off ahead of them ... I don't think the landing, or the disembarking process sometimes is the best experience.'*  
[Participant 30, Female, 38, Airline 3]

A minority of the cabin crew said that they felt self-conscious and embarrassed leaving the aircraft and walking past wheelchair users who had been disembarked but were still waiting to be moved to the terminal. They said that this process was akin to a conveyor belt:

*'... quite often when you're walking off the aircraft you do find that occasionally people who need assistance are left at the top of the gate because if there are quite a few there's not often enough handlers to help them. So, I do find that that can be a little bit awkward sometimes because you're walking past these poor people ... I feel it's a little bit like a conveyer belt sometimes, which is not necessarily the way it should be done.'*  
[Participant 31, Female, 38, Airline 3]

Eight participants said that the process of disembarking (and boarding) could vary from country to country depending on the equipment available and the skill set of the special assistance staff at that location. It was stated by one participant that this could be particularly bad if the plane was diverted:

*'Obviously things happen, delays happen and diversions happen; those sorts of things are very few and far between but they can again cause more problems, especially on a diversion perhaps - if we divert to a different country then that airport might not have the facilities that that person then needed; that would be a worst-case scenario.'*  
[Participant 31, Female, 38, Airline 3]

#### **8.4.2 WHEELCHAIR ISSUES**

Some of the participants said that they had seen issues with wheelchairs when they were returned to their users. This included damage to the wheelchair, the wheelchair being put back together incorrectly, tyres being punctured, the seat cushion going missing, and the electric wheelchair control device being broken:

*'I had an awful incident once and the guy's wheelchair was broken, it was awful ... the person was obviously very distressed but it had come out of the hold and one of the pieces, although it had been wrapped very well, one of the pieces was damaged.'*

*[Participant 25, Female, 40, Airline 3]*

*'I've had them bring the wrong wheelchair up, or they can't put it together correctly or they want to put them in their own wheelchair, you know, the company wheelchair and they're like, 'No, I'm waiting for my wheelchair, I'm waiting for mine' so I think they're obviously restricted with time and they just want to get them on the jetway but quite rightly so the person wants their own wheelchair that's theirs.'*

*[Participant 27, Female, 38, Airline 3]*

One member of the cabin crew saw an incident where a wheelchair had been taken to the baggage hall rather than returned to the aircraft door. This made the wheelchair user upset as they needed the wheelchair for postural reasons:

*'... someone's wheelchair was taken to the baggage hall rather than brought up to the stairs. They weren't very happy which is expected, because obviously people have wheelchairs for their own reasons. I think it was a young boy and obviously he needed all the padding around his head and everything. He did go off in the airport wheelchair, but it's wasn't ideal because it didn't support him in the way that he needed to be supported. So, yeah, they weren't very happy about that which is understandable.'*

*[Participant 29, Female, 31, Airline 3]*

## **8.5 DISABILITY DIFFERENCES**

Differences in disabilities were noted by six of the participants. The variance of disability had an impact on how the cabin crew treated people with disabilities:

*'... each person with each disability is obviously very, very different ... we do our absolute best of what we can do and speak to that individual and find out what they need on a daily basis'*  
[Participant 27, Female, 38, Airline 3]

Wheelchair users have been noted by the majority of the participants as liking to be as independent as possible, with some wheelchair users getting upset when too much help was given and so asking wheelchair users how much help they required was important:

*'I feel like if you leave them to their own devices until they ask for help because quite a few people get offended if you try and help them straightaway and like, "No, no, no, I'll do it myself, I'll do it myself".'*  
[Participant 24, Female, 28, Airline 2]

A minority of the cabin crew felt that they could learn and gain confidence from people with disabilities because they have the most experience with their disabilities:

*'... everyone else who comes on as disabled has been living with their condition for quite a long time, so they kind of know how to deal with it. And they would probably teach us a thing or two, to be honest.'*  
[Participant 32, Female, 26, Airline 1]

All of the participants were asked if they felt they had enough knowledge and experience to help wheelchair users. Ten of the cabin crew said that they did whilst the remaining one said they did not because they did not frequently interact with wheelchair users.

## **8.6 FOLLOW UP QUESTIONS**

The participants were asked a set of follow up questions that did not include the concept of flying in your own wheelchair. Those questions were developed after the cabin crew had been interviewed. The cabin crew made a series of recommendations to improve the flying process for wheelchair users.

### **8.6.1 RECOMMENDATIONS**

The participants were asked to offer their opinions on what changes or improvements they would like the aviation industry to make to improve the experience of flying for wheelchair users. These were categorised into five areas: Space, equipment, staff issues, process issues, and helping overweight passengers.

Space – Two cabin crew wanted changes to the actual aircraft so that there was more space inside the cabin including the aisles, seats, and toilets.

Equipment – Three participants called for more and better equipment for wheelchair users and themselves to use.

Staff issues – Three participants said that they would like to receive more training in order to help wheelchair users more effectively. Four participants wanted there to be more special assistance staff available to help board and disembark wheelchair users. Another participant also thought that some of the special assistance staff were too old to be able to help wheelchair users. One participant was critical about their colleagues, referring to scenarios where they did not address wheelchair users or were not discreet about their own feelings when the operation did not run smoothly.

Process issues – Better communication between the different teams of people involved in a flight was desired by three participants so that the process of helping wheelchair users was better organised. Six participants wanted to see the disembarkation process become more streamlined, feeling that it took too long for wheelchair users.

Helping overweight passengers – Two participants also wanted the aviation industry to investigate how it helps wheelchair users who are bigger in stature or overweight including the process of how they are boarded, and the equipment used to help them. This was to avoid embarrassment and to have a safe means of manually handling them.

## **CHAPTER NINE – SPECIAL ASSISTANCE STAFF RESULTS**

The following chapter outlines the findings collected from the special assistance staff research group of which there were twenty-one participants. There were more male voices (16) than female voices (5) in this component of the research. Participants were aged between 21 and 78 years old and this group had mean age of 35.81 years old and the median age was 30 years old. A wide variety of job roles and functions were given that included management, supervisors, and regular staff roles. The length of service ranged from four months to 14 years with the mean length of service being 4.52 years and the median length of service was 4.17 years. The participants all worked at London Heathrow airport, but came from four different terminals. Information about the participants can be seen in Table 9.1.

The following characteristics were selected to define a participant in the results: Participant number, gender, age, job title, and the terminal number. Participant number was given by the researcher to protect anonymity. Gender, age, job title, and the terminal number at London Heathrow airport they worked in were the answers given by participants at the start of the interview. This resulted in the following format as an example: [Participant 55, Male, 31, Passenger Service Agent, Terminal 4].

The following words are used to describe the number of participants responses associated with a particular theme where not explicitly specified:

‘None’ – refers to none of the participants

‘Minority’ – refers to between one and six participants

‘Some’ – refers to between six and twelve participants

‘Majority’ – refers to between thirteen and twenty-one participants

‘All’ – refers to all twenty-two participants

<b>Participant</b>	<b>Age</b>	<b>Gender</b>	<b>Occupation</b>	<b>Terminal</b>	<b>Length of Service</b>
35	25	Male	Supervisor - Special Assistance Team	Terminal 2	< 1 Year
36	21	Male	PRM Operations	Terminal 2	1.5 Years
37	22	Male	Lead Service Agent	Terminal 2	3 Years
38	24	Male	Lead Service Agent	Terminal 2	1.58 Years
39	43	Male	Host Agent	Terminal 2	1.25 Years
40	23	Female	Host Agent	Terminal 2	2 Years
41	47	Male	Passenger Service Agent	Terminal 3	7 Years
42	47	Male	Passenger Service Agent	Terminal 3	7 Years
43	78	Male	Passenger Service Agent	Terminal 3	6 Years
44	23	Male	Supervisor - Special Assistance Team	Terminal 3	4 Years
45	40	Male	Terminal Manager	Terminal 5	5 Years
46	43	Male	Operations Manager	Terminal 5	9 Years
47	24	Female	Host Agent	Terminal 5	4.17 Years
48	61	Male	Customer Experience Supervisor	Terminal 5	14 Years
49	34	Male	Customer Experience Manager	Terminal 5	3 Years
50	26	Female	Passenger Service Agent	Terminal 5	3.5 Years
51	24	Female	Customer Experience Supervisor	Terminal 4	< 1 Year
52	30	Male	Passenger Service Agent	Terminal 4	5 Years
53	56	Male	Passenger Service Agent	Terminal 4	5 Years
54	30	Female	Customer Experience Supervisor	Terminal 4	6 Years
55	31	Male	Passenger Service Agent	Terminal 4	6 Years

*Table 9.1 – Participant Characteristics of Special Assistance Staff*

## **9.1 POLICIES AND TRAINING**

The special assistance staff were asked about whether they were aware of disability policies that their employers or the aviation industry had for passengers with disabilities and wheelchair users and their training.

### **9.1.1 POLICIES**

The majority of participants said that they were aware of the policies in place. Six participants referred to treating everyone equally because of acts of legislation such as the UK Equality Act 2010 and that they must help people and not discriminate no matter what.

### **9.1.2 TRAINING**

Induction training was mentioned by all of the participants however, a mixture of answers was given about how long it lasted, but a range of one to five days was given. The quality of the training depended upon the member of staff delivering the training. A variety of modules in the induction training included customer service training, manual handling training, equipment training, health and safety training, dignity and care training, fire training, hidden disability training, and vehicle training. Fourteen participants mentioned the need to attend at least one refresher training course every year which was felt to be essential to show staff new equipment and to inform them of updates or changes to policies and procedures:

*'To be honest with you, every refreshment, it helps ... every year we've got a new equipment, and new wheelchairs ... A new sling, a new machine.'*

*[Participant 42, Male, 47, Passenger Service Agent, Terminal 3]*

Participants were asked what they thought about the training they received and whether it was appropriate and useful. The majority of participants found their experiences of training to be positive, especially in helping them to understand the processes that people with disabilities may experience whilst travelling by air:



*'Oh, it's brilliant ... I personally wouldn't have understood the process of making passenger journeys better so, yeah, personally I think it's more helpful than anything.'*

*[Participant 35, Male, 25, Supervisor - Special Assistance Team, Terminal 2]*

Five of the participants found the training to be a positive experience but came with the caveat that it might not be quite enough for when the real scenario presented itself:

*'I would say maybe they need to focus on the training part a little bit more, expand on it, until an agent is confident to do the lift on especially, because we have agents that would be working at check-ins so all they will doing is pushing the wheelchair to another check point ... so I think we need to have a lot more refreshment, that is what I mean.'*

*[Participant 38, Male, 24, Lead Service Agent, Terminal 2]*

## **9.2 INFORMATION & COMMUNICATION**

Eighteen of the participants referred to the International Air Transport Association (IATA) codes (WCHR, WCHS, and WCHC) colloquially to describe different passengers with disabilities, as seen in Table 6.2 in 6.1 *PREPARING FOR FLYING*. Communicating with people who needed assistance was believed to be important by the special assistance staff to explore their needs and how best to assist them:

*'Sometimes we have people who are able to walk for a short distance, people who can't walk for a long distance, blind people, people who want to be assisted all the way. Then you've got people with dementia, people with a hidden disability. All that, we cover. So, as we, like, talk to them, we come to know them, and they tell us how they want to be assisted.'*

*[Participant 39, Male, 43, Host Agent, Terminal 2]*

Some participants said that sometimes people ask for assistance because they want help with language barriers:

*'... even some other people they don't have mobility but they've got a problem with the language, so still we have to assist them and we have to help them, plus thank God, I do speak three languages which I think is more helpful for people sometimes.'*

*[Participant 41, Male, 47, Passenger Service Agent, Terminal 3]*

Communication with other departments such as staff at the check-in counters, security staff, and the baggage handlers was discussed by the majority of participants. Management had more communication with other departments around the airport due to the need to have the latest information:

*'We work very closely with [Airline 1] and Heathrow. Heathrow have an area called CRS which is basically their customer service team, so we work very closely with the CRS team in Terminal 3. So, they would tell us if there's an event happening or issues with security or elements that would impact PRMs on the day so we can adjust our resources accordingly.'*

*[Participant 45, Male, 40, Terminal Manager, Terminal 5]*

### **9.2.1 SHIFTS**

The shift pattern for the majority of special assistance staff was a four-day working, four-day off shift structure. A working day began at 04:30 to meet the first flight of the day and ended at 23:30 for the last flight of the day. Three main shifts covered one day. Whilst the shifts are designed to provide a full coverage for people with disabilities and wheelchair users, one participant felt that there were not enough staff to help very early in the morning or very late at night:

*'... if it's very early in the morning maybe most of the staff haven't come on shift ... the lack of service in the morning or evening as I said, how many people they're willing to employ at what times for how much basically, I think that's a simple answer to that because usually we should have a member of staff here at least until 11pm, anything past that is how long an employee is willing to stay basically'*

*[Participant 53, Male, 56, Passenger Service Agent, Terminal 4]*

### **9.2.2 JOB ALLOCATION AND INFORMATION**

Information about the schedule of people with disabilities and wheelchair users was discussed by all participants as it is pivotal for them to be able to do their jobs. The information was available to management who received a list of disabled passengers and their needs 48 hours beforehand if the passenger had requested assistance. The information about the passenger was described by sixteen participants as being occasionally incorrect, the most common issue was a person with a disability being assigned the wrong IATA code. This was frustrating for the special assistance staff and the allocation team as it meant sending an incorrect number of staff to help or not having the appropriate equipment available:

*'... the other day, a passenger wanted a leg rest chair, but when the passenger arrived we weren't aware of it, so the passenger was waiting a long time, because we had to find that chair and get it ... 40% of the time there is missing information, or no information.'*

*[Participant 44, Male, 23, Supervisor - Special Assistance Team, Terminal 3]*

Jobs were allocated to special assistance staff via a central allocation team or directly from a host agent. The job of the host agent was to check that the information of a disabled passenger was correct and then to assign a passenger service agent to help them immediately, if one was available (17 participants). Special assistance staff were also given jobs remotely through a device known as an 'air-click', which showed information about a passenger and was also used as a communication device (12 participants).

There were some passengers with disabilities and wheelchair users who did not say they needed assistance 48 hours before travelling for various reasons. These passengers were

mentioned by eight participants and are known as 'ad hoc' passengers to the special assistance staff and could potentially increase the workload:

*'... there are certain airlines that comes with passengers, with late request passengers ... in our system we have, like, 40 passengers booked for the flight. There comes off 60 (passengers) ... it's a bit hard to meet the late requirements, but we always try to do our best ... we can't do nothing about but, because the last passenger booked a wheelchair last minute'*  
*[Participant 37, Male, 22, Lead Service Agent, Terminal 2]*

### **9.2.3 FLIGHT DIFFERENCES**

Special assistance staff were expected to help one passenger per hour, this equates to providing a service for about eight to nine people per shift. The majority of participants felt that there were differences between short-haul and long-haul flights. A short-haul flight often had a short turnaround time between flights and meant the special assistance staff experienced time pressure. A long-haul flight meant more time to help wheelchair users but also meant that there could be more people to help.

Special assistance staff were expected to adhere to timed service level agreements (SLA) which could be challenging as discussed by sixteen participants. They were expected to assist a passenger through check-in, security, and onto the aircraft in 45 minutes for a short-haul flight and 60 minutes for a long-haul flight. Helping people with disabilities disembark a flight was nine minutes for a short-haul flight and 20 minutes for a long-haul flight.

Wheelchair users who had a connecting flight could impact special assistance staff. Some of the participants felt that the airlines and travel agents advised passengers poorly on how long a connection can take between different terminals and the distance between Heathrow airport and Gatwick airport which resulted in passengers becoming frustrated:

*'... they never explain like Gatwick is a different terminal (airport), and it's far away, and they've got let's say hour and a half connection. Which is not fair on the passengers? They think like you know Gatwick is next door.'*

*[Participant 42, Male, 47, Passenger Service Agent, Terminal 3]*

### **9.3 THE AIRPORT**

The following section describes how the special assistance staff help wheelchair users when they enter the airport. How wheelchair user's check-in and go through the security process are described as well as how special assistance staff move wheelchair users around the airport and the impact doing this has on them.

#### **9.3.1 ASSISTING WITH BAGGAGE**

Help for people with disabilities and wheelchair users was available from all methods of entry to the airport that included the car parks, the bus station, the train stations including the underground, and the drop off points for taxis and cars (14 participants). Help could be asked for through a member of staff at manned points such as the train station, but if help is not available then help points can be used to contact the special assistance staff who can come and assist (12 participants). One of the main reasons for helping passengers move to and around the terminal building was the fact that people with disabilities and wheelchair users struggled to move their luggage around the airport (13 participants):

*'Sometimes they will actually come to us and say I can't make it over there, I need help, I need to get the chair, can someone help me with my luggage? And we do do that as well.'*

*[Participant 47, Female, 24, Host Agent, Terminal 5]*

A minority of participants did not like being a baggage assistant for people with disabilities as they felt it was not part of their remit:

*'I feel sometimes that the service is abused by the passengers. Because they request the wheelchair assistance and then usually, what they're usually doing is, is using it as a baggage trolley. Using us as baggage handler.'*

*[Participant 43, Male, 78, Passenger Service Agent, Terminal 3]*

### **9.3.2 THE ASSISTANCE BUGGY**

How people with disabilities and wheelchair users were transported around the airport was discussed by all participants. Buses, used to transfer people between terminals and to the aircraft, were described by eleven of the participants as being accessible. The buggy that the airport staff use was mentioned by eighteen participants as the most efficient way to move a lot of people who need assistance as it can take up to five passengers at the same time. Driving the buggy required an extra days training and a valid driving licence to operate. Despite the fact that they were able to help people with disabilities, they were not suitable for wheelchair users and could be frustrating for staff as they cannot transport them and can sense the embarrassment of the wheelchair user (6 participants):

*... all the airports are just getting bigger and bigger ... when one agent can move five passengers in a buggy, it makes it a lot easier for the passengers and it makes it easier for the agent to come back and do an extra job as well ... I have had Charlie passengers where ... I have to delegate an agent to push that passenger ... it is a little bit disappointing because you want to do the best for everybody, you don't want to do the best for four and then you have got one passenger getting pushed ... and you get some passengers that feel like a burden ... in the wheelchair. It is not fair on them.*

*[Participant 38, Male, 24, Lead Service Agent, Terminal 2]*

### **9.3.3 THE CHECK-IN EXPERIENCE**

Helping passenger's check-in was discussed by the participants. All wheelchair users were given a degree of priority over able bodied passengers in that they were able to use a dedicated assistance lane. An exception to this was in terminal four where there were no dedicated lanes (5 participants), however wheelchair users who were with the special assistance staff were able to skip the queues or use the business class desks.

#### **9.3.4 THE SECURITY PROCESS EXPERIENCE**

Going through the security process for a wheelchair user was largely the same as it was for an able-bodied person. The majority of the special assistance staff would brief them and then help them in any way possible with their liquid items, baggage, helping with their clothing and shoes, and doctors' notes, but only with the permission of the wheelchair user:

*'... we help them to put their liquids in the plastic bag ... we tell them that all the iPad, laptops, Kindles, have to come out your bags ... Once we reach security, we help them put in their stuff, bags, everything, in the trays ... then they just walk through the archway and go sit in the seating area, waiting for us. If they can't, then what we do, we take the wheelchair round ... we take them to the security officer who will provide the passenger with a search ... after security is done, we just take back all their stuff.'*

*[Participant 37, Male, 22, Lead Service Agent, Terminal 2]*

Security was not without issue though. Three of the terminals did not have a dedicated security lane for people with disabilities and most of the time the security allowed a bypassing of the queue. In some instances, though, ten participants said that they ended up stuck in the queue which had an impact on their ability to help others. The majority of special assistance staff said that they had a good relationship with the security staff, however five participants felt that the security staff thought that they and wheelchair users were an inconvenience to them. All of these participants were from terminals with no dedicated security lane:

*'I wish that we did have a lane just for the special assistance passengers ... they have to go through the same way as other passengers as well ... sometimes the staff are a bit impatient and sometimes they actually make comments about 'oh another wheelchair' which is not right at all. It is not nice for the passenger; it is frustrating for us as well'*

*[Participant 47, Female, 24, Host Agent, Terminal 5]*

After going through security checks, the special assistance staff will take wheelchair users to the gate of the aircraft if it is open or to the special assistance lounge if the gate is closed. Some of the participants also helped to take passengers to the shops, the toilet or for a coffee

if they have the time however will not help them get food and drink, shop for them personally, or help them inside the toilet.

### **9.3.5 TRANSITIONING TO THE GATE**

The physical environment of the airport was discussed which included the distance between the core hub of terminal after security and the gates that were furthest away from this point which could be up to 25 minutes away. A minority of participants estimated that they could walk over 20 miles over the course of a shift. Although pushing a wheelchair user for 25 minutes was the worst-case scenario, a recovery period would be allowed, and the staff member rotated off from this duty to perform a less physical task so that fatigue did not become an issue. Slopes and gradients were an issue for the majority of participants. Compensating to keep a wheelchair user from falling out the wheelchair whilst going down a slope or using extra force to move up a gradient led to extra exertion on the body, with potential or actual injury concerns:

*'... that is actually a bit of a problem ... a lot of the jetties, especially in domestics, are quite steep, and even if you have an extremely light passenger in a chair, for someone to push them up is quite difficult. That's actually been raised as a complaint by quite a lot of my agents. Certain agents, they've even hurt their backs while doing that. Same thing. If you're going down, you have to make sure you're quite controlled because the jetties are very steep.'*  
*[Participant 49, Male, 34, Customer Experience Manager, Terminal 5]*

With all these elements considered, participants were asked if they felt physically tired from doing their jobs. Whilst no one complained about having to cover the distances involved as it was part of their job, covering these distances resulted in mixed levels of fatigue for five participants, no fatigue for five participants and eleven participants said that they felt tired at the end of a shift:



*'Well, I mean if you are having to move rapidly for eight hours plus a day, yes, in whatever capacity you're going to get tired basically, yeah, there'll be a slight strain, you know you've worked at the end of the day ... it can be exhausting, your limbs can ache a little bit if you do a lot of walking, remember we do a lot of walking but I mean no more than to be expected from any job basically.'*

*[Participant 53, Male, 56, Passenger Service Agent, Terminal 4]*

## **9.4 BOARDING THE AIRCRAFT**

The following section describes the processes of boarding including manual handling and the equipment used. Aspects of the physical aircraft were discussed including seating and space on board.

### **9.4.1 THE PROCESS OF BOARDING**

All of the special assistance staff who were interviewed only helped wheelchair users onto the aircraft directly through the jet bridges. The other method of entry was via an ambulift, a scissor lift that goes from the tarmac to the aircraft door, operated by a different team of staff. Boarding cannot begin until the aircraft had been refuelled at London Heathrow airport. There was a preference from seventeen of the participants to board before everyone else so that they had more time and space to be able to help wheelchair users. Boarding the aircraft last also created tension between some of the special assistance staff and wheelchair users as well as time pressure because they would have to board last:

*'... we have to make sure Charlie passengers go on first, but if the Charlie passenger comes late to the gate and everybody else is getting boarded then we make sure we put the Charlie passenger last, to avoid the crowd to go onto the plane, because if you go halfway through it might be busy. Then, for us it would be a pressure, we have to make sure we tell the PRM that it might delay, because sometimes they can get the delay because of us, if the person comes late.'*

*[Participant 50, Female, 26, Passenger Service Agent, Terminal 5]*

### **9.4.2 MANUAL HANDLING**

Safety was regarded as paramount in the manual handling of wheelchair users for both the staff and wheelchair users. Some of the participants said they did not do manual handling because they were not physically capable of doing so and this was echoed by participants who were management who said that they will not assign people who are not up to the task to do so. Fourteen of the staff described the manual handling of wheelchair users as being done by two people, although they mentioned that some wheelchair users were capable of moving themselves from wheelchair to the equipment and they would need to move the equipment. One of the main issues some of the participants encountered was explaining how the manual handling would happen whilst avoiding pain and injury for themselves and the wheelchair user:

*'... it's hard to explain to a passenger saying that we have to lift them up which can hurt them at times but of course we don't know how much pain a passenger is going through when we lift them'*

*[Participant 35, Male, 25, Supervisor - Special Assistance Team, Terminal 2]*

Passengers who were larger or heavier were discussed by the majority of participants. All of these participants found it difficult because of the embarrassment at having to call in additional staff to help with manual handling and explaining it to the passenger themselves:

*'Normally, to do a carry on, carry off, it's two people, and if you get there and there's a third, or fourth person required. I mean, we've had six people trying to lift a passenger before now, which is embarrassing, I think. So, you know, you get there and then you look, and you've got to make the call. The passenger's waiting; the crew are waiting to get the passenger off. So, the dignity of a passenger is paramount, as far as I'm concerned.'*

*[Participant 48, Male, 61, Customer Experience Supervisor, Terminal 5]*

### **9.4.3 EQUIPMENT**

The equipment used to take wheelchair users to their seats was discussed. There were three pieces of equipment used to do this: The aisle trolley was the most common and was

mentioned by fifteen participants and came with a mixture of opinions, some feeling it secured the wheelchair user in place, but the main negative was that it was small and meant that passengers were often squeezed down the aisle of an aircraft and were at risk of being hurt:

*'The aisle chair is quite small and there is not any other option because the aircraft seat, the aisle is very narrow ... some of them they get squeezed or let's say hurt between the chairs'*  
*[Participant 41, Male, 47, Passenger Service Agent, Terminal 3]*

Another option was to use an Eagle hoist, however required additional training for the special assistance staff to use and was only suitable for certain aircraft in certain configurations (6 participants). This meant that the staff seldom used it. The third option of moving wheelchair users and people with disabilities was by a sling. The sling was described by eight participants collectively as being suitable for the transferring of passengers who may require more than two people to lift them or do not want to be physically touched:

*'Within the chair we also have a sling, which is, like, a big nappy thing with handles. So, up to eight people can use that thing. Normally we use that when we have a Charlie passenger that doesn't want us to touch them or is pretty heavy.'*  
*[Participant 37, Male, 22, Lead Service Agent, Terminal 2]*

#### **9.4.4 SEATING**

The position of the passenger's seat also had an impact on moving and handling. Fourteen participants discussed this, with no real reason being given for where a passenger was sat other than it felt random. This raised issues for manual handling:

*'... they're spread around, that's one of the disadvantages we face when we are helping passengers who are less able, especially Charlie passengers, they tend to put them at the back ... my personal opinion they should have been at the front of the aircraft ... so it's convenient for the passenger and for us as well to be able to put them in the chair, assist them in the smoothest way to be honest.'*

*[Participant 35, Male, 25, Supervisor - Special Assistance Team, Terminal 2]*

A further downside to boarding the aircraft last was having to ask other passengers to move out of the way when arriving at the seat (8 participants). Moving a wheelchair user to a seat where the arm rests were adjustable was also preferred (6 participants). Nineteen participants discussed whether a window or aisle seat was better for wheelchair users. Some said that it did not matter too much for them, but the majority of participants said that it was much easier in an aisle seat because it was less transferring in terms of effort, space on the row behind, and taking into account the shrinking headroom with the shape of the aircraft:

*'If we do a Charlie passenger, the aisle seat is easier for us to get the passenger in the seat. If it is a window seat, we have to lift the passenger three times to get them in their seat.'*

*[Participant 36, Male, 21, PRM Operations, Terminal 2]*

Eighteen participants talked about the advantages and disadvantages of business class seating feeling that there was a lot more space inside the aircraft to manoeuvre wheelchair users but that the seat itself was large and could be difficult to manually handle someone in and out of it:

*'Yeah, they can be hard to do, because you're trying to manoeuvre around this great big bucket seat which is very plush and that, and it's very difficult.'*

*[Participant 48, Male, 61, Customer Experience Supervisor, Terminal 5]*

## **9.5 DISEMBARKING THE AIRCRAFT**

The following section discusses how wheelchair users are disembarked from the aircraft and the issues that surround it, including wheelchair repatriation.

### **9.5.1 THE PROCESS OF DISEMBARKATION**

Wheelchair users were disembarked from the aircraft after all the other passengers had left so they were not in the way. This was so that other passengers were not in the way, the special assistance staff had space in which to perform manual handling, wheelchair users did not become an obstacle inside the corridor of the jetway, and because larger equipment such as the buggy cannot fit down the jetway (16 participants). The majority of the special assistance staff said that problems with disembarking the aircraft for wheelchair users was when a person's wheelchair was not available for them to use. Fourteen of the special assistance staff said that it was the responsibility of the baggage handlers to return a wheelchair to the aircraft door:

*'The responsibility of loading a wheelchair on the plane is the airline's responsibility through their ground cabin. So, the biggest problem we have a lot of the time is if a wheelchair has been damaged or a wheelchair is not brought up to the aircraft's side.'*

*[Participant 45, Male, 40, Terminal Manager, Terminal 5]*

### **9.5.2 WHEELCHAIR ISSUES**

When this does not happen, it can bring the special assistance staff into conflict with the cabin crew. This was because wheelchairs were sent to the baggage hall (16 participants), which lead to communication issues (16 participants), staff blaming each other (8 participants), long waiting times (4 participants), and wheelchair users being worried about being separated from their wheelchairs (3 participants). Special assistance staff said that they would wait for a person's wheelchair to be returned to them if they wanted it, although some wheelchair users used the airport wheelchair to get their chair from the baggage hall:

*'... we do argue with the airlines quite a lot, because what they'll do is, they'll try and be cheeky and bring the passenger's wheelchair to baggage hall with all the other bags, to save them time bringing it up to the aircraft. Then, what then will happen is the wheelchair passenger will be asked repeatedly, 'You okay with going in the Staxi (airport wheelchair)?' As if they're almost pressured into saying yes, but really and truly, for us, as a policy, if the passenger has got their own wheelchair in the cargo, we don't put them in any other chair until that wheelchair comes up. Then that, again, causes arguments with the airlines, causes delay because then they just assume that we're okay putting the passenger in the Staxi (airport wheelchair).'*

*[Participant 51, Female, 24, Customer Experience Supervisor, Terminal 4]*

The majority of special assistance staff felt that there was a difference between electric wheelchairs and manual wheelchairs in terms of size, weight, manoeuvrability, and electric wheelchairs typically being more expensive than a manual wheelchair:

*'I think the manual one is easier to handle, whereas the electric one is a bit heavy. But other than that, I don't see any difference. Yeah. Actually, in the electric wheelchair, the passenger normally we do the lift off, and they're happy to just drive it. We just escort them. With the manual one, we just push them and escort the passenger.'*

*[Participant 37, Male, 22, Lead Service Agent, Terminal 2]*

Seventeen participants said that they had seen damage to wheelchairs or parts go missing. This included damage to the material, wheels being bent or going missing, and cushions for wheelchairs going missing. They said that wheelchair users were unhappy when this happened:

*'We've had sometimes wheels damaged, slightly off kilter or there's been batteries mislaid from electric wheelchairs or side panels damaged ... I mean most of these wheelchairs we know they're custom made, can cost thousands, some are especially custom made so, yeah, we've had a few passengers that weren't best pleased.'*

*[Participant 53, Male, 56, Passenger Service Agent, Terminal 4]*

## **9.6 LEAVING THE AIRPORT**

The following section describes the experiences of the special assistance staff at immigration and border control, and inside the baggage hall.

### **9.6.1 IMMIGRATION AND BORDER CONTROL**

Once off the aircraft, wheelchair users had to leave the airport and collect their baggage in the same way as able-bodied passengers. The immigration area had its own special assistance lane for the use of people with disabilities (12 participants). However, issues occurred when a large number of people with disabilities joined the queue at the same time (10 participants) as the desks were operated often by only one member of staff (8 participants) and created long waiting times (8 participants). Other issues at immigration included passengers who required landing cards (8 participants), language barrier issues (4 participants), problems with fingerprint scanners (5 participants), helping people with their passports (3 participants), and not having enough special assistance staff to help (1 participant).

### **9.6.2 THE BAGGAGE HALL**

The baggage claim area had a separate team of staff, known as porters, who were available to assist people with disabilities with their luggage and back to the car park, train station etc. (18 participants). The special assistance staff said that they would still help people with disabilities with their luggage (7 participants) if there was a lack of porters (6 participants). Helping wheelchair users who travelled with several bags was an issue (5 participants) as they cannot push people in wheelchairs and move the luggage simultaneously (2 participants). One way of overcoming this issue was with a newer piece of equipment called a caddie, which had seating for two/three people and a luggage rack and can be operated by one staff member (3 participants). Special assistance staff said that they would help wheelchair users visit the airline help desks if something had gone wrong (3 participants) and that families would often assist with luggage from this point (2 participants).

## **9.7 DISABILITY DIFFERENCES**

Eight participants felt that the training was too generalised in terms of passengers with disabilities. When they started work, they would see disabilities that were not on the course and learn best from that person directly whilst being on the job:

*'So, I suppose your basic training is your inauguration, when you first start. They tell you a little bit about everything, but, you don't really get to know it until you're on the shop floor.'*

*[Participant 48, Male, 61, Customer Experience Supervisor, Terminal 5]*

Some of the participants said that there were individual differences between people with disabilities and that they could never take for granted what someone may or may not need or like:

*'... what I've noticed in my five years, everyone comes in with an individual need. You might know exactly what one person needs if they have the same disability, but another person with the same disability might have completely separate needs. They might have completely separate likes or dislikes ... You always learn that there's certain needs for certain people. It's never static. It's never the same. It's not a checklist. It's always different.'*

*[Participant 49, Male, 34, Customer Experience Manager, Terminal 5]*

## **9.8 FOLLOW UP QUESTIONS**

The participants were asked a set of follow up questions which included the concept of flying in your own wheelchair and recommendations they would make to the aviation industry to improve the flying process for wheelchair users.

### **9.8.1 FLYING USING A WHEELCHAIR AS A SEAT**

All of the participants were asked about whether wheelchair users could fly in their own wheelchairs and if they thought it would encourage more wheelchair users to fly. The majority of participants responded positively to the concept for one or more of the following reasons: Comfort of the wheelchair user (11 participants), the convenience for either the wheelchair user (3 participants) or themselves (staff) (2 participants), improving the independence of



wheelchair users (4 participants), and the removal of fear of losing their wheelchair (4 participants). A minority of participants thought that the concept was a good idea however would not work in practice because the airlines will not allow it (3 participants), health and safety reasons (2 participants), and whether a flight could cope if there were a lot of wheelchair users on board at the same time (1 participant). One participant was not sure, and another participant did not think the idea was a good idea at all:

*'I think people are not travelling or a lot of people are not flying or going on aircraft simply because they're scared ... the aircraft seats are not even comfortable in the first place – if they sit in their own chair in the aircraft locked in place, I think it could be a great'*  
*[Participant 46, Male, 43, Operations Manager, Terminal 5]*

### **9.8.2 RECOMMENDATIONS**

The participants were asked to offer their opinions on what changes or improvements they would like the aviation industry to make to improve the experience of flying for wheelchair users. The recommendations were divided into eight main areas of focus: Staff issues, equipment issues, communication, opening dedicated special assistance lanes, training issues, baggage area improvements, process issues, and other.

Staff issues – Various changes to staff were recommended by participants that included hiring more staff (10 participants), a better allocation of staffing across the areas within the terminal e.g. landside (3 participants), and a complete overhaul of the current management within the terminal (1 participant).

Equipment issues – The participants wanted more equipment available on hand to help wheelchair users more efficiently (7 participants). One participant wanted electric airport wheelchairs to help move people with disabilities more easily.

Communication – Improved or better communication between staff including other departments at the airport and with the airlines (5 participants) and change in staff attitudes for greater positivity in the workplace (2 participants).

Open dedicated special assistance lanes – Either in the security area (3 participants) or the immigration area (3 participants).

Training issues – The participants wanted to have either more training (2 participants) or to be able to offer passengers more education about the how the process of flying with a disability works.

Baggage Area Improvements – Being able to drive a terminal buggy in the immigration and baggage area (1 participant), and quicker baggage return to the luggage carousel (1 participant).

Process issues – Improvement in the information being correct about the passengers they are helping (1 participant). Less transferring of wheelchair users between staff at various points to make the process more professional (1 participant).

Other – Automatically upgrading wheelchair users to business class seating as it offers more space for them and for the staff to help them (1 participant), a dedicated special assistance lounge (1 participant), and changes in global legislation so that passengers can expect the same service in every country (1 participant).

## **CHAPTER TEN – DISCUSSION**

The following chapter aims to bring together the findings identified from the four results chapters within this thesis and to discuss them within their own context and that of the previous literature.

### **10.1 DIFFERENCES IN DISABILITY**

The cabin crew and special assistance staff experienced a multitude of wheelchair users with different abilities and levels of independence as well as non-permanent wheelchair users potentially making it hard to distinguish the differences between them. It is also worth considering that passengers who fit into the WCHR and WCHS categories may also have their own wheelchairs but may not be bound to them. As shown in 2.3.1 DISABILITY FIGURES AT LONDON HEATHROW AIRPORT, there were more people with mobility issues who travelled under the WCHR or WCHS PRM categories than the WCHC PRM category and could suggest that the cabin crew and special assistance staff may be predisposed to thinking about people with mobility issues in this way rather than full-time wheelchair users.

The cabin crew and special assistance staff who took part in this research did acknowledge the fact that there were differences between wheelchair users, not only having different disabilities but different reasons for travelling, as well as their own personalities and preferences which was similar to previous research findings (Cavinato and Cuckovich, 1992; Burnett and Baker, 2001). The special assistance staff said that no two people were the same even if they had the same disability and that helping a wheelchair user took an element of relationship building. The cabin crew thought this too but went further in that they had observed that wheelchair users prefer to maintain their independence as much as possible. Asking wheelchair users how much help they required was key to a good relationship and being able to provide an appropriate amount of help. Learning from wheelchair users directly was also felt to be a way of developing understanding and confidence as they felt that the wheelchair user was most familiar with their disability and needs, this was also found in McKercher *et al.* (2003) and Daruwalla and Darcy (2005) where attitudes towards disabled people improved through experiences with them.

There were mixed opinions on how the cabin crew and the special assistance staff treated wheelchair users and those who travelled with them, which was also found in previous research related to attitudinal barriers of tourism (Murray and Sproats, 1990; Miles, 2000; McKercher *et al.*, 2003; Bi, Card and Cole, 2007). Communication, helpfulness, a lack of understanding and information, and inappropriate behaviour from the cabin crew and special assistance staff were discussed. Despite the mixed opinions, it was made clear by wheelchair users and those who travelled with them that the experience of travelling by air largely depended upon the member of staff who was helping them. These human factors relate back to barriers identified in tourism research, namely interactive barriers (Smith, 1987), attitudinal barriers (Murray and Sproats, 1990), and interpersonal barriers (Meyers *et al.*, 2002).

#### **10.1.1 STAFF TRAINING**

McCarthy (2011) found that the special assistance staff had a range of training experiences however his research focused on multiple airports. At London Heathrow airport the special assistance staff had completed a minimum level of training although some had done more than others because of their job role. This research found that the special assistance staff received additional or update training on a yearly basis unlike in research by McCarthy (2011). There was a desire from special assistance staff to do update training on a more frequent basis. The update training was met positively and many special assistance staff thought that it was worthwhile to help reinforce disability practices as was found in previous research about disability awareness training (McKercher *et al.*, 2003; Daruwalla and Darcy, 2005). Direct exposure to wheelchair users also improved attitudes towards them (McKercher *et al.*, 2003). McCarthy (2011) also described some of the staff they interviewed as relying on 'on the job' (p.2615) experience, and this research agreed, with participants feeling that despite the training being a positive experience nothing could replicate learning directly from people with disabilities.

The research found that cabin crew are required to take a yearly exam to continue to be employed by the airlines, agreeing with the finding from Wang and Cole (2014). However, questions relating to disability may not necessarily be asked about in the exam leading to an element of doubt as to whether the cabin crew are as up to date on disability as they need to

be. Some of the cabin crew found the disability training in their initial training course inadequate to give them the confidence to help wheelchair users. Practical training was more of a positive experience when learning how to help disabled people, disagreeing with Heracleous, Wirtz and Johnston (2004) who found that Singapore Airlines placed more emphasis on soft skills rather than physical skills for customers who needed more assistance.

Figure 10.1 shows a thematic map of the positive and negative issues associated with staff training. It shows how the cabin crew and special assistance staff are trained that includes how being taught about disability directly from people with disabilities can be a more effective method of learning. The boxes outlined with a continuous line are a sub theme. Boxes with dashes around the outside represent a positive experience and those with dots around the outside represent a negative experience.

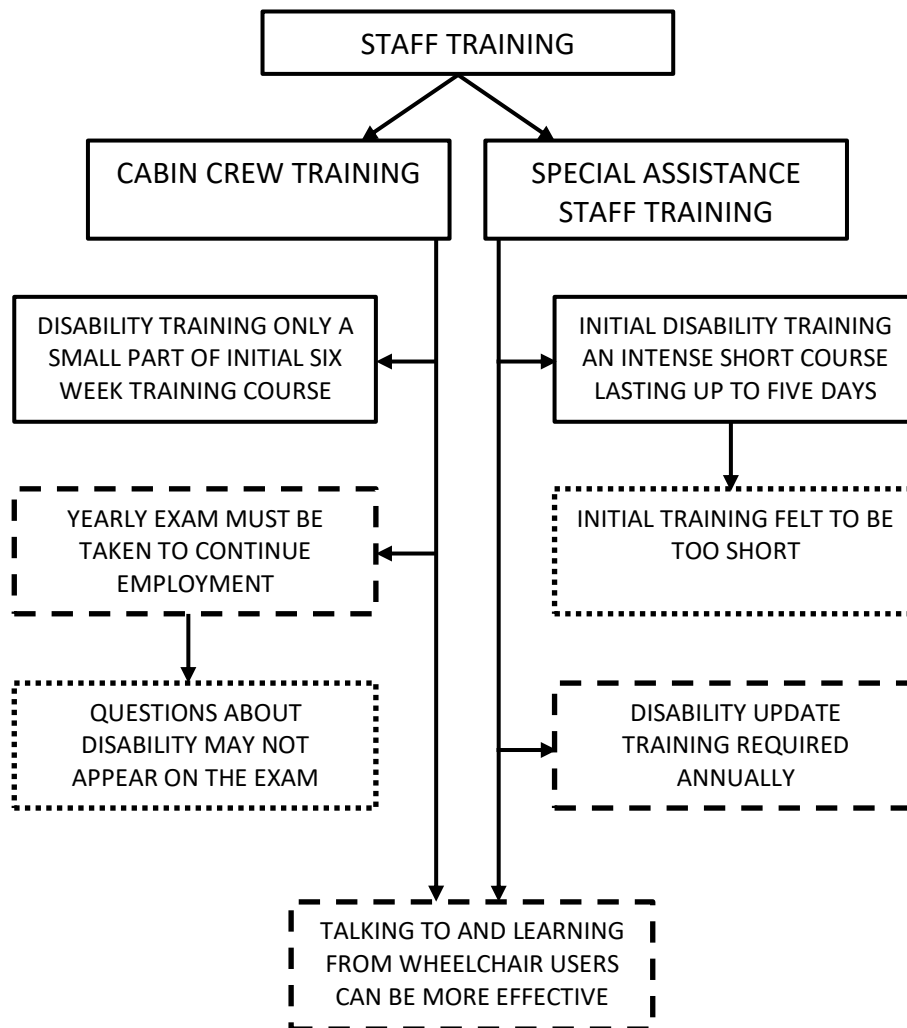


Figure 10.1 – Thematic Map of Cabin Crew and Special Assistance Staff Training and Education

### 10.1.2 INFORMATION AND COMMUNICATION

Previous research showed that wheelchair users took great care in the decision making process when booking a trip (Cavinato and Cuckovich, 1992; Burnett and Baker, 2001; McKercher *et al.*, 2003; Yau, McKercher and Packer, 2004; Packer, McKercher and Yau, 2007), and findings in this research verified this. Wheelchair users and those who travelled with them preferred to pass over their information with as much notice as possible before flying. The information provided by people with disabilities is translated into an IATA code and is used as the basic level of information about passengers with disabilities by the airlines and airports to determine how they should be approached, especially for the special assistance

staff. Six participants (three wheelchair users and three people who travelled with them) felt the need to tell both the airport and the airline before flying to ensure that the information had been received. This differed from Darcy (2012) who found that wheelchair users disliked the experience of having to tell someone about their condition.

Wheelchair users and those who travelled with them felt as though their information had not been properly received at times. Staff who lacked information were seen by wheelchair users as being unprepared to meet their needs. The majority of special assistance staff said that the IATA PRM code describing a passenger's disability was often inaccurate and meant that they felt embarrassed being ill prepared to meet their needs, a finding also in Chang and Chen (2012a). Those involved in management said that they had more information than operational members of staff, which was corroborated by them. The information about people with disabilities was available to management 48 hours before a passenger travelled. The majority of the cabin crew said that they could provide a better service if wheelchair users gave information about their needs from the outset, which was also found in previous research (McCarthy, 2011; Wang and Cole, 2014). The special assistance staff mentioned that some wheelchair users and people with disabilities did not or could not give any information before travelling and approached what was known as the 'Host Desk' where they were listed as 'ad-hoc' passengers. The Host Agents job was to log their information and assign them help. Whilst the special assistance staff made it clear that they would help them, these unplanned for passengers could have an impact operational resources.

This research highlights a clear issue with how information is distributed. Wheelchair users or those who travel with them are unlikely to have any knowledge of the IATA codes and are not given the opportunity to choose which code suits their needs. It is very likely that someone else, whose knowledge of disability may vary, will decide what IATA code a wheelchair user will to be assigned to. This could lead to misinformation and communication issues in the air travel process. A lack of knowledge about wheelchair users specifically was evident in previous research (Chang and Chen, 2012a; Darcy, 2012). The flow of how information is transferred in the air travel process can be seen in Figure 10.2. Solid lines represent a stage in the flow of information, a dashed line is where something may or may not happen

simultaneously. The red shaded area represents where information error is most likely to occur.



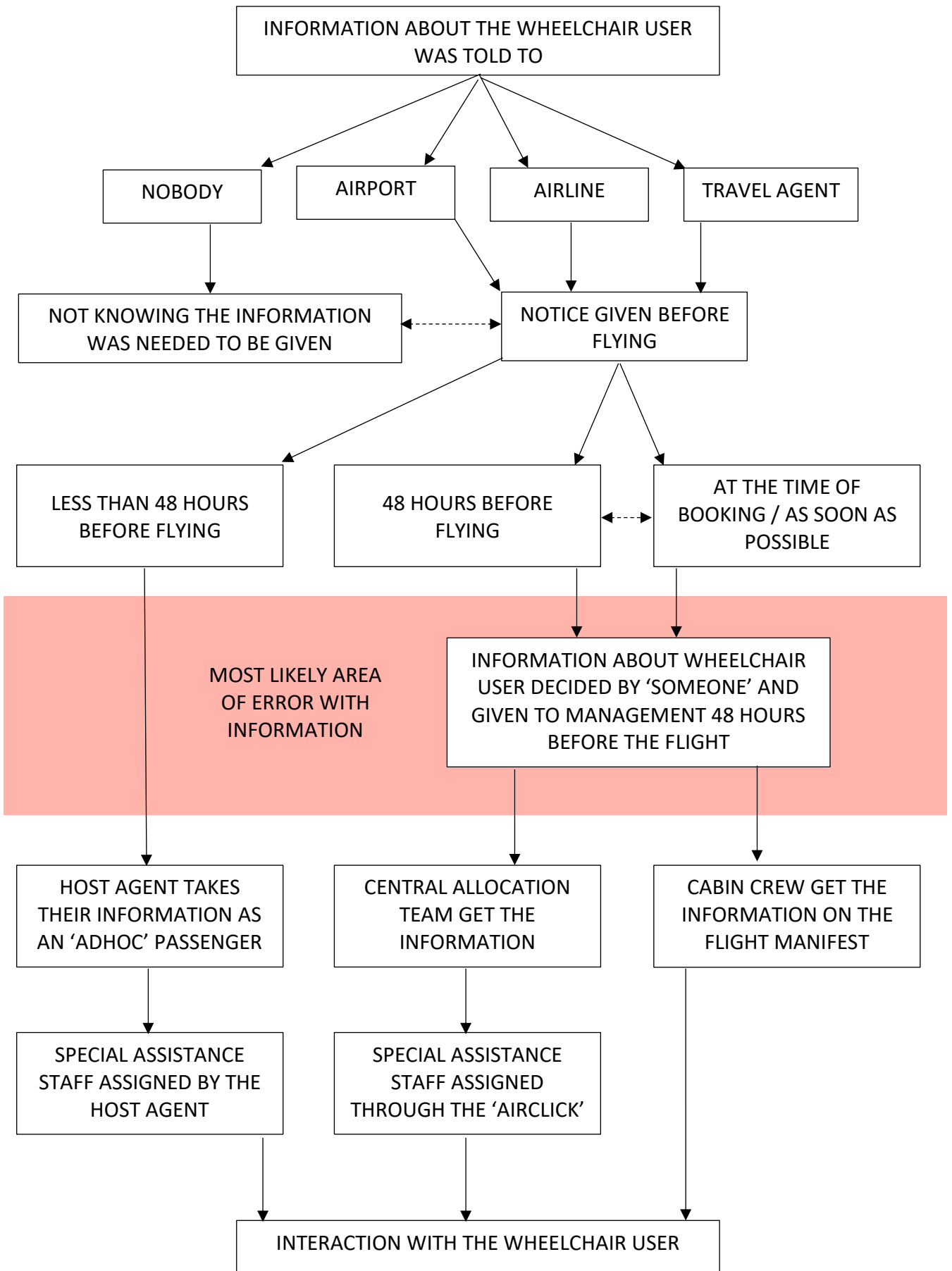


Figure 10.2 – Information Flow Diagram Used in The Air Travel Process

## **10.2 THE AIRPORT**

This section discusses findings related to how wheelchair users move through the airport from the perspective of wheelchair users, those who travel with them, and the special assistance staff. How wheelchair users travel to the airport; move their luggage around; their experiences of check-in, security, and immigration; the airport amenities; and the physical aspects of the airport are discussed.

### **10.2.1 ARRIVING AT THE AIRPORT**

Previous research has paid little attention as to how people with disabilities travel to the airport. Chang and Chen (2012a) found that the distance between the car park and terminal building was the most complained about attribute to airport staff in their findings. This research found that wheelchair users and those who travel with them had a preference for the short-term car park because of its convenience despite it being more expensive. The long-term car park had too many negative factors in that wheelchair users had to rely on a transfer bus that may or may not be accessible, the potential for inclement weather meaning that health may be compromised and the wheelchair getting wet, or issues moving their luggage on and off the transfer bus.

### **10.2.2 LUGGAGE**

The movement of luggage by wheelchair users has only appeared briefly in previous research as a short observation or thought (Ormond, 2015; Saari, 2015). This research found that wheelchair users often took additional luggage. Splitting medical items between multiple bags for contingency purposes was also a common practice. Parents who travelled with child wheelchair users said that planning was essential. It is difficult to ascertain from this research as to whether wheelchair users take more luggage than the average airline user, but the findings suggest they have a lot of luggage. Wheelchair users and those who travel with them said they had a hard time moving their luggage between the car park and the terminal building. The special assistance staff said that help points were available at all entry points to the airport to call them so they could move their luggage for them. However, the wheelchair users and those who travel with them did not mention the help points and so there could be a lack of knowledge on their part about them. A minority of special assistance staff thought

that moving luggage for a wheelchair user was beyond their remit, concurring with Darcy (2004) who found that some staff were critical about the amount of luggage and equipment wheelchair users had. The people who travelled with wheelchair users moved their luggage for them. Where wheelchair users were independent, they attached their luggage to their wheelchairs or put it on their lap.

Wheelchair users found the baggage hall to be a challenging environment, often being unable to remove their bags from the conveyor belt and having friends, family, or even asking strangers to remove their bags for them. The special assistance staff said that their company operated its own dedicated team of porters to help anyone who needed assistance with their bags. Even though the porters could be called upon, the special assistance staff felt as though there were not enough of them to help effectively and had helped wheelchair users with their luggage anyway. This team of people would be worth considering as another group of people to be interviewed to discover their experiences of helping people with disabilities and wheelchair users.

### **10.2.3 CHECK-IN**

The experiences of wheelchair users and those who travelled with them found the check-in process was relatively straightforward. Previous research showed that people with disabilities felt the length of time it took to check in was unimportant (Chang and Chen, 2012b) and no participant in this research referred to it as taking a long time. Wheelchair users used a variety of check-in desks and were often fast tracked by the special assistance staff who said that they helped people with disabilities and wheelchair users to the front of the queue. The ability to be fast tracked to the front of the queue was important for the parents of child wheelchair users who said that their children felt anxious or claustrophobic to the other passengers surrounding them and being fast tracked was a positive experience for them. The wheelchair users and those who travelled with them found that the check-in experience largely depended on the attitude of the staff behind the counter. Knowing what questions to ask, having the information ready, and communicating properly with wheelchair users created a positive experience. Only one wheelchair user felt they were mistreated at the check-in desk because of the counter height and were spoken to slowly and loudly. This was a similar finding to Poria, Reichel and Brandt (2010).

#### **10.2.4 SECURITY**

The experiences of the security process depended upon the layout of the security area and the attitude of the security staff. A fast track lane or skipping the queue was beneficial to wheelchair users in a similar way to the check-in experience. Only one of the four terminals at London Heathrow airport had a fast track lane for people with disabilities at the time the research was conducted. Where there was no fast track lane, special assistance staff said that the security staff often let wheelchair users and people with disabilities through to the front of the queue without issue. When the security staff did not allow the queue to be skipped, nearly half of the special assistance staff said they had become stuck in the queue which led them to be delayed. This delay caused frustration for the special assistance staff as it prevented them from helping others and had other knock on effects such as them failing to meet their service level agreements (SLA) targets. The special assistance staff observed people with disabilities becoming irritated that they were stuck in the queue and not allowed to be fast tracked. As this research was only carried out at London Heathrow airport, it is difficult to say whether this can be generalised to other airports when different terminals at the same airport have different approaches.

Some of the security staff made going through security a negative experience for wheelchair users by demonstrating a lack of confidence whilst touching a wheelchair user or showing a lack of discretion when medical devices were concerned. There was an element of stress and confusion for wheelchair users and those who travel with them about taking medication through security even when doctor's letters were presented or had been sent ahead of schedule. A high level of stress and frustration came from parents of child wheelchair users who said that whilst they respected the security process, they did not like being separated from their child who may not have understood what was happening and because they were often their primary caregiver.

#### **10.2.5 AIRPORT AMENITIES**

Another study identified that the time it took to queue through check-in and security meant missing out on the opportunity of shopping and using the other airport amenities (Chang and Chen, 2012a). The special assistance waiting area was used by some of the wheelchair users or those who travelled with them, primarily so that they were able to get the special

assistance staff to assist them at the right time. The special assistance staff were unable to wait with people with disabilities and wheelchair users here because it meant they could not help others and was an inefficient use of time on their part. A lack of available help from the special assistance staff meant that some wheelchair users were unable to go to the shops, restaurants, or toilets because there was no one to help take them. Therefore, findings from this research agrees with Chang and Chen (2012a) in that the opportunity of using the airport amenities were sometimes missed, but not because they were stuck in the queues at check-in and security.

There were limited findings in this research about the restaurants, but they had an element of negativity to them. Differing table heights and a large volume of people with bags and were found to be common issues. A very small minority of wheelchair users got their own food and drink and the people who travelled with them said that they got their sustenance for them. The shops were found to be easy to enter however navigating around them was difficult because of narrow aisles, poor product placement, and people with large backpacks being in the way. These aspects mostly agreed with other research (Quick, 1999; Bromley, Matthews and Thomas, 2007).

Disabled toilets in the airport was one of the attributes most complained about in previous research (Chang and Chen, 2012a). Differing levels of disability meant that some wheelchair users found the toilets acceptable whilst others thought they lacked space inside the cubicle and a minority thought they were totally unsuitable. The people who travelled with wheelchair users, especially parents of child wheelchair users, agreed with the minority of wheelchair users who thought that the toilets were unsuitable. Care requirements meant that specialist equipment such as changing tables and washing facilities were needed in addition to manual handling equipment. These were referred to as 'Changing Places' toilets and are not currently a legal requirement. However, a UK government consultation in 2019 means that legislation will require new public buildings to have at least one of them as well as £30 million being made available in the national budget to install them in existing public buildings (UK Parliament, 2020). The special assistance staff were not allowed to help people with disabilities inside the toilet for dignity and health purposes.

### **10.2.6 IMMIGRATION CONTROL**

The process of immigration often had the benefit of having dedicated fast track lanes for people with disabilities, which were considered to be beneficial by both wheelchair users, those who travelled with them, and the special assistance staff and were similar to the findings identified for queueing at check-in and the security process. The special assistance staff said that there was often only one queue open and although dedicated to people with disabilities, it could become congested with too many people if several flights landed at similar times. The special assistance staff also said that in one terminal at London Heathrow airport, the airport buggy could not access the immigration control area or the baggage hall which meant that they could only help one person at a time and could stress their resources, similar to when they were delayed in the security queue. Wheelchair users mentioned an issue with the height of the desk in that it could be difficult to communicate with the member of immigration staff and hand over documentation. Wheelchair users, those who travelled with them, and the special assistance staff all mentioned a final issue in that those who struggled to reach or manipulate their hands to the fingerprint scanner found them difficult or impossible to use.

### **10.2.7 THE PHYSICAL AIRPORT**

Issues related to the size of the airport and the impact it has on wheelchair users and the special assistance staff was found in this research. London Heathrow airport is the UK's largest airport. Some of the special assistance staff said it can take 25 minutes to walk to the gate furthest away from the centre of the terminal and that they could walk over 20 miles over the course of a shift. The special assistance staff described the buggy the most effective and efficient way of moving multiple people with disabilities around the airport. However, the buggy is not suitable for wheelchair users because they cannot access it. The special assistance staff found this to be a negative experience because they could only help one person at a time and had a sense of embarrassment that it was unable to accommodate a wheelchair. Having to help a wheelchair user on a one-to-one basis was found to be tiring for most of the special assistance staff but was overcome by rotating in rest periods. Wheelchair users also thought that the gates were quite far from the central terminal. Those who used manual wheelchairs and had to push themselves reported being more tired than powered

wheelchair users. Powered add-ons can be added to manual wheelchairs to overcome tiredness over long distances.

The negotiation of slopes and gradients was of great concern amongst special assistance staff and those who travelled with wheelchair users, although wheelchair users themselves said they did not notice much difference. The main issue related to slopes and gradients was stress on the body, particularly on the back which was a similar finding in Abel and Frank (1991). Pushing the weight of a wheelchair user up a hill and controlling the wheelchair going downhill was difficult, and there was a fear that wheelchair users would be ejected from their wheelchairs, agreeing with findings by Petzäll (1996). Holloway *et al.* (2015) found issues where the pushing and pulling force limits were exceeded under the UK Health and Safety Executive guidelines (HSE, 2008). Without further evidence in the real-world setting, it is difficult to know if these guidelines are being broken and if so, how often. Previous manual handling studies, and this one to an extent, used participants accustomed to manual handling (Petzäll, 1996; Ciriello, McGorry and Martin, 2001; Haslam *et al.*, 2002) and so future research may help to verify or reject the findings by Holloway *et al.* (2015).

Figure 10.3 presents a thematic map of the positive and negative issues associated with the airport. The boxes outlined with a continuous line are a sub theme. Boxes with dashes around the outside represent a positive experience and those with dots around the outside represent a negative experience for all participants in this research.

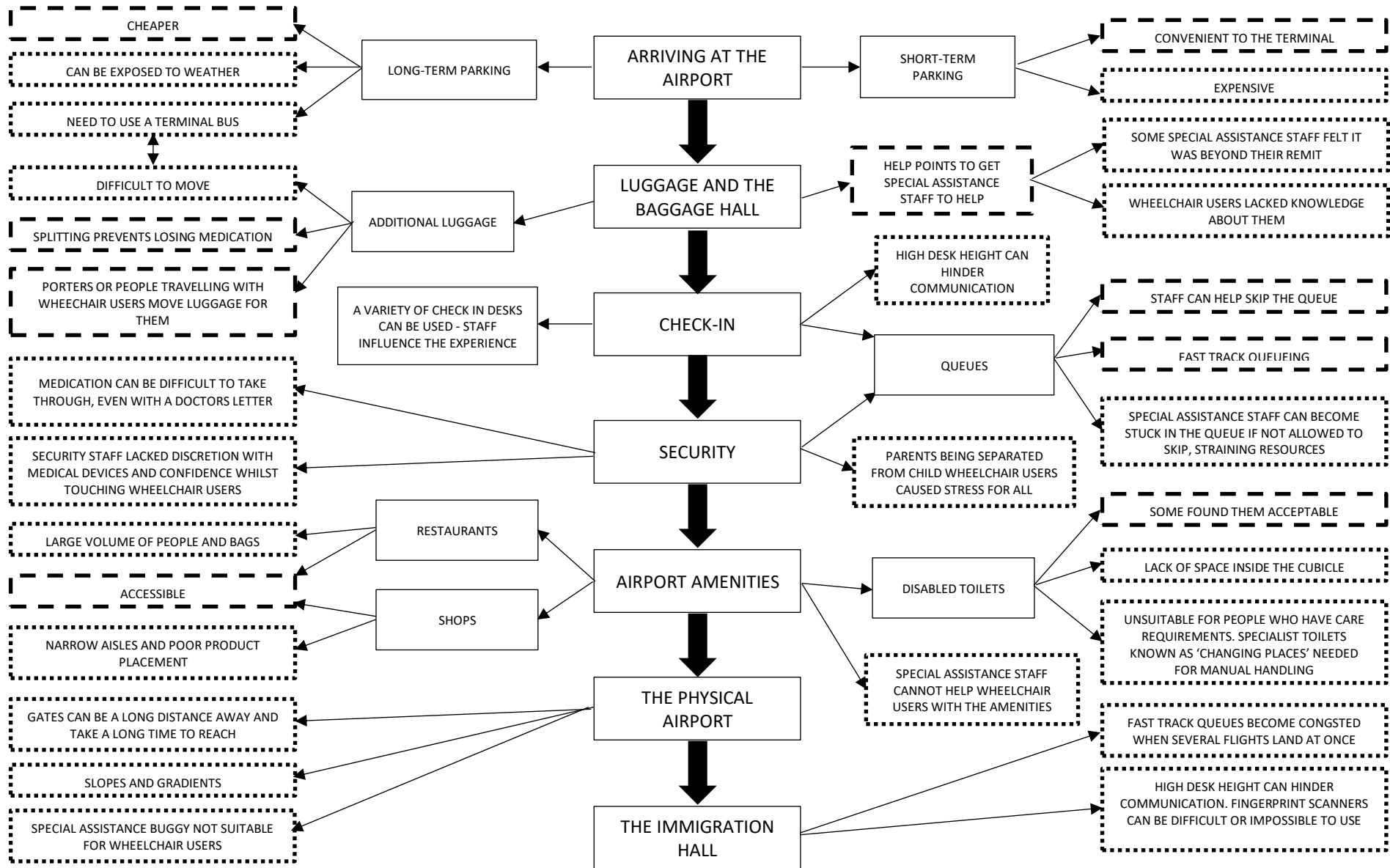


Figure 10.3 – Thematic Map of the Findings Associated with the Airport



### **10.3 THE AIRCRAFT**

Method of entry, the process of boarding, manual handling, the equipment used to board the aircraft, the seating, on board services including safety procedures, how wheelchair users are served their food and drink, the toilets on board the aircraft, the process of landing, disembarking the aircraft, and issues concerning wheelchairs and their repatriation after a flight are discussed in this chapter.

#### **10.3.1 BOARDING THE AIRCRAFT**

The special assistance staff who were interviewed as part of this research only helped people with disabilities board the aircraft through the jetway. When an aircraft was isolated on the tarmac and not connected to a jetway, an ambulift was needed to help wheelchair users from the ground to the door of the aircraft and these were operated by a separate specialist team. These specialist teams should be included in future research. Darcy (2004; 2012) found that smaller airports had staff who carried out multiple roles that included helping people with disabilities board aircraft and whilst this research cannot bolster these findings, it could be considered that major international airports split their manual handling teams down into specialist groups, although more research at larger airports would be needed. The cabin crew said that wheelchair users were boarded through the jetway or the ambulift and whilst they had no preference, they said that when the ambulift was broken or lacked specialist staff to operate it, it became problematic. The ambulift can only accommodate a small amount of people and caused problems for wheelchair users who had care needs as the people who accompanied them could become separated from them. One member of the cabin crew reported that they had seen a wheelchair user being carried down an aeroplane staircase. This made them very upset and cited it as a potential risk for the wheelchair user and the person carrying them, which was also reported in research by Saari (2015).

Boarding wheelchair users onto the aircraft first was the ideal scenario for every group of participants in this research and added further evidence to previous research in this regard (Darcy, 2004, 2012; Poria, Reichel and Brandt, 2010; Davies and Christie, 2017). Boarding the aircraft last was found to have similar difficulties to previous research too in that other passengers were in the aisles (Van Landeghem and Beuselinck, 2002; Darcy, 2004; Nyquist

and Mcfadden, 2008; Poria, Reichel and Brandt, 2010), the other passengers had to be asked to move out of the way or stared at the wheelchair user (Darcy, 2012; Saari, 2015; Davies and Christie, 2017), the aisle was narrow and wheelchair users could be touched by other passengers, and that manual handling was easier for the special assistance staff when no one else was on-board (Darcy, 2004, 2012; Poria, Reichel and Brandt, 2010). This research found that boarding cannot start until the aircraft has been refuelled at London Heathrow airport. The special assistance staff felt that waiting to board last created a level of tension between themselves and wheelchair users. One member of the special assistance staff said that the aircraft had closed its doors for departure whilst they were still on board the aircraft. The majority of the special assistance staff said that there were noticeable differences in boarding between short-haul flights, which had a tighter schedule, and long-haul flights where there were often more people with disabilities to help.

### **10.3.2 MANUAL HANDLING AND EQUIPMENT**

Poor manual handling was an issue for wheelchair users and people who travelled with them who felt that the special assistance staff lacked knowledge of how to lift properly, or how to use the equipment correctly. These findings were evident in previous research (Darcy, 2004, 2012; Poria, Reichel and Brandt, 2010; Saari, 2015; Davies and Christie, 2017). Wheelchair users found that the special assistance staff could not position them correctly on the seat or whilst using the equipment. Wheelchair users and those who accompanied them had seen special assistance staff who were not capable of manual handling, a similar finding to McCarthy (2011) and Saari (2015). The special assistance staff who were management said they did not task staff who were not physically capable of lifting people, although other groups of participants disagreed with this. The special assistance staff said that the safety of the wheelchair user and themselves was the priority in manual handling, agreeing with Abel and Frank (1991) who thought the biggest risk of injury was when a wheelchair user transferred from one seat to another.

There could potentially be communication issues, which were found in wheelchair user focused research (Darcy, 2012; Saari, 2015; Davies and Christie, 2017). The special assistance staff said that they found it awkward to explain what happens during a transfer and that it takes two (or more) of them to lift someone. This was complicated further where they could

have experienced wheelchair users who could transfer themselves. Wheelchair user participants may only have considered their own disability and needs and may be oblivious to other wheelchair users abilities. This provides further evidence of the weakness regarding the International Air Transport Association's (IATA) WCHC people with reduced mobility category.

This research found new information where some wheelchair users preferred to have who they were travelling with carry out their manual handling because of previous bad experiences. Some people who travelled with wheelchair users preferred to do this as well. The parents of wheelchair users felt that other people moving their children could scare the child and did it themselves, which was easier the younger and smaller the child was.

The cabin crew made it clear that it was not their responsibility to help manually handle wheelchair users onto the aircraft, which was not mentioned in research by Wang and Cole (2014). Despite this, some of the cabin crew had helped with manual handling during a flight to help wheelchair users get to the toilet and this did feature in Wang and Cole (2014). This disagreed with their own policy of not manually handling people and a limitation of this research was that this was not explored further. The cabin crew in this research also thought that wheelchair users were at risk of being injured when they were being moved up and down the aisle. Wheelchair users were often touched inadvertently by other passengers or knock the aircraft furniture on the way down the aisle akin to Darcy (2004) and Davies and Christie (2017).

This research also revealed that the special assistance staff struggled to help wheelchair users who were larger or heavier. They found it difficult to explain to a wheelchair user that it will take more than two people to move them safely not only for themselves but for the special assistance staff too. One wheelchair user and the cabin crew said they had experienced a wheelchair user being dropped on the floor because the special assistance staff lacked sufficient training for the equipment designed to help move people who are overweight.

Three methods of moving wheelchair users to their seats were identified: the aisle trolley, the Eagle Hoist, and a sling. The aisle trolley was met with similar negativity for either its size or

discomfort as found in previous research (Poria, Reichel and Brandt, 2010; Darcy, 2012; Davies and Christie, 2017). Wheelchair users reported that there was not always an aisle trolley available to use, a finding also by Saari (2015). However, evidence shown by the special assistance staff related to incorrect information about the level of help required may have played a factor in this. Wheelchair users also thought that the aisle trolley removed their independence in not being able to control it themselves, adding further negativity from the perspective of wheelchair users. People who travel with wheelchair users mostly thought that the aisle trolley was unsuitable for the wheelchair users they were travelling with for the same reasons as the wheelchair user participants. The cabin crew and the special assistance staff had mixed opinions about the aisle trolley, some thinking it was easy to use whilst others thought it was not good for the same reasons as wheelchair users, but fit the purpose of moving wheelchair users to their seats.

The Eagle Hoist was mentioned by every group of participants who were interviewed. There were a minority of wheelchair users and people who travelled with them who had experienced using it. They thought that it was a good way of moving to their seat and thus disagreed with Paine (2005) as cited in Darcy (2012) that wheelchair users found it humiliating. An issue with the Eagle Hoist was that it is only available at certain airports across the world and put wheelchair users off flying to destinations where one was not available. The special assistance staff said that they used the Eagle Hoist infrequently because few wheelchair users requested it and extra training was required for them to use it, agreeing with Darcy (2012).

The special assistance staff mentioned using a sling as an alternative option of moving a wheelchair user. The sling was a recent introduction to the repertoire of equipment available and was not mentioned by wheelchair users, those who travel with them, or the cabin crew. The sling was felt to be a positive experience for special assistance staff with it allowing up to eight people to lift a wheelchair user or people who do not want to be touched during manual handling. With the ability to have many special assistance staff being able to lift, it is a solution to lift people who are more difficult to move such as overweight passengers as described above.

### **10.3.3 SEATING**

Wheelchair users were allocated seats all over the aircraft according to all participant groups. People who travel with wheelchair users preferred to sit in the bulkhead seats at the front of the aircraft which was found in Poria, Reichel and Brandt (2010) but not for the reason that there was additional legroom. Having more space in front of a wheelchair user to help with their needs was more of a concern from their perspective and complements the findings in Poria, Reichel and Brandt (2010). Darcy (2012) was clear that the bulkhead seating was not to be used by wheelchair users due to them being near the emergency exits. However, the cabin crew said it depended upon the seating policy of the airline as to whether wheelchair users could sit in these seats. One wheelchair user said that they felt the airlines were more interested in selling bulkhead seats for profit instead of helping them. This research found a minority of wheelchair users wanted more choice over where they sat on the aircraft, agreeing with Saari (2015). There was a consensus from the cabin crew and the special assistance staff that the further down the aisle they were, the more difficult it became to help people because of the distance and the narrow aisles.

Poria, Reichel and Brandt (2010) reported that wheelchair users preferred a window seat to minimise contact with other passengers but research by Davies and Christie (2017) said they preferred an aisle seat. This research gave more supporting evidence that wheelchair users preferred an aisle seat in comparison to a window seat because of the additional transferring involved to reach the window seat. Additional transferring to the window seat took more effort and exposed wheelchair users to a higher risk of injury. The special assistance staff found the aisle seat easier to manually handle a wheelchair user into because it involved less effort on their part and the window seat often has less space because of the curved wall of the aircraft. Parents of child wheelchair users said that they preferred to sit their children in the middle seat between them so they could provide them with physical support and their care needs. No evidence was found to support or refute Saari (2015) in that wheelchair users disliked a window seat because it made access to the toilet difficult.

Wheelchair users, the cabin crew, and the special assistance staff supported the previous evidence that the armrests being able to move made manual handling easier and reduced the risk of injury (Wehman *et al.*, 1999; Darcy, 2004; Poria, Reichel and Brandt, 2010; Wang and

Cole, 2014; Davies and Christie, 2017). No direct evidence supports the quantitative evidence that Kipp and Pavol (2008) found transferring an anthropomorphic dummy over an armrest other than the special assistance staff saying it took more effort and thus suggests some similarity between their study and this one.

Nearly all of the wheelchair users commented on a lack of comfort of the seating, the size of the seat and a lack of legroom being problematic. A lack of legroom was particularly problematic for the parent of a child wheelchair user where the discomfort and spasticity caused them to kick the seat in front of them until they caused themselves to lacerate. A minority of wheelchair users said the space became more cramped when the passenger in front reclined their seat. Brundrett (2001) found that a quarter of aircraft seats were cramped in 2001 and is perhaps an area of research that could be revisited given the age of this research. Research suggested that sitting in cramped conditions can cause negative health implications such as oedemas and deep vein thrombosis (Bettes and McKenas, 1999; Brundrett, 2001) that can be remedied by taking periodic walks, sitting in bigger seats, doing exercises, and maintaining hydration, most of which are not an option for wheelchair users.

To overcome the lack of comfort of the seats, some wheelchair users preferred to sit on their wheelchair cushions to prevent medical problems. The use of a pressure relieving cushion was often used with something under the feet to maintain a good posture. Rögglä, Moser and Rögglä (1999) found that only the two shortest participants of the 18 who were involved in their study could adopt the brace position fully and so wheelchair users being raised on their wheelchair cushions makes it less likely that they will be able to adopt the brace position. Using their wheelchair cushion meant that the wheelchair users could not access the inflight entertainment controls as found in previous research (Morgado *et al.*, 2016). All of the parents of child wheelchair users said that their children used their wheelchair cushions and specialist seating systems, all of which had multiple points of restraint designed to provide postural support and restraint of the torso. Darcy (2004) found that people who were unable to maintain upper body balance required the use of chest belts or harnesses. This research found that no adult wheelchair user used these, but child wheelchair users did and so supports this finding to a degree.

The wheelchair users thought that business class seating offered an advantage to them in terms of space, the seats being larger than in economy class and may help to alleviate some of the issues found in Brundrett (2001) regarding cramped seating conditions. The amount of postural adjustment that could be made, sitting upright to lying down, was also considered the other advantage of business class seating. Tan *et al.* (2009) found that people adjusted their posture and position constantly to avoid discomfort, but lying down was not one of the positions they studied and so there is scope for more research in this area. Conversely, one of the downsides from a minority of wheelchair users and people who travel with wheelchair users was that the seat size was too wide and did not provide enough lateral support, although the other postural adjustments were considered to have the same advantage. The cost of business class seating was thought to be expensive by just a minority of participants. People who travelled with wheelchair users considered the space surrounding a business class seat to be helpful in providing care to those who they were travelling with. The special assistance staff said that there was more room to manoeuvre in the business class seating area. However, the seats themselves could be so large that manual handling was difficult, a finding also reported by Davies and Christie (2017).

#### **10.3.4 ON BOARD SERVICES, THE TOILET AND PERSONAL CARE ISSUES**

The cabin crew were asked how they were able to help wheelchair users during a flight. The cabin crew said that they checked with wheelchair users that they had someone with them to help them evacuate from the aircraft in case of an emergency, or in the toilet if they were unable to use it on their own. If a wheelchair user did not have someone else with them, the cabin crew thought that they should not be allowed to fly, also in Chang and Chen (2012a). A minority of the cabin crew thought that the safety demonstration video lacked information for those unable to evacuate themselves. The cabin crew were also able to help wheelchair users access food and drink but not feed them directly. Wang and Cole (2014) found that cabin crew could assist people with disabilities with their food, but not to what degree, meaning more research is needed to fully establish how much cabin crew can help with access to food and drink.

Ten wheelchair users and seven people who travelled with them said that they did not use the toilet on board the aircraft because it was impossible for them to access it, similar to

findings in other research (Gladwell and Bedini, 2004; Saari, 2015; Davies and Christie, 2017). The one wheelchair user who did use the toilet on board the aircraft thought that it was very difficult and being moved down the aisle by the staff was embarrassing, a finding also reported by other researchers (Poria, Reichel and Brandt, 2010; Darcy, 2012). The toilet itself was described as being small inside the cubicle and the door lacked width which was also reported in other research (Poria, Reichel and Brandt, 2010; Darcy, 2012; Saari, 2015; Davies and Christie, 2017). This research found new information that there was a lack of grab rails inside the cubicle, although this was the experience of only one wheelchair user and will require further investigation into the design of aircraft toilets.

Wang and Cole (2014) found that cabin crew would assist inside the cubicle if they were the same gender, however this research disagreed. The cabin crew would not assist inside the cubicle for health and dignity reasons and that wheelchair users should be travelling with someone who can help them if they need it. Some people who travelled with wheelchair users did help them go to the toilet on board the aircraft although they were all parents of child wheelchair users. The space inside the cubicle was criticised as not being big enough for two people, even when one of them was a child, and a lack of cubicle space was also evident in previous research (Poria, Reichel and Brandt, 2010; Chang and Chen, 2012a; Darcy, 2012; Saari, 2015; Davies and Christie, 2017). To overcome the lack of space, parents would help their children go to the toilet by either lying them on the floor or in their seats and use curtains to hide them from view, which the cabin crew said they had helped to do. Both the floor and the seat were a negative experience and whilst the curtains hid the view, it also drew other passenger's attention to the fact that something was happening. Curtains were also unable to block out the sound and smells associated with urination and defecation leading to feelings of humiliation.

Strategies to avoid using the toilet were employed by wheelchair users and those who travelled with them as found in previous research (Darcy 2004; Yau, McKercher and Packer, 2004; Poria, Reichel and Brandt, 2010; Chang and Chen, 2012b, 2012a; Darcy, 2012; Saari, 2015; Davies and Christie, 2017). The strategies employed by both wheelchair users and those who travel with them were: catheterisation; using incontinence underwear or nappies (diapers); dehydration and fasting; and bowel management, where having a bowel



movement at the same time every day will hopefully stop incontinence at the wrong moment. The remaining strategies were employed only by wheelchair users: taking medication to manage incontinence; and timing it so that going to the toilet takes place just before boarding the aircraft. These strategies have also been reported in other research (Darcy, 2004, 2012; Yau, McKercher and Packer, 2004; Poria, Reichel and Brandt, 2010; Saari, 2015; Davies and Christie, 2017).

Previous research that ranked attributes about flying found the distance between the seat and the toilet cubicle had a low satisfaction score (Chang and Chen, 2011) and was a feature of the aircraft people with reduced mobilities complained to airport staff about (Chang and Chen, 2012a). This research found that this was not necessarily a problem as the majority of wheelchair users found it impossible to reach the cubicle. Chang and Chen (2011, 2012a) focused on people with mobility issues and may have had different results if they had focused on wheelchair users specifically.

The cabin crew said that helping wheelchair users go to the toilet was difficult. They said that they do not manually handle wheelchair users at all but then helped them to the toilet by physically moving them into and using the aisle trolley. Other research found that wheelchair users would sometimes opt to take several shorter flights or only very short flights (Poria, Reichel and Brandt, 2010; Darcy, 2012) to avoid toilet issues. However, this research found no evidence to support or reject these findings.

#### **10.3.5 LANDING AND DISEMBARKING THE AIRCRAFT**

Davies and Christie (2017) previously found evidence of wheelchair users struggling during landing where they had to brace themselves on the seat in front or using the armrests, or to be physically restrained and this research found further evidence of this. The research also found that the more a wheelchair user flies, the more they are prepared for landing with some getting caught off guard when they first experienced it. People who travelled with wheelchair users restrained those they were travelling with. The cabin crew were sat in their own seats for safety reasons and did not directly experience what happens to wheelchair users during landing, but none of them said they had seen any injuries during a landing.

Wheelchair users said they were last to leave the aircraft and the cabin crew said that they would explain this to them shortly before landing either personally or through an announcement over the public address system. Wheelchair users were mixed in opinion in that leaving the aircraft after the other passengers was frustrating but also prevented them from experiencing being stared at. Special assistance staff said that other passengers disembarking the aircraft allowed them more space to perform manual handling, allowed time to get the wheelchair to the aircraft door, and so that the jetway was clear of other passengers as the narrow corridors of the jetway can get congested easily. The cabin crew said that wheelchair users leaving the aircraft one by one felt like a conveyor belt and felt embarrassment as they walked past them waiting at the top of the jetway. This suggested a slight lack of understanding from the cabin crew about the working methods of the special assistance staff. The cabin crew also said that the quality of special assistance staff varied between countries and that the disembarkation process could be particularly problematic for wheelchair users if the plane was diverted to another country at short notice. Disembarking the aircraft was seldom discussed in previous research.

Darcy (2012) found that wheelchair users could wait much longer than other passengers, one participant in that study waited three hours to leave the aircraft. The longest wait found in this study was an hour and twenty minutes, well over the 20 minutes maximum time it should take to be disembarked according to European legislation (The European Parliament, 2006). Wheelchair users said they felt as though the cabin crew were frustrated at waiting during this period, and the cabin crew themselves said they were frustrated because they were not allowed to leave until all the passengers had left the aircraft. The cabin crew also said that they felt a level of embarrassment the longer the wait went on for. Wheelchair users and the cabin crew also said that waiting for the special assistance staff was longer earlier in the morning or later in the evening. The special assistance staff were asked about their shift patterns which ranged from 04:30 until 23:30 and one participant felt that there was a lack of special assistance staff at each end of the day to fully cover the needs of wheelchair users. One wheelchair user also said they had experienced the aircraft being cleaned waiting to be disembarked which was also found in Davies and Christie (2017).

The majority of the cabin crew felt that the primary cause for longer waiting times was because of a lack of staff or equipment. The special assistance staff said that they sometimes had an inappropriate number of staff to help disembark wheelchair users because of the information inaccuracies related to the IATA PRM codes. The special assistance staff said that it was also the responsibility of the baggage handlers to return wheelchairs to the aircraft door and the wait depended on them. The special assistance staff are not allowed under any circumstance to go on to the tarmac or runway to retrieve wheelchairs and equipment themselves. The wait for wheelchairs brought cabin crew and special assistance staff into conflict with each other because the cabin crew thought it was the special assistance staff's job to retrieve equipment from the hold. The ideal scenario was for a person's wheelchair to be returned to the aircraft door. However, the baggage handlers sometimes took the wheelchair to the baggage hall instead. The reasons for this were unclear and the baggage handlers would need to be included in future research to find out why.

#### **10.3.6 WHEELCHAIR ISSUES**

There were three processes of reuniting a wheelchair user with their wheelchair which are illustrated in Figure 10.4. Process One: wheelchair users and people who travelled with them preferred to be reunited with their wheelchair at the aircraft door as in Davies and Christie (2017), however the majority of participants in this research did not experience this. Process Two: wheelchairs were sent to the baggage hall and retrieved by the special assistance staff. Retrieving the wheelchair from the baggage hall extended the time it took the special assistance staff to disembark wheelchair users and meant that the cabin crew became even more frustrated at having to wait to leave it. The additional waiting time meant that wheelchair users and the people who travelled with them experienced an increase of fear and anxiety that the wheelchair had gone missing or was damaged. Process Three: a wheelchair user was transported through the airport on an airport wheelchair and reunited with their wheelchair in the baggage hall. Wheelchair users said their independence was removed and found it embarrassing being pushed through the airport, also in Darcy (2012). The special assistance staff said wheelchair users were entitled to wait for their wheelchair to be returned to the aircraft door and felt it was better to wait for the health and safety of themselves and the wheelchair users, so they did not have to do additional manual handling. The special assistance staff reported that pressure from both cabin crew and other special assistance staff

forced wheelchair users to take this option even though they were entitled to wait for their wheelchair. A member of the cabin crew had experienced a child wheelchair user having to be moved to the baggage hall in an airport wheelchair that provided no postural support. They also said the parent was very upset their child had to use the airport wheelchair.

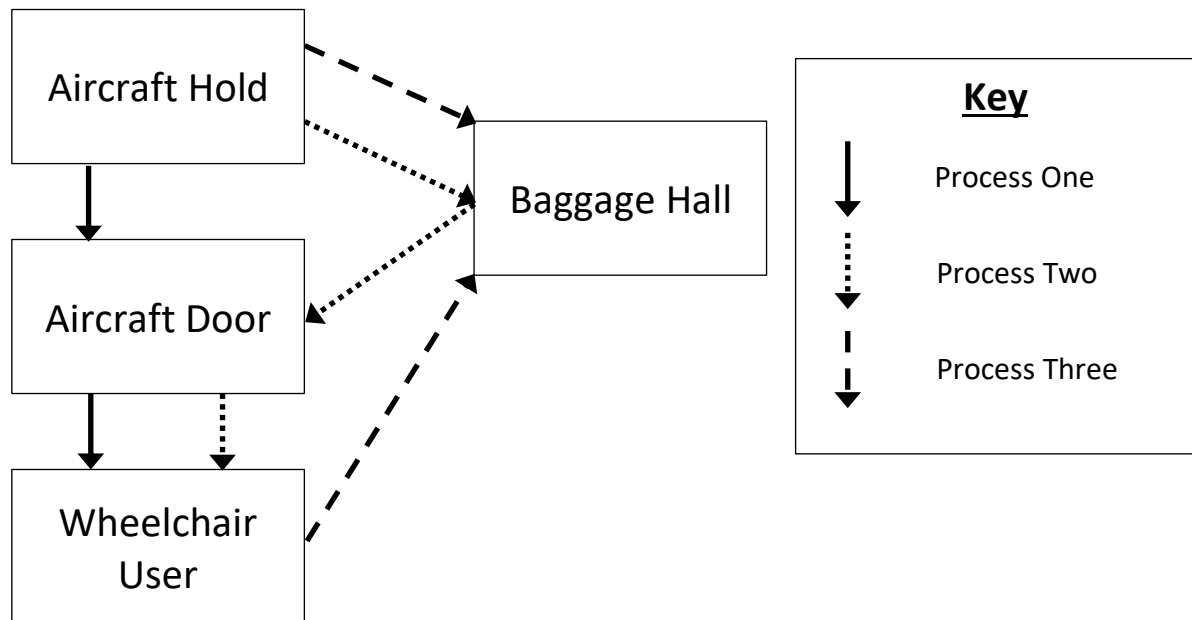


Figure 10.4 – The Three Processes of Wheelchair Repatriation

Wheelchair users and people who travelled with them thought that the staff lacked an understanding of how important their wheelchair was to them. Some parents of child wheelchair users in this research had made labels that attached to the wheelchair to remind the baggage handlers how important the wheelchair is. Wheelchair users felt fear and anxiety when their wheelchair was left unattended in the baggage hall as it was at risk of being stolen. Some wheelchair users and those who travelled with them mentioned how expensive their wheelchair was and that it would cost a lot to replace if it went missing, although no participant reported that their chair had been lost as it had been in Yau, McKercher and Packer (2004) and Saari (2015). This research contained several examples of damage to wheelchairs. Some had become unusable, being bent out of shape or electric wheelchairs having the wires removed. Parts of wheelchairs going missing such as the wheelchair cushion were reported. There were also a small number of incidents where wheelchairs had been left in the rain causing the fabric to become wet.

When the cabin crew and special assistance staff participants were asked about the cost of wheelchairs, the figures they gave were much lower than when a wheelchair user mentioned the cost of their wheelchair. Whilst this is not direct evidence that proves some members of staff do not fully understand the importance of a wheelchair, it perhaps provides some lack of knowledge on how expensive and important a wheelchair is for its user. Chang and Chen (2012b) found that 22% of their participants wanted to see improvement with 'the consignment and retrieval of wheelchairs' and although that study was a qualitative one, in this research the quantification of qualitative data suggested that more than 22% of the sample had an issue with this. Chang and Chen (2011) found that 'the consignment and retrieval of wheelchairs' was an important factor for participants but was just above average in terms of satisfaction. This research agrees with Chang and Chen (2011) in terms of importance but with more examples of negative experiences than positive ones, disagrees with their satisfaction rating. In both pieces of research by Chang and Chen (2011, 2012b), they used 'wheelchair services' as one of their attributes with no meaning and so it was difficult to know what it meant and how it may relate to this research. It is worth considering again in both Chang and Chen (2011, 2012b) that their participants were a broad spectrum of people with mobility issues and so it is therefore likely the outcome would have been different for them if they had just focused on wheelchair users. Figure 10.5 summarises the findings associated with aircraft.

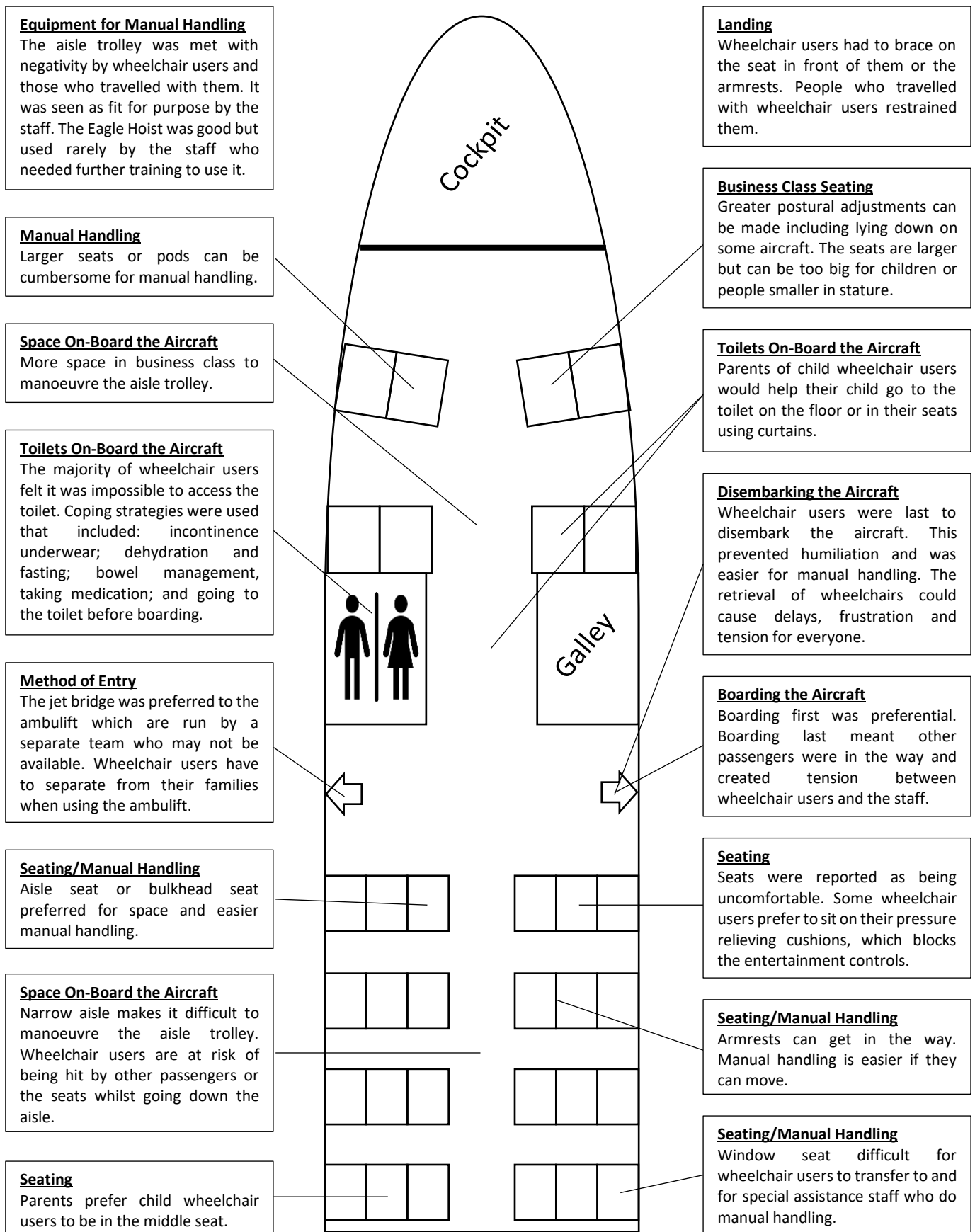


Figure 10.5 – Issues Associated with The Aircraft

## **CHAPTER ELEVEN – CONCLUSIONS**

This chapter identifies how the research aims and questions have contributed to the existing body of knowledge. Answers to the research questions are offered before highlighting the implications for policy and practice the aviation industry should consider from the findings of this research. Limitations of this research are discussed and opportunities for future research projects are identified.

### **11.1 CONTRIBUTION TO THEORY AND KNOWLEDGE**

This research has helped to expand the knowledge about wheelchair users who utilise air travel by collecting their views and experiences with supporting evidence obtained from those who travel with wheelchair users, cabin crew and the special assistance staff who worked at London Heathrow airport. A total of 13 research questions were identified as being gaps in the current knowledge which have been answered from this research. These results have added further evidence that travelling by air for wheelchair users remains difficult. However, the additional experiences and perspectives of others have identified where the experience can be improved. The issues found in this research that can contribute to theory and knowledge are:

- The information given by people with disabilities is used by someone else to determine which IATA PRM category they belong to. This leads to too many errors within the air travel process and causes frustration for wheelchair users and embarrassment for the special assistance staff at the perceived lack of preparedness.
- Cabin crew and the special assistance staff found that helping people with disabilities was a better method of learning compared to a classroom environment.
- Wheelchair users travel with a lot of luggage and often struggled to move it independently. They were unaware of the help points that could be used to get someone to help them. People who travel with them often move their luggage for them. There are baggage porters available to help with this job, but the special assistance staff thought that there were not enough of them to help.
- The short-term car park was preferred to the long-term car park for its close proximity to the terminal building and not having to rely on a transfer bus.

- Child wheelchair users could feel anxious in queues and having special assistance queues was beneficial at check-in, security, and immigration. A lack of special assistance queue could mean that the special assistance staff could get stuck in them, causing potential issues with staff and equipment resources.
- Separation between a wheelchair user and their carer at security and boarding the aircraft via a scissor lift can be a negative experience, particularly for child wheelchair users and their families.
- People who travel with wheelchair users and the special assistance staff are at risk of potential injury when moving wheelchairs on slopes and gradients. The special assistance staff can also become physically tired over the course of a shift moving wheelchair users around.
- The airport buggies are the preferred method for moving multiple people with disabilities around but are unsuitable for wheelchair users.
- The disabled toilets at the airports and on board the aircraft are not suitable for all wheelchair users and the people who accompany them who need specialist equipment to move wheelchair users and maintain hygienic standards.
- There were manual handling issues for wheelchair users and special assistance staff when assisting people who are overweight or larger in stature. The special assistance staff found it embarrassing to explain that they would need to wait for more of them to help move them.
- The cabin crew said that they were not permitted to manually handle people with disabilities but said that they helped do it so wheelchair users could access the toilet during a flight. Issues surrounding whether a wheelchair user should be travelling with someone who can help them have been established such as helping with food and drink, going to the toilet, and evacuation but needs to be clarified with further research.
- An aisle or bulkhead seat was the preferred choice for wheelchair users and the special assistance staff because it was easier to get into than a window seat.
- A business class seat is better for most wheelchair users because of the greater flexibility in postural adjustment but are not suitable for wheelchair users who are smaller in stature as there is a lack of lateral support. A business class seat is more



difficult for the special assistance staff to help someone into because of the large seat, but there is more space around the seat which was easier.

- Wheelchair users were disembarked after everyone else so there was space for manual handling, the wheelchair could be repatriated and allowed the jet bridge to be clear of people. The cabin crew lacked knowledge of this process.
- When the wheelchair was sent to the baggage hall, it created negativity in various forms for all groups of participants at having to wait for it to return. Reuniting the wheelchair user in the baggage hall was disliked by wheelchair users who felt their dignity and independence were removed and by the special assistance staff who had to do additional manual handling.
- This research has established that the people who travel with wheelchair users, the cabin crew, and special assistance staff are fundamental to the experience of travelling by air.

Some of the findings from this research concerning the parents who travel with child wheelchair users were published by the author of this PhD and Professor Christie in a peer reviewed journal article entitled 'The experiences of parents with children with disabilities travelling on planes: An exploratory study' in The Journal of Transport and Health (Davies and Christie, 2018). This can be read in Appendix W.

### **11.2 WERE THE RESEARCH OBJECTIVES MET?**

At the beginning of this research in 1.1 INITIAL AIMS AND OBJECTIVES, six objectives were outlined in order to expand on the successful research completed in the MRes. The objectives were revised following the literature review in 3.6 RESEARCH OBJECTIVES AND QUESTIONS:

Collecting the views and experiences of:

- (a) wheelchair users and the people who travel with them, including parents of child wheelchair users, partners of wheelchair users, and people who care for wheelchair users
- (b) the cabin crew who work on board the aircraft
- (c) the special assistance staff who help wheelchair users around the airports

This should be done in order to:

- (d) identify what the staff are able to do, what they are good at and what they find difficult
- (e) use the data collected to identify similarities and differences between the three research groups
- (f) use the identified differences to propose improvements to the flying process for wheelchair users.

The objectives for collecting views and experiences (a, b, and c) were completed through interviewing a total of 11 wheelchair users, ten people who travelled with wheelchair users, 11 members of cabin crew who worked for three airlines based across the United Kingdom, and 21 special assistance staff who helped wheelchair users and people with disabilities through London Heathrow airport. The experiences and views of the participants can be read in chapters six, seven, eight, and nine. Chapters eight and nine identified how the cabin crew and special assistance staff are able to help wheelchair users and fulfilled objective (d). A discussion of the findings in chapter eleven completed objective (e). Although three groups of people were initially targeted to be researched, the analysis revealed that people who travelled with wheelchair users had a different set of views and experiences and so were included in their own right. All participants were invited to propose recommendations to the aviation industry to improve the transit of wheelchair users through the air travel process. Research question 13 (What are the overall implications of this research for airline and airport policies and practice?) was established upon completing the literature review and the findings in this research meant that objective (f) was completed.

### **11.3 ANSWERING THE RESEARCH QUESTIONS**

An examination of previous research and the current literature available found this area was still in its infancy. No overarching hypothesis was proposed however thirteen research questions were identified that would contribute towards the gaps in knowledge found in the literature review. Table 11.1 outlines the sections within this thesis that will be able to answer each research question:

<b>RESEARCH QUESTION</b>	<b>SECTION(S) WHERE THE QUESTION WAS ANSWERED</b>
1. How do wheelchair users prepare their luggage if they need additional medication or equipment and how do they move their luggage around the airport?	6.1.1 LUGGAGE 6.2.5 IMMIGRATION, BORDER CONTROL, AND THE BAGGAGE HALL 7.1.1 LUGGAGE 7.2.5 IMMIGRATION, BORDER CONTROL, AND THE BAGGAGE HALL 9.3.1 ASSISTING WITH BAGGAGE 9.6.2 THE BAGGAGE HALL 10.2.2 LUGGAGE
2. What are the experiences of wheelchair users and airport staff who help them around the airport of checking in, security, and the amenities?	6.2 THE AIRPORT 7.2 THE AIRPORT 9.3 THE AIRPORT 10.2 THE AIRPORT
3. What are the experiences of the staff in boarding wheelchair users?	8.3.1 THE PROCESS OF BOARDING 8.3.2 MANUAL HANDLING 8.3.3 EQUIPMENT 8.3.4 THE PHYSICAL AIRCRAFT 9.4 BOARDING THE AIRCRAFT 10.3.1 BOARDING THE AIRCRAFT 10.3.2 MANUAL HANDLING AND EQUIPMENT
4. What do the staff and wheelchair users think and feel about the seating on board the aircraft?	6.4.1 SEATING 7.4.1 SEATING 8.3.4 THE PHYSICAL AIRCRAFT 9.4.4 SEATING 10.3.3 SEATING
5. What help can the cabin crew give wheelchair users on board the aircraft?	8.3.5 SAFETY AND EVACUATION PROCEDURES 8.3.6 TOILETS 8.3.7 FOOD AND DRINK 10.3.4 ON BOARD SERVICES, THE TOILET AND PERSONAL CARE ISSUES
6. How do wheelchair users and staff feel about the disembarkation process?	6.5.1 THE PROCESS OF DISEMBARKATION 7.5.1 THE PROCESS OF DISEMBARKATION 8.4.1 THE PROCESS OF DISEMBARKATION 9.5.1 THE PROCESS OF DISEMBARKATION 10.3.5 LANDING AND DISEMBARKING THE AIRCRAFT
7. How does the system for wheelchair repatriation work and how do wheelchair users and staff feel about the process?	6.5.2 WHEELCHAIR ISSUES 7.5.2 WHEELCHAIR ISSUES 8.4.2 WHEELCHAIR ISSUES 9.5.2 WHEELCHAIR ISSUES 10.3.6 WHEELCHAIR ISSUES

8. How do the staff feel about providing services for wheelchair users?	THROUGHOUT CHAPTERS 6, 7, 8, 9, and 10 6.6 FEELINGS ABOUT THE STAFF 7.6 FEELINGS ABOUT THE STAFF 8.5 DISABILITY DIFFERENCES 9.7 DISABILITY DIFFERENCES 10.1 DIFFERENCES IN DISABILITY
9. How is information about wheelchair users and people with disabilities disseminated?	8.2 INFORMATION AND COMMUNICATION 9.2 INFORMATION AND COMMUNICATION 10.1 DIFFERENCES IN DISABILITY 10.1.2 INFORMATION AND COMMUNICATION
10. How are airport staff assigned to help wheelchair users and people with disabilities? If there are any difficulties with this, what are they?	9.2. INFORMATION AND COMMUNICATION 10.1. DIFFERENCES IN DISABILITY 10.1.2 INFORMATION AND COMMUNICATION
11. What training do staff receive in order to provide the service for wheelchair users?	8.1.1 TRAINING 8.1.2 VIEWS ON TRAINING 9.1.2 TRAINING 10.1.1 STAFF TRAINING
12. What are the implications of this research for the training of cabin crew and special assistance staff?	THROUGHOUT CHAPTERS 6, 7, 8, 9, and 10 6.6 FEELINGS ABOUT THE STAFF 7.6 FEELINGS ABOUT THE STAFF 8.1.1 TRAINING 8.1.2 VIEWS ON TRAINING 9.1.2 TRAINING 10.1.1 STAFF TRAINING
13. What are the overall implications of this research for airline and airport policies and practice?	THROUGHOUT CHAPTERS 6, 7, 8, 9, and 10 6.7.2 RECOMMENDATIONS 7.7.2 RECOMMENDATIONS 7.6.1 RECOMMENDATIONS 9.8.2 RECOMMENDATIONS

*Table 11.1 – The Identification of Which Section Each Research Question Was Answered*

### **11.3.1 SUMMARY ANSWERS TO THE RESEARCH QUESTIONS**

The findings from this research are highlighted in chapters six, seven, eight, and nine. These chapters were then synthesised and discussed in chapter ten. The following subsection draws together the evidence found throughout this research to give answers to the first 12 research questions identified from the literature review. Research question 13 is answered in its own section, 11.4 IMPLICATIONS FOR POLICY AND PRACTICE.

**1. How do wheelchair users prepare their luggage if they need additional medication or equipment and how do they move their luggage around the airport?**

Previous research has paid little attention to how wheelchair users prepare and move their luggage around the airport. The research showed that wheelchair users took additional luggage with them regardless of their level of disability and could range from basic medications to larger equipment such as oxygen tanks or wheelchairs designed to be used in the shower. There was some fear that medication and equipment could be lost in transit. Splitting these items between pieces of luggage as a contingency plan was commonly used to prevent such a scenario.

Moving luggage around the airport by wheelchair users was found to be difficult. Wheelchair users said that getting their luggage from their vehicles or on and off public transport was difficult and often required those who were travelling with them to move their luggage for them. Those who were independent wheelchair users put their bags on their legs or attached their luggage to their wheelchairs and dragged it along. The special assistance staff said that there were help points all around the airport for wheelchair users that could be used to get their attention for help with luggage. No wheelchair user or those who travelled with them mentioned the help points which suggests there is a lack of knowledge about them. Wheelchair users struggled to remove their luggage from the conveyor belt in the baggage hall, often those who travelled with them removing their luggage for them. If they were on their own, wheelchair users had said they had asked strangers for help. The special assistance staff said that the airport had a dedicated team of staff, known as porters, to help those who needed assistance with their baggage although the evidence from the special assistance staff suggested that there were not enough of them to help effectively.

The findings suggested that wheelchair users travelled with more luggage than non-wheelchair users. Wheelchair users had difficulty moving their luggage around the airport and needed help at some point along the air travel process either from those they were travelling with, the cabin crew, special assistance staff, or the porters.

**2. What are the experiences of wheelchair users and airport staff who help them around the airport of checking in, security and the amenities?**

Checking-in was found to be relatively easy for wheelchair users and those who accompanied them. A number of check-in desks were used by them including first class, business class, and special assistance in addition to the regular desk. Not every terminal at London Heathrow airport had a special assistance check-in desk, however special assistance staff were available to redirect wheelchair users to the front of the queue where needed. The experience of checking-in depended on the member of staff behind the desk and whether the information wheelchair users had sent ahead of travelling was available to them. One wheelchair user felt the difference in height between them and the staff member compromised effective communication.

A lack of a dedicated special assistance lane at either check-in or security was found to be problematic for the parents of child wheelchair users. Being stuck in a queue was problematic for the child in numerous ways such as becoming anxious or claustrophobic. It was also an issue for special assistance staff who became frustrated if the security staff did not allow them to skip to the front of the queue, as this could impact human and equipment resource allocation.

The security process was understood to be a necessary part of the air travel process by wheelchair users and those who travelled with them, but again felt that the security staff were integral to the experience. Some wheelchair users thought the security staff were not thorough enough or lacked discretion when physically checking them. Taking medication through security could be frustrating for wheelchair users and those who accompanied them. Despite doctor's letters being sent ahead of time to the aviation industry or having a copy present at security, some of the security staff took issue with some medication being allowed to go through. Parents and carers of wheelchair users had an issue when they were separated from who they were travelling with. The wheelchair user might have needed their help, or not understood the process of security and why they had been separated.

The amenities were found to be accessible but had some negative elements because the tables were at an unsuitable height, cramped spaces and narrow aisles, or other passengers having bulky hand luggage or backpacks. Wheelchair users rarely obtained their own food and drink in the restaurants for these reasons. The toilets received mixed opinions as it

depended on the level of disability of the participant. At a higher level of disability, a standard disabled toilet was not enough to meet their needs and there was a call for toilets known as 'Changing Places' toilets to be installed at the airports. The special assistance staff could help wheelchair users access the amenities but could not stay with them or help them inside the amenities due to time constraints.

The findings suggest that the special assistance staff could struggle with the size of the airport, sometimes becoming tired over the course of a shift helping wheelchair users move around the airport. Using the buggy was the preferred method of helping people with disabilities move through the airport however these were unsuitable for wheelchair users. Fatigue and potential injury to people who travelled with wheelchair users and the special assistance staff increased whilst navigating slopes and gradients.

### ***3. What are the experiences of the staff in boarding wheelchair users?***

Wheelchair users encountered difficulties whilst boarding the aircraft, but little research has paid attention to the experiences of the cabin crew and special assistance staff during this process. The findings reinforced that boarding was still challenging for wheelchair users and those who journeyed with them.

The cabin crew and special assistance staff both said that it was standard procedure to board wheelchair users and people with other disabilities before other passengers. This was favoured because it allowed time for the wheelchair user to get comfortable in their seats, avoided other passengers being in the way or having to ask them to move, and left space for the equipment and manual handling to take place. The method of entry to the aircraft for wheelchair users took place through a jet bridge or via an ambulift from the ground. The special assistance staff at London Heathrow airport, said that the ambulifts were operated by an independent team of staff and information from this perspective remains unknown.

The cabin crew made it clear that it was not in their remit to perform any manual handling. They voiced their concern that some wheelchair users may not have been handled properly and were at risk of injury, particularly passengers who were larger in stature or overweight. The special assistance staff said that the safety of themselves and their passengers was the

primary concern. Special assistance staff management said that they only assigned manual handling tasks to those who were physically capable of doing it safely. This was verified by some special assistance staff participants who said they did not do manual handling because they were not physically up to the task. Difficulties were found when special assistance staff had to explain to wheelchair users that several people were required to lift them. It took a minimum of two special assistance staff to lift a wheelchair user safely although they were prepared to call in more people if needed.

There were mixed opinions about the aisle trolley by both the cabin crew and special assistance staff who thought that it was a piece of equipment fit for purpose but could perhaps be improved upon. No member of the cabin crew mentioned the Eagle Hoist and the special assistance staff seldom used it because it required additional training. A sling suitable for manual handling was a recent introduction to the array of equipment available at London Heathrow airport. Up to eight members of special assistance staff can use the sling for people who are larger or do not want to be physically touched and this has been well received.

#### ***4. What do the staff and wheelchair users think and feel about the seating on board the aircraft?***

Wheelchair users were seated seemingly at random throughout the aircraft and the cabin crew suggested that it is decided by airline policies. This research verified that the armrests being able to be moved out of the way during manual handling was preferable. The cabin crew said they had more knowledge than the special assistance staff in whether and how they moved.

An aisle seat was favoured to a window seat by wheelchair users and the special assistance staff because it involved less manual handling and reduced the chance of potential injury. Parents of child wheelchair users preferred to sit in the bulkhead seats or the middle seat. Providing care when parents were either side or could get in front of a child was easier, a benefit also found in the business class area of seating because of the space around the seats. Some wheelchair users used their pressure relieving cushions to sit on rather than directly on the seat to avoid discomfort and minimise the risk of injury and meant that the controls for the entertainment were inaccessible. A minority of wheelchair users and people who



travelled with them found the lack of legroom was uncomfortable. If the passenger in front of them reclined their seat, it reduced the legroom and created further discomfort.

Business class seating was felt to have more postural adjustment than a standard seat, including the ability to lie flat, which was found to be a benefit by wheelchair users and the people who travelled with them. A downside was that the width of the seat could be too large to provide appropriate lateral support for wheelchair users who were smaller in stature. The additional space in the business class seating area made it easier for the special assistance staff to manoeuvre the equipment. However, manual handling could be problematic when lifting a wheelchair user from behind when the seats were pods because they were so large.

#### ***5. What help can the cabin crew give wheelchair users on board the aircraft?***

The cabin crew said their main priority was to ensure the safety of all passengers on board the aircraft during a flight. The safety demonstration video contained nothing specific for wheelchair users, but the cabin crew would explain directly to the wheelchair user what to do in an evacuation scenario. They made it clear that if a wheelchair user was unable to move autonomously in an evacuation scenario, then they should be travelling with someone who can assist them.

The cabin crew could help wheelchair users access their food and drink but not feed them. Helping wheelchair users access the toilet on the aisle trolley was part of their remit. They were not permitted to help inside of the toilet cubicle for health and dignity reasons and wheelchair users should be travelling with someone else who can assist them if needed.

#### ***6. How do wheelchair users and staff feel about the disembarkation process?***

Able-bodied passengers left the aircraft before wheelchair users disembarked. This was advantageous to wheelchair users as it meant avoiding the potential embarrassment and humiliation when people stared at them. The special assistance staff also felt it was an advantage because it allowed them to have the required space on board the aircraft and in the jet bridge in which to work. Wheelchair users were disembarked from the aircraft one by one and moved to just outside of the top of the jet bridge. Special assistance staff said that this was to prevent the corridor of the jet bridge from becoming blocked. However, the cabin

crew did not understand this reasoning and felt a sense of embarrassment walking past wheelchair users waiting at the top because they could leave whilst wheelchair users had to wait to be taken through the airport.

Wheelchair users and the cabin crew relied on the special assistance staff having the appropriate number of staff and the correct equipment in place in order to disembark the aircraft safely. It was noted by participants from all of the research groups that there was often not enough special assistance staff early in the morning or late at night which had a noticeable impact on the time it took to disembark.

Cabin crew are not permitted to leave the aircraft until the last passenger had disembarked. The frustration of waiting caused a sense of awkwardness between the cabin crew and wheelchair users who felt as though they were keeping the cabin crew waiting. Tension between the cabin crew and the special assistance staff was also evident. The cabin crew felt it was the special assistance staff's fault for not repatriating the wheelchair in a timely manner, not understanding it was the baggage handler's responsibility to get the wheelchair to the special assistance staff.

### ***7. How does the system for wheelchair repatriation work and how do wheelchair users and staff feel about the process?***

There were three processes for wheelchair repatriation as illustrated in Figure 10.4. Process One was where the wheelchair was brought directly from the aircraft hold to the aircraft door and was the ideal method of repatriation. Process Two meant that the special assistance staff had to retrieve the wheelchair from the baggage hall. Waiting for the wheelchair to be returned to the aircraft door also impacted the time it took to disembark. Wheelchair users and those who travelled with them became anxious that something negative had happened to the wheelchair the longer the wait was. The special assistance staff felt that Process Three was a last resort, although it satisfied the cabin crew who were allowed to leave. A wheelchair user would have to travel through the airport to the baggage hall on an airport wheelchair or aisle trolley, which removed their independence. It also meant that the special assistance staff had to perform additional manual handling, transferring the wheelchair user into the airport wheelchair and then their own. The special assistance staff said that wheelchair users were

entitled to wait for their own wheelchair and that process three should never happen. They felt that when wheelchair users had to go through the airport without their own wheelchair it was because of the time pressure inferred by the cabin crew and some special assistance staff. Wheelchair users and those who travelled with them felt that anything other than Process One was a failure of the system and disliked the other two processes.

### ***8. How do the staff feel about providing services for wheelchair users?***

The vast majority of cabin crew and special assistance staff answered positively when asked if they felt they had enough experience and knowledge to help wheelchair users. Both sets of staff indicated that there could be a wide variance within one type of disability and that it could be confusing how best to help wheelchair users. Asking wheelchair users and those who travelled with them how much help they required prevented them becoming upset and meant the correct level of service could be provided. It was expressed that no matter how much training the staff had received, learning directly from wheelchair users was the best way of experiencing and gaining confidence about disability.

All staff took pride and satisfaction from their jobs, particularly the special assistance staff who thought that they made a real difference to a wheelchair users' life and travel experience. The more experienced special assistance staff noted that they could tell whether a new member of staff was suitable for the job in a short timeframe. The cabin crew felt the most fundamental aspect of their job was to ensure a high level of service no matter who they were serving.

Although the research question was aimed at how the staff feel about providing services for wheelchair users, wheelchair users and the people who travelled with them expressed their feelings about the staff. The service they received depended upon the member of staff who was helping them, some being praised for their clear communication and helpfulness. When staff were criticised, it was because they had communicated poorly or inappropriately, had a lack of understanding for someone's disability, or had incorrect information and equipment. It was felt by a minority that no matter how good the service was, there was always room for improvement.

**9. How is information about wheelchair users and people with disabilities disseminated?**

The flow of information began with wheelchair users who described their disabilities to the airline, airport, travel agent, or a mixture of those three. This had to be done up to 48 hours before a flight. A main finding in this research was that it was up to 'someone' who was not the wheelchair user to designate which IATA PRM code they belonged to. This information was filtered through to the airline and the airport who checked with each other that they knew how many people with disabilities were travelling that day and on what flight. Where a wheelchair user does not provide any details before a flight, they can register their information and requirements at a dedicated help desk at the airport. These wheelchair users were known as 'ad-hoc' passengers to the special assistance staff and the wheelchair user would be assigned someone to help them at the desk. London Heathrow airport operated a central allocation team who sent information to the special assistance staff and vice versa via a device known as an 'air-click'. The air-click is described in the answer to research question ten.

The cabin crew were given information about wheelchair users and people with disabilities through the flight manifest during their team briefing before the flight. The cabin crew said that their supervisors and management tended to have more information about wheelchair users than they did. Where they did receive information, the cabin crew said that the more information they had, the better level of service they could provide.

**10. How are airport staff assigned to help wheelchair users and people with disabilities? If there are any difficulties with this, what are they?**

The central allocation team or the special assistance staff member working on the host desk assigned a special assistance staff member to a wheelchair user through the air-click. It is a small tablet that shows the information about who they need to help and can be used as a communication device, similar to a radio or telephone, between special assistance staff and the central allocation team. It measures whether the special assistance staff are meeting the service level agreement target time. The air-click showed where a wheelchair user had been left in the air travel process if they needed to wait for any reason. The air-click had weaknesses though. Physical problems such as battery life, signal strength of the device, and accidental damage were reasons given by the special assistance staff. The user could also be at fault for

exceeding the service level agreement target time if they forgot to log that they have finished who they were helping.

Three main shift patterns covering a time period from 04:30 to 23:30 were carried out every day at London Heathrow airport. The special assistance staff thought that there was an insufficient number of them to help very early in the morning and late at night. It could be considered a problem exclusive to London Heathrow airport. However, supporting evidence from wheelchair users and the cabin crew suggest strongly that it is not a problem exclusive to just this airport. The cabin crew said that getting assistance was difficult if the flight had to divert from its intended destination as the special assistance staff would only have a short time to prepare for their arrival.

Special assistance staff were assigned to help wheelchair users on both short-haul and long-haul flights. Short-haul flights tended to have a lower number of passengers and often fewer people with disabilities on board compared to a long-haul flight. This was reflected by the service level agreement target time at London Heathrow being a total of 45 minutes for a short-haul flight and 60 minutes for a long-haul flight from when a wheelchair user entered the airport to boarding the aircraft. The target time to disembark all people with disabilities from when the aircraft arrived at the gate was nine minutes for a short-haul flight and 20 minutes for a long-haul flight. The target time to disembark short-haul flights was felt to be too short by special assistance staff who felt under pressure to meet the target. Helping wheelchair users meet connecting flights between different terminals, or in some cases another airport, provided an extra dimension of pressure.

***11. What training do staff receive in order to provide the best service possible for wheelchair users?***

The cabin crew undertook a training programme that was several weeks long where all aspects of being a member of the cabin crew were covered and disability training was a part of it. One participant indicated that it was six weeks long. There were mixed opinions about the training, but it seemed to be better received if there had been practice drills inside a physical mock-up of an aircraft. Some members of the cabin crew felt that the training associated with disability was too basic and did not give them enough information to help

wheelchair users confidently. To continue being a member of the cabin crew it was a requirement for them to pass an exam every year. Disability awareness and training were required to be studied, though they may not appear as topics in the examination.

The special assistance staff undertook an intensive period of initial training that lasted up to a week. This centred solely on people with disabilities and included training modules that included customer service, manual handling, equipment, health and safety, dignity and care, fire safety, hidden disabilities, and vehicle training. The experience of training was received positively however it was felt by the special assistance staff that learning from real world experiences was better. The special assistance staff were also required to attend a training course once a year to refresh their knowledge or learn about new equipment.

***12. What are the implications of this research for the training of cabin crew and special assistance staff?***

The cabin crew experienced different initial training regimes depending on which airline they worked for. Some of the cabin crew participants in this research had completed their initial training before any disability legislation had come into effect. Their only opportunity to learn about disability awareness is in the yearly exam where questions about disability may not be asked. Cabin crew who meet this criterion could be offered disability awareness training or the examination board could change its policy to ensure that a question on disability is asked. Although the cabin crew said it was policy to not manually handle wheelchair users, they could have no choice but to do so if required during a flight and should receive appropriate training.

The special assistance staff thought that the classroom was a limited place in which to be taught, citing that learning through experience on the job was a better education. There were multiple answers given about how much initial training was undertaken and so there is scope to greatly improve the training course. It could be standardised so that staff who fulfil different roles are exposed to different experiences that they may not do on a daily basis. The opportunity for staff to attend away days or similar could be introduced so that knowledge of techniques and experiences are shared amongst them.

A wheelchair user could be involved in the development of all staff. By having a real-life example who can provide instant feedback and answer questions that the instructors may not know the answer to could be beneficial.

#### **11.4 RECOMMENDATIONS FROM THE RESEARCH**

All participants were asked what recommendations they would make to the aviation industry to improve the process of flying for wheelchair users. The recommendations can be separated into eight sections:

Staff issues – There was a general call by the participants for more special assistance staff to help wheelchair users. This was so there would be an appropriate number of staff to help at critical stages such as boarding and disembarkation, and at either end of the day. The special assistance staff themselves wanted a better balance of staff allocation over the shift patterns.

Training – Wheelchair users and those who travelled with them wanted both sets of staff to receive more training as they felt the staff had not helped them as they should have done. The special assistance staff also thought it would be beneficial if the airport offered an experience for wheelchair users so they could learn what to expect before travelling.

Information and communication – A need for better communication between everyone was recommended by all the participant groups. The special assistance staff wanted an increase to the accuracy of information in order to have the correct number of staff and equipment ready to help. Wheelchair users and those who travelled with them felt that they should be consulted by the airlines and airports to further develop the service. A minority of participants wanted an improvement in some of the staff's attitudes as they felt they could be rude and inappropriate toward wheelchair users at times.

Process issues – Every part of the air travel process should be assessed to ensure they are operating as efficiently as possible, particularly at boarding and disembarkation. Wheelchair users and those who travelled with them wanted to always board first to avoid the

complications of going last. The cabin crew felt that boarding and disembarkation took too long for wheelchair users and wanted the times to improve.

Equipment – There were recommendations made by all groups of participants for the special assistance staff to have a greater selection and availability of equipment to help wheelchair users. Some participants wanted the current equipment to be improved upon too.

Aircraft issues - Having more space on the aircraft in the aisles and the seats may offer a better experience for all groups of participants in different ways. Wheelchair users would be more comfortable, those who travel with them would be better able to help them, the cabin crew would have better working conditions, and the special assistance staff would find manual handling easier. The disabled toilets on board the aircraft should be made accessible and fit for purpose.

Using a wheelchair as a seat - Wheelchair users and people who travelled with them expressed a desire to use their own wheelchair as a seat on board the aircraft.

The other following recommendations were made:

- Industry awards
- Re-evaluating how to help overweight passengers
- Opening more special assistance lanes around the airport
- Having a dedicated special assistance lounge for disabled passengers
- Automatically upgrading wheelchair users to business class
- Returning luggage to the baggage carousel more quickly
- Redesigning the terminal buggy to accept wheelchair users
- Changes in global legislation so that passengers can expect the same service in every country

### **11.5 IMPLICATIONS FOR POLICY AND PRACTICE**

The recommendations that were summarised in 10.4 RECOMMENDATIONS FROM THE RESEARCH combined with the discussion of the findings from this research, and the answers



to the research questions one to twelve are able to form the implications for policy and practice at each stage of the air travel process. This section serves as an answer to research question 13: What are the overall implications of this research for airline and airport policies and practice? The detailed business and economic impacts of introducing new or improved policies and practices will be disregarded here.

### **11.5.1 INFORMATION**

The research found that there were several issues related to the inaccuracy of information. Having the correct information available would cascade down the air travel process and reduce errors for the special assistance staff. The research showed that the cabin crew and the special assistance staff were familiar with the IATA PRM coding categories, but wheelchair users and people who accompanied them were not. Special assistance staff said that incorrect information was a common problem which embarrassed them by being unprepared. A solution to this would be to simply ask wheelchair users and people with disabilities which category best describes them, with a space for known requirements if they had travelled previously, and additional comments. This would then prevent someone else deciding which category they belong to and improve the accuracy of the information.

Wheelchair users and those who accompanied them described themselves as being part of the WCHC category. The participants had a variety of disabilities, types of wheelchair, and levels of independence meaning some were capable of looking after themselves independently and others required help with everything. A professional evaluation of whether to split this code down further could be considered by the aviation industry. The figures provided by Service Provider One showed that there were more people who travelled under the WCHC code than the codes for deaf (DEAF), blind (BLIND), and generic disabled person needing assistance (DPNA) codes combined (Service Provider One, 2018: personal communication, 25<sup>th</sup> March 2019).

The figures provided by Service Provider One showed how many people with disabilities used London Heathrow airport. These figures were obtained through personal communication and are not publicly available. The CAA publish detailed passenger numbers for each airport and the data for people with disabilities should be published alongside them. This would help

service providers identify where and when to tailor their staffing levels. It would help industries related to disabled travel and tourism identify the potential size of the disabled market and help address some of the constraints and barriers found in 3.3 TRAVEL AND TOURISM FOR PEOPLE WITH DISABILITIES.

### **11.5.2 TRAINING**

Educational experiences for wheelchair users was recommended by a minority of staff participants. An example of this was the help points located around the airport that could be used for assistance with luggage. This would allow service providers to explain how the air travel process works in real time and expand on some of the issues they encounter on a daily basis. There are already schemes where wheelchair users can learn a limited amount of the airport experience without being at the airport (Queen Elizabeth Foundation, 2018). A series of online tutorial videos could also be developed.

Beyond the initial training period, cabin crew had to pass a yearly exam which may include questions on disability. With legislation on equality firmly in place and near to 1.5 million passengers with disabilities flying through London Heathrow airport in 2018 (Service Provider One, 2018: personal communication, 25<sup>th</sup> March 2019), at least one question relating to disability should be included in the exam.

The special assistance staff received training yearly or for updates when major changes were introduced such as new equipment. The special assistance staff had a desire to attend further training so that they could expand their knowledge and help a wider variety of people. Additional training days could be incorporated with the educational experiences for wheelchair users as the staff said real-world experiences and learning directly from them were a better method of learning.

### **11.5.3 THE AIRPORT**

Research and an analysis of how wheelchair users and people with disabilities travel to the airport should be made to see if improvements to any aspect of it can be made, if needed. This could be included as a future research project.

The check-in area had very little room for improvement. The special assistance staff directed or took people with disabilities to the front of the queue when there was no special assistance queue but consideration could be given to install one where not available. This is important during the security process as becoming stuck in the queue had an impact on the special assistance staff resources to keep helping people with disabilities effectively. More special assistance queues could be added at immigration where a lot of people with disabilities landing at once could become an issue.

Separation between a caregiver and a wheelchair user was found to be an issue during the security process. More disability awareness training for security staff will help address this issue, but the course should be designed with security protocols in mind. This problem is global and will require further study and thought.

The shops could have wider aisles; however, this will have business repercussions. Restaurants should ensure that they have a table available exclusively for wheelchair users to be able to sit at comfortably with a means of getting attention to order their food and drink.

A special assistance lounge with facilities for wheelchair users and people with disabilities who need them should be investigated. People who travelled with wheelchair users were vocal about the need for disabled toilets that have appropriate equipment in them known as 'Changing Places' toilets. These could be incorporated into the design of a special assistance lounge. These facilities should be installed in all parts of the airport so that security protocols are not violated.

#### **11.5.4 THE AIRCRAFT**

There were many recommendations to increase or improve the space on board the aircraft. Whilst the research shows this, it would be difficult to suggest changes or improvements to policy and practice where cost is not the main factor. Instead a number of suggestions can be made to improve the experience of flying for wheelchair users.

Boarding the aircraft first is already a policy and procedure that is in place. Many difficulties were encountered when this does not happen, and the reasons for this should be investigated and logged to explain why it happened and to try and prevent it from happening again.

Seating position was a contentious issue for wheelchair users and those who travelled with them. Neither the cabin crew or special assistance staff noticed a pattern or regularity of where wheelchair users were sat on the aircraft. A full consultation between disability groups and the airlines should be carried out so that wheelchair users can be seated in a location to suit their needs without compromising the business model of the airline.

Cabin crew reiterated that a wheelchair user should be accompanied whilst travelling if they are not capable of feeding themselves, going to the toilet, or evacuating the aircraft themselves. Further research surrounding the evacuation of wheelchair users from the aircraft in a number of different scenarios should be carried out to establish whether this policy and practice is needed.

Wheelchair users disembarked after the rest of the passengers. The cabin crew seemed to lack the knowledge of why the special assistance staff removed people with disabilities one-by-one and could be made aware of why. Wheelchairs that were sent to the baggage hall caused several issues. It should always be delivered back to the aircraft door as a policy and procedure to prevent the problems found in the research. It should be recorded and investigated in a similar way to how being boarded last was proposed.

#### **11.5.5 OTHER**

There should be industry awards for helping disabled travellers in the process of flying. This suggestion may help to network people together, consult with wheelchair users and people with disabilities, and create an impetus for improvement.

Service providers and airlines should actively collect feedback from wheelchair users and people with disabilities to improve their services and to identify staff that make a difference to disabled passengers.

Positivity from the wheelchair users about the Eagle Hoist and from the special assistance staff about the sling means there are other options to be manually handled onto the aircraft besides the aisle trolley. Awareness about this equipment should be raised.

### **11.6 LIMITATIONS TO THE STUDY**

A limitation of this research was that the majority of the wheelchair users, those who travelled with them, the cabin crew, and the special assistance staff were based in the UK. The findings from this research therefore may not represent the views and experiences of people in other countries. This topic of research is still in its infancy but many of the findings tended to verify or enhance what was found in the current literature available although there were some differences. This could be for a variety of reasons such as local differences in culture or legislation. Even though several studies exist, the total population of wheelchair users, people who travel with them, cabin crew, and special assistance staff who have been interviewed regarding this research area represent a very small number of the potential participants.

It was the intention to only interview three groups of participants. However, the views and experiences of people who travelled with wheelchair users has further enhanced the current knowledge. The cabin crew were difficult to recruit because this research only required a small number of them and some of them said their reason for non-participation was a fear that their responses would not be anonymous despite the information sheet and consent form expressing that they would be. The special assistance staff had more participants than the other three research groups of participants and could be subject to data saturation. The special assistance staff were only employed by Service Provider One and worked at London Heathrow airport and therefore views and experiences may differ at other airports and service providers. The special assistance staff would not have been recruited if it was not for the effort and kindness of the contact at Service Provider One who went out of their way to let 21 of their staff participate in this research. The author did ask if another airport they manage could be researched. However, this request was turned down as they explained each terminal at London Heathrow airport was a separate business operation.

There could also have been an element of response bias in this research. Participants who were wheelchair users, those who travelled with them, and cabin crew were recruited opportunistically through social media and snowball sampling. Putting themselves forward to be interviewed without any incentive meant that they might have had stronger views or more drastic experiences than the rest of the potential population. This was particularly true for people who were parents of child wheelchair users as they were motivated by a strong emotional attachment to their child. There could also have been some response bias from those who took part in a face to face interview because the interviewer was a wheelchair user asking about issues related to wheelchair users. These elements of response bias were hopefully minimised by ensuring the questions in the topic guide were not leading questions and that the participants who were interviewed in a face to face setting were familiar with wheelchair users.

There were methodological limitations in this research. Using interviews as the method of collecting data offered advantages in this research over a focus group method. The primary reasons were organising participants, time, financial resources, and potential issues with analysing the data. The ability for the different groups of participants to challenge each other in a focus group may be beneficial and could be carried out in future research.

### **11.7 FUTURE RESEARCH**

The infancy of this research area means there are a multitude of possibilities for future research. To the best of the author's knowledge, this is the first time that different groups of stakeholders have been researched simultaneously under the topic of wheelchair users who travel by air. It was revealed that there were several groups of people who have yet to be researched in this field which included but are not limited to: baggage handlers, teams of special assistance staff who operate the ambulifts, porters who help people move luggage, pilots, security staff, aviation industry management, and government policy makers. The research carried out to date and the global nature of air travel means that this research could be replicated in a multitude of other countries to see whether a global pattern of issues can be identified or if the issues from this research need to be addressed at a national level.

The research should include cabin crew as to how they evacuate a wheelchair user from an aircraft in a number of different scenarios. This would be to establish whether or not a wheelchair user should be travelling with a companion. The special assistance staff were only interviewed at London Heathrow airport and so interviewing other special assistance staff to have a result set to compare to this one would be an ideal starting point in the next phase of this research area. The special assistance staff in this research said that the physical nature of their job meant walking a potentially large distance every day with additional strain to the body when moving a wheelchair user up and down a gradient. Exploring the special assistance staff in this way would show if carrying out this job has an adverse effect over time, whether health and safety legislation is being breached, and whether the same service can be delivered consistently over the course of a shift. Further research in the area of disability awareness training could be carried out in a similar fashion to previous research (McKercher *et al.*, 2003; Daruwalla and Darcy, 2005) to measure the effectiveness of what is currently taught.

An evaluation of how wheelchair users move themselves and their luggage around the airport should be carried out. The impact of queueing for wheelchair users and the special assistance staff could be researched to ensure maximum operational efficiency of the airport.

In the longer term, changes to the physical design of the inside of the aircraft could be explored. This would be to develop a wider aisle for passengers, wheelchair users, and the staff to work in. With showers and bathrooms being advertised in the media by some airlines, a 'Changing Places' style bathroom could be developed through collaborative research between disability associations, government officials, and aircraft designers. The seating policies could also be researched in tandem with another objective such as the evacuation research suggested. Using a wheelchair as a seat on board the aircraft should be investigated to see whether there is a demand for it, whether it could be used on an aircraft, and if it complies with safety regulations.

## **11.8 FINAL CONCLUSION**

The number of wheelchair users and people with disabilities who choose to fly has grown at a faster rate than the total number of passengers. The findings from this research showed the air travel process could be a positive experience for wheelchair users if each stage of the air travel process went without incident and the attitude of the cabin crew and the special assistance staff was good. The variance of disability between wheelchair users can make the service difficult to get right every time. The growth in disabled passengers means the aviation industry needs to be optimised to cope with the rising demand. Addressing or improving the issues found in this research would improve the experience of the air travel process not only for wheelchair users and those who travel with them, but for the cabin crew and the special assistance staff too.

The final conclusion to this piece of research is that the air travel process for wheelchair users remains difficult, but there is a lot of scope for improvement. The people who travelled with wheelchair users also faced a number of similar but different experiences that should not be disregarded as they make a difference to the wheelchair user's life. The cabin crew's experience of assisting wheelchair users could be considered limited. There was not much they could do to physically help a wheelchair user on board the aircraft because of the current policies airlines had in place. The special assistance staff experienced some of the problems that wheelchair users faced when travelling through the airport that did not go as planned.



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# APPENDICES

## Appendix A – An exploratory study of the experiences of wheelchair users as aircraft passengers – implications for policy and practice

IATSS Research 41 (2017) 89–93



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Research article

### An exploratory study of the experiences of wheelchair users as aircraft passengers – implications for policy and practice



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#### ABSTRACT

Air travel has grown steadily in the region of 5–6% every year since 1970 meaning that in the UK alone, around 750,000 people use flying as a means of transport every day. Disability rates are also increasing in the UK with over 13 million people having at least one. Air travel for the mobility impaired has been relatively unexplored, but with increasing rates of disability and passenger numbers, it is crucial to know what the most severely disabled people think of the current process. This study used qualitative interviews of a semi-structured nature with eight wheelchair-using participants who were invited to discuss their experiences of air travel as well as offering opinions. Key findings showed notable issues when wheelchair users interact with the aircraft. The manual handling, the equipment used, seating, communication and accessing the toilet on the aircraft led to physical pain and discomfort and in turn emotional distress. Recommendations include developing consistency, further disability training and a review of the equipment involved.

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#### 1. Introduction

The International Classification of Functioning, Disability and Health (ICF), which is the World Health Organisation (WHO) framework for measuring health and disability at both individual and population levels, defines disability as “an umbrella term for impairments, activity limitations and participation restrictions”, with over one billion people estimated to have one or more disabilities equating to just over 15% of the global population [1,2].

Accessibility is a particular issue for those with disabilities but as a broader concept it should be thought of as being something that benefits or applies to everybody. Darcy & Dickson [3] estimate that 30% of a population will have access requirements at any point in time, and most people will have a disability at some stage during their lifetime.

##### 1.1. Disability prevalence in the United Kingdom (UK)

The Office of National Statistics (ONS) collects data about disability from the Department of Work and Pensions (DWP), in particular from the Family Resources Survey which is conducted every year. The 2016 survey has found that 13.3 million people in the UK have some sort of disability which represents 21% of the total population. Seven million

people reported a mobility disability or, 52% of the disabled population [4]. Of those that reported a mobility disability, it is estimated that 44% of working age adults, 68% of state aged pensioners and 21% of children have a mobility disability.

##### 1.2. Aviation figures in the UK

The aviation industry is a truly global industry and more people are travelling by air than ever before, whether they have a disability or not. Air transport volume is now five times as large as it was in 1970, with air travel growth rates being on average 5–6% per year in the period 1970–2000 [5].

The Civil Aviation Authority (CAA) is a regulatory body for the UK aviation industry and is responsible for providing air traffic services. The CAA reports statistics of aircraft movement and passenger movement, which is derived from the data of 55 airports. Two geographical regions have been selected to show this data London Area and Other UK [6].

Examining how many flights there are per year will give an indication about the size of the UK aviation industry. Table 1 contains the number of flights that take off and land per year in the UK, including all scheduled and chartered, cargo, commercial and military flights:

A secondary indicator to understanding industry size is how many passengers use the airports per year, but unfortunately data concerning passengers with reduced mobility who travel is not publically available. Table 2 describes how many passengers are flying from UK airports per year by geographical region:

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**Table 1**  
Aircraft Movement in the UK in 2016 [7].

Region	Aircraft movement
London area airports	1,173,196
Other UK airports	2,020,888
Total	3,193,284

To place these numbers in perspective this equates to an average of 8725 aircraft movements and 742,706 passengers taking a flight every day of the year (totals divided by 366 (leap year) and rounded) [7,8]. This is important because the potential volume of people with disabilities could be in the region of 150,000 who may travel per day based on the 21% of the population [4] if they could travel as readily as the rest of the population.

More people are travelling by air than ever before, whether they have a physical condition or not. The freedom to travel should be considered as a right that everyone has, but those with physical disabilities do not enjoy the same access to transport as able-bodied people do [9].

## 2. Methodology

### 2.1. Qualitative research design

Creswell [10] has identified five approaches to conducting qualitative research; narrative research, phenomenology, grounded theory, ethnography, and case studies. The research was devised using three of these approaches to qualitative research; narrative research, phenomenology and ethnography. A harmony of these three elements was chosen as narrative research is collecting data as a story, phenomenology is the study of human experiences whilst ethnography is the study of people or cultures to try and understand their values or beliefs.

O'Day & Killeen [11] showed this last method to be recommended for studying disabled groups because there is more to understanding the needs of the people with disabilities than a health issue interacting with an environment. It allows researchers to explore further complexities such as social and economic constraints reflecting the reality of the lived disabled experience to help develop solutions to the challenges they face.

### 2.2. Participant recruitment

Participants were recruited through personal contacts of the principal author and expanded by snowball sampling, designed to result in a homogeneous sample as the research centred around participants being full time wheelchair users who have flown recently. Participants were of a variety of ages, but were all over 18 years old. They were approached to participate by means of an email from the principal author and the means to withdraw at any time and without giving a reason from the research was offered. Following participant recruitment, semi structured interviews were conducted with eight participants who agreed to offer their experiences of air travel.

### 2.3. Topic guide

A semi-structured topic guide was formulated in three sections: 'Individual Characteristics' used an ethnographic approach that obtained

**Table 2**  
Passenger Movement in the UK in 2016 [8].

Region	Aircraft Movement
London area airports	163,209,810
Other UK airports	108,620,685
Total	271,830,495

basic data about the participant whilst allowing time for interviewer and participant to build a rapport whilst establishing that the interviewee was suitable to participate in the study. 'Travel Characteristics' also used an ethnographic approach to establish travel frequencies and to gauge whether the class of travel has an impact on the disabled traveller.

'The Journey' used phenomenological and ethnographical approaches and was the main aspect of the study and was at the core of gathering the experiences. This section was divided into subsections that used a narrative approach as it is the story of someone travelling through an airport: Booking air travel; Getting to the airport; Checking in; Security; Shopping, restaurants and duty free; Getting to the gate; Boarding the plane; On board the plane; Disembarking and Overall experiences of flying. Exiting through the terminal, passport control and baggage reclaim were omitted as most of these elements were already explored in earlier subsections.

The topic guide concluded with the opportunity for participants to suggest to the aviation industry where the experience could be improved upon for wheelchair users and whether they would like to comment on or add any other thoughts and opinions they had.

### 2.4. Interview analysis

The interviews were analysed using thematic analysis. The transcripts were coded manually into themes and subthemes by the experiences described within the framework of the topic guide manually. Whilst software is available for the thematic analysis, a manual approach was taken by the principal author and checked for consistency by the other author because the principal author conducted all the interviews and was familiar with the central themes occurring throughout.

## 3. Results

### 3.1. Participants

Three females and five males took part with ages ranging from 24 to 69. The average age of a participant was 48.00 years. Two of the participants were disabled from birth, whereas the other six had acquired their disability, five of them describing themselves as having tetraplegia (a loss of function in all limbs) and one as paraplegic (a loss of function in two limbs, normally the legs) [12]. The average length of disability is 34.31 years including those born with disability and 23.08 years amongst participants with acquired disabilities. Half of the participants described themselves as using a manual wheelchair and the other half use a powered wheelchair; in addition, four of the participants have the need for a full time personal assistant who attends to their care needs (Table 3).

The participants provided a wealth of information about each aspect of 'The Journey' through the airport, however the results below are the key issues that wheelchair users encounter whilst flying.

**Table 3**  
Participant characteristics.

Participant	Age	Gender	Length of disability	Disability type	Personal assistant	Chair type
A	69	Male	69 Years	From birth	No	Powered
B	36	Male	18 Years	Tetraplegia	Yes	Powered
C	45	Female	14 Years	Tetraplegia	Yes	Powered
D	53	Male	40 Years	Paraplegia	No	Manual
E	30	Female	20 Years	Tetraplegia	Yes	Manual
F	67	Male	67 Years	From birth	No	Manual
G	60	Male	40 Years	Tetraplegia	Yes	Powered
H	24	Female	6.5 Years	Tetraplegia	No	Manual

### 3.2. Manual handling

Manual handling takes place from the door of the aircraft or the scissor lift to the seat, which has caused physical pain to some participants who have felt that this is the worst experience of flying because of the physical pain caused or where physical damage may be caused but could be unrecognised because of the person's disability.

*They have to lift me into an aisle chair and then take me down the aisle in this chair then lift you across three seats so you're at the window seat, two people lifting, and it's caused me a lot of pain and problems. It's the worst part.* [Participant C, Female, 45, Powered Wheelchair User].

*'... then they manhandle me then they get me down through the aircraft up the aisle, and they manhandle me into my seat, lifting again, which is incredibly painful, and that is what happens.'* [Participant G, Male, 60, Powered Wheelchair User].

*'So yes maybe having an awareness that it is not just about getting you on, but being careful. I am fortunate that I am not really in a lot of pain, but I still don't want my legs being bashed about because I can't feel them, I won't necessarily know straight away if damage has been done.'* [Participant E, Female, 30, Manual Wheelchair User].

### 3.3. Seating

The study revealed that business class could be a better option for disabled travellers because of the extra space available, but the affordability of it is obviously a limitation to this. Modern times have seen a change in economy seating.

*'... they upgraded us to business class, and that was the best experience, because there was more space, the seats were comfier, I could raise my seat as well because I also had ... I had DVT, a couple of times, so I am really conscious of flying, that I am at risk of that, so it was really good to have that extra space. Yes it was much comfier.'* [Participant E, Female, 30, Manual Wheelchair User].

*'You know, when I started flying the economy seats were better than many of the business class seats today in size'* [Participant F, Male, 67, Manual Wheelchair User].

### 3.4. Equipment

In addition to widely reported poor manual handling by the staff, an issue that accompanied this was the equipment that the staff had to use, in particular the aisle trolley and arm rests on the aircraft. The aisle trolley was described as being small, uncomfortable and having poor support from the restraining straps that provide trunk support and balance. Some armrests were described as being fixed on some aircraft, which added another level of complication.

*'... we've had a problem where the arm-rests on the plane haven't moved so it's made lifting over more difficult as well.'* [Participant C, Female, 45, Powered Wheelchair User].

*'Yeah, I mean, actually getting onto the plane, you transfer onto a very, very small chair now. The chair is tiny, you know, it's very often not padded and it opens you up to all kinds of sort of cuts, bruises or sores or whatever just getting onto this little chair.'* [Participant D, Male, 53, Manual Wheelchair User].

*'They lift me into a tiny little metal thing that goes in-between the seats, they strap me onto that with loads of horrible straps'* [Participant G, Male, 60, Powered Wheelchair User].

*'The aisle chairs are horribly uncomfortable and unflattering and not easy to get onto'* [Participant H, Female, 24, Manual Wheelchair User].

### 3.5. Toilet issues

One of the biggest issues that wheelchair users face whilst travelling by air is going to the toilet. Participants overwhelmingly stated that they had never even tried going to the toilet as they felt it was an impossible task. Due to a lack of accessible toilets on aircraft, some participants

reported methods they used to avoid using the toilet including fasting and catheterisation.

*'These are real issues. And that's one of the reasons I don't fly more. It's a personal hygiene issue, it's nothing to do with flying here ... the wheelchair accessible toilets on some flights are not accessible to me because I cannot get into them'* [Participant A, Male, 69, Powered Wheelchair User].

*'Using the toilet is a no go for me, that I can't ... I would need the aisle chair to get to it, which is one thing, but they are so tiny. I am quite little, and ... I am pretty small and I can't get in'* [Participant E, Female, 30, Manual Wheelchair User].

*'... If I go on a long-haul flight, I have to use an internal catheter, because I just know there is just no way I can get into the toilet.'* [Participant E, Female, 30, Manual Wheelchair User].

### 3.6. Turbulence and landing issues

Turbulence and landing issues were identified as a problem amongst the more disabled participants because of balance issues or because the sudden movements can trigger muscle spasms resulting in a awkward involuntary movements and embarrassment. The potential risk of injury is here as wheelchair users may hit the seat in front of them or fall out of their own seat. Carers may also be at risk if they are supporting wheelchair users with poor balance as they are unbalancing themselves.

*'... one problem I find is, because I have fairly limited balance, the seatbelts... Because obviously they're only just the normal waist belts, there's no sort of upper body support. I think it would be helpful to have some upper body restraint really because the slightly bit of turbulence and I'm falling forwards.'* [Participant C, Female, 45, Powered Wheelchair User].

*'... maybe slightly landing, because I don't have balance, but again I am just so used to that, that I will just make sure that I will use my hands and arms to sort of stop me going forward, but that is all.'* [Participant E, Female, 30, Manual Wheelchair User].

*'... my carer holds my chest if I am landing, in case I go forward and hit my head on the one in front.'* [Participant G, Male, 60, Powered Wheelchair User].

*'I think landing, well any kind of jolting can put me into spasm, so that can be a little bit embarrassing and I get frequent back spasms.'* [Participant H, Female, 24, Manual Wheelchair User].

### 3.7. Humiliation and embarrassment

Several participants drew attention to a preference for being boarded first, allowing them extra time to get seated comfortably without experiencing embarrassment and humiliation in front of other passengers. When this process is unable to happen because of a lack of ground staff, poor communication or the staff being disorganised it can lead to physical and emotional distress on the part of the wheelchair user.

*'... there's been a nasty two or three experiences where I've been boarded last. That is embarrassing to be sort of transferred onto a chair and through the airplane, knocking everybody as you go, and then to have the embarrassment of being lifted into your seat in front of everybody is... I find it embarrassing.'* [Participant D, Male, 53, Manual Wheelchair User].

*'... when they get me on the plane, sometimes they have to ask people to move out of their seats, or I am going down the aisle and there are people trying to get to their seat and I get knocked a lot. So that is probably the worst bit of the process for me, because I feel like it is quite rushed and I don't feel it is done in the best order'* [Participant E, Female, 30, Manual Wheelchair User].

*'... no one holds the boarding of the rest of the passengers to wait for you to get on, which is just really embarrassing and humiliating. But no one wants to be stared at while they are just trying to get on a plane, to transfer into a seat, so that is all pretty horrific.'* [Participant H, Female, 24, Manual Wheelchair User].

### 3.8. Nervousness and anxiety

Wheelchair users are completely reliant on their wheelchairs and so to be separated from the wheelchair with no consistency whether it might be brought back to the cabin door or might go to baggage reclaim or whether it will be in working order is a major factor that causes stress and anxiety. Furthermore, participants also reported being unable to leave the seat after landing as another issue as they have been separated from their wheelchairs at this point which can cause nervousness too, particularly as they are always last to leave the plane, often waiting a long time.

*'So I am at this point feeling extremely anxious because I've been parted from my chair and I have no idea what's happened to it. Now nine times out of ten it's loaded into the hold along with everything else and off we go. So that's the first thing that happens to me while I'm sitting in my seat.'* [Participant A, Male, 69, Powered Wheelchair User].

*'... we've had to wait a significant amount of time and, because the airlines have to turn it round quick, I've been sat there and all the cleaners are there'* [Participant C, Female, 45, Powered Wheelchair User].

*'... but from my perspective, my chair wasn't there, and they couldn't guarantee that they had seen it, so then I was worrying, without my chair I am really stuck, and I don't think they got the enormity of that.'* [Participant E, Female, 30, Manual Wheelchair User].

*'If the chair is not at the door, then they don't meet my needs at all, because that is my main way of getting about. And even putting me in the standard issue chair is not good enough, because it has not got pressure-relieving qualities, it is not self-propelled so it takes away all my independence, and no one seems to get that.'* [Participant H, Female, 24, Manual Wheelchair User].

### 3.9. Communication

Staff were largely reported as being good or OK, but many participants felt that it did depend upon the member of staff. Time was also identified as an issue because of a lack of knowledge about the wheelchair or being unsure what to do. Wheelchair users also want a greater level of understanding and greater communication from the staff to assist them through the process of air travel.

*'The staff generally are always very polite, but you often feel they don't really know what they're doing. They usually have to make at least a couple of phone calls to somebody else to ensure that, you know...so if you find you're the first wheelchair user they've ever seen I find that a bit weird really. But some are better than others but I think there's always this little moment where you think they're not quite sure what to do with me.'* [Participant A, Male, 69, Powered Wheelchair User].

*'... I guess just understanding their needs a little bit better and that ... yes ... so maybe better training for staff, who are doing the special assistance.'* [Participant E, Female, 30, Manual Wheelchair User].

*'... the guys who are lifting you on and off the aeroplane, they need to know just how bloody awkward and just how embarrassing it is to be put on last when you're being lifted up and people look up your dress and God knows where else, and it's just lack of dignity. And I don't think these people actually realise the humiliation they put their passengers through because they can't get the bloody system right. So I would say training, guidance, monitoring and awareness.'* [Participant F, Male, 67, Manual Wheelchair User].

## 4. Discussion

The study has indicated that travelling as a wheelchair user by means of aircraft is a negative experience interspersed with some positive ones. The issues identified in the results are from the 'Boarding the plane', 'On board the plane' and 'Disembarking' stages of 'The Journey', which indicates that the problems associated with flying are when wheelchair users interact with the aircraft because accessing the plane leads to physical and emotional distress.

The study also concurs with Poria [13] who interviewed 20 wheelchair users over three years and reported the most problems when boarding and leaving the plane, having to use a small wheelchair that fits down the aisle of the plane and was described as uncomfortable and having a straight back, making transferring difficult. Staff were reported as not always knowing how to appropriately manually handle wheelchair users into their seats and vice versa. Participants reported that poor manual handling can cause severe pain as well as pressure sores. On board the plane, wheelchair users reported that going to the toilet was the biggest problem as getting to the toilet meant using the small wheelchair and reported employing methods to avoid going to the toilet such as fasting or catheters.

Saari [14] used a mixed method approach via a survey and questionnaire through social media, which canvassed the data and opinions of 34 wheelchair users and seven people who travel with them. Problems identified were similar to this research in that wheelchair passengers are unable to get to the toilet which has resulted in respondents using tactics to avoid using the toilet. Seating was described as uncomfortable and a source of pain. Manual handling also caused pain through poor lifting techniques and the equipment used for transferring being unsuitable. Saari also found communication issues between the staff and the wheelchair user that led to negative experiences.

The themes and issues identified by Poria and Saari are still present in this study suggesting that the problems encountered by wheelchair users are in no way limited to the UK and no improvements have been made in this field.

### 4.1. Strengths and weaknesses

This study included a variety of wheelchair users from different geographical areas of England with varied sociodemographic characteristics, including different causes of being in a wheelchair. The group interviewed was largely severely disabled people with over half describing themselves as tetraplegic (quadriplegic) and so the sample focused on those with the greatest needs. The average time the sample had been disabled was 34.31 years and that the experiences they described will have been encountered across the wheelchair user population, however it is possible to suggest that the sample are acutely aware of difficulties encountered and different experiences may be offered by a sample with a smaller average number of years being disabled. Whilst relevant to the British population, there could be cultural differences between other countries although this is proving more unlikely given the results identified in previous studies in different countries [13,15,14].

The sample was recruited through three personal contacts of the principal author, one of them being a specialist disability travel agent whose contacts represented half of the sample. This could imply a bias towards those who enjoy travelling and are familiar with the processes involved and have many experiences, however, their views and experiences largely concur with the other half of the sample suggesting that there is not a bias.

## 5. Recommendations to the aviation industry

The experience of boarding the aircraft was regarded as being a negative experience, and the following recommendations are suggested to make it easier for the wheelchair user.

### 5.1. Standardising procedures

1. The airlines should agree where wheelchair users should sit. From a safety perspective sitting next to the window makes sense however, it is impractical for the manual handling team to lift over three seats.
- The airlines should collaborate to agree upon a preferred seating choice for wheelchair users.

- Upgrade them to a business class seat if some of these are unsold as those seats are larger and offer a greater degree of flexibility in terms of seat manipulation.
2. Staff need to enforce the policy that wheelchair users should board the plane first and return the wheelchair to the door of the aircraft during disembarkation.
    - Staff need to take a greater deal of care and have a greater understanding by attending regular awareness training of the humiliation and embarrassment that is caused.
    - Airports should source specialist disability teams with extensive training so that the procedure of boarding and disembarking the aircraft is standardised across all UK airports.
  3. A set of standardised guidelines that each airport should follow should be formulated in consultation with wheelchair users so that the procedure for wheelchair users is streamlined and the same service can be expected across the board.

### 5.2. Toilet issues

Access to the toilet on aircraft or a perceived lack of access to it needs to be addressed by the aviation industry and should be considered in the design of new aircraft, long haul in particular

### 5.3. Manual handling and equipment

1. The equipment used to aid wheelchair users on and off the aircraft should be examined. Equipment should meet certain standards:
  - The seat should be padded and/or have pressure relieving qualities so it is comfortable.
  - Staff should be able to lower and raise the aisle trolley so that it can match the height of a wheelchair or the seats on the plane.
2. New methods of manual handling should be investigated as an alternative to manual lifting such as the Eagle 2, which is a medical grade hoist that allows people with reduced mobility to be taken on and off the plane with the assistance of two people using limited physical manual handling [16].
 

The interventions suggested should be implemented to mitigate and where possible remove the struggles that wheelchair users encounter whilst travelling by air.

### 6. Implications for future research

There is scope for further research in this field. It is vital to establish the difficulties the aviation industry has in aiding wheelchair users in order to understand the issues faced by both groups so that the best possible solution can be found. Observational research should be carried out to establish the strengths and weaknesses of staff that help those with disabilities in real time. To overcome the toilet issues, a series of

laboratory experiments or computer aided modelling should be undertaken in collaboration with wheelchair users. Ultimately, it is crucial to do further research in all aspects of air travel by people with disabilities as very little has been carried out to date.

### Funding

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## **Appendix B – Ethical approval to interview wheelchair users and those who travel with them**

UCL RESEARCH ETHICS COMMITTEE  
OFFICE FOR THE VICE PROVOST RESEARCH



23<sup>rd</sup> February 2018

Dr Nicola Christie  
CEGE  
UCL

Dear Dr Christie

### **Notification of Ethics Approval with Provisos**

**Project ID/Title: 10337/002: The experiences of special assistance and support staff in helping passengers with reduced mobility who travel by air**

I am pleased to confirm in my capacity as Joint Chair of the UCL Research Ethics Committee (REC) that I have ethically approved your study until **23<sup>rd</sup> February 2019**.

Ethical approval is subject to the following conditions:

### **Notification of Amendments to the Research**

You must seek Chair's approval for proposed amendments (to include extensions to the duration of the project) to the research for which this approval has been given. Ethical approval is specific to this project and must not be treated as applicable to research of a similar nature. Each research project is reviewed separately and if there are significant changes to the research protocol you should seek confirmation of continued ethical approval by completing an 'Amendment Approval Request Form'

<http://ethics.grad.ucl.ac.uk/responsibilities.php>

### **Adverse Event Reporting – Serious and Non-Serious**

It is your responsibility to report to the Committee any unanticipated problems or adverse events involving risks to participants or others. The Ethics Committee should be notified of all serious adverse events via the Ethics Committee Administrator ([ethics@ucl.ac.uk](mailto:ethics@ucl.ac.uk)) immediately the incident occurs. Where the adverse incident is unexpected and serious, the Joint Chairs will decide whether the study should be terminated pending the opinion of an independent expert. For non-serious adverse events the Joint Chairs of the Ethics Committee should again be notified via the Ethics Committee Administrator within ten days of the incident occurring and provide a full written report that should include any amendments to the participant information sheet and study protocol. The Joint Chairs will confirm that the incident is non-serious and report to the Committee at the next meeting. The final view of the Committee will be communicated to you.

### **Final Report**

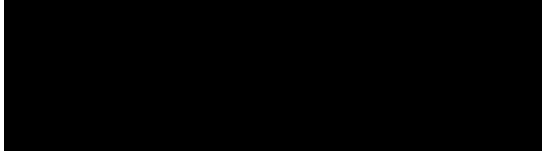
At the end of the data collection element of your research we ask that you submit a very brief report (1-2 paragraphs will suffice) which includes in particular issues relating to the ethical implications of the research i.e. issues obtaining consent, participants withdrawing from the research, confidentiality, protection of participants from physical and mental harm etc.

In addition, please:

- ensure that you follow all relevant guidance as laid out in UCL's Code of Conduct for Research: <http://www.ucl.ac.uk/srs/governance-and-committees/resgov/code-of-conduct-research>
- note that you are required to adhere to all research data/records management and storage procedures agreed as part of your application. This will be expected even after completion of the study.

With best wishes for the research.

Yours sincerely



**Professor Michael Heinrich**  
**Joint Chair, UCL Research Ethics Committee**

Cc: Andrew Davies

## **Appendix C – Ethical approval to interview cabin crew**

UCL RESEARCH ETHICS COMMITTEE  
ACADEMIC SERVICES



11<sup>th</sup> July 2017

Dr Nicola Christie  
Department of Civil, Environmental and Geomatic Engineering  
UCL

Dear Dr Christie

### **Notification of Ethical Approval**

**Re: Ethics Application 10337/001: The experiences of front line flight crew in dealing with passengers who are wheelchair users**

I am pleased to confirm in my capacity as interim Chair of the UCL Research Ethics Committee that I have ethically approved your study until **11<sup>th</sup> July 2018**.

Approval is subject to the following conditions:

#### **Notification of Amendments to the Research**

You must seek Chair's approval for proposed amendments (to include extensions to the duration of the project) to the research for which this approval has been given. Ethical approval is specific to this project and must not be treated as applicable to research of a similar nature. Each research project is reviewed separately and if there are significant changes to the research protocol you should seek confirmation of continued ethical approval by completing the 'Amendment Approval Request Form':  
<http://ethics.grad.ucl.ac.uk/responsibilities.php>

#### **Adverse Event Reporting – Serious and Non-Serious**

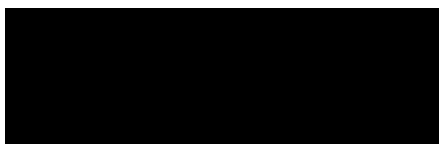
It is your responsibility to report to the Committee any unanticipated problems or adverse events involving risks to participants or others. The Ethics Committee should be notified of all serious adverse events via the Ethics Committee Administrator ([ethics@ucl.ac.uk](mailto:ethics@ucl.ac.uk)) immediately the incident occurs. Where the adverse incident is unexpected and serious, the Chair or Vice-Chair will decide whether the study should be terminated pending the opinion of an independent expert. For non-serious adverse events the Chair or Vice-Chair of the Ethics Committee should again be notified via the Ethics Committee Administrator within ten days of the incident occurring and provide a full written report that should include any amendments to the participant information sheet and study protocol. The Chair or Vice-Chair will confirm that the incident is non-serious and report to the Committee at the next meeting. The final view of the Committee will be communicated to you.

#### **Final Report**

At the end of the data collection element of your research we ask that you submit a very brief report (1-2 paragraphs will suffice) which includes in particular issues relating to the ethical implications of the research i.e. issues obtaining consent, participants withdrawing from the research, confidentiality, protection of participants from physical and mental harm etc.

With best wishes for the research.

Yours sincerely



**Professor Michael Heinrich**  
Interim Chair, UCL Research Ethics Committee

Cc: Andrew Davies

## **Appendix D – Ethical approval to special assistance staff**

UCL RESEARCH ETHICS COMMITTEE  
ACADEMIC SERVICES



18 October 2017

Dr Nicola Christie  
CEGE  
UCL

Dear Dr Christie

### **Notification of Ethics Approval with Provisos**

**Project ID/Title: 10337/003: The experiences of Special Assistance and Support Staff in helping passengers with reduced mobility who travel by air**

I am pleased to confirm in my capacity as Joint Chair of the UCL Research Ethics Committee (REC) that I have ethically approved the data collection phase of your study until **31<sup>st</sup> October 2018**.

Approval is subject to the following conditions:

### **Notification of Amendments to the Research**

You must seek Chair's approval for proposed amendments (to include extensions to the duration of the project) to the research for which this approval has been given. Ethical approval is specific to this project and must not be treated as applicable to research of a similar nature. Each research project is reviewed separately and if there are significant changes to the research protocol you should seek confirmation of continued ethical approval by completing an 'Amendment Approval Request Form'

<http://ethics.grad.ucl.ac.uk/responsibilities.php>

### **Adverse Event Reporting – Serious and Non-Serious**

It is your responsibility to report to the Committee any unanticipated problems or adverse events involving risks to participants or others. The Ethics Committee should be notified of all serious adverse events via the Ethics Committee Administrator ([ethics@ucl.ac.uk](mailto:ethics@ucl.ac.uk)) immediately the incident occurs. Where the adverse incident is unexpected and serious, the Joint Chairs will decide whether the study should be terminated pending the opinion of an independent expert. For non-serious adverse events the Joint Chairs of the Ethics Committee should again be notified via the Ethics Committee Administrator within ten days of the incident occurring and provide a full written report that should include any amendments to the participant information sheet and study protocol. The Joint Chairs will confirm that the incident is non-serious and report to the Committee at the next meeting. The final view of the Committee will be communicated to you.

### **Final Report**

At the end of the data collection element of your research we ask that you submit a very brief report (1-2 paragraphs will suffice) which includes in particular issues relating to the ethical implications of the research i.e. issues obtaining consent, participants withdrawing from the research, confidentiality, protection of participants from physical and mental harm etc.



In addition, please:

- ensure that you follow all relevant guidance as laid out in UCL's Code of Conduct for Research: <http://www.ucl.ac.uk/srs/governance-and-committees/resgov/code-of-conduct-research>
- note that you are required to adhere to all research data/records management and storage procedures agreed as part of your application. This will be expected even after completion of the study.

With best wishes for the research.

Yours sincerely



**Dr Lynn Ang**  
**Joint Chair, UCL Research Ethics Committee**

Cc: Andrew Davies

## **Appendix E – Data protection registration email confirmation for wheelchair users and those who travel with them**

20171009 Email confirm - Z6364106 2017 10 25 - 10337/002



Crouch, Spenser on behalf of Finance.Data Protection  
Mon 09/10/2017, 10:27  
Davies, Andrew ✉

👤 Reply all | ▾

PHD



✉ Show all 4 attachments (587 KB) Download all Save all to OneDrive - University College London

Dear Andrew Davies

Thank you for the application for Data Protection Registration.

Apologies for the delayed response.

I am pleased to confirm that this project is covered by the UCL Data Protection Registration, reference No Z6364106/2017/10/25 social research.

## **Appendix F – Data protection registration email confirmation for cabin crew**

20170217 Email confirm Z6364106 2017 02 54



Crouch, Spenser on behalf of Finance.Data Protection  
Fri 17/02, 10:08  
Davies, Andrew

Reply all |

PHD



Show all 3 attachments (477 KB) Download all Save all to OneDrive - University College London

Dear Andrew Davies

Thank you for the application for Data Protection Registration.

I am pleased to confirm that this project is covered by the UCL Data Protection Registration, reference No Z6364106/2017/02/54 social research.

## **Appendix G – Data protection registration email confirmation for special assistance staff**

20171009 Email conditional confirm Z6364106 2017 10 30



Crouch, Spenser on behalf of Finance.Data Protection  
Mon 09/10/2017, 14:45  
Davies, Andrew

👍 🔄 Reply all | ▾

PHD



The Experiences of Spec...  
421 KB

Download Save to OneDrive - University College London

Dear Andrew Davies

Thank you for the application for Data Protection Registration.

Please note that because this project overlaps with the time when the [General Data Protection Regulation](#) comes into force, we are issuing a **conditional** data protection registration number on the basis that the documentation complies with the Data Protection Act, but that further steps will need to be taken in order to comply with the new Regulation, which comes into force on 25 May 2018.

UCL is planning to issue a new template Participant Information Sheet in the near future, and possibly also a revised Consent Form.

Please could you ensure that no personal information is collected from participants in relation to this project unless the new documentation is used. Such action may require a new registration review before doing so.

The conditional data protection registration number for this project is reference No Z6364106/2017/10/30 social research.

**Appendix H – Information sheet for wheelchair users and those who travel with them**

Information Sheet for

in Research Studies

You will be given a copy of this information sheet.

Title of Project: **An ergonomic study of wheelchair users and their interaction with aircraft**

This study has been approved by the UCL Research Ethics Committee (Project ID Number): **10337/002**

Name

Work Address

Contact Details 0207 679 2716

Nicola.christie@ucl.ac.uk

Andrew.Davies.15@ucl.ac.uk

We would like to invite \_\_\_\_\_ to participate in this research project.

**Details of Study:**

The aim of this research is to gather a range of experiences and opinions of wheelchair users about the different aspects of aircraft including the boarding and disembarkation of them, seating, the toilets on board and aspects associated with the flying process.

If by agreeing to participate in this study, you agree to be contacted by post, electronic mail, telephone call or text messaging services to arrange a convenient time and date to be interviewed in a telephone call or in a face to face setting.

Your details will be kept privately according to the UK Data Protection Act 1998, and anonymity will be maintained at all times including during the recording of the interview and in the written report, which you can have a copy of if you so wish.

The interview will be recorded onto two dictaphone devices (in case one fails) and transcribed by an external transcription company, PageSix and details of their services can be found at: <http://www.pagesix.co.uk>

If you have further questions or concerns about the nature of this research then you may contact the persons listed above on this information sheet.

If you decide to take part you will be given this information sheet to keep and be asked to agree to the consent form by either signing it in person, agreeing by written means via email or electronic messaging services or by verbally agreeing prior to the interview taking place.

Please discuss the information above with others if you wish or ask us if there is anything that is not clear or if you would like more information.

It is up to you to decide whether to take part or not; choosing not to take part will not disadvantage you in any way. If you do decide to take part you are still free to withdraw at any time and without giving a reason.

**All data will be collected and stored in accordance with the Data Protection Act 1998.**

**Thank you for reading this information sheet and for considering take part in this research.**

## **Appendix I – Information sheet for cabin crew**

### Information Sheet for

### in Research Studies

**You will be given a copy of this information sheet.**

Title of Project: The experiences of front line flight crew in dealing with passengers who are wheelchair users

This study has been approved by the UCL Research Ethics Committee (Project ID Number): 10337/001

Name	Nicola Christie
	Andrew Davies
Work Address	Room 209, Chadwick Building, Gower Street, London, WC1E 6BT
Contact Details	0207 679 2716
	Nicola.christie@ucl.ac.uk
	Andrew.Davies.15@ucl.ac.uk

We would like to invite \_\_\_\_\_ to participate in this research project.

#### **Details of Study:**

The aim of this research is to gather a range of experiences and opinions of front line service staff (Cabin Crew) on aircraft who serve those with disabilities who fly for any purpose.

If by agreeing to participate in this study, you agree to be contacted by post, electronic mail, telephone call or text messaging services to arrange a convenient time and to be interviewed in a telephone call or in a face to face setting.

Your details will be kept privately according to the Data Protection Act, and anonymity will be maintained at all times including in the recording of the interview and in the written report, which you can have a copy of if you so wish.

The interview will be recorded onto two dictaphone devices (in case one fails) and transcribed by an external transcription company, PageSix and details of their services can be found at: <http://www.pagesix.co.uk>

If you have further questions or concerns about the nature of this research then you may contact the persons listed above on this information sheet.

If you decide to take part you will be given this information sheet to keep and be asked to sign a consent form

Please discuss the information above with others if you wish or ask us if there is anything that is not clear or if you would like more information.

It is up to you to decide whether to take part or not; choosing not to take part will not disadvantage you in any way. If you do decide to take part you are still free to withdraw at any time and without giving a reason.

**All data will be collected and stored in accordance with the Data Protection Act 1998.**

**Thank you for reading this information sheet and for considering take part in this research.**

## **Appendix J – Information sheet for special assistance staff**

### Information Sheet for

### in Research Studies

**You will be given a copy of this information sheet.**

Title of Project: The Experiences of Special Assistance and Support Staff in helping Passengers with Reduced Mobility who travel by air

This study has been approved by the UCL Research Ethics Committee (Project ID Number): 10337/003

Name	Nicola Christie
	Andrew Davies
Work Address	Room 209, Chadwick Building, Gower Street, London, WC1E 6BT
Contact Details	0207 679 2716
	Nicola.christie@ucl.ac.uk
	Andrew.Davies.15@ucl.ac.uk

We would like to invite \_\_\_\_\_ to participate in this research project.

#### **Details of Study:**

This research will explore and collect the experiences of the special assistance staff who help passengers with reduced mobility (PRM) to discover the positive and negative elements of their jobs. This will identify the key differences between the PRM and the aeroplane crews who serve them in the air.

If by agreeing to participate in this study, you agree to be contacted by post, electronic mail, telephone call or text messaging services to arrange a convenient time and to be interviewed in a telephone call or in a face to face setting that will last around 30 minutes. The interview, if not conducted over the telephone can be arranged to take place at the UCL campus in London or at a place of your choosing providing it is wheelchair accessible.

Your details will be kept securely on my computer and/or UCLs email server which are both password protected with different passwords. Emails are also available on my phone which is protected with fingerprint recognition and a password.

Anonymity will be maintained at all times including in the recording of the interview, in the transcripts where you will simply be referred to as 'Participant A/B/C etc.') and in the case of the written report by way of a PhD thesis, which you can have a copy of if you so wish.

The interview will be recorded onto two dictaphone devices (in case one fails) and transcribed by an external transcription company, PageSix and details of their services can be found at: <http://www.pagesix.co.uk>. Pagesix are a reputable transcription firm with one of their focuses being academic transcriptions. They consider confidentiality to be of the utmost importance: "Our team of audio transcribers are entirely UK-based and they have all signed confidentiality agreements prior to starting work with us. We can provide you with a confidentiality agreement on request, or sign one you may wish to provide." I will be taking out a confidentiality agreement with them before the transcription work begins.

If you have further questions or concerns about the nature of this research then you may contact the persons listed above on this information sheet.

If you decide to take part you will be given this information sheet to keep and be asked to sign a consent form. Please discuss the information above with others if you wish or ask us if there is anything that is not clear or if you would like more information.

It is up to you to decide whether to take part or not; choosing not to take part will not disadvantage you in any way. If you do decide to take part you are still free to withdraw at any time and without giving a reason.

**All data will be collected and stored in accordance with the Data Protection Act 1998.**

**Thank you for reading this information sheet and for considering take part in this research.**



**Appendix K – Consent form for wheelchair users and those who travel with them**

**Informed Consent Form for**

**in Research Studies**

**Please complete this form after you have read the Information Sheet and/or listened to an explanation about the research.**

Title of Project: An ergonomic study of wheelchair users and their interaction with aircraft

This study has been approved by the UCL Research Ethics Committee (Project ID Number): 10337/002

Thank you for your interest in taking part in this research. Before you agree to take part, the person organising the research must explain the project to you.

If you have any questions arising from the Information Sheet or explanation already given to you, please ask the researcher before you to decide whether to join in. You will be given a copy of this Consent Form to keep and refer to at any time.

**Participant's Statement**

- I
- have read the notes written above and the Information Sheet, and understand what the study involves.
  - understand that if I decide at any time that I no longer wish to take part in this project, I can notify the researchers involved and withdraw immediately.
  - consent to the processing of my personal information for the purposes of this research study.
  - understand that such information will be treated as strictly confidential and handled in accordance with the provisions of the Data Protection Act 1998.
  - agree that the research project named above has been explained to me to my satisfaction and I agree to take part in this study.
  - Agree that my data, after it has been fully anonymised, can be shared with other researchers *[to satisfy Research Council funded projects as Research Councils have changed their guidance regarding data sharing]*
  - I understand that my participation will be taped/video recorded and I consent to use of this material as part of the project.
  - I understand that the information I have submitted will be published as a report and I will be sent a copy. Confidentiality and anonymity will be maintained and it will not be possible to identify me from any publications.
  -

Signed:

Date:

## **Appendix L – Consent form for cabin crew**

### Informed Consent Form for

### in Research Studies

**Please complete this form after you have read the Information Sheet and/or listened to an explanation about the research.**

Title of Project: The experiences of front line flight crew in dealing with passengers who are wheelchair users

This study has been approved by the UCL Research Ethics Committee (Project ID Number): 10337/001

Thank you for your interest in taking part in this research. Before you agree to take part, the person organising the research must explain the project to you.

If you have any questions arising from the Information Sheet or explanation already given to you, please ask the researcher before you to decide whether to join in. You will be given a copy of this Consent Form to keep and refer to at any time.

#### **Participant's Statement**

- I
- have read the notes written above and the Information Sheet, and understand what the study involves.
  - understand that if I decide at any time that I no longer wish to take part in this project, I can notify the researchers involved and withdraw immediately.
  - consent to the processing of my personal information for the purposes of this research study.
  - understand that such information will be treated as strictly confidential and handled in accordance with the provisions of the Data Protection Act 1998.
  - agree that the research project named above has been explained to me to my satisfaction and I agree to take part in this study.
  - Agree that my data, after it has been fully anonymised, can be shared with other researchers *[to satisfy Research Council funded projects as Research Councils have changed their guidance regarding data sharing]*
  - I understand that my participation will be taped/video recorded and I consent to use of this material as part of the project.
  - I understand that the information I have submitted will be published as a report and I will be sent a copy. Confidentiality and anonymity will be maintained and it will not be possible to identify me from any publications.

Signed:

Date:

## **Appendix M – Consent form for special assistance staff**

### Informed Consent Form for

### in Research Studies

**Please complete this form after you have read the Information Sheet and/or listened to an explanation about the research.**

Title of Project: The Experiences of Special Assistance and Support Staff in helping Passengers with Reduced Mobility who travel by air

This study has been approved by the UCL Research Ethics Committee (Project ID Number): 10337/003

Thank you for your interest in taking part in this research. Before you agree to take part, the person organising the research must explain the project to you.

If you have any questions arising from the Information Sheet or explanation already given to you, please ask the researcher before you to decide whether to join in. You will be given a copy of this Consent Form to keep and refer to at any time.

#### **Participant's Statement**

- I
- have read the notes written above and the Information Sheet, and understand what the study involves.
  - understand that if I decide at any time that I no longer wish to take part in this project, I can notify the researchers involved and withdraw immediately.
  - consent to the processing of my personal information for the purposes of this research study.
  - understand that such information will be treated as strictly confidential and handled in accordance with the provisions of the Data Protection Act 1998.
  - agree that the research project named above has been explained to me to my satisfaction and I agree to take part in this study.
  - Agree that my data, after it has been fully anonymised, can be shared with other researchers *[to satisfy Research Council funded projects as Research Councils have changed their guidance regarding data sharing]*
  - I understand that my participation will be taped/video recorded and I consent to use of this material as part of the project.
  - I understand that the information I have submitted will be published as a report and I will be sent a copy. Confidentiality and anonymity will be maintained and it will not be possible to identify me from any publications.

Signed:

Date:

**Appendix N – Twitter advertisement to recruit wheelchair users and those who travel with them**



**Andy Davies**

@andydavies87



Research time!

Wheelchair users, parents of & carers!

I'd like to hear about your experiences & opinions about the flying process! E.g. boarding/disembarkation, seating, toilets etc.

PM or email me  
(andrew.davies.15@ucl.ac.uk if you'd like to take part!

5:07 AM - 24 Jan 2018

34 Retweets 18 Likes



13

34

18



**Appendix O – A revised and answered topic guide from a participant who was unable to respond verbally**

**INDIVIDUAL CHARACTERISTICS**

Wheelchair user/parent of/family member of/carer of **Wheelchair User**.  
Age **54**.  
Gender **Male**.  
Occupation **Retired**.  
Illness/Ailment/Disability **Motor Neurone Disease**.  
How long have you had your disability? **2005**.  
What mobility aids do you use? **Confined to wheelchair, so use a hoist to get from wheelchair to bed and riser recliner armchair**.  
If yes, please can you describe them?  
electric or manual wheelchair? **Electric wheelchair which is an Invacare TDX-SP HD**.  
Do you have a personal assistant? **My wife does all my caring**.  
Short or long haul flying? **We have done both short and long haul flights**.  
Business or pleasure? **Pleasure**.

**PROCEDURES BEFORE FLYING**

Are you aware of how much notice you need to give before flying and who to tell? **Yes I know you have to give a minimum of 48 hours' notice and to inform the airport's PRM teams. On booking any flight we go to the airlines special assistance to book in my needs as I'm a WCHC**.

Do you know what your rights are when flying? **Yes I am certain I do**.

How do you feel in the build-up to a flight? **Because I am a WCHC when I'm put in the seat at the departure airport and can't move until reaching the destination there's a lot of planning needs to go into the trip because of no access to the toilet on board the flight**.

How does preparing your luggage if you take extra related to your disability for flying make you feel? **This is just part of our life now like all other decisions that comes with being disabled**.

Which of the following do you feel describes you best? **WCHC**

WCHR (Wheelchair Ramp): Passenger who can walk up and down stairs and move about in an aircraft cabin, but requires a wheelchair or other means for movements between the aircraft and the terminal, in the terminal and between arrival and departure points on the city side of the terminal.

WCHS (Wheelchair Stairs): Passenger who cannot walk up or down stairs, but who can move about in an aircraft cabin and requires a wheelchair to move between the aircraft, in the terminal and between arrival and departure points on the city side of the terminal.

WCHC (Wheelchair Complete): Passenger who is completely immobile who can move about only with the help of a wheelchair or any other means and who requires assistance at all times from arrival at the airport to seating in the aircraft, or if

necessary, in a special seat fitted to his/her specific needs the process being inverted at arrival.

## AT THE AIRPORT BEFORE BOARDING

How do you get to the airport? **We live that close to the airport we can walk or get the local bus.**

- Public or private transport
- Type of parking, long haul or short

Do you use airport vehicles? **Yes.**

If so, are they accessible? **The ambi lift is used by the PRM teams to take us to the aircraft door.**

What are your experiences of checking in? **Overall very good.**

Do you use the special assistance queue or the first class/priority boarding desk? **We normally use the special assistance queue.**

What are your experiences of going through security? **Normally good the only time you get trouble is with the wheelchair toolkit. We now have that covered and take it out off the bag and leave it visible for security to see.**

After going through security, do you use the following? **Yes**

- Special Assistance Desk/Area **Yes**
- Restaurants **Yes sometimes but only to drink as I fast for the day before we fly and on the day of the flight.**
- Shops **Yes**
- Toilets **Yes but only to empty leg bag.**

Describe your experiences of getting to the gate. **Yes that is fine as we get taken to the gate by the PRM team.**

Distances or inefficient routes involving lifts **This doesn't matter to me because I'm in my wheelchair it's only when the lifts are small that you get a problem.**

How does this part of the journey make you feel? **I am going on holidays so all is good.**

To what extent do you feel you need the help of special assistance in the airport? **I don't fly to any airport now unless they got the Eagle Lifter so the only assistance we need is at the gate/ambilift to put the sling on me and attach me to the Eagle Lifter to be put into my seat from the wheelchair.**

## THE PLANE

Thinking about boarding the plane, can you describe your experiences of boarding the plane. **Because I don't fly to airports without an Eagle Lifter there is no manual handling lifting for me. That is what put me off flying when my condition deteriorated and my speech went and I couldn't tell the PRM teams they were hurting me.**

What do you think about the equipment used in transporting wheelchair users to their seats? **Eagle Lifter is the only way for me.**

- Aisle trolley/Eagle lifter

Thinking about seating, can you describe the seats in terms of

- Quality
- Comfort

- Suitability I always use my wheelchair cushion under me before I am put into the aircraft seat then you put up with the backrest it will be never as good as the wheelchair seat until wheelchairs can be taken on-board the aircraft.

Do you think a premium economy/business class seat could offer a wheelchair user a better situation? I don't know this as we always travel economy.

Can you describe your experiences of going to the toilet on the aircraft? When I was able to use them it was a struggle because I'm 1.88m.

- If not, what coping mechanisms do you use to ensure that you don't have to go? The day of the flight and the day before I don't eat anything and I take two imodium instant the day of the flight. Because I wear a leg bag I drink a lot to take the hunger off.

How does being on board the plane and flying make you feel? I like flying.

Thinking about your interaction and communication with the staff, can describe your experiences of this? My wife is always with me so she can still understand me if I need to speak to the staff.

- Ground staff/cabin crew/pilots
- Language barriers abroad We have always been able to manage.

## LEAVING AND WHEELCHAIR ISSUES

Thinking about landing, have you ever struggled in terms of balance on landing or suffered an injury from it? No.

- Seat ejection
- Hitting face going forward when plane brakes (whiplash?) No.

In general, wheelchair users are the last to leave the aircraft. Can you describe your experiences of this?

- Waiting Times We have been left on the aircraft up to an hour because of the lack of staff for that night.
- Equipment, such as stairs/scissor lifts etc. Waiting on the ambilift.

Have you ever had any issues with your wheelchair coming back to the aircraft door?

- Broken Yes.
- Gone to baggage hall No.
- Missing No.

Can you describe your experiences of going from the plane to passport control/immigration and your experiences there? This is normally ok for us we don't have any issues.

- Special queue
- Speed
- Problems abroad

Thinking about collecting your baggage, can you describe this process? We don't have any issues with this either.

Overall, how does this part of flying make you feel? I have always enjoyed flying and although flying can be challenging with a disability I don't let it bother me.

## FINALLY

What would you recommend to the aviation industry to improve the transit of passengers with wheelchairs? **By now the CAA must be sick of hearing from me as they need to understand that they should make it a recommendation that all UK airports use Eagle Lifters to give people a choice over manual handling. That way the airlines could ask the destination airports to have the Eagle Lifter too.**

Do you know what is meant by the term “purple pound”? **No I didn’t but got this from Google. “The grey **pound** refers to the disposable income of older people, the purchasing habits of the gay/LGBT community are known as the pink **pound**. Now the potential spending power of disabled people is being referred to as the **purple pound**.”**

An alternative to having to sit in an aeroplane seat is for wheelchair users to be able to use their own wheelchairs. How do you feel about this concept and do you think it would encourage wheelchair users to fly more? **Definitely it would encourage wheelchair users to fly and you would never have the worry about is my wheelchair going to be in the one piece when I get it.**

We have covered a lot of issues but is there anything else you would like to comment on or add? Or do you have any questions? **I think you covered it very well, thanks.**

Thank you



**Appendix P – A full list of themes and sub-themes for wheelchair user participants**

<b>THEME</b>	<b>SUB THEME 1</b>	<b>SUB THEME 2</b>	<b>SUB THEME 3</b>
Notice	48 hours		
	Don't know		
	As long as possible		
	At time of booking		
Who do you tell before flying	Airport		
	Airline		
	Travel Agent		
	Other		
Rights about flying	Yes		
	No		
	Some		
Feelings before flying	Positive	Excited	
		Experienced	
	Negative	Anxious	
		Nervous	
		Stressed	
		Apprehensive	
Luggage	Additional		
	Moving	from the carpark	
		from the baggage hall	
	Planning		
Airline Code	WCHC		
Travelling to and from the airport	Parking/Driving	Long haul	
		Short haul	
		Valet	
		Space Size	
		Price	
	Drop Off	Taxi	
		Car	
	Bus		
	Adapted vehicles		
Checking in	Queue	Fast track	
		Mental Stress	
	Counter	Regular	
		Special Assistance	

		First Class	
	Staff		
	No problems		
Security	Feelings	Positive	Experienced
		Negative	
	Queuing	Fast track	
		stuck in them	
	Separation		
	Medication		
	Lack of checking WC		
	Doctors letters		
	Staff		
	Scanning		
Airport Facilities	Special Assistance Desk	Yes	
		No	
	Shops		
	Restaurants	Access	
		Crowds	
		High Tables	
	Toilets	Suitable	
		Unsuitable	Space
		Changing Places	
		Gender Issues	
	Airport buggy		
Getting to the Gate	Distance		
	Exertion		
	Gradients		
	No problems		
	Escorted	Yes	
		No	
Immigration	Fast tracking		
	Counter height		
	Finger prints		
	Visa Issues		
Baggage Hall	Others do it	Family/friends	
		Porters	
		Strangers	
	Last to collect		
Feelings of being at the Airport	Positive		
	Negative		

	Independence		
Boarding the Aircraft	Process	First	
		Last	
	Manual Handling	Lifting issues	
		Passenger size	
		Parents/friends doing it	
	Method of Entry	Jetway	
		Stairs	
		Ambulift	Using
			Family separation
	Seat location	Bulkhead	
		down the aisle	being touched
			staring
		Near the toilet	
		Back	
		Middle	
		Front	
		Choosing your seat	
Equipment	Aisle trolley		
	Eagle Hoist		
	Broken/Inadequate		
	Missing/not there		
Seating	Position	Window	
		Middle	
		Aisle	
	Comfort		
	Business Class	Space	More
			Too big for kids
		Postural adjustment	
		Expense	
		Upgrade	
	Armrests		
	Care Access		
	Specialist seating		
	Controller for tv		
Toilets	Access	Yes	
		Impossible	
	Space	Door width	
		Inside the cubicle	

	Hidden from view	Floor	
		Galley curtain	
	Coping Mechanisms	Drugs	
		Catheter	
		Nappies	
		Dehydration/Starvation	
		Bowel routine	
		None	
Landing	Balance		
	Injury	WCU	
		Carer	
	Restraining the WCU		
Disembarking	Process		
	Waiting		
	Repatriation	Door	
		Baggage Hall	
Wheelchair	Separation	From	
		Returning	
	Damage		
	Neglect		
	Expense		
	Loss		
	Other		
Feelings of being on the Aircraft	Positive	Excited	
		Calm/Relaxed	
	Negative	Anxious	
		Nervous	
		Stressed	
		Apprehensive	
		Undignified	
		Embarrassed	
	Neutral		
How helpful are the staff	Communication		
	Lack of information		
	Poorly Prepared		
	Inappropriate behaviour		
	Helpfulness		
	Lack of Understanding		
Recommendations	Staff Training		

	Communication		
	Consulting PwD		
	WC as seat		
	Disabled toilet on aircraft		
	Equipment	More	
		Better	
	Space		
	Process Refinement		
	More staff		
	Awards		
Purple Pound	Yes		
	No		
Wheelchair as Seat	Yes		
	No		
	Mixed		
Other Issues	Prefer to drive		

**Appendix Q – A full list of themes and sub-themes for people who travel with wheelchair users’ participants**

<b>THEME</b>	<b>SUB THEME 1</b>	<b>SUB THEME 2</b>	<b>SUB THEME 3</b>
Notice	48 hours		
	Don't know		
	As long as possible		
	At time of booking		
Who do you tell before flying	Airport		
	Airline		
	Travel Agent		
	Other		
Rights about flying	Yes		
	No		
	Some		
Feelings before flying	Positive	Excited	
		Experienced	
	Negative	Anxious	
		Nervous	
		Stressed	
		Apprehensive	
		Fearful	
Luggage	Additional		
	Moving	from the carpark etc	
		from the baggage hall	
	Planning		
	Splitting		
Airline Code	WCHC		
Travelling to and from the airport	Parking/Driving	Long haul	
		Short haul	
		Valet	
		Space Size	
		Price	
	Drop Off	Taxi	
		Car	
	Bus		
	Train		
	Adapted vehicles		

Checking in	Queue	Fast track	
		Mental Stress	
	Counter	Regular	
		Special Assistance	
		First Class	
	Staff		
	No problems		
Security	Feelings	Positive	Experienced
		Negative	Anxious
			Stressed
	Queuing	Fast track	
	Separation		
	Medication		
	Lack of checking WC		
	Doctors letters		
	Staff		
	Scanning		
Airport Facilities	Special Assistance Desk		
	Shops		
	Restaurants	Access	
		Crowds	
		High Tables	
	Toilets	Suitable	
		Unsuitable	Hygiene
			Space
		Changing Places	
		Gender Issues	
	Airport buggy		
Getting to the Gate	Distance		
	Exertion		
	menopause		
	Gradients		
	No problems		
	Escorted		
Immigration	Fast tracking		
	Finger prints		
Baggage Hall	Others do it	Family/friends	
		Porters	
	Last to collect		
Feelings of being at the Airport	Positive		

	Negative		
Boarding the Aircraft	Process	First	
		Last	
	Manual Handling	Lifting issues	
		Passenger size	
		Parents/friends doing it	
	Method of Entry	Jetway	
		Ambulift	Using
			Family separation
	Seat location	Bulkhead	
		down the aisle	being touched
			staring
		Near the toilet	
		Near an exit	
		Back	
		Middle	
		Front	
		Choosing your seat	
Equipment	Aisle trolley		
	Eagle Hoist		
	Broken/Inadequate		
Seating	Position	Window	
		Middle	
		Aisle	
	Comfort		
	Business Class	Space	More
			Too big for kids
		Postural adjustment	
		Expense	
	Armrests		
	Care Access		
	Specialist seating		
Toilets	Access	Yes	
		Impossible	
	Space	Inside the cubicle	
	Hidden from view	Floor	
		Seat	
		Galley curtain	
	Coping Mechanisms	Drugs	



		Catheter	
		Nappies	
		Dehydration/Starvation	
		Bowel routine	
		None	
Landing	Balance		
	Injury	WCU	
		Carer	
	Restraining the WCU		
Disembarking	Process		
	Waiting		
	Repatriation	Door	
		Baggage Hall	
Wheelchair	Separation	From	
		Returning	
	Damage		
	Neglect		
	Expense		
	Loss		
	Other		
Feelings of being on the Aircraft	Positive	Excited	
		Experienced	
		Calm/Relaxed	
	Negative	Anxious	
		Stressed	
		Apprehensive	
		Undignified	
		Embarrassed	
How helpful are the staff	Communication		
	Lack of information		
	Inadequate Numbers		
	Poorly Prepared		
	Inappropriate behaviour		
	Helpfulness		
	Lack of Understanding		
	Could do better		
Recommendations	Staff Training		
	Communication		

	Consulting PwD		
	WC as seat		
	Disabled toilet on aircraft		
	Equipment	More	
		Better	
	Space		
	Process Refinement		
Purple Pound	Yes		
	No		
Wheelchair as Seat	Yes		
	Mixed		

***Appendix R – A full list of themes and sub-themes for cabin crew participants***

<b>Theme</b>	<b>SUB THEME 1</b>	<b>SUB THEME 2</b>
Policies & Training	Policy Awareness	
	Yearly Exams	
	Honesty is the Best Policy	
	Governing Bodies and the Law	
	Wheelchair Passenger Training	
	Inadequate Wheelchair Training	
	The Ground Crew	
	IATA Code Descriptions	
	Views on Wheelchair Training	Positive
		Negative
	Top up Training	
	Personal Knowledge and Comfort Helping Wheelchair Users	Yes
		No
	Preflight	Flight Manifest
Management Have More Information		
IATA Codes II		
Time		
If Passengers with Disabilities Could Give as Much Information as Possible		
Greeting Passengers with Disabilities at the Aircraft Door		
Ground Staff Interaction at the Door		
Distance		
Boarding The Flight	Wheelchair Users Know Best	
	Opinions on Ground Staff	Positive Views
		Negative Views
	Passengers with Disabilities Boarding First	
	Passengers with Disabilities NOT Boarding First	With Experience
		No Experience
	Seating Position	
	Narrow Aisles	
	Pain and Discomfort	They Do
		They Do Not
	Embarrassment and Humiliation	They Do
		They Do Not
	Staff Embarrassment	

	Equipment	Good Equipment
		Bad Equipment
		No Equipment
	Manual Handling	
	Overweight Passengers	
	Injury Concern	
	Destination Unknown	
	Wheelchair Users Bending the Truth	
	Are Wheelchair Users Needs Met?	A Job Well Done
		Room for Improvement
	Staff want to Help	
	Evacuation	
	Disability Depending	
	Connecting Flights	
In Flight	On Board Wheelchair	
	Arm Rests	
	Short Haul vs Long Haul	
	Space	
	The Toilet	Physical Access
		Methods to Maintain Dignity
		Cabin Crew Will Not Aid in the Bathroom
		Other Toileting Comments
	Safety Procedures	Safety Procedures – No Specifics
		Safety Procedures – Wheelchair Users
		Safety Procedures – Visually Impaired
		Safety Procedures – Deaf
	Helping with Food and Drink	
	Special Assistants Must Travel With Those Who Can Not Evacuate Themselves	
	Communication and Eye Contact	
	Upper Class Seating	
Landing And Disembarkation	Staying Until the End	
	Disembarkation	
	The Waiting Game	
	Longest Waiting Times	
	Staff Shortages	Shortage

		Enough Staff
	Family Separation	
	Equipment Shortages	
	No Injuries Whilst Landing	
	Equipment Repatriation	
	Wheelchair Issues	Broken/Lost Wheelchairs
		Damaged Wheelchairs
		Misplaced Wheelchairs and Equipment
		No Damage or Losses
	Staff/PRM Embarrassment	
	Misuse of Resources	
	The Conveyor Belt of PRM	
	Incorrect Procedures	
	Destination Differences	
Industry Recommendations	More Cabin Space	
	Using the Space Effectively	
	More Equipment	
	Streamlining the Process	
	Helping Overweight Passengers	
	Seating – Position, Bigger and More Legroom	
	More Training	
	Responsibility Confusion	
	Leaving Wheelchair Users at the Top of the Jetway	
	More Staff Required	
	Improvements to the Disembarkation Process	
	Better Equipment	
	Elderly Ground Staff	
	Communication	
	Staff discretion	

**Appendix S – A full list of themes and sub-themes for special assistance staff participants**

Category	Theme	Sub Theme 1	Sub Theme 2
Policies & Training	Equality		
	Lack Of Understanding		
	Luggage Issues		
	Awareness		
	Misuse Of Service		
	Training	Induction	
		Manual Handling	
		Equipment Training	
		Hidden Disabilities	
		Dignity & Care	
		Vehicle Training	
		Fire Training	
		Update Training	
		Views On Training	Positive
			Negative
		No Training	
		On The Job Training	
	Airline Responsibility		
	Management Priority		
	Feelings On Helping People		
	Feelings On Other Staff		
Job Assignment	Allocation		
	Airclick Device		
	Busy Periods		
	Host Roles		
	Prm Differences		
	Iata Codes	Romeo	
		Sierra	
		Charlie	
	Shifts		
	Information		
	Misinformation		
	Would You Want More Info?	Yes	
		No	

		Some	
	Disability Differences		
	Teamwork		
	Early/Late Timings		
	Short/Long Haul		
	Connecting Flights		
	Communication With Other Departments		
	Would You Want More Communication?		
	Communication With Wcu		
	Airline Vs Airport		
	Timings/Sla		
	Adhoc Passengers		
	Staff Jobs Per Day		
Around The Airport	Starting Points	Trains	
		Car Parks	
		Help Points	
	Airport Vehicles	The Buggy	
		Other Vehicles	
		Not Always Accessible	
	Checking In	Special Desk	
		Special Queue	
		Process	
		Info	
	Security	Special Queue	
		No Special Queue	
		Lost Man Hours	
		What Assistance Can An Agent Provide?	
		Security Staff	
		Liquids	
		Other	
		Process	
		Doctor Note	
	Airport Design/Accessibility		
	Special Assistant Areas		
	Disabled Toilets		
	Going To The Gate		
	Distances	Problem	

		No Problem	
	Slopes & Gradients		
	Physical Exertion	Yes	
		No	
		Injury	
	Immigration		
		Medical Lane	Separate
			Not Separate
			Queues From Lots Of Passengers
			Only One Desk
			Long Waiting Times
		Communication	Passport Preparation
			Landing Cards
			Language Barriers
		Fingerprint Scanners Not Working	
		Poor Airport Staff To Passenger Ratio	
	Baggage Claim		
		Porter Team	
		Lost/Broken Baggage	
		Helping To The Outside	
		Wheelchair In The Baggage Hall	
		Helping With Baggage	
		Lots Of Baggage	
		Pushing Wcu And Baggage At The Sametime	
		Help From Families	
		Lack Of Porters	
		No Buggy In The Baggage Hall	
		Caddie	
	Leaving The Airport		
The Plane	Boarding	Priority	
		Going Last	
		Refuelling	
		Passenger Feelings	
		Staff Feeling	
		Manual Handling	Process



			Injury Concern
		Heavy Passengers	
		Process	
	Equipment	Sling	
		Aisle Trolley	
		Staxi	
		Eagle Hoist	
	Seating	Where On The Plane	
		Which Row?	
		Asking People To Move	
		Window Vs Aisle	
		Business Or Economy	
		Armrests	
	Toilets		
	Space		
	Jetway Vs Highlift		
	Communication		
	Disembarking The Plane		
	Are Customers Needs Met?		
Wheelchair Issues	Responsibility		
	Repatriation	Issues	
		Pointing The Finger	
	Damage To Wheelchairs		
	The Baggage Hall		
	Wheelchair Differences	Electric Vs Manual	
		Manual Costs	
		Electric Costs	
	Wheelchair Separation		
	Waiting Times		
Flying In A Wheelchair	Yes	Yes	
		Comfort	
		Convenience	Wcu
			Staff
		Independence Of Wcu	
		Fear Removal	
	Yes But	H&S	
		Airlines Wont Let It	
		Lots Of Wcu	
	No		

Recommendations	Communication		
	Security Lane		
	Upgrades		
	More Staff		
	Getting The Right Information		
	More Equipment		
	Training		
	Too Many Handovers		
	Management Change		
	Buggy In The Immigration/Baggage Area		
	Staff Allocation		
	Legislation		
	Passenger Education		
	Isolated Special Assistance Lounge		
	Open More Special Assistance Lanes		
	Electric Wheelchairs		
	Staff Positivity		
	Quicker Baggage		

## **Appendix T – A highlighted transcript from a participant**

[0:00:00]

Interviewer: So, we'll start with some individual characteristics about yourself, so are you a wheelchair user, the family member of a wheelchair user, the parent of a wheelchair user?

Respondent: I'm a wheelchair user.

Interviewer: How old are you?

Respondent: 46.

Interviewer: And, your gender?

Respondent: Female.

Interviewer: Occupation.

Respondent: Psychologist.

Interviewer: And, what illness, ailment or disability do you have?

Respondent: A spinal cord tumour called an astrocytoma.

Interviewer: And, how long have you had your disability for?

Respondent: That's a difficult question because it took quite a long time to diagnose, so I would say about 16 years, but I haven't been a chair user for 16 years so it was gradual onset.

Interviewer: And, how long have you been a chair user for then?

Respondent: Ten years.

Interviewer: Okay, and what mobility – well, you use a wheelchair; is it an electric wheelchair or is it a manual wheelchair?

Respondent: No, it's a manual one.

Interviewer: Do you have any Personal Assistants?

Respondent: Well I say "no" but my husband and kids fill in the gaps.

Interviewer: So, they would do a mixture of basic household chores but nothing -?

Respondent: I make them run around a lot for me and, "Put the washing down, do this, do that and go and make me a cup of tea" but most of the stuff I do by myself, yes.

Interviewer: So, they wouldn't aid you in any say bathroom care?

Respondent: No.

Interviewer: When you fly, do you fly short-haul or long-haul or both?

Respondent: I have done both.

Interviewer: And, do you fly mainly for business or pleasure?

Respondent: Pleasure.

Interviewer: We'll talk about the procedures before flying. Are you aware of how much notice you need to give before flying and who to tell?

Respondent: That's a good question – I'm not aware formally, no, we've always just done it when we've booked the holiday.

[0:01:55]

Interviewer: So, you would tell the holiday company directly or your travel agent?

Respondent: Yes, or the airport, we'd Google it to be honest and phone up. I think – and before, we'd book quite well in advance, at least a couple of months, so we'd phone up and book that then.

Interviewer: So, you generally book a holiday two to three months before flying – before going and then tell them then.

Respondent: Yes.

Interviewer: Do you know what your rights are when flying?

Respondent: No.

Interviewer: So, in the – let's say in the week to two weeks before you fly, how do you feel in the build-up to a flight?

Respondent: I think anxious is the key one; do you want me to elaborate on that or -?

Interviewer: Yes, if you like.

Respondent: Yes, so a number of anxieties really, so there's the whole practical stuff about things like I suppose just the parking, getting there and the distance to the airport itself. I think the big anxiety is being separated from your wheelchair when you're on board the flight, because I don't walk at all and so my wheels are my legs and the whole thing about having to get in to an aisle chair and then seeing my wheelchair go is – that's a huge anxiety.

Interviewer: And, how does preparing for flying make you feel in terms of – would you need to pack any additional items due to your disability -?

Respondent: Yes, so – things that we'll need on holiday you mean?

Interviewer: Yes, extra luggage or commodes or spare wheelchairs?

Respondent: Yes, so things like sliding boards because you never quite know when you get to a place, whether there's going to be a height differential between the sofa(?) and the chair, things like – we've got a manual handling belt so that again, if I need any assistance, my husband can yank me around. We try to take my – I've got a sports wheelchair, we tried to take that once but we weren't able to, but that was more to do with fitting it in the taxi. I'm trying to think – is there anything else special that we take? We always take along things like wheelchair repair kits, pumps and bits and bobs, spare cushions, cushion covers, that sort of thing.

Interviewer: So, it would be fair to say that you would take a much larger amount of luggage with you than the average Joe, say?

Respondent: Yes, there's just the extra things you need and I wouldn't say it's substantial, but it's some, yes.

Interviewer: The International Air Travel Association divide wheelchair users in to three different groups when you're booking – I don't know if you knew that?

Respondent: No.

[0:05:00]

Interviewer: So, I'm going to read out the three statements and can you just tell me which one you feel suits you the best?

Respondent: Yes.

Interviewer: The first one is, "A passenger who can walk up and down stairs and move around in the aircraft cabin but requires a wheelchair or other means for movements around the airport and terminal". Statement two, "Passenger who cannot walk up and down the stairs but who can move around in the aircraft cabin and requires a wheelchair to move around the airport and terminal". Statement number three, "Passenger who is completely immobile, who can only move around with the help of a wheelchair or other means and requires assistance at all times around the airport and terminal"?

Respondent: Yes, that's difficult, isn't it? Because I'd say I'm three because I can't walk at all but I find it a little bit offensive that they say I need assistance at all times because I would fly by myself and I would – I don't need assistance at all times but I suppose that's how they categorise you, I suppose I must be a three. That makes it sound like you're completely dependent on other people.

Interviewer: Yes, if I'm very honest, I changed their wording slightly to make it more – a) more palatable for me to read and b) there's a few more lines to it that makes it – it's a bit messy, does that make sense?

Respondent: Yes, absolutely.

Interviewer: What's it called – ad-libbing?

Respondent: Yes, yes.

Interviewer: But, no that would be – if you can't walk at all, that's the one they would categorise you as. But yes, I do see what you mean about the, "Requires assistance at all times" but...

Respondent: Yes, but I certainly – I can't walk so I can't get up the steps or around the aircraft or anything like that.

Interviewer: Yes, it means that you'd need help in an evacuation I think is the polite way of what they're trying to say.

Respondent: Yes.

Interviewer: Okay, so we'll talk about the day of the flight now and this is before boarding the plane, so if you've got anything to say about that, save it for the – for that bit. So, how do you get to the airport?

Respondent: I would drive or my husband would drive.

Interviewer: When you drive to the airport, do you park in the short-haul parking, long-haul parking or do you use the valet?

Respondent: What have we done? We've used the long-haul parking before and actually the other thing we've done is get a taxi because we don't live too far away from Heathrow – sorry, I should have said that – yes, we'd either get a taxi or we'd park in the long-haul if we were going away for a week or something.

Interviewer: And, how do you find the long-haul car parking spaces? I'm assuming you use a Blue Badge and use the disabled bays?

Respondent: I do, yes. In fact, I think what we did when we did that was my husband dropped me off at the airport and then he went and parked the car because it was quite a distance away and I wasn't sure about the buses, whether they'd be accessible and things like that, so I think he dropped me off in the – just in the drop-off zone and he went and sorted the car out.

[0:08:13]

Interviewer: Okay, so in terms of the – we'll come back to the – this would include stuff about the taxi, I would guess; how did you find the drop-off area, was it stressful or was it okay or -?

Respondent: No, I found that alright – busy but alright.

Interviewer: And, you didn't use any airport vehicles because you weren't sure they were accessible?

Respondent: No.

Interviewer: So, did you take your luggage – did your husband drop your luggage off with you or did he bring it on his own?

Respondent: Yes, I think he probably dropped me and the luggage off and then I waited with the luggage and – the kids and the luggage and then he came and found us later.

Interviewer: And, do you – obviously if you could park short-haul for the same price, I'm guessing – would you or -?

Respondent: Yes, well I guess there would be an issue with the luggage then, because of – because normally you put them on the trolley, don't you? So, I couldn't wheel and take the trolley at the same time, so I don't know how I'd manage that to be honest, so no, I don't think I could do that.

Interviewer: Even though it's closer to the terminal?

Respondent: Yes, I don't see how I could possibly wheel and – yes, unless again – I don't know, perhaps the airport offers some assistance but I don't know, but no, I couldn't do that if I was on my own.

Interviewer: When you were dropped off in the drop-off zone, was it covered or was it open air?

Respondent: Again, we've done a few different airports, so I think in – UK-wise, I think it was probably covered; I can't really remember to be honest.

Interviewer: Okay, I was just thinking – did you have to get out in the rain and the -?

Respondent: Yes, I don't remember it being an issue but then I admit it wasn't raining or it was covered (laughs).

Interviewer: No worries (laughs). No, you don't use airport vehicles. What are your experiences of checking-in?

Respondent: Again, different airports, different things. So, I think sometimes I've been treated like anybody else, so wait in a big long queue and – until I get to the Check-in Desk. I think actually in other places, so I'm thinking Alicante Airport in particular, the minute I got near the Check-in Desk, someone in a high-vis jacket came and whisked me off and put me through a fast-track system.

Interviewer: And, I'm guessing your family were allowed to go with you through the fast -?

Respondent: Yes, absolutely, yes.

Interviewer: And, you've had that in England before as well, sorry just to -?

Respondent: I don't recall having that in England; I've had assistance in England but I've had to I think wait until I got to the Check-in Desk and say, "I've booked assistance" and they've said, "Fine, I'll call Assistance guy" or, "You need to go over there" or whatever, but I've had to wait until I got to the Check-in Desk.

[0:11:18]

Interviewer: Okay, but have you ever used the Special Assistance Check-in Desk?

Respondent: Have I ever used the Special Assistance Check-in Desk? I must have done, I'm – again, I can't remember doing it in this country, I must have done but I can't really remember, to be honest.

Interviewer: And, have you ever – or the First Class Desk or the Priority Desk?

Respondent: No, (laughs) no.

Interviewer: So, when you were checking in, were there any issues regarding your wheelchair like weight or did they have all the information available?

Respondent: The weight was fine; I think some of the Check-in people seemed a little bit clueless about – because they had to stick the stickers on those bits of the wheelchair and I was quite anxious because mine – it's a manual – the back folds down basically and the wheels pop off, so I wanted stickers to be on both of the wheels as well as the main frame, just in case anything got separated. So, I think if you say, "No, I need two more stickers to put on the wheels" and people just don't understand that's why you'd want to do that".

Interviewer: Okay, so your experience of the staff was mixed or negative?

Respondent: Mixed, yes; some people are really good and, again, as I said, the ones I've seen – the ones I've been to abroad in Lanzarote, Alicante, I had a really good experience with; perhaps a little bit better than the UK.

Interviewer: So, after you've checked in, what was your experience of going through the Security process?

Respondent: I think that's been fairly straightforward; once people know I've booked Special Assistance and things, I've just been whizzed through. I can't remember any bad experiences security-wise – oh, apart from one which was – because normally I use – I independently use the toilet, I don't catheterise, but I was going on a long-haul flight, so I had to have a catheter put in for the duration of the holiday because I can't use the toilets in the plane because they are not accessible. So, I had to have a catheter put in, so I was taken to a side bit where they were patting me down and things because I can't go through the metal detector thing and they were patting me down and she patted on my leg bag and said, "What's this? What's this?" and I said, "It's a leg bag" and her English wasn't great and I said, "It's to help me go to the toilet" and she said, "Can I have a look at it?" and so that wasn't a great experience.

Interviewer: How did that make you feel?

Respondent: Well, I think it slightly put me off long-haul flights now; it's certainly put me off having another catheter put in for a more exciting holiday (laughs).

Interviewer: But, otherwise they did a good job? Did you struggle with your luggage at the Security Desk? Your hand luggage or were you okay with that?

Respondent: I was okay with that, I just had a rucksack on the back of my wheelchair.

Interviewer: After passing Security, do you use any of the following around the airport? The Special Assistance Desk or Area?

Respondent: Do I use it? No, I don't think so.

Interviewer: Restaurants?

Respondent: Yes, we might go and have a burger or something, yes.

[0:15:30]

Interviewer: And, how are they in terms of accessibility?

Respondent: I think the space is quite limited, so perhaps the aisles aren't very wide and that sort of thing, but again it's just mixed, depending on the shop really.

Interviewer: Okay, so yes the shops are also the same -?

Respondent: Yes, exactly, it's just a bit mixed so I think – I remember going through a Duty Free shop and having to be a bit careful about not taking bottles out with me and things like that, so – as in not knocking them off, so things are a little bit cramped in there.

Interviewer: And, how about the disabled toilets?

Respondent: I normally find them okay actually, yes I think – yes, I normally find them okay. I think some able-bodied people use them but then again that's the same wherever you go.

Interviewer: So, you would say that a disabled toilet meets your requirements and needs?

Respondent: Yes, I haven't had a problem with disabled toilets in an airport.

Interviewer: Okay, how about your experiences of travelling to the gate of the plane, in terms of distance or inefficient routes?

Respondent: Yes, again, sometimes the distances are quite long and you have to go sometimes on the traveller at Heathrow and things, you go on the traveller which is a bit of an exciting experience (laughs), so I think particularly getting off and on, I don't know if I'm meant to do that or not, but I do, but yes, I think particularly Heathrow strikes me as one where the distance is quite long. I also think sometimes people want to force you on to those little trucks that drive you around and I'm actually quite happy to do a lot of the distance because it's nice smooth surfaces, there's very little friction, I quite like just whizzing along, getting a bit of exercise and that sort of thing and people are saying, "Oh no, we need to put you on the trolley" and, "I don't want to go on the trolley thank you, I want to just get there myself".

Interviewer: So, you would – how would you describe your level of physical exertion, going to the gate?



Respondent: On a scale of one to five or something like that?

Interviewer: Yes, does it make you tired or does it -?

Respondent: I suppose it can do, not overly tired but it's – sometimes it's a bit of a good workout.

Interviewer: And, do you struggle with inclines or declines? Some people have described the ramp somewhere as being particularly steep.

Respondent: There's nothing springing to mind that's been a problem, to be honest.

Interviewer: And, how does being in the airport in general make you feel?

Respondent: I'm not a big fan of air travel – I think even if I wasn't in a chair, I'm not the best flyer in the world, I just do it because it gets me to my holiday destination. So, it's not something that I relish, it's just a means to an end.

Interviewer: So, to what extent would you say that you need the help of the Special Assistance Teams around the airport and at which points in particular, if any?

[0:19:03]

Respondent: Yes, I don't think I need them around the airport itself; I find most airports pretty accessible and I think the point when I do need it is when you're about to board the plane.

Interviewer: Okay, so thinking about boarding the plane, can you describe your experiences of that?

Respondent: Yes, again that's been mixed. Sometimes I've been again fast-tracked, so taken on board first of all and they call for families with young children and people who need assistance and things first of all. So, sometimes that's happened, sometimes it hasn't and often you're left until last, so that you're boarding after everybody else and I've had different experiences with boarding, so sometimes, again, somewhere like Heathrow, you just wheel right up to the door of the aircraft and then transfer in to the aisle chair. Other ones, they put you on one of those forklift truck things and then raise you up in to the air and you enter the plane that way.

Interviewer: Okay, so how do you feel about the difference between boarded first and last?

Respondent: I much prefer being boarded first because otherwise you feel a bit like you're the circus entertainment. If there's a whole plane full of people and you've got to be boarded on an aisle chair and get people's legs and arms out of the way and then transfer in to your seat which you might be having some difficulty with and everyone's staring at you; it's much better to go first.

Interviewer: Would you say there's a major difference between using the jet-way which is where you walk up to the door and the scissor-lift which is the big hut on a -?

Respondent: Yes, I much prefer the jet-way. Again, the scissor-lift, it's just something else you've got to wait for, so you can only have one person with you at the time, so it's – that's just been a bit complicated because I've got a much older son and a much younger son and so, my husband has to be with my much younger son, so I've had to take my older son as my companion and so he's had to stuff for me that he wouldn't normally do for me, that my husband normally do, perhaps just give me a bit of a shove up the ramp or something like that, that it's – I try and normally avoid his experience of being my son and not to be my carer, so – but sometimes he just has to do that.

Interviewer: Okay, and just for reference, how old is your eldest son?

Respondent: He's now 17 but I think the last time he did that was probably – we went away after his GCSEs, so he was 15.

Interviewer: So, would you describe him as being physically capable of moving you?

Respondent: Yes, oh yes.

Interviewer: And, what about in the past, if he was say not as physically capable as he is?

Respondent: Yes, obviously he was 15 but then before that, he was much younger so it's putting I suppose cognitive demands on the kids, just... I think it was hard for everyone. My husband found it hard because he wasn't able to come and help me, because you can't leave say a 13 year old and an eight year old to go and look after themselves and board on the plane, but then it meant that my 13 year old then had to be my carer when he was younger, so – and he was – at that stage he was quite small and skinny, so that wasn't ideal.

Interviewer: How do you feel about the aisle trolley?

Respondent: Oh I hate it (laughs), I really hate it. I hate – the transferring on to it is fine but I'm – because I'm an independent wheelchair user, I hate people pushing me or wheeling me anyway, so to be strapped in to it and feel like you've got absolutely no control, I've had situations where the people operating it haven't been able to get down the aisle so the aisle chair has been too wide for the aisle and just – so they're slamming you against stuff, they're bumping and trying to push you through and then everyone's going, "I'm really sorry" and everyone's a bit embarrassed and you're feeling embarrassed because everyone else around you is embarrassed and you can't help and so it just makes you feel like you're a big sack of potatoes that can't do anything.

[0:24:00]

Interviewer: And, have you ever – so, you feel like you're at risk of injury in the process of being manually handled?

Respondent: I have done in particular at the time that I referred to that – when the aisle chair felt too big for the aisle and they were just bumping me in to seats and I was concerned about that, because obviously when you've got reduced sensation in your legs anyway, you don't actually know if you're being bumped or if you've got an injury or not.

Interviewer: And, have you ever suffered injury from the -?

Respondent: No, thank goodness.

Interviewer: Did they strap you in to the aisle trolley with the strap?

Respondent: Yes.

Interviewer: Were they in an okay condition or were they too tight, too small, too big?

Respondent: No, I think they were alright.

Interviewer: Have you heard about alternative measures to board the plane, such as the Eagle Lifter?

Respondent: No.

Interviewer: Thinking about seating on the aircraft, do you generally try and pick a certain seat on the aircraft or would you prefer to be at the front, the back, the middle?

Respondent: I think it would be easier to be near to the front, because then the aisle chair – you don't have so long in the aisle chair and it's easier for me if I am next to the aisle, so that whist – once I'm in my seat I could drag myself across. It's easier if I don't, it's just easier – the (inaudible 0:25:44) the better(?) really, the less transferring.

Interviewer: So, you feel like you're just randomly distributed around the plane, there's no consistency?

Respondent: Yes.

Interviewer: How do you feel in terms of the seat itself, the quality of the seat...?

Respondent: So, one thing I've come across is that because the seats next to the aisle have the little arm rest thing that tends to go up and down, it's a lot easier for me to transfer from the aisle chair in to the seat when the arm rest is up. However, I think the last time I flew, I was given the one seat where the arm rest was broken and wouldn't go up, so to transfer from the aisle seat over to the seat that I was sitting in, I had to negotiate the arm rest as well (laughs) which wasn't very easy.

Interviewer: So, you had to put in extra effort to get in to the seat.

Respondent: Yes.

Interviewer: And, is it comfortable to sit on?

Respondent: It's reasonably comfortable.

Interviewer: Do you sit on your own cushion while flying?

Respondent: No, I just sit on the seat.

[0:27:10]

Interviewer: I don't know if you've ever flown in one, but you might have seen them on TV; do you think a Premium Economy seat or a Business Class seat would offer a wheelchair user a better scenario?

Respondent: Oh, I think Business Class would be much better. I've seen them because I've been in my aisle chair and been wheeled past them as they were trying to get me down to the Economy Class and they couldn't get me down because the aisle chair was too big and I said, "That's fine, just pop me in Business Class, it'll be fine" and they just ignored me and kept running me down towards cattle class where I belonged presumably (laughs).

Interviewer: But, aside from the obvious trappings of Business Class, the seat itself -?

Respondent: Yes, they're wider, they're more comfortable, there's more leg room, so you can wiggle around a little bit more and it gives you more opportunity for moving.

Interviewer: And, I'm guessing you feel the same in terms of posture support that more adjustment on the seat -?

Respondent: Absolutely, yes.

Interviewer: And, the fact that – not always, but you can turn it in to a bed?

Respondent: Yes, just the more you can change position, the better to just cope with skin pressures and that sort of thing, so...

Interviewer: And, can you describe your experiences of going to the toilet on the aircraft?

Respondent: Never been to the toilet on an aircraft because the toilets aren't accessible.

Interviewer: Right, so this is a sensitive question; what coping mechanisms do you use to ensure that you don't have to go to the toilet?

Respondent: So, I don't drink anything for 12 hours beforehand, so I make sure I dehydrate myself so I won't need to use the toilet.

Interviewer: So, you put yourself at risk by dehydrating yourself?

Respondent: I do and then the one long-haul flight I did which was out to the Middle East, I had a catheter inserted for the holiday and that was purely to cope with the aircraft.

Interviewer: And, that was a urethral catheter?

Respondent: Yes.

Interviewer: With a leg bag attachment?

Respondent: It was, yes.

Interviewer: Did you have to empty the leg bag on the flight?

Respondent: Yes.

Interviewer: How did you do that?

Respondent: I emptied it in to a bottle and got my husband to empty it in the toilet.

Interviewer: Okay, and how did you feel about that?

Respondent: Well, it wasn't great, I put a blanket over my leg and tried to be as discreet as possible but even so, it was – (laughs) it certainly wasn't ideal and obviously my kids were sitting nearby and everything so I was just trying to keep it as private as possible from everybody.

[0:30:04]

Interviewer: Okay, and again, a more sensitive question, how do you ensure that you won't need – how do you avoid needing a number two?

Respondent: That's a very good question really; I suppose I just make sure I go before I go really, it's – yes, I just don't. I'm never that desperate for a number two.

Interviewer: So, you'd never – you would just stick to your regular bowel care management routine?

Respondent: Exactly, yes.

Interviewer: And, just go with it?

Respondent: And, just go with it, yes.

Interviewer: You wouldn't use anything like Imodium or a -?

Respondent: No, I don't think so, I think I'd have to be pretty desperate to do that, no.

Interviewer: Or an adult nappy? No.

Respondent: No, I might sometimes wear pads and things just in case there was some leakage, because much as you can dehydrate yourself, there might be a bit of a leak so yes, I would definitely wear pads if I was travelling on a plane.

Interviewer: How does being on-board the plane and flying make you feel?

Respondent: Oh, I hate it, I absolutely hate it.

Interviewer: How was your interaction and communication with the staff on board the plane, the cabin crew, the pilots and the people who help you on to the plane and the ground staff?

Respondent: I think people are generally pretty helpful, pretty efficient and I've had good experiences of the cabin crew being very pleasant to me and the pilot came out and said "hello" to me and things so yes, quite positive really.

Interviewer: And, have there been any language barriers abroad or have you managed to convey what you need?

Respondent: In the Middle East, it wasn't great, so we'll probably come on to this but in the Middle East they – when I got off – when we get on to getting off the plane, but when I got off the plane, normally I'd expect my wheelchair to be there so I could get straight from the aisle chair on to my chair, but they put me in to one of their airport chairs first of all and then my wheelchair was by the baggage where your bags come out and so I tried to convey to them that I needed my own chair to be brought up to the aeroplane and so that I could transfer from the aisle chair on to my own chair, but they weren't really having any of that (laughs).

Interviewer: In terms of the plane landing, have you ever struggled in terms of balance on landing or suffered injury from it?

Respondent: No.

Interviewer: You don't have to hold yourself against the seat in front of you to counterbalance the force of -?

Respondent: No, I've been alright actually, yes.

[0:33:15]

Interviewer: In general, wheelchair users are last to leave the aircraft; can you describe your experiences of that?

Respondent: Yes, lots of hanging around and waiting for other people to get off and then just hoping you haven't been forgotten and again, the whole thing about being separated from your family, so you might have – again being there with my son and hoping that if there's any problems he'll have the confidence to get up and go and find some assistance.

Interviewer: And, how long would you say – what's the longest you've ever had to wait?

Respondent: Quite a long time actually, maybe 25 minutes, 20 minutes, something like that, after everyone else has left.

Interviewer: After everyone else has left? So, how long would you say from – let's say when the plane gets to the gate?

Respondent: Yes, well say it takes – it probably takes 15 minutes for everyone else to get off, so maybe 40 minutes.

Interviewer: 40 minutes and what about problems with equipment such as scissor-lifts being unavailable or the ground staff not turning up in – if that's been a problem?

Respondent: I haven't had a problem with that, no.

Interviewer: Not a problem. Yes, so you described in quite good detail there about your wheelchair not coming back to the aircraft door; it went to the baggage hall instead, so how did that make you feel?

Respondent: Well awful, because – so, the wheelchair they provided me with was one that I had to be pushed in and, as I said, I hate being pushed and I was with my son because my husband had taken my younger child off, so it was my son having to push me on off and everywhere and that's something that just has never, ever happened in my life and I wouldn't want it to happen, but it was something I had to allow that to happen in order to be reunited in my wheelchair.

Interviewer: Have you ever had any problems with your wheelchair in terms of it being broken or parts missing?

Respondent: No, thank God, but that's another worry (laughs).

Interviewer: How about your experiences around Immigration and Passport Control?

Respondent: I haven't had any problems.

Interviewer: Have you used the Fast Track queues at Passport Control?

Respondent: Yes, I think – yes, normally they whizz you through.

Interviewer: No problems but – and you find that quite quick and easy?

Respondent: Reasonably so, yes. Again, I can't recall any problems which probably means I haven't had any.

Interviewer: And, do you feel that the – because you get to use the special queue and go through quickly, do you feel that makes up for the waiting around on the plane or -?

Respondent: Yes, I suppose it does actually, yes.

Interviewer: And, thinking about collecting your baggage, obviously you described earlier that you had more baggage than most; has that ever been a difficulty or an issue?

[0:36:30]

Respondent: No, again husband and kids tend to do that so...

Interviewer: And, how does landing and being reunited with your wheelchair make you feel?

Respondent: Oh, it's – that's really, really important, it's like being naked and being reunited with your clothes; I can't tell you how important it is.

Interviewer: That's a great description (both laugh). Okay, just some – I've got three follow-up questions now; what would you recommend to the aviation industry to improve the transit of passengers with wheelchairs?

Respondent: Disabled toilets on aeroplanes.

Interviewer: Anything else?

Respondent: Wheelchair users – if this is absolutely magic wand time, so wheelchair users – so seats being removed in aeroplanes so that wheelchair users could sit on their own wheelchairs so you wouldn't have to be separated from it, yes and then you could go in to the lovely disabled toilet on the plane and not have any assistance or not worry about anybody, just do your normal thing and the other thing would be to make sure that wheelchair users are boarded first so you don't look like Side Show Bob when you actually end up going in to the aeroplane.

Interviewer: Okay, so you feel quite good about the concept of being able to sit in your own wheelchair on a flight?

Respondent: Yes.

Interviewer: Do you feel that would encourage more wheelchair users to fly?

Respondent: Yes, I would fly much more if I could do that.

Interviewer: And, my final question then is do you know what is meant by the term "Purple Pound"?

Respondent: Yes, that's the – I suppose the concept that disabled people have an income to spend and that it's categorised as the purple pound so in economic terms that businesses are missing out on the opportunity to have a particular income stream because there's a group of people whose needs they're not meeting and therefore they are not spending their money at those businesses.

Interviewer: Yes, that'll do it. So finally, is there anything else you would like to comment on or add about the interview?

Respondent: I don't think so, I think it's been really clear and self-explanatory.

Interviewer: And, do you have any questions for me?

Respondent: I'd love to see the results or your finished PhD once it's written up, will it – is it accessible at all? Well, it'll be in the UCL Library at some point, will it?

Interviewer: Yes, it'll be automatically – once you pass and resubmit to the Student Centre, it gets automatically uploaded on to the availability whatever – catalogue and it'll be available for reading, although I can just send you a copy, an email –

Respondent: Or a link or whatever's easiest for you really but I'd really love to see what you come up with because I think it's really important.

Interviewer: Yes sure, I've made a note to send you a copy once it's finished on the database I have.

Respondent: Terrific, that's really great, thank you. I'd be interested to see that and good luck with it all.

Interviewer: Any more questions? Okay I'll stop the recording –

[End of transcript]

**Appendix U – The Standards for Reporting Qualitative Research (SRQR) checklist**

<b>Method Section</b>	<b>Page Number</b>
<b>Qualitative approach and research paradigm</b> - Qualitative approach (e.g., ethnography, grounded theory, case study, phenomenology, narrative research) and guiding theory if appropriate; identifying the research paradigm (e.g., postpositivist, constructivist/ interpretivist) is also recommended; rationale**	83-93
<b>Researcher characteristics and reflexivity</b> - Researchers' characteristics that may influence the research, including personal attributes, qualifications/experience, relationship with participants, assumptions, and/or presuppositions; potential or actual interaction between researchers' characteristics and the research questions, approach, methods, results, and/or transferability	19, 87, 99-100, 112-116, 270-271
<b>Context</b> - Setting/site and salient contextual factors; rationale**	89-93
<b>Sampling strategy</b> - How and why research participants, documents, or events were selected; criteria for deciding when no further sampling was necessary (e.g., sampling saturation); rationale**	110-111
<b>Ethical issues pertaining to human subjects</b> - Documentation of approval by an appropriate ethics review board and participant consent, or explanation for lack thereof; other confidentiality and data security issues	110
<b>Data collection methods</b> - Types of data collected; details of data collection procedures including (as appropriate) start and stop dates of data collection and analysis, iterative process, triangulation of sources/methods, and modification of procedures in response to evolving study findings; rationale**	112-115
<b>Data collection instruments and technologies</b> - Description of instruments (e.g., interview guides, questionnaires) and devices (e.g., audio recorders) used for data collection; if/how the instrument(s) changed over the course of the study	INSTRUMENTS – 94-108 DEVICES – 117
<b>Units of study</b> - Number and relevant characteristics of participants, documents, or events included in the study; level of participation (could be reported in results)	124, 157, 180, 198
<b>Data processing</b> - Methods for processing data prior to and during analysis, including transcription, data entry, data management and security, verification of data integrity, data coding, and anonymization/de-identification of excerpts	119-122



<p><b>Data analysis</b> - Process by which inferences, themes, etc., were identified and developed, including the researchers involved in data analysis; usually references a specific paradigm or approach; rationale**</p>	<p>119-122</p>
<p><b>Techniques to enhance trustworthiness</b> - Techniques to enhance trustworthiness and credibility of data analysis (e.g., member checking, audit trail, triangulation); rationale**</p>	<p>121-123</p>
<p>**The rationale should briefly discuss the justification for choosing that theory, approach, method, or technique rather than other options available, the assumptions and limitations implicit in those choices, and how those choices influence study conclusions and transferability. As appropriate, the rationale for several items might be discussed together.</p>	

***Appendix V – The Consolidated Criteria for Reporting Qualitative Studies***

***(COREQ) checklist***

ITEM	QUESTION	RESPONSE
<b>Domain 1: Research Team and Reflexivity</b>		
<b>Personal Characteristics</b>		
1. Interviewer/facilitator	Which author/s conducted the interview or focus group?	PhD student conducted all of the interviews
2. Credentials	What were the researcher’s credentials? E.g. PhD, MD	PhD student has an MRes in Urban Sustainability and Resilience and worked in the research industry for six years
3. Occupation	What was their occupation at the time of the study?	PhD Student
4. Gender	Was the researcher male or female?	Male
5. Experience and training	What experience or training did the researcher have?	Experienced research through the MRes and on the course. Extra doctoral training attended
<b>Relationship with Participants</b>		
6. Relationship established	Was a relationship established prior to study commencement?	Relationships with four participants was present
7. Participant knowledge of the interviewer	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	Personal interest and reasons were outlined in the information sheet before the interview commenced
8. Interviewer characteristics	What characteristics were reported about the interviewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	My wheelchair was visible in the face to face interviews
<b>Domain 2: Study Design</b>		
<b>Theoretical Framework</b>		
9. Methodological orientation and theory	What methodological orientation was stated to underpin the study?	Template Analysis
<b>Participant Selection</b>		

10. Sampling	How were participants selected? e.g. purposive, convenience, consecutive, snowball	Purposive, convenience with snowball and opportunistic sampling
11. Method of approach	How were participants approached? e.g. face-to-face, telephone, mail, email	Email, social media and face-to-face
12. Sample size	How many participants were in the study?	55
13. Non-participation	How many people refused to participate or dropped out? Reasons?	One exercised their right to withdraw
<b>Setting</b>		
14. Setting of data collection	Where was the data collected? e.g. home, clinic, workplace	Home and in the workplace
15. Presence of non-participants	Was anyone else present besides the participants and researchers?	Yes, the PhD student's personal carer was present for some of the face-to-face interviews
16. Description of sample	What are the important characteristics of the sample? e.g. demographic data, date	Demographic data including disability, employer, and job roles were collected
<b>Data Collection</b>		
17. Interview guide	Were questions, prompts, guides provided by the authors? Was it pilot tested?	Topic guides were developed as outlined in the methodology. Pilot testing was done for the wheelchair users and cabin crew but not the special assistance staff
18. Repeat interviews	Were repeat interviews carried out? If yes, how many?	No
19. Audio/visual recording	Did the research use audio or visual recording to collect the data?	Yes, on audio recording devices
20. Field notes	Were field notes made during and/or after the interview or focus group?	No, as described in the methodology
21. Duration	What was the duration of the interviews or focus group?	The shortest interview was 17 minutes and one second and the longest was 1 hour, 11 minutes and 24 seconds.
22. Data saturation	Was data saturation discussed?	Yes, in the methodology

23. Transcripts returned	Were transcripts returned to participants for comment and/or correction?	No
<b>Domain 3: Analysis and Findings</b>		
<b>Data Analysis</b>		
24. Number of data coders	How many data coders coded the data?	Two. One primary and one by an experienced researcher who coded four transcripts
25. Description of the coding tree	Did authors provide a description of the coding tree?	Yes, a coding template was created
26. Derivation of themes	Were themes identified in advance or derived from the data?	Both
27. Software	What software, if applicable, was used to manage the data?	Microsoft Excel
28. Participant checking	Did participants provide feedback on the findings?	No
<b>Reporting</b>		
29. Quotations presented	Were participant quotations presented to illustrate the themes / findings? Was each quotation identified? e.g. participant number	Yes, but participant numbers were given by the researcher to protect anonymity
30. Data and findings consistent	Was there consistency between the data presented and the findings?	Yes
31. Clarity of major themes	Were major themes clearly presented in the findings?	Yes
32. Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes?	Yes