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The Blindness of Those Who See

A Case Study on the Perceived Mobility and Inclusion of Blind and Partially Sighted People

"Just because a man lacks the use of his eyes does not mean he lacks vision"

* * *

Stevie Wonder

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Abstract

With the UN-treaty, signed in the Netherlands in 2016, the inclusion of disabled people is enforced by law. Inclusion pertains to different areas of life, for example, work and schooling, mobility, public buildings and housing. Mobility is one of the areas the UN-treaty is focused on. This study is a result of the interest in analysing the UN-treaty at a local level. In this qualitative study blind and partially sighted people were asked to give insights in their perceived mobility using Groningen Central station, or their experience as a member of Toegankelijk Groningen, through in-depth interviews. The study found most participants' mobility is restrained by inability to independently use the central station, and that there is lack of accessible information. Personal characteristics and preferences influence the choice of a support tool. A guide dog benefits mobility, social interaction and independent travelling. A support cane supports environment familiarizing, detecting obstacles, texture of the ground, and ensures recognition. Secondly, this study focused on the implementation of the UN-treaty. Toegankelijk Groningen is perceived positively, however, they could work on their communication to the rest of the disabled community. The participants did not directly feel more included in society as all participants of Toegankelijk Groningen had an active role in society previously. All participants marked increased awareness as positive.

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Preface

Special thanks to all the participants that were willing to participate in this study. The Oogvereniging Groningen has been of great help allowing me the opportunity to present my research idea in their monthly meeting and help me recruit participants. My specials thanks also go out to the municipality of Groningen, for helping me get in touch with Jan Martini and participants of Toegankelijk Groningen. The municipality has given me helpful insights on the ideas behind Toegankelijk Groningen and the way the workgroup is set up. Regarding the participants, each participant has given great insights and has changed my perspective on life. At the start of the research, I had not spoken much with blind or partially sighted people. I was not aware of their ideas of the world and how the world could be improved for them to use the space the way I can do. The different perspectives on life help society and raises awareness for the different needs of people with a disability. As mentioned by one of my participants, making children aware of this difference through the educational system might be a very good improvement in today's society.

1. Introduction

Historically, disabled people have been socially excluded from society by means of discrimination for centuries. This discrimination befell in areas such as education, work and transportation. In the era of the Greeks and the Romans disabled people were seen as punishment from the Gods, and either killed or abandoned. Only during the New Era (1500-1780) disabled people became more included in society, with the start of several institutions for deaf and blind people in Germany, the Netherlands, England and Italy. Around 1850-1900 blind people were included in special educational institutions in the Netherlands. Eventually, social rights for disabled people were formed into laws, recognizing disabled people in society. Around the 1920s compulsory education for blind children, access to higher education, financial support for blind people unable to work, and better standards of living for elderly blind people were written into laws. In the 1930s attention shifted to work opportunities for disabled people. Since then ongoing debates on the recognition and social security of disabled people took place. In 2003 the law of Equal Treatment based on Disability or Chronic Illness (*"Wet gelijke behandeling op grond van Handicap of Chronische Ziekte"*) was signed in the Netherlands. This law fostered the integration of disabled and chronically ill people in society and protected against discrimination of disabled people (Project Gehandicapten Schrijven Geschiedenis, 2009). Integration in society is related to independent living and inclusion (College voor Rechten van de Mens, 2019), and it is known that social inclusion influences the perceived quality of life (Bayram et al., 2012). On July 14th, 2016 the Netherlands signed the UN Convention on the Rights of Persons with Disabilities (CRPD), stating that disabled people must be fully able to participate in society, by making all shops, buildings and public transport accessible to them (NL Times, 2016). The outcome is inclusion, full participation and personal autonomy (College voor Rechten van de Mens, 2019). Thereby promoting social inclusion of disabled minority groups by making places accessible to disabled. This gives new responsibilities at the national level, and at the level of the provinces and the municipalities. The municipalities are responsible for executing the UN Convention for the Disabled at a local level (Rijksoverheid, n.d.). It is relevant to examine how the UN-treaty supports the inclusion of disabled people at a local level. The inclusion of blind and visually impaired people is the central topic of this study. In a society in which an increasing proportion of the people are older, and in which thus more people will struggle with the loss of vision (WHO, 2001), it is important to take in account the needs of these people to participate in society.

1.2 Definition of the Problem

The effects of the UN-treaty in the Netherlands have not been studied before. This study aims at identifying both how blind and visually impaired users of Groningen Central station perceive their mobility, and second how the visually impaired and blind people are involved in an increasingly accessible living environment. It is relevant to examine the inclusion of disabled people in society

today at a local level, both at the mobility and accessibility spectrum as on their voice in society. This relates to the matter of social exclusion (Bayram et al., 2012), the signed UN Convention treaty, and the notion that the build environment is generally designed by those who see. To do this, the underlying research question is the following:

Which factors influence the independent mobility of visually impaired and blind people, and how is inclusion in society fostered by organizations?

The central research question is subdivided into the following two questions:

- *Which factors make railway stations more accessible for visually impaired and blind people?*

- *How can partnerships between municipalities and associations of visually impaired and blind people aid the process of inclusion?*

1.3 Structure of the thesis

In chapter 2 the theoretical framework is discussed together with the conceptual models, which forms the foundation for the interview-guides and the analysis of the results. In chapter 3 the method is presented and ethical considerations specific for this study are presented. In chapter 4 the results will be discussed, which are analysed using the theoretical framework. Chapter 5 forms the conclusion of the study. Chapter 6 forms the discussion of the research, along with its limitations, implications for further research and recommendations.

2. Theoretical Framework

In this chapter, the relevant concepts and theories will be discussed and explained. The chapter is divided into theories regarding mobility factors for blind and visually impaired using public transport, and the factors influencing active participation in society.

Participation, supporting inclusion, relates to areas of mobility and participation amongst others (ICF, 2001). With the UN Convention a key element is the inclusion and full participation of the disabled, which is set out in Article 3 (United Nations, n.d.). Disabled inclusion in relevant decision-making processes is described in Article 4, and in Article 33 it is stated that disabled and their representative organizations should participate and be involved fully in the monitoring process. Inclusion involves “removing physical and communicational barriers that hamper individuals’ ability to have full participation in society” (Centers for Disease Control and Prevention, 2018). In table 1 the medical definitions of “disabled”, “impairment” and “handicapped” are listed. In this study the

definition of impairment is used. The contrary is the 'social model of disability' by Oliver (1990), which states that social and physical barriers experienced by the disabled are due to the society rather than their impairment, thereby denying their human rights. Intellectual impairment could not be attributed to barriers in the environment (Shakespeare, 2002). The World Health Organization (WHO) re-classified the terms 'handicapped, impairments and disability' to 'disability, participation and activity' (WHO, 2001). Together with the social model of disability this creates awareness for the importance of inclusion and full human rights for disabled people (Hersh et al., 2008). Inclusion of minority groups does not only target the disabled but also makes public environments more accessible to all users. For example, good street lighting at night, accessible public buildings, pavements and compact urban design upgrades benefit not only visually impaired, but all its users.

Concept	***Definition***
Impairment	Impairment is defined as "lack or loss of a bodily function" (ICF, 2001).
Disabled	Disabled here is defined as a mental or physical inability that limits the senses, movements or activities of a person (Oxford Dictionary, 2019), and results in the impairment putting limitations on a person to perform a certain activity (Hersh et al., 2008).
Handicapped	Handicap is defined as due to the disability being unable to perform an ordinary role in society (ICF, 2001).

Table 1 – Defining Impairment based on Medical Conditions

2.1 Participation in Society

Participation in community and social activities is identified as a fundamental right by the WHO (WHO, 2002). Participation can be defined as "the level of involvement in a life situation" (ICF, 2001). Factors that influence participation-level are health, age, education, social support, psychologically, and personal expectancies and personal values (Manna et al, 2012). When one is in good health, this person is more likely to participate in social activities (Wilkie et al, 2007). The level of social support from friends or family, the level of emotional distress and the level of self-efficiency facilitate participation in society (Bent et al, 2001; Cardol et al, 2002). The study by Shaw et al, (2007) and Bjorkman (2008) acknowledge the significant role of friends, family and social circle in participating in society.

Amongst the domains of participation are mobility, major life areas, interpersonal interactions and relationships, domestic life, self-care, social and civic life, communication, and applying and learning knowledge (ICF, 2001). Major life areas are defined as participation in organized organizations or voluntary work. Domestic life is defined as household activities, shopping and assisting others. Manna et al, (2012) found that twenty-seven percent of the participants, who were

either blind or visually impaired, was involved in major life areas. The study showed that psychological health, helplessness, social network size, perceived importance and taking initiative positively influenced participation. Helplessness here refers to explaining events as negative, uncontrollable, unchangeable and unpredictable (Evers et al, 2001).

2.1.1 Participation Factors Specific to Visually Impaired

Personal factors that influence the participation of visually impaired and blind people are age, sex, the presence of multiple impairments, the age at which the visual impairment emerged, and the severity of loss of sight (Duquette & Baril, 2013). Participation in society is also determined by modifiable personal factors, such as the person involved accepting their visual impairment. People who accept their level of blindness and build upon their abilities and strengths are more likely to get a job. Furthermore, having open discussions on the visual condition and facilitating adaptions is of importance (Bjorkmann, 2008; Garcia et al, 2016). Other modifiable factors are education, mobility, and social and physical environmental factors (Duquette & Baril, 2013). Bell & Mino (2013) found that employment is twice as likely for people with a postsecondary degree, then those who do not have a degree.

2.2 Blind Users of Public Space

As mentioned, participation relates to mobility (ICF, 2001). Along with the loss of vision comes the loss of the vital function to perform in daily life and modern society, which affects career, personal relationships and the quality of life (Manduchi & Coughlan, 2012). Moreover, orientation and mobility are areas that present difficulties for the vision impaired (Hazel et al., 2000), influencing independent mobility. The latter is experienced as difficult, as it requires strategies to adapt to public transport (Marston & Golledge, 2003). It was found that streets and other public areas may be seen as threatening environments (Delbaere, 2004). Accessing public transport can also bring difficulties along, such as the pedestrian environment, lack of information on transport, problems with visual information, accessibility problems, and lack of contrasting colour-use (Montarzino et al, 2007; Marin-Lamellet et al., 2001). Improving the accessibility of information can be done by increasing contrast and usage of large fonts, as well as more vocal announcements. Being familiar with the environment increases mobility through the use of landmarks and mind-maps. Additionally, familiarizing oneself with new environments is a priority. Marin-Lamellet et al. (2001) found that identifying the right bus-stop or train, purchasing a ticket, inaccessible information, and accessing the vehicle are common difficulties experienced by blind or partially sighted users. This study also indicates that urban design lacks standardization.

2.2.1 Mobility Aids for Blind and Partially Sighted People

The mobility of blind and visually impaired can be improved by the help of low-tech aid like a cane or a guide dog, or high-tech aid such as smart classes supplying information of the surroundings to the user (Digital Trends, 2014). A guide dog benefits independence, increases and changes social interaction, confidence, mobility, and companionship (Whitmarsh, 2005). However, contextual and demographic factors influence the perceived drawbacks and benefits of guide dog ownership, for example, age, level of vision, gender, and domestic circumstances. Other disadvantages are the mandatory commitments to training a new guide dog, the additional expenses, and the time and responsibility needed for a guide dog (Second Sense, 2016). With a white cane the person familiarizes themselves with the environment by locating objects, texture and hardness of the ground, developing landmarks, thereby improving their orientation (Hersh et al, 2008). A disadvantage of the cane is that it only provides information about the close environment (Hersh et al, 2008), and the weather could have a negative impact as landmarks can be less available (Second Sense, 2016). Assertive technology consists of devices and systems to overcome infrastructural and social barriers and can positively influence the equal participation of disabled people (Hersh et al., 2008). Assertive technology aims to simplify independent travelling and make environments more accessible, focusing on social interaction and information access (Terven et al, 2014; Bhowmich & Hazarika, 2017), which are some of the points that can be improved in transport systems (Montarzino et al, 2007). This technology can be applied in unfamiliar as well as familiar environments. Perceived mobility in this study is subjective. It is a result of the experience of the above-mentioned factors.

2.2.2 Relation to Quality of Life

As mentioned previously, loss of vision influences the quality of life by limiting independence and social interaction. Quality of life can be defined in multiple ways and is highly subjective. Factors influencing the quality of life can be health, the standard of living, social relationships, safety, community connectedness, achievements in life, and future security (Vuletic et al, 2016). Quality of life can simultaneously be influenced by age, personality traits and sex. Additionally, the local environment, political institutions, societal values and interpersonal relations can be factors that influence the perceived quality of life (Colver, 2009). For people with visual impairments, the age at which the blindness occurred is of influence (Amini et al, 2010). Being born blind or facing blindness at an early age is generally easier than facing blindness later in life. A study by Pey et al, (2006) showed that partially sighted are more mobile, face fewer difficulties leaving the house and more often leave the house compared to blind individuals. They found that blind people have a lesser perceived quality of life than partially sighted people.

2.3 Conceptual Model

In figure 1 the conceptual model of the first part of the research is summarized. The figure gives an overview of the relationship between the support tools and public transport, and the perceived mobility presented before. Age, health and the level of vision are moderators of the effect. It is expected that participants experience the same difficulties found in the studies done by Montarzino et al, 2007 and by Marin-Lamellet et al., 2001. Also, it is expected that most participants make use of either a support cane or a guide dog. Preference for a cane or guide dog is of personal preference and relies on age and several factors found in the study by Whitmarsh (2005) on the benefits of guide dogs.

In figure 2 the conceptual model of the second part of the research is summarized. In the context of this study the level of participation aided by Toegankelijk Groningen is studied. It is expected that participants in Toegankelijk Groningen have several participation-factors that are comparable to the study of Manna et al (2012), and that the Toegankelijk Groningen is increasing inclusion.

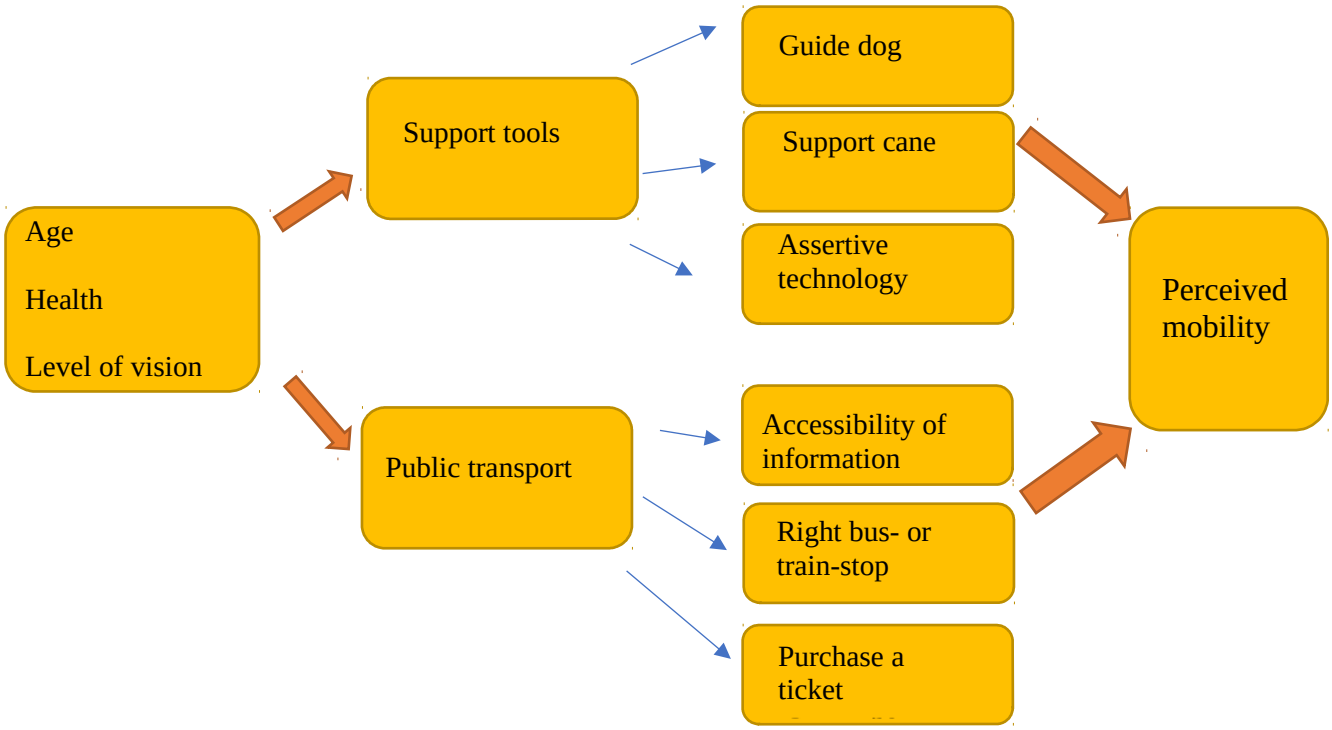

Figure 1 – Conceptual model perceived mobility blind and partially sighted individuals

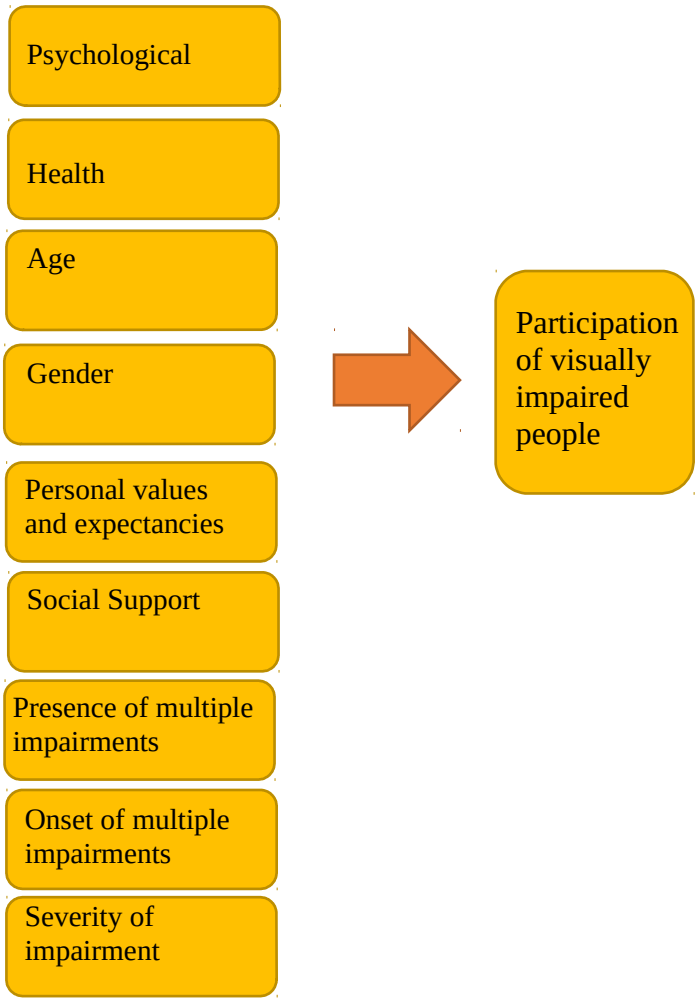

Figure 2 – Conceptual Model of Inclusion and Participation

3. Methodology

The methodology will start by discussing the method used. Second, the process of data collection is discussed, followed by an analysis of the participants involved. The chapter ends with data collection and ethical considerations.

3.1 Study Design

For both the research questions a qualitative method of a case study with semi-structured in-depth interviewing was used. The informed consent can be found in Appendix A. For the first research question using a questionnaire was considered, however, a questionnaire would have caused additional

difficulties for the research group involved. A semi-structured interview style was chosen to give participants space and freedom to highlight and explore issues that are important to them, which improves the validity of the information (Punch, 2013). The interview guides can be found in the Appendix B. A case study is applicable to intensively study an event or organization (Swanbom, 1996). The study was done to gain insights in perceived mobility of blind and partially sighted citizens that use public transport, in Groningen, and how cooperation between the municipality of Groningen and this minority group can aid inclusion of blind and partially sighted citizens.

3.2 Data Collection

3.2.1 Study Population

The interviewees had to meet several criteria. Firstly, the participants had to be either blind or partially sighted at the time of the study. Secondly, the participants had experience using the Groningen central station. The second part of this study focuses on participation and inclusion of society, with the help of organizations linked to the municipality of Groningen. Therefore, participants had to be either in Toegankelijk Groningen or another organized organization that is related to Toegankelijk Groningen. For the second research question an adaption was made to interview the head of Toegankelijk Groningen, the other four participants met the criteria.

3.2.2 Recruitment of Participants

To recruit participants for the first research question, members of the Oogcafe Groningen were contacted. Oogvereniging Groningen was contacted to distribute a request for additional participants via their newsletter and Facebook. For the second research question the municipality of Groningen was contacted, leading towards members of Toegankelijk Groningen. Finding participants was the most difficult, as the research entails a relatively small population, especially regarding the second research question.

3.3 Data Collection Process

The participants were either interviewed near the meeting-place of Toegankelijk Groningen or by telephone interviews. The last method was chosen as this was adviced by Oogcafe Groningen.

3.3.1 Reflection on Data Retrieved

Out of all interviews relevant data was retrieved. Several participants shared their personal experiences using public transport, and one participant specifically had a lot of experience using both guide dogs and a support cane. The interviews allowed to gain a deeper understanding of the usage of public transport. For the second research question, an initial interview guide was set up for Toegankelijk Groningen based on the expectations of the researcher, on the expected degree of

intensified contact between the workgroup and the several projects, and the way the group would function. Nonetheless, the two interviews that were conducted with this interview guide sculpted a great picture of the functioning of Toegankelijk Groningen. Additional questions were added for the last two interviews as an additional source provided new information. The new questions can be found as Interview 3 in Appendix B.

3.4 Ethical Considerations

The study can be ethically challenging as participants were personally involved in the study (Sanjari et al., 2014). Also, qualitative studies can be controversial, as they lead to new insights but there is also the risk of wrong interpretation (Stake, 2010). As the study entailed persons with low or no vision, the establishment of trust was vital. The names of the interviewees are given a pseudo-name to guarantee the privacy of the participant. At the start of the interview an informed consent was read out loud, to which the participant had to agree, included in Appendix A. The data used will not negatively impact any participant involved. At the start the interviewee was asked general questions to introduce themselves to make them feel at ease. At the end of the interview there was a closing question, designed to guarantee that the interviewee is left in a good state of well-being, as in-depth interviews can evoke emotions.

3.5 Data Analysis

To analyse the data the conceptual model (figure 1, figure 2) was applied, as well as the coding scheme in table 2. The interviews were transcribed and used in chapter 4 where the results were discussed. Relevant quotations were marked and links to the literature were noted. The quotes that were used for the interviews were translated into English. The original Dutch quotes were put in Appendix C. It should be noted that the Dutch quotations are more natural than the translations. The quotations are put between brackets.

3.5.1 Coding Scheme

In table 2 the coding scheme was presented. The codes have sub-labels based on the literature, allowing to focus on different aspects found. An explanation for why the code is of importance is added.

Table 2 – coding scheme for both interview guides

Code	**Label**	**Explanation**
Background	Age	The age can determine the mobility of a person, as well as the age at which one got blind.
	Work experience	The work experience relates to

		participation in society. Voluntary work is included.
	Level of Blindness	Age of onset and the level of blindness can influence mobility.
Usage of tools	Support cane	Both low- and high-tech aid can positively influence mobility. Personal experiences may differ.
	Guide dog	
	Assertive technology	
Modes of transport	Train	Relevant to examine which mode is used more often and why.
	Bus	
	Taxi (WMO, Valys)	
Usage of public transport	Weekly	How often one uses public transport, and the reasons one might or might not use it.
	Monthly	
	Yearly	
Perceived mobility	Accessibility of the station	Difficulties using public transport, as well as positive experiences using public transport.
	Accessibility of information	
	Finding the right bus or train-stop	
	Getting out of the vehicle	
	Purchasing a ticket	
Participation	Perceived cooperation	Why they are involved, what their opinion is on the composition of the group and all related matters.
	Group composition	
	Starting date of cooperation	
UN-treaty	Influence of the UN-treaty	The UN-treaty being the law-enforcer on the inclusion of the disabled minority

4. Results

In this chapter the results will be discussed, and references will be made to the theoretical framework and the conceptual model to examine if the results correspond with the existing literature. First, the general description of the participants (table 3) will be given, followed by answering the first and the second research question.

First research question

Reference to participant	Age	Gender	Blind or Partially Sighted	Employed/unemployed or retired	Usage of Low-Tech Aid	Usage of Phone apps
Petra*	75	Female	Blind on 1 eye, 28% sight other eye	Several paid jobs. Now retired	No support	No support
George*	35	Male	Blind at birth	Voluntary basis involved in several organisations around blindness and mobility	Support cane	No support
Frank*	75	Male	Gradually lost sight, now blind	Retired	Support cane, experience with guide dogs	Google Maps,
2nd research question						
Reference to participant	**Age**	**Gender**	**Blind or Partially Sighted**			
William*	55	Male	Blind at birth	Bachelor Sociology; unemployed, but has paid work experience	No support	No support
John*	75	Male	Born partially sighted	Involved in several organisations regarding health care, mobility and elderly. PhD in German Language, bachelor History; high-school teacher in multiple subjects, now retired.	No support	Google Maps, Square
Ron**	39	Male	Brain damage at age of 12 resulted in	Bachelor in International Business and Languages. Employed at UMCG. Member of Oogvereniging Groningen	Support cane	Google Maps, 9292 OV-Info
Patrick**	51	Male	Progressive, partially sighted at a young age	Master in Classical Languages and master in Ancient Near East. Chairman of Oogvereniging Groningen.	Support cane	Google Map

				In Toegankelijk Groningen		
Jan Martini	51	Male	Not blind or partially sighted	Municipality of Groningen, head of Toegankelijk Groningen	Not relevant	Not relevan

Table 3 – General Description

*The names in the table are pseudo names to guarantee privacy.

** Participant gave useful insights for both research questions.

Except for George, all participants were above age 51, and most of them were male. It is striking that all participants involved in Toegankelijk Groningen have at least a bachelor's degree, whereas the participants for the first research question mainly have work experience, but no higher education completed. This aligns with education being one of the factors that influence participation (Manna et al, 2012). All participants[1] were involved in major life areas, which means participation in organized organizations or voluntary work (ICF, 2001). This is also one of the domains that influence participation. The research group is too small to conclude if the age at which the visual impairment onset, gender, presence of multiple impairments, as found by Duquette & Barill (2013), and social support (Manna et al, 2012) make a difference.

4.1 Factors Influencing Accessibility of Public Transport

The built environment might contain obstacles unnoticed by non-blind users. One of those areas can be the Groningen central station. The following section will provide an answer to *"Which factors make railway stations more accessible for visually impaired and blind people?"*. Marin-Lamellet et al. (2001) studied the common limiting factors for independent travelling of blind and partially sighted users and found that actions such as purchasing a ticket and finding the right train or bus stop were perceived as difficult. In the interviews it became clear that two participants use the Qbuzz Service Centre to either get help purchasing train tickets or to get from point A to B, thus solving issues described above, making the train station of Groningen more accessible. The problem of getting to the right bus stop was solved by the participants by asking other travellers. Although George, who was born blind, was taught to ask others for help at his middle-school, Frank had more difficulties with this. Though George made use of the Qbuzz Service Centre, to buy his ticket and to get to his to the destination, he mentioned that the Groningen central station is a maze to him: *"the platforms lie opposite each other, braided […] and then it is still dangerous with the buses coming up."*[i] He mentioned he prefers a smaller railway station. All participants[1] mentioned that they did not often travel by train. Petra, for example, who mentioned that train-delay, which according to her occurred more often during weekends, made her less keen on using the train at weekends. She also mentioned that fewer employees of NS were around to offer assistance and that while other travellers

[1] With exception of Jan Martini

have their mobile phone to access information, this forms a difficulty for her. This corresponds with the issue of inaccessible information to blind users found by Marin-Lamellet et al. (2001). Making information accessible to blind and partially sighted users can be done by vocal announcements (Marin-Lamellet et al., 2001), or posts provided with spoken information. Patrick mentioned that these posts can be made accessible by blind-guide tiles. John mentioned the importance of yellow-black contrasts to improve the readability of the signs used at train stations for blind and partially sighted people. This is mentioned as well in the studies by Montarzino et al. (2007), Hersh et al, (2008) and Marin-Lamellet et al. (2001). Contrary Ron acknowledged that blind people are not homogenous, therefore black-white contrast or red-green contrast might work better. He valued the usage of Braille on stair railings, providing information on the location of the tracks. Jan Martini added to blind-guide tiles, flat pavements and usage of different lights, as found by Hersh et al, (2008). Patrick mentioned he used lights of billboards at night to have better sight. All this promotes natural flow and has advantages for other users as well.

Regarding bus usage, Frank mentioned buses do not always stop at the same platform, which shows lack of standardization as mentioned in Marin-Lamellet et al. (2001). Furthermore, he mentioned that the same platform is used for multiple buses, and that sometimes his bus stops behind the other bus which results in him missing the bus. This in combination with the renovation of public toilets, makes shared space less accessible and public transport too much of a burden to him. The blue pedestrian crossing, between the bus station and the train station, was marked as a dangerous area by two participants. Petra said: "*[…] then you get to the blue pedestrian crossing place and there all those buses turn to get to the street, […] but then you also have to look because after one bus another bus can come."*[ii] This shows that streets and public spaces can be seen as threatening (Delbaere, 2004). Another example of a threatening environment is Petra mentioning she would not use a taxi when it is getting dark. Because she has to wait alone, which is why she preferences to take the bus in these situations. No participant named difficulties of accessing the vehicles found by Marin-Lamellet et al. (2001).

All participants[1] use the WMO of Valys, which are taxi companies that encourage independent travelling by disabled people (WijGroningen, n.d.). Depending on the distance travelled, they choose either one of them, the Valys being more suitable for longer distances. Advantages mentioned by the participants were always being on time, being able to travel further and going to places or events that you would not go to otherwise. The disadvantages mentioned were the half-hour timeframe, so if one would order a taxi at eleven o'clock the taxi could pick you up between 10:45 – 11:15. Another disadvantage was shared drives, with the possibility of first having to drop off the other person. Nonetheless, the advantages of the taxies outweigh the disadvantages.

Montarzino et al., (2007) named the importance of familiarizing, as well as Frank, Patrick and Ron. Both Patrick and Ron mentioned travelling to a new place that would be of importance in the future, they would try to do it by bus, train or walking. By that, they familiarized themselves with the

environment, by combining both their low-tech aid and certain apps provided in table 3. Assertive technology is not used by any of the participants.

4.1.1 Guide dog or Support Cane

Frank mentioned he followed training with a guide dog, which made that he knows the station of Groningen quite well. The study by Whitmarsh (2005) stated that a guide dog improves mobility and increases independence, companionship and social interaction. Frank has had three guide-dogs and mentioned: *"I was able to travel independently with the dog again, from the bus to the station, and the train and the check-in post. […] So, I did not need any help."*[iii]. The dog started pooping in the house, him being all alone and stressed because of the dog, Frank had to hand in the dog. This corresponds with the drawback of the domestic circumstances of being alone for Frank, and secondly, his age would not permit him to have a 4th guide dog (Whitmarsh, 2005). Patrick acknowledged other disadvantages of a guide dogs' obligations, as mandatory commitments, time and responsibility (Second Sense, 2016). Frank now has a support cane, which costs him more energy, pain in his shoulder and additionally decreases his activity level compared to having a guide dog. He withholds himself from travelling because he has difficulties using the cane. He mentioned that his age is a factor in this as well: *"[…] my concentration is decreasing. I quickly stray into my mind."*.[iv] With the dog, he was able to find more places than with the cane. Frank uses a special navigation app called Square that tells him where he is and where he needs to go, making him rely on Phone apps. Ron and Patrick are satisfied with the support cane. The cane detects obstacles, the texture of the ground, and ensures recognition, says Patrick. Ron added the importance of learning and familiarizing with the environment. This all corresponds with the study of Hersh et al. (2008).

Frank mentioned that the independent mobility is determined by several factors, such as the age at which one got blind, as found by Amini et al, (2010), and the orientation ability of a person. Partially sighted people have fewer difficulties leaving the house (Pey et al, 2006), though personality and character play a role (Vuletic et al, 2016), as mentioned by Frank. Blindness affects health and can thereby restrain the perceived quality of life. His struggle with a support cane has influence as well; his age, distracting thoughts, as well as surrounding noises, made it more difficult for him to focus.

4.2 Inclusion of Blind and Partially Sighted People

Firstly, "*How can partnerships between municipalities and associations of visually impaired and blind people aid the process of inclusion?* can be answered by referring to the VN-treaty. Stating the active participation of disabled people in society, by making all public environments accessible to all users. The workgroup Toegankelijk Groningen adheres to the treaty, following article 3 involving disabled people in relevant decision-making, and article 4 stating full participation in society (United Nations, n.d.). Article 33, the involvement of representative organizations throughout the monitoring

process, is marked as a point of improvement regarding communication by the participants. The workgroup itself takes initiative to remain actively involved in new developments as stated in the VN-treaty. The VN-treaty covers all areas that municipalities are involved in, all policy themes, both in the social and physical domain. The chairman is Jan Martini. Toegankelijk Groningen encourages participation in major life areas, increases social and civic life and interpersonal interactions and relationships (ICF, 2001). Membership at voluntary organizations for both Ron and Patrick was mainly motivated by increased social contacts, corresponding with ICF (2001).

4.2.1 Toegankelijk Groningen and the Process of Inclusion

In 2014 Toegankelijk Groningen was founded as a reaction to the previous council of mayor and aldermen who recently resigned. It was decided to abolish all advisory councils, the council for the elderly and the disabled. William said they disagreed, resulting in the start of Toegankelijk Groningen. The group consists of experts through experience, consisting of deaf people, blind and visually impaired people, wheelchair-bound people, psychiatric disordered people, and mentally disabled people. William mentioned the importance of the organization:

"it is indeed necessary to have an organization that asks for special attention for the disability policies. For officials, who are investigating something, for example the accessibility of A-straat [A-street], they end up with people they already know, and that are we now." [v]

The organization mainly has contact with civil servants and project-developers, Jan Martini mentioned, as well as with city councils and councillors. The organization covers different policy areas (figure 3), which are subdivided amongst the members of Toegankelijk Groningen, who have the responsibility to do research and inform the workgroup. If an issue comes up, Jan Martini contacts project-developers or civil servants to let the group meet with the representative of the project to attempt to solve the issue. The end goal is *"That it becomes automatic, and then we are talking about an inclusive society. […] accessibility entails everybody."*[vi] For example, in an ageing society, more people will suffer from decreasing hearing and vision abilities (WHO, 2001). By working on the inclusion of disabled people, there are benefits for all users, as named by Hersh et al, (2008). The difference at this point, Jan Martini mentioned, is that disabled people are included in the beginning and during the process, contrary to the previous situation when people were consulted after the official process. He also mentioned the importance of looking at what the impact of several adaptions will do to other disabilities. There are several requirements to be able to participate in the workgroup: *"[..] Those people must have a certain intellect, there must be a drive that they want to improve the world and they must have the energy so that they can do it in addition to their disability."*[vii]

An important principle is "shared space", meaning that everybody has to be able to use the space by taking into account other users. William said that for blind and visually impaired people this

is difficult because they do not have eye-contact with other users. *"And then many landmarks are dropped, such as guidelines. For our shared space it is important that it will not be introduced everywhere, because then we would feel very unsafe."*[viii]. Ron added that people are not aware of shared space yet. A good step would be to make children aware at a young age through education. Jan Martini mentioned the following on shared space: *"When you make a hub for public transport you think of accessible information; an issue visually impaired people face at first. Making the environment accessible for wheelchairs is already thought of, because for visually impaired people a flat surface is also necessary. With a central broadcasting system at the station, you also tackle the large group of elderly people"* [ix]. With this notion shared space would not directly indicate for vision impaired that they lose their landmarks, although it is wise to take the concern of this group of users into account. Shared space

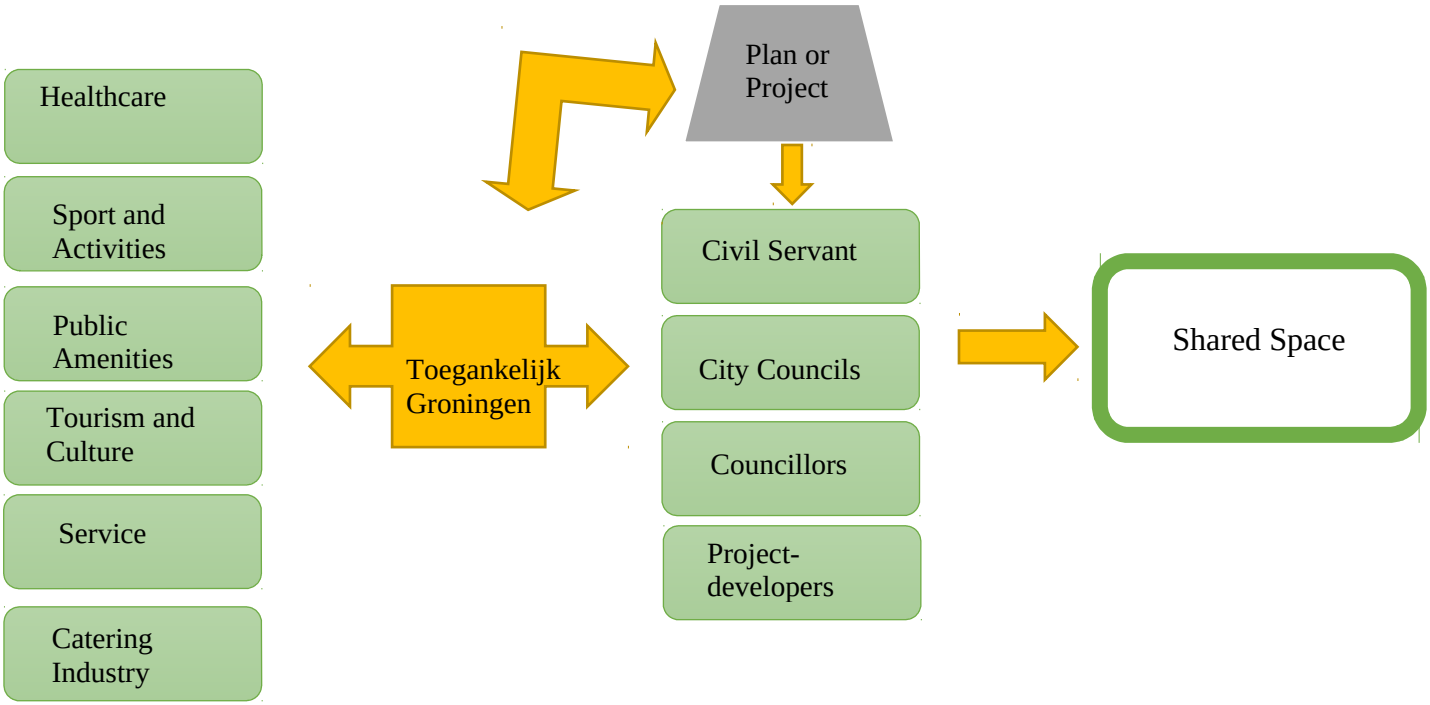

Figure 3 – Overview Involvement Toegankelijk Groningen

relates to the social model of disability, stating that physical and social obstructers experienced by disabled people are due to society rather than their impairment (Oliver, 1990). With shared space obstacles for different user groups are taken into account, making the environment accessible for all users. Jan Martini pointed out the difference between being born with a certain disability or having to live with it at a later stage in life in the way of using the environment. Furthermore, he said *"There are only a few blind people that use Braille. We as outsiders, if we are going to arrange things, braille on the armrest so that they know what to do, then you have reached a very small group. But you only know that when you hear it from those experienced experts [Toegankelijk Groningen members]."*[x]

4.2.2 Visually Impaired Specifically

For blind and visually impaired people obstacles in communication occur when drawings of the plans are shown, for example for the Groningen central station. *"I have to get explained how it all will be. And that is even more difficult."*[xi] Said William. Furthermore, William mentioned that he would like to increase and improve the level of cooperation between the municipality and the workgroup. George, who is involved in the group Mobiliteit en Toegankelijkheid of the Oogvereniging (*mobility and accessibility)* mentioned that a member of their group is involved in Toegankelijk Groningen. This member reports back to Mobiliteit en Toegankelijkheid. He mentioned that there has not been much communication, and said it is personal whether or not one can imagine how the station will look like after the renewal. On the other hand, John is very proud of the way the municipality of Groningen has handled the matter.

5. Conclusion

To conclude, the results found for the first research question correspond with the existing literature. As pointed out by Frank, perceived mobility is a result of age, the age at which one's vision decreased and a persons' character. This is supported by Amini et al, (2010), Pey et al, (2006), and Vuletic et al, (2016). One can have personal preferences for either a guide dog or a cane. In the literature, and aligning with the participants' experiences, it was found that a guide dog benefits the mobility, independence and social interaction (Whitmarsh, 2005), and the drawbacks of guide dog ownership being age, domestic circumstances, level of vision and gender. The effects of gender on the drawbacks of dog ownership could not be compared in this study, as only one male participant had experience with guide dogs. The benefits of a support cane were confirmed by the participants. The study by Marin-Lamellet et al. (2001) found purchasing tickets, inaccessible information and finding the right bus- or train stop as reoccurring difficulties. The results of this study correspond. Participants used Qbuzz Service Centre or other travellers to solve these issues. Additionally, all participants[1] were using either Valys or WMO taxies for places difficult to reach with public transport or places they would not visit much, costing too much effort to familiarize themselves with. Thereby avoid travelling by train or bus. The use of colour-contrast, identified by Marin-Lamellet et al. (2001) was mentioned by John and Jan Martini as a valuable tool to make information accessible to blind and partially sighted users. Jan Martini suggested using lights to improve the natural flow. Other valuable instruments were blind-guide tiles, posts provided with spoken information, more often vocal announcements and braille on stair railings with information on the location of the tracks. This answers the first part of the central research question, "*Which factors influence the independent mobility of visually impaired and blind people, and how is inclusion in society fostered by organizations?"*.

For the second part, Toegankelijk Groningen is examined. Within the organization, there are meetings about various topics regarding accessibility, and thereby inclusion, of public space and buildings. The aim is to create a shared space, entailing that everybody should be able to use the space and account for others as well. The inclusion of partially sighted and blind people is encouraged by having an organization consisting of experts through experience. The group is included in various new projects, renewals and future ideas that are discussed within the workgroup along with the municipality of Groningen, aligning with article 3, 4 and 33 of the UN-treaty. Jan Martini hopes that in the future Toegankelijk Groningen is no longer necessary, as he hopes that taking accessibility for disabled people into account will be automatically included in projects. That is an inclusive society. All participants of Toegankelijk Groningen did not directly feel more included, as all did already fulfil an active role in society. The increased awareness was perceived positively by all participants. More communication towards relevant organizations was mentioned as improvement point.

6. Discussion

In this chapter, a reflection of the study is provided, along with the limitations of the study. The chapter ends with implications for further research, and recommendations for train stations and the further developing of Toegankelijk Groningen.

6.1 Reflection and Limitations of the Study

For both research questions, there is a small number of participants, which does not cover the entire population of blind and partially sighted people that use the Groningen central station or give insights in the perceived inclusion supported by Toegankelijk Groningen. The study does not contain youngsters. All participants were between 51 – 75 years of age, with an exception of 35 years of age. Different age-categories could give other information. The level and onset of vision impairment determines the level of mobility (Pey et al., 2006; Duquette & Barill, 2013). This study did not directly focus on the influence of the age at which the participant got blind or severity of the impairment, nonetheless could this be of influence. The majority of the participants are male. The influence of gender therefore is not examined.

Later in the process, the topic of the research was adjusted slightly, and thereby the focus shifted towards the second research question. Afterwards, the interview guide of the second research question could have contained an extra question that covered more factors that encourages participation in society, as found by ICF (2001) and Manna et al, (2012). This has been added in with the final two interviews (Appendix b, interview 3). This guide is used for two participants with Toegankelijk Groningen and the Oogvereniging Groningen.

6.2 Implications for Future Research

For future research, it might be interesting to see how people in the age group 18 - 30 manage themselves in society, amongst mobility, and which factors influence inclusion for them. It is also interesting to see how much they are involved in organizations around the loss of vision or the VN-treaty. Also, it would be interesting to see how gender influences inclusion, and focus more on the factors that influence participation as found by Manna et al, (2012) and ICF (2001).

6.3 Recommendations for Train and Bus Stations

Overall in public transport, participants named the difficulty they had with the lack of standardization. Furthermore, dynamic bus stops are recommended, as Groningen is implementing in the future. This indicates a limited number of platforms and vocal announcements of which bus will arrive and at what time. It is recommended that these sights have posts provided with spoken information, with blind-guide tiles leading towards it. At the station, participants named inaccessible information. Braille on stair railings is recommended. Another way is more often vocal announcements (Marin-Lamellet et al., 2001), as well as the spoken posts named earlier. This could also be done at the bus station where static bus stations remain. At the train station, participants issued the different train operators with different check-in poles. It is recommended either making the vision impaired users more aware of OV-plus solving this issue or to work with contrasting colours here as well.

6.4 Recommendations for Toegankelijk Groningen

Improvements for the communication between the different projects, the organizations for disabled people and Toegankelijk Groningen is recommended. The members of Toegankelijk Groningen report back to their organization, for example, Oogvereniging Groningen. Participants at both ends named the issue of communication. The issue of communication could be solved by making members aware of their reporting function, and the part of the UN-treaty stating active involvement of disabled people.

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Appendix

A. Informed consent

Informed Consent (Dutch)

Allereerst, ik doe dit onderzoek voor mijn afstudeerproject voor de opleiding Sociale Geografie en Planologie aan de Rijksuniversiteit Groningen. Het doel van het onderzoek is te kijken naar de ervaren mobiliteit van blinde of slechtziende mensen, en tevens informatie in te winnen over de mate van betrokkenheid van de stations-vernieuwing, door tevens interviews af te nemen bij de belangengroep en Gemeente Groningen die beide betrokken zijn bij het project. Het laatste is waar dit interview over gaat, de actieve betrokkenheid bij de station vernieuwing in Groningen.
Als inleiding op het interview wil ik u graag mededelen dat het onderwerp van dit interview gericht is op de beleving van de participatie in de gemeentelijke plannen voor de station vernieuwing. Ik zou u hier graag een aantal vragen over willen stellen, bent u hiermee akkoord?

Het interview zal ongeveer 20 tot 30 minuten duren. Het gesprek zal in anonimiteit gehouden worden, dat houdt in dat alle informatie anoniem verwerkt zal worden en nergens in het verslag uw naam gebruikt zal worden. Graag zou ik het interview opnemen zodat ik het op een later moment kan terugluisteren om de informatie te verwerken in mijn onderzoek. De opnames worden alleen door mij beluisterd, en daarnaast zal mijn begeleider ook toegang krijgen tot de opnames bij het inleveren van het onderzoek. De informatie die ik hieruit verwerk blijft binnen de Rijksuniversiteit Groningen voor ongeveer vijf jaar en zal niet voor andere doeleinden gebruikt worden. Gaat u akkoord met het opnemen van het interview?

Heeft u nog vragen voordat we beginnen?

B. Interview guides

Interview 1: perceived mobility amongst blind and visually impaired users of the Groningen Central station (in Dutch)

Openingsvragen

Waar komt u vandaan?

- Stad of omstreken

Hoe oud bent u?

En, zou ik u mogen vragen, hoeveel procent zicht heeft u nog?

- Wat is de oorzaak hiervan?

En verder, maakt u ook gebruik van hulpmiddelen, zoals:

- Een blindenstok
- Een blindengeleidehond
- Een telefoon
- Een ipad
- Anders, namelijk …

Dan wilde ik nu met u de hoofdvragen doornemen. Deze vragen hebben betrekking op Station Groningen, waaronder bussen en treinen vallen.

Hoe vaak per week maakt u gebruik van het station Groningen? (zowel bus als trein)

- Reden voor het gebruik
- Ik hoor u zeggen dat u vaak/niet vaak gebruikt maakt van het station, wat is de reden hiervoor?

Hoe zeker bent u over uw mobiliteit op het station?

- Schaal van 1 tot 5

- Wat draagt er aan bij dat u zeker bent?
- Welke punten zorgen voor onzekerheid?

Welk cijfer zou u uw eigen mobiliteit geven in het algemeen, en waarom?

Stel u zou vandaag naar het station Groningen gaan, met welk vervoersmiddel komt u bij het station?

- Taxi
- Lopend
- Hulp van anderen
- Anders …

Wat vindt u van de toegankelijkheid van station Groningen?
Schaal 1-5?

Zijn er stations die voor u toegankelijker zijn? En zo ja, welke stations zijn dit?

- En waarom?
- Beter bekend met dit station?
- Eigenschappen specifiek station

Wat vindt u van de volgende punten, in relatie tot station Groningen:

- Informatievoorzieningen:
- Stoepen:
- Vinden van de incheckpaaltjes
- Vinden van de juiste bus
- Vinden van de juiste trein

In welke mate zou u zonder hulp uw weg kunnen vinden op het station?

Wat zijn problemen die u ondervindt in het openbaar vervoer (in het algemeen)?

Dan nog een vraag met betrekking op de station vernieuwing

In welke mate bent u geïnformeerd over deze vernieuwingen?

Op welke manieren bent u aan informatie gekomen?

Hoe heeft u dit ervaren?

Mist u een onderwerp dat niet aan bod is gekomen?

Slotvragen

Dan wil ik u bedanken voor het interview!
Heeft u belang bij het ontvangen van de onderzoeksresultaten?

Interview 2: level of involvement/participation through Toegankelijk Groningen (in Dutch)

Openingsvragen

Kunt u iets over uzelf vertellen?

- Waar komt u vandaan?
- Stad of omstreken
- Werkervaring?
- Hobby's
- Belangen organisaties aangesloten

Hoe oud bent u?

Hoe is de samenwerking tussen u en de gemeente Groningen ontstaan?

- Al betrokken bij andere belangenorganisaties?
- Eerdere werkzaamheden?
- Interessegebied?

Hoe ziet de groep eruit waarmee u samenwerkte?

- Hoe was deze groep samengesteld?

Hoe zagen de meetingen/vergaderingen eruit?

Wanneer zijn de samenwerkingen gestart?

Bent u ook bij andere projecten betrokken of betrokken geweest?

- Zo ja, welke?
- Hoe heeft u dit ervaren?
-

Wat is er veranderd sinds het VN-verdrag dat in 2016 getekend is?

- Heeft u het gevoel een groter deel uit te maken van de samenleving, en waarom/waarom niet?
- Wie zijn er nu meer betrokken met de bekrachtiging van het VN-verdrag?

  Hoe zouden andere groepen meer betrokken kunnen worden?

Hoe heeft u de samenwerking ervaren?

- Wat hoopt u voor de toekomst?

- Had u het gevoel dat er geluisterd werd naar u?

Waaruit bleek dat?

- Wat waren de punten die u graag met de gemeente Groningen wilde bespreken?

- Heeft de gemeente Groningen dit ook meegenomen in het definitieve plan?

Interview 3: : level of involvement/participation through Toegankelijk Groningen with participation factors (in Dutch)

Openingsvragen

Kunt u iets over uzelf vertellen?

- Waar komt u vandaan?
- Stad of omstreken
- Werkervaring?
- Hobby's
- Belangen organisaties aangesloten
- Opleiding

Hoe oud bent u?

Zou u kunnen vertellen wat uw zicht is op dit moment?

- Leeftijd?

Maakt u ook gebruik van hulpmiddelen zoals een taststok of een blindegeleidehond?

- Wat is uw ervaring hiermee?
- Maakt u ook gebruik van mobiele apps om van a naar b te komen?

Hoe ervaart u uw mobiliteit?

- Station Groningen?
- Hoe vaak maakt u gebruik van de bus of trein?

  Waarom? Wat houdt u tegen om gebruik te maken van openbaar vervoer?

  Waarom maakt u juist gebruik van het openbaar vervoer?

  Wat is uw ervaring met openbaar vervoer?

Bij welke belangenorganisaties bent u betrokken?

- Wat is uw rol in deze organisaties
- Waarom bent u bij deze organisaties actief
- Wat is de rol van uw familie hierin, hebben zij bijvoorbeeld geholpen hierbij of vinden zij participatie belangrijk?

Wat zijn de contacten die de organisaties/werkgroep heeft met Toegankelijk Groningen?

- *Wat is volgens u de invloed van Toegankelijk Groningen?*

Hoe betrokken voelt u zich in de maatschappij?

- Hoe zou u zich meer betrokken voelen?

Wat is er veranderd sinds het VN-verdrag dat in 2016 getekend is?

- Heeft u het gevoel een groter deel uit te maken van de samenleving, en waarom/waarom niet?

C. Original quotes (in Dutch)

[i] *"De perrons liggen als een scharenspoor tegenover elkaar […] en dan is het nog gevaarlijk, die bussen die komen aanrijden."*

[ii] *"[…] dan kom je bij die blauwe oversteekplaats, en daar draaien al die bussen om de straat op te gaan, […] maar dan moet je ook nog kijken, want na een bus kan een andere bus komen."*

[iii] *"Ik kon weer zelfstandig reizen met de hond, van de bus naar het station, en naar de trein lopen en de incheckpaal. […] Dus ik had eigenlijk geen hulp nodig."*

[iv] *"[…] mijn concentratie wordt minder. Ik dwaal gauw af in mijn gedachten [...]."*

[v] *"Het is toch wel degelijk nodig om een werkgroep te hebben die speciaal aandacht vraagt voor het gehandicaptenbeleid. Ook ambtenaren, die iets onderzoeken, bijvoorbeeld de toegankelijkheid van de A-straat, die komen toch uit bij de mensen die ze al kennen, en dat zijn wij nu."*

[vi] *"Dat het automatisch wordt, en dan hebben we het over een inclusieve samenleving. […] toegankelijkheid gaat over iedereen."*

[vii] *"[…] en die moeten een zeker intellect nodig hebben, er moet een drive in zitten dat ze de wereld willen verbeteren en ze moeten de energie hebben dat ze het ook kunnen doen naast hun beperking."*

[viii] *"En dan vallen ook veel oriëntatiepunten weg, zoals geleide-lijnen. Onze shared space is voor ons belangrijk dat het niet overal wordt ingevoerd, want dan voelen wij ons heel onveilig."*

[ix] *Je maakt een knooppunt voor openbaar vervoer, en dan het over de informatievoorziening en hoe kom je er, en dan zit je voornamelijk bij blinden en slechtzienden want die lopen daar het eerste tegen aan. En rolstoel en rollator toegankelijk dat heb je dan allang geregeld, om alles mooi geleidelijk te krijgen. Heb je nog een omroepsysteem op het station dan heb je het ook weer over de grotere groep ouderen.*

[x] *"Er zijn maar weinig [blinden] die met braille werken,. Wij als buitenstaanders, als wij nou dingen gaan regelen, braille op de armleuning zodat ze weten wat ze moeten doen, dan heb je maar een hele kleine groep bereikt. Maar dat weet je pas als je dat hoort van die ervaringsdeskundigen [Toegankelijk Groningen members]."*

[xi] *"Ik zal het uitgelegd moeten krijgen hoe het allemaal gaat worden. En, dat is nog wat moeilijker."*