Bit by Byte: Unlocking Digital Inclusion for Migrants in the Netherlands

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Executive summary

The thesis, titled Bit by Byte: Unlocking Digital Inclusion for Migrants in the Netherlands, examines the challenges and opportunities migrants face in engaging with the Netherlands' advanced digital infrastructure.

Conducted as part of the Complex Systems Engineering and Management program at Delft University of Technology, the research employs a qualitative methodology, including literature reviews, conceptual analysis, and semi-structured interviews with migrants and experts. It focuses on three migrant groups—economic migrants, students, and forced migrants—and addresses three key research questions: (1) What are the digital inclusion needs of migrants? (2) What are their positive and negative experiences? (3) What strategies and technologies can enhance their digital inclusion?

Key findings reveal that migrants encounter significant barriers, including unclear government information, language limitations, and a digital landscape that assumes high technical proficiency. Negative experiences often stem from the complexity of Dutch digital systems, a lack of translations, and feelings of exclusion due to cultural differences. Conversely, positive experiences highlight the accessibility of digital services, the availability of help through informal networks, and the advanced nature of the Dutch digital ecosystem. The study identifies strategies such as clear and concise communication, community-based support, and the development of unified digital platforms to address these challenges. Technologies like AI-driven chat support and multilingual interfaces are proposed to enhance accessibility. And a contribution is made to the existing digital inclusion framework.

The societal relevance of this research lies in its potential to inform policies that reduce digital exclusion, thereby improving social cohesion, economic participation, and well-being among migrants. Academically, it fills a gap in the literature by focusing on underrepresented migrant groups (economic and student migrants) and the Dutch context, contributing to interdisciplinary fields such as ICT system design, policy analysis, and migration studies. Recommendations include improving government communication, investing in community-based digital literacy programs, and designing inclusive digital tools tailored to diverse migrant needs. This thesis underscores the importance of focusing on understanding the needs of migrants to allow them to fully participate in the Netherlands' digital society, offering insights that can guide future policy and

technological interventions.

Dedication and acknowledgements

To my parents, thank you for the love and support. I am almost there.

This thesis has taken turns and twists, before arriving at this point, the end, where I am able to write a dedication to those without whom this would not be possible. After returning to the Netherlands after half a year abroad with many great memories, I felt an eagerness to use my knowledge and bring something positive to society. The journey in Japan shaped me and had a big influence on this thesis, having been a migrant myself for a short period of time. It definitely took some shifting, coming back and working *alone* on a thesis. Luckily, I have not once felt alone during this period. Through happy times we celebrated, and for the tougher times we found a way out. A lot of people have contributed, without whom it would not have been possible to reach these results; therefore, I would like to take the opportunity to give a small word of thanks to those who deserve much more.

First of all, I would like to thank Anneke. When I was desperately looking for a thesis supervisor, by luck, I found the best one. Our bond started with a diversity and inclusion team, which we continued throughout the year. I am happy to have contributed a little bit to both diversity and inclusion, and digital inclusion with this thesis. Without Anneke's help and motivation, the thesis would have never found its footing. The insights and support were invaluable during this process. Furthermore, the nice atmosphere during our meetings made me excited to start working again and enjoy the sometimes long, dreary process of research.

Secondly, I would like to thank Janna for her input and motivation. The point of view from an ethics perspective stirred the research in a direction that allowed for more depth and a broader understanding of the topics. Once more, I always looked forward to the meetings that we had. The process was really enjoyable. Critical feedback, but always with the goal of improving the thesis.

Furthermore, I would like to thank Nico. The topic of forced migrants caused a lot of commotion within the ethics boards. A topic that was new to both us. It was the aspect I dreaded most, but Nico made it fun and approachable.

Then I would like to thank the organisations that helped me get in contact with migrants. Furthermore, I would like to thank the organisations that pointed me in the right direction and were always open to thinking about possibilities to find people interested in doing interviews.

Lastly, I want to thank all the interviewees who took the time and effort to share their invaluable experiences with me. Without them, this research would not have been possible.

To end this page, I would like to refer to a quote of John F. Kennedy. During this thesis, I had the honour to create a deeper understanding of people from different countries and cultures who came to the Netherlands with great intentions, or to make the best out of a situation they did not always envision as their future. I have learned a lot about them, but also about the Netherlands and the digital environment.
As the host, it is not just on the others to completely change into our mould of how a human should be. Coming together means effort from both sides. Differences should be emphasised; only then, growth is possible.

"If we cannot end now our differences, at least we can help make the world safe for diversity."

— John F. Kennedy

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Chapter 1

Introduction

1.1 Background

Finally, it is there, a new country. After all the stress of your home country, you made it. Okay, fair is fair, you just arrived in the hotel after a long flight. And you might have paid a little too much for the bus by taking the wrong direction. Anyway, a quick night of sleep and then your new life will begin. Tomorrow you can sleep in your own place, in your own bed. A tear falls down your cheek, the journey was long, but here you are now. It is early but you arrive in your new home. It is a bit smaller than on the pictures. The landlord comes to welcome you. Everything seems to work well. Oh, he asks for money upfront? Alright... that was all I had left for now, I will have to go to the bank later today. *'Was I supposed to pay rent upfront?'*. 'I can try to google it, or maybe translate my contract...' Sweat appears on your forehead, there is no Wi-Fi!? I need to register at my new address and get a subsidy, how do I get to the city hall? I saw a coffee shop on the way here, maybe there is someone who speaks English, hopefully there is Wi-Fi ...

Being a migrant is far from easy. Having to learn a new language, settling in a new culture with different foods and rituals and leaving your home and family behind. Since not too long ago, the digital climate has become more and more important adding an extra dimension of difficulty for migrants. Migrants possess characteristics of vulnerable groups which could lead to digital exclusion [1], [2]. Digital inclusion has become a topic of interest as governments aim to improve digital inclusion [3]–[6]. In the Netherlands, starting in 2025 the government even dedicates a full week to digital inclusion [7]. Not only the public sector recognises the importance, many big companies put efforts into

digital inclusion too. They emphasise the significance of this topic and raise awareness with projects that: focus on getting everyone connected to the internet, provide devices to connect to the digital world, teach how to use new technologies; just to name a few [8]–[10].

A common misconception is that digital exclusion is an issue just for the elderly, since the younger generations, the so-called *digital natives*, grew up surrounded by the digital environment [11]. Yet, even the ones accustomed to digital from a young age experience difficulties with the environment [12], [13]. Schurmans and Van Audenhove (2014) mention that youth in a vulnerable position specifically have less digital experience [12]. Growing up surrounded by digital developments does not automatically mean that you become accustomed to all its important traits. The term *digital orphans* is created for those who grew up with tech access, but did not have the guidance on how to actually use and live with it [14]. There are many factors that affect digital inclusion struggles, among others: income, growing up in a digital environment, guidance with digital technologies [11], [14], [15].

A specific group of people for whom digital inclusion challenges are magnified are migrants [1]. This group experiences difficulties with essential everyday tasks like health care and housing [16]. There are numerous reasons why it is more challenging for migrants to equal the digital proficiency of the host country. Migrants often lack access to digital technologies or are discouraged as a result of hate speech on platforms [17], [18]. Linked to access to technology is the lack of literacy skills to be able to access ICT, as the restriction to ICT also results in a deficiency in ICT practices [19]. Furthermore, studies also show that migrants often have lower incomes than natives, which is in turn affected by their language proficiency in the host country [20]–[22]. And language itself poses a challenge for digital inclusion, not speaking the native tongue [1]. Lastly, as the Netherlands is one of the most digitally advanced countries, the entire environment for migrants abruptly changes [23], [24].

1.2 Main concepts

This section covers the main concepts of this thesis. The main concepts are digital inclusion and migrants in the Netherlands. These concepts are explained in depth, and affiliated terms are introduced and clarified using Tähtinen and Havila (2018)'s conceptual

analysis method (CAM) as guideline [25].

1.2.1 Digital inclusion

Digital inclusion is a relatively new concept that has garnered increasing attention in recent years [26]. A clear and unequivocal definition is not yet established, leading to confusion as to what exactly digital inclusion is [27]. At its core, digital inclusion can be described as *a government responding to digital inequities* [28]. It serves as a bridge between the digital divide and social inclusion [26]. The elements that make up 'digital inclusion' have evolved over time. Even the term itself was first known as digital divide, after which later digital inclusion was deemed more suitable [29].

Van Dijk (2020) describes the three levels of digital divide [29]. The first level is focussed on physical access, ensuring that people have access to computers and a connection to the internet. The second level, originated from one point in time where the physical access was mostly present. However, some scholars found that the digital divide was not solved, it underwent a metamorphosis, and the focus shifted to skills and usage. In other words, now that access is established, what the new technologies are used for and how well people are able to use them are of interest and create a divide between them. This second level is still present today, nevertheless, the third level has also presented itself, with the focus on the *outcomes* of computers and the internet on the lives of people. Van Dijk illustrates the dynamic nature of the digital divide with these three levels [29].

Digital inclusion, as well as the digital divide, is thus centred on *being able* to participate, or in other words, having access to technologies, where after the personal aspects are becoming part of digital inclusion, namely, *wanting* to participate and having the *skills* needed to do so [26], [29]–[31].

Digital inclusion is a phenomenon that has a big impact on daily lives. The principle even affects some human rights [32]. With the rise and appliances of digital technologies, the gap between those who are able and comfortable using technologies and those who are not increases. The Dutch government currently subsides projects that promote digital inclusion [33]. This initiative aims to prevent citizens from missing out on opportunities and falling even further behind in the digital age [4].

New digital technologies do however not only broaden the gap. On the contrary, more

advanced digital technologies can bridge the gap [18], [34]. One example can be seen in the war between Russia and Ukraine, where Ukraine's internet access has been restrained by Russia [35]. A newer technology helped Ukraine get closer to being digitally included again: Starlink [36]. As digital technologies are the cause for the exclusion, they can also be the solution. Another example is technology for disabled people that is vital for them to bridge the gap and be part of society [37]. Although it helps, for this to work the technology must be *accessible* to the disabled. It is therefore not the technology itself that creates the divide. Technologies can both create accessibility issues and provide solutions for accessibility.

For this paper the expressions *digital inclusion*, *digital divide* and *digital gap* are used unitedly. Several other concepts could be added to this: eInclusion, digital exclusion and many more. Although there are some differences between them, depending on the author and literature, they mostly refer to *the process of getting everyone connected*, which will be the definition used in this paper. Some authors have made a deep dive which is beyond the scope of this research [38].

1.2.1.1 Social inclusion

To truly grasp the meaning of digital inclusion and the effects it has, it is valuable to understand social inclusion. As social inclusion is nowadays influenced by technological developments [30], [39], [40].

The (in)ability to effectively work with newly introduced digital technologies has a significant impact on participation in society and, consequently, affects social inclusion. Social inclusion is an important factor for the mental well-being of individuals [41]. The relationship between social inclusion and digital inclusion is explained by Mori (2010) [38]. The author mentions that both the concepts of social exclusion and digital inclusion vary in different studies. Thus, an exact and unambiguous definition of social inclusion is currently missing in literature [41]–[43].

Burchardt et al. (1999) define a socially excluded individual as when "he or she does not participate in the normal activities of citizens in that society" [44, p. 230]. And Levitas et al. (2007) describe social exclusion as: "[social exclusion] involves the lack or denial of resources, rights, goods and services, and the inability to participate in the normal relationships and activities, available to the majority of people in a society ..." [45, p. 25]. Other definitions describe social inclusion as: "... full participation in all aspects

of life" [46, p. 12], and: "a virtuous circle of improved rights of access to the social and economic world, new opportunities, recovery of status and meaning, and reduced impact of disability" [47, p. 122]. In the Dutch context, definitions of social inclusion are: "the feeling of truly *belonging* and this only becomes meaningful if it is also accompanied by social participation or, in short, *taking part*" (author's translation of Van Regenmortel (2025)) [48, p. 27].

Davey and Gordon (2017) mention that there are two schools of thought in these definitions, one focusing on rights and the other on participation [49]. As Coalitie voor Inclusie (2023) phrase it: "We can help the person who 'deviates' from the average to participate in adjustments. But we can also help society in how we can take each other into account so that the differences between people are not a problem, but very normal and meaningful in society." (author's translation of Coalitie voor Inclusie (2023)) [50, para. 6]. In other words, differences should not be seen as bad, but they are undeniably present in society. To create social inclusion in these situations, we should not only see how the differences can be tackled, but also how to change society's view in helping each other with the differences.

In other words, a society that strives for equity rather than equality. The goal is not to provide everyone with the same resources, but rather, recognise that each person has different circumstances and resources should be allocated based on the needs of each person [50], [51]. Notably, equity is not the goal, it serves as the means to attain an inclusive society [52]. Instead of solely focusing on overcoming obstacles, an alternative approach is found. To guarantee societal participation, citizens should help each other raise higher levels and remove obstructions and obstacles as much as possible [50].

Taking a step back again, for this research the *participation* definition of Davey and Gordon (2017) will be used as it could be said that without the *rights*, participation is simply not possible, as there are too many barriers. This participation argument is more in line with *feeling included*, which is seen as the goal of this research.

From a bird's eye point of view, the relationship between social inclusion and digital inclusion is depicted in figure 1.1. Here, it is shown that social inclusion is much broader than digital inclusion, which is just a component of it [53]. This figure is not intended to show the definition of social inclusion, it solely depicts the complex rela-

tionships that are present in literature between definitions. Exact definitions will always depend on the context and the time of the research.
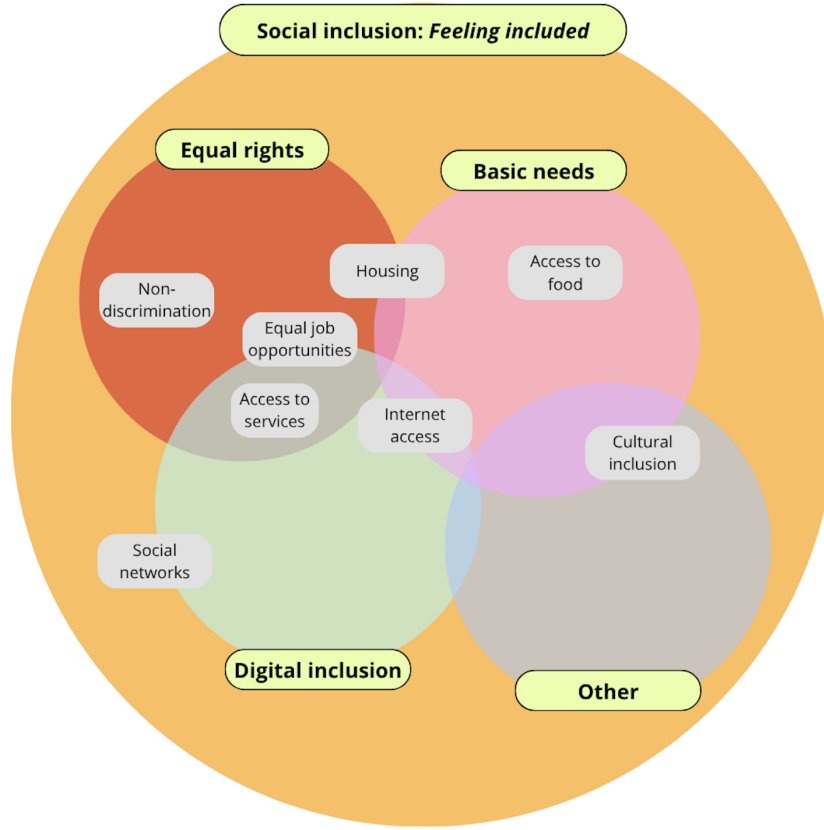
Figure 1.1: The complex relation between social inclusion, digital inclusion and affiliating terms (author's own work)

1.2.2 Migrants in the Netherlands

As for digital inclusion, the term migrants is not uniformly agreed upon [54]. Frequently, the definition of "migrant" is omitted from research seemingly because the term is self-evident and widely recognised [55]–[57]. While explaining the term may appear futile, this is far from the truth. Neglecting proper terminology affects the treatment of migrants. If chosen to use a label for migrants, this label should be accurate because classifying someone this way has consequences [58]. In addition, understanding the type of migrant has benefits both for the migrant and the host country [59]. To be able to make clear conclusion about the data and prevent a distorted image, the definitions of migrants should be clear [60].

Dokters van de Wereld (2025) refer to migrants as those *voluntarily* leaving their country, indicating that most asylum seekers and refugees are not [61]. The Dutch dictionary *van Dale* defines migrant as: "someone who moves to another region or country" (author's translation of van Dale (n.d.)) [62, Definition 1]. Already, two differences can be seen from these definitions. Firstly, it is unclear whether a country should be left or whether migration could also be within a country. Secondly, the distinction between voluntarily and involuntarily moving is not made clear, e.g. are asylum seekers and refugees - who have no choice but to leave their country - also considered migrants? Talleraas (2022) underlines these differences in literature in her chapter, mentioning: "These discussions underscore the potentially grave consequences—both analytically and politically—of how we distinguish between different sub-forms of migration" [63, p. 113].

For this report, the definition of migrant that will be used is the foreign citizenship criterion, meaning "*individuals that do not hold the national citizenship of the countries under study*" [60, p. 36]. This classification is sufficient for this research as it creates a clear boundary. On top of that, given the goal of this research it embodies the essence of the message it is trying to convey. In this definition everyone without the national citizenship of that country is a migrant, including refugees and asylum seekers.

With the definition of *migrant* illustrated for this study, the difference between migrant groups must be better understood. There are four main classifications patterns that can be found in literature:

1. Motivation/purpose [63]

2. Legal status [58]

3. Duration [59]

4. Origin (under debate as mentioned by Bovens et al. (2017)) [64]

For this research specifically, the classification in Motivation/purpose is most interesting. Overall, five main reasons for motivation/purpose can be found in literature: *Work/economic* [65]–[70]; *Studies* [65]–[67], [69], [70]; *Family* [65]–[70]; *Forced migration* [65]–[70]; and *Migration for enjoyment* [65], [67], [69].

For this research the: work/economic migrants, student migrants and forced migrants will be considered. This decision is based on the fact that digital inclusion is especially

relevant for these groups. These groups are directly interacting with the primary drivers of digital inclusion challenges and opportunities, which are central to this research. Second, excluding family migrants and those migrating for enjoyment makes the research more feasible given the time span and increases the depth.

Within the scope of this study, forced migrants is understood as people who *have* to leave their country. This groups does not want to leave their country or plan on doing so. But because of a war, natural disasters, a political situation, the country is not safe to reside in anymore. Forced migrants does comprise a fair group of different migrants in itself still.

The other two migrant groups are similar to each other in that they *choose to leave*. One group chooses to leave for economic reasons, particularly to find a better or more suitable job. These are the economic migrants. The main motivation for student migrants to enter the Netherlands is for study.

However, these three groups are not completely separated. Figure 1.2 and table 1.1 illustrate the overlap between the three migrant groups in this study. It is ruled out that there is a possibility of a forced migrant if the initial reason for relocating to the Netherlands was either economic or academic. Within the scope of this study, it is impossible to be an international student or economic migrant primarily, and a forced migrant secondary, as the initial reason for leaving the home country is not forced. Lastly, the requirement of a migrant having to leave its country, as mentioned above, is sufficient for this research. As the research focuses specifically on the Netherlands, it is unnecessary to consider local migrants, as they are classified as natives for this study.
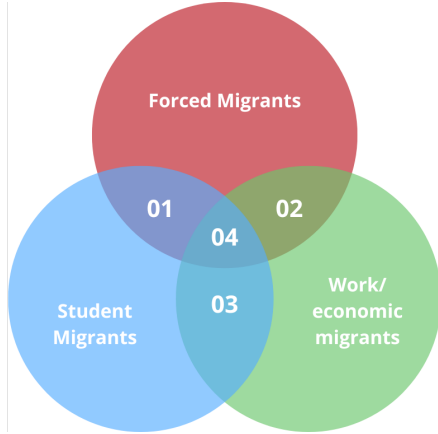
Figure 1.2: Venn diagram of migrants in this research

Table 1.1: Explanation of numbers in the Venn diagram

Nr.	Explanation
01	Forced migrants who are studying
02	Forced migrants who (seek) work
03	Students who stay in the country to work, have a job on top of studies, or economic migrants who study next to their work
04	Forced migrants who: (1) begin with studying and later started to work or (2) work next to studying and vice versa

1.2.3 Digital inclusion for migrants in the Netherlands

The literature is quite broad on migrants and digital inclusion. However, as stated in the knowledge gap (section 1.3) there are quite some unknowns regarding the Dutch context and the different types of migrants. The International Organization for Migration (IOM) which focusses on "*promoting humane and orderly migration*" has provided an overview of different groups of migrants [71, para. 2]. They specifically focus on "migrant workers, international students, refugees, asylum-seekers, IDPs" (internally displaced persons) [72, p. 2].

The choice for migrants in combination with the digital divide stems from the fact that migrants especially, are affected by the digital divide as they are vulnerable to be affected by most characteristics of digital exclusion [73]. Wilson-Menzfeld et al. (2024) name a few: low economic status; lower educational attainment; older age; health status and disability; English being a second language (e.g. study was performed in the UK meaning English is first language for natives) [1]. There are arguments to be made that migrants are vulnerable to fall in this position.

Policies often fail to adequately address the needs of these groups, resulting in exclusion [74]. Job access and social exclusion are just the tip of the iceberg [75]. As Czaja &

Urbaniec (2019) mention, basic digital skills are required "*in order to be able to live, work, learn and participate in contemporary society*" [75, p. 334]. Ragnedda et al. (2022) found that socially vulnerable groups have more difficulty using digital technologies, creating more inequalities in the long term, as the authors show that digital exclusion has a reinforcing effect on social exclusion [2]. It is therefore important that the digital divide is bridged, as numerous vulnerable groups are its victims, who are falling further and further behind.

1.2.4 Research scope

The research takes place from February 2025 until July 2025 and is focused on digital inclusion for migrants in the Netherlands. To create a clear understanding of what this means, in this section the key terms are explained to understand the scope. These key terms are digital inclusion, migrants, and the Netherlands.

Digital inclusion

In section 1.2.1 digital inclusion is explained for this thesis. Digital inclusion is primarily concerned with digital (government) services, digital devices and the ability to use them and cope with them.
Digital inclusion is in this study specified to what a specific country has to offer. In this case, the Netherlands.

Netherlands

The country of interest being the Netherlands, for this study demarcated to its territory within Europe. All the services that the Netherlands offers and are available in this country are part of this research.

Migrants

Migrants, as previously defined in section 1.2.2. Migrants are individuals who have relocated to the Netherlands from a foreign country, irrespective of their country of origin.

1.3 Knowledge gap

There are numerous papers concerning forced migrants in the Netherlands on different topics. A short overview, Health: sexual health [76], female genital mutilation/cutting [77], reproductive health care [78]; Inclusion and integration of migrants: Entrepreneurship and inclusion of migrants [79], Religion and integration [80], stimulating inclusion with a trading game [81], citizens' and right-wing ideological attitude towards migrants [82]; how media representation shapes the arrival climate of migrants [83]; and many more.

Although research on forced migrants is abundant, literature on migrants who have arrived in the Netherlands for work or study have not been a subject of widespread discussion in many studies. Some articles on economic migrants are those of Popa (2019), who looks at the working conditions for Central and Eastern European migrants [84], and Visser et al. 2004 who focus on health, specifically cancer risk of the partners of migrant workers [85].

There is a scarcity of research specifically focused on digital inclusion for migrants in the Netherlands. Horsley et al. (2024) and Leurs (2016) are among the few scholars who have addressed this topic within the Dutch context [86], [87]. The Netherlands is amid the leaders in digitalisation in comparison to other EU countries [23], [24]. Moreover, the Dutch house many different types of migrants [88]. Just these two components alone would make for an interesting research. Yet, literature is lacking on how digital inclusion is perceived by migrants and how it affects them. Following that, current literature also lacks ideas on how to improve the situation for migrants in the Netherlands.

The research aims to address the following gaps: first, the absence of research specifically focused on digital inclusion for migrants in the Dutch context. Secondly, more specifically, the underrepresentation of student migrants and economic migrants in the literature. Thirdly, suggestions on how to improve the situation for migrants in the Netherlands are - given the prior gaps not unexpectedly - missing in literature. This research will provide valuable insights into the Dutch landscape and shed light on the often-neglected migrant groups and underrepresented communities. The migrant's perspective will be explored and ideas will be generated on how to improve their situations. To do this, the following research question is proposed:

How can digital inclusion be enhanced for different groups of migrants in the Netherlands?

1.4 Societal and academic relevance

In the two upcoming sections, the societal and academic relevance will be discussed, with their foundation in the knowledge gap. The societal relevance shows why it is important to think about the topic of this research and what the results of this study could contribute to society.

The academic relevance will mention what novel topics will be covered in this research, why this is relevant and what it study contributes to existing literature.

1.4.1 Societal relevance

It is important to ensure that everyone is able to cope with the digital landscape. Literature has shown that the Netherlands is vastly ahead compared to other countries in terms of its digital society. It seems only logical that migrants should encounter some difficulties arriving in the country they come to live in, when that country is further ahead with the digitalisation of its environment.

Furthermore, many other aspects of this country are new to migrants, who do not have the knowledge or experience with these facets yet. Therefore, it is interesting to see how migrants themselves experience their digital lives in the Netherlands. This will bring insights that have not yet been explored in literature. Which could lead to a better understanding of migrants, resulting in more effective help.

These insights are valuable as digital inclusion affects how socially included people feel [39], [40]. On top of that, digital skills have an impact on health [89]. Although on the surface it might seem that digital inclusion does not have an impact on the well-being of a person, literature shows that digital skills and thus digital inclusion have a strong relationship with how well a person feels and fits in society [27].

This research therefore, tackles two considerable topics at once. As migration is a concurrent topic that has only gotten more attention with the shift in the political climate [90], [91]. The interest around digital inclusion is growing, as recent developments have been the start of the digital society. Understanding how others than natives cope with this brings valuable knowledge to the Netherlands which helps understand and guide migrants coming to this country, now and in the future.

Lastly, ensuring that everyone is digitally included is not just a plus for those who

now feel excluded. The whole country can benefit from having its people included digitally. The Social Exclusion Unit (2001) set out effects that could appear when people are socially excluded, among which higher crime rate, lack of social cohesion, and worse health, all leading to higher costs for the individual, resulting in losses and costs for society [92]. The taxpayer will, as a result, have higher costs because the price of services, like healthcare, will increase, and the potential amount of GDP is lower, leading to a loss in tax revenue [93]. A report by Cebr (2022) shows that for every £1 invested in digital inclusion, a return of £9.48 is gained throughout the economy [94]. Digital inclusion thus influences the cost borne by the whole society.

As a final note in this section, migrants are a topic of interest in almost any country currently [95]–[99]. Potentially, this thesis can bring a better understanding of migrants in our society. Leading to new perspectives, fencing of immediate, ungrounded exclusion and starting to foster a climate of understanding, bringing new perspectives on migrants and the opportunities those provide. Shifting the political dynamic from, 'we do not want them' to 'we can improve together'.
Adding to that, the population of many western countries would be decreasing, the Netherlands being one of them, without the inflow of migrants [100]–[102]. The consequences of a population decline are numerous, as already schools are closing down in small cities, fewer facilities for the population are available, and economically there are fewer and fewer working age people available to support an ageing population [103], [104]. Socially, it is of importance not only to welcome migrants, but to let them be part of the Dutch society.

1.4.2 Academic relevance

The existing literature provides ample information on digital inclusion [28], [30], [38], [39], [105]–[107]. In recent years, digital inclusion has emerged as a subject of scholarly interest, with numerous articles exploring various aspects of this topic.
Different topics concerning migrants have surfaced in articles as well. Even the combination of migrants and digital inclusion is covered in literature [16], [18], [19], [34], [107]; however, there are some remarks to be made. The literature rarely makes a clear division between the different types of migrants. Mazzucato (2008) is an exception and does make a distinction in type of migrant, mentioning that most Ghanaian migrants in the Netherlands are economic migrants [56]. Migrants are either not explained or piled together without making a clear distinction.

Furthermore, the Dutch context is barely covered in the literature. Using Jia et al. (2024) [26], this research adds to the existing literature by understanding what different groups of migrants are present in society and how they experience the digital society.

As currently, information is lacking on the experiences of migrants in the digital environment, effective resources and solutions for migrants in the digital environment are likewise missing. With this research, new strategies can be developed to effectively help migrants in dealing with and ultimately excelling in their new environment. Moreover, the insights from this study could spark ideas for new technological developments.

This research explores different migrant groups and emphasises the value of clear distinctions between the groups. Moreover, the current literature has an absence on digital inclusion for migrants in the Dutch context. This study fills that absence by understanding migrants view on digital inclusion in the Netherlands and suggesting strategies and technologies that could provide aid. Lastly, the research will be a starting point for future studies to understand digital inclusion and migrants better and to explore different topics for digital inclusion in the Netherlands. Overall, this research bridges ICT system design, policy analysis, ethics, and migration studies, offering a multidisciplinary lens to address digital inclusion challenges in complex socio-technical systems. This offers a new view on an underexposed topic.

1.5   Alignement with CoSEM program

CoSEM is the master's program within the faculty of Technology, Policy and Management of TU Delft, which has its focus on designing in complex technical environments. This program combines technical skills with social aspects. Central to the program is the management of complex socio-technical systems, where multiple stakeholders, technologies, and policies continuously interact.

The migration landscape in the Netherlands exemplifies such a system, involving diverse populations, governmental regulations, and societal integration efforts. Adding the layer of digital inclusion introduces an additional dimension of complexity, bridging technological access, skill development, and social acceptance, making it an interesting and relevant challenge to manage. This alignment resonates with CoSEM's core focus on tackling multifaceted systems that require innovative governance and design solutions.

CoSEM looks beyond technical skills and focuses on the implementation of policies with respect to social issues, a perspective critical for adapting and proposing effective strategies. This holistic approach is especially vital for my research, as digital inclusion for migrants involves not only technological solutions but also policy interventions to address inequities, such as limited internet access and literacy barriers. The I&C track, with its focus on designing I&C-based platforms for multi-actor collaboration, safety and security, provides a strong foundation for this study.

This foundation is required because digital divisions, as phrased by Van Dijk and Hacker (2003), is in itself a complex and dynamic phenomena, since it is a *"multifaceted concept with all kinds of different problematics, and [...] trends based on evolving technology"* [108, p. 13]; [109]. The terminologies regarding digital divide change over time, the current divide is different than the one ten years ago and so on [108]. One of CoSEM's focus is the systems thinking approach, which will be of great use connecting the systems in this thesis. Therefore, the topic of digital inclusion for migrants in the Netherlands fits the program strongly.

Overall, the CoSEM program is well-represented in this thesis. The migration system in the Netherlands, enhanced by the challenges digital inclusion has to offer, embodies the complex systems CoSEM seeks to address [109]. The I&C track's expertise in designing inclusive ICT solutions supports the technical and societal analysis, while the program's emphasis on policy implementation and ethical considerations elevates the research to a higher level of understanding. This synergy allows me to approach the topic from a multidisciplinary perspective, integrating technical design, policy analysis, and social impact combined with ethical considerations, to propose meaningful solutions for migrants to improve digital inclusion in the Netherlands.

1.6 Thesis outline

Chapter 1 introduces the topic of the thesis. Chapter 2 covers the research design. The methods that are used in this research are discussed. Chapter 3 covers subquestion 1, which is about the needs of migrants regarding digital inclusion in the Netherlands. Chapter 4 covers subquestion 2, which looks at the experiences of migrants regarding digital inclusion in the Netherlands. Chapter 5 covers subquestion 3, where the strategies and technologies that could help migrants be more digitally included in the Netherlands

are discussed. Chapter 6 presents the discussion of the findings. Chapter 7 presents the conclusion.

Chapter 2

Research design

Chapter 2, the research design elaborates on the research approach and the methods that are used to answer the research question. To start, the research questions that make up the main research question are explained. Then, the research approach covers how the research questions are addressed. Furthermore, the strengths and weaknesses of the approach are covered, as well as the narrative behind choosing the approach for this topic.

2.1 Research questions

The research questions are created from the knowledge gap, following an initial literature review. The main research question is: *How can digital inclusion be enhanced for different groups of migrants in the Netherlands?* This is divided into three subquestions:

1. What are the different digital inclusion needs of migrants in the Netherlands?

2. What are the positive and negative experiences of migrants related to digital inclusion in the Netherlands?

3. What strategies and technological innovations can enhance digital inclusion for migrants in the Netherlands?

For each subquestion, the type of question will be explained, and the methods applied for the specific research question will be elaborated on. The complete picture will be schematically displayed in Figure 2.1.

Legend

Elements of the chapter

Output

Subquestions

Bit by Byte: Unlocking Digital Inclusion for Migrants in the Netherlands

Chapter 1: Introduction

Problem sketch
Scope
Main concepts
Knowledge gap
Academic and societal relevance
Alignment with CoSEM

Chapter 2: Research Design

Research questions
Research approach
Methodology

Methodology

Conceptual analysis

Output: Research questions and foundation to start exploring research questions

Understanding of migrants perspective

Chapter 3: Digital inclusion needs

Chapter 4: Positive and negative experiences

Research subquestion: 1 & 2

Descriptive RQ

Literature Review

Semi structured interviews

- Migrants
- Experts

Output: Overview of the perception of different migrant groups on the digital environment in the Netherlands

Applying perspectives to create technologies and policies

Chapter 5: Strategies and Technologies

Research subquestion: 3

Exploratory RQ

Literature Review

Semi structured interviews

- Migrants
- Experts

Output: Technology and policy perspectives to improve digital inclusion for migrants

Chapter 7: Discussion

Chapter 8: Conclusion

Main findings
Academic contributions
Societal contributions
Research limitations and future research

Output: Recommendations for future research and conclusion to the research question

Figure 2.1: Research flow diagram

All subquestions are of an inferential nature, meaning a small sample will be taken and used to make conclusions about the larger population [110]. Subquestion 1 and 2 are descriptive in origin. These questions explain the current state of the situation without delving excessively into the details [110].

These initial two subquestions describe the current situation for migrants. For subquestion 1, a literature review is applied to understand the needs of migrants regarding digital inclusion in other regions than the Netherlands. From the preliminary literature review in chapter (see chapter 1 it has become clear that there is ambiguity about the meaning of several concepts that are central in this research. Therefore, a conceptual analysis of these concepts is used to create a clear and uniform starting point.
Subquestion 2 builds on the information gathered from the first subquestion. Adding to this, it is important that the experiences of migrants will also be understood from their point of view. Interviews are the chosen method to understand the Dutch migrants' point of view.

Subquestion 3 is of exploratory origin. This question examines the current data to find the interactions between variables that have not yet been focused on [110]. Trends are created from the extracted data. The data utilised, mainly originates from the preceding subquestions, to understand the migrants' needs and experiences of digital inclusion in the Netherlands. Data are gathered from both the existing literature as well as interviews to suggest possible improvements in policies and technologies.

2.2 Research approach

This research uses a qualitative approach. The qualitative approach is well suited to address the issues present in society and create an in-depth meaning of the topic [111], [112]. The knowledge gap reveals that there is a lack of information and data on the topic of digital inclusion for migrants in the Netherlands. Qualitative analysis - different from quantitative analysis - suits the lack of prior research as new insights are generated using this methodology [111], [113].

On the other hand, some scholars question the trustworthiness of a qualitative study. To increase the quality of the research, "transparency, accountability, and reflexivity" should be respected by the researcher, to let the reader in on the decision-making process [113, p. 52]. This research aims to be as open and lay out all the choices made.

Lastly, there are some ethical aspects that have to be taken into account while performing qualitative analysis. The well-being of the participants should be safeguarded and their right to their privacy must be respected [113]. Interviews collect data from, in this case, vulnerable people. Migrants, especially forced migrants, left their country for specific reasons. Their well-being is a priority. Furthermore, the information they provide could be sensitive. This information should be safely stored and non-essential information should be deleted. Both these aspects are covered by the data management plan and informed consent forms (see appendix B).

2.3 Methodology

The research is exploratory in nature, and uses a qualitative approach to understand undiscovered areas of research. Various methods are used that suit the qualitative approach, based on the research questions and the information required to answer these questions. The different methods are explained in the following sections.

2.4 Literature review

The literature review serves as a foundation for this research, setting out the current state of knowledge in the literature and identifying knowledge gaps. The research questions are structured into chapters, each of which incorporates a literature review, albeit varying in depth. The literature review serves as a prerequisite for the interviews, which will ultimately provide the insights driving the research. The literature review serves as a critical foundation for understanding the current state of digital inclusion for migrants in the Netherlands, informing the development of the research methods. It is not the primary method of this study but a vital tool for establishing context and grounding subsequent analyses. The review will be conducted thoroughly, drawing on the framework proposed by Brereton et al. (2006) as a guideline [114]. However, this framework will not be followed in its entirety; adaptations will be made to align with the study's time constraints and specific objectives. These modifications ensure the review remains focused on providing a robust foundation for the research while prioritising efficiency and relevance.

2.5 Conceptual analysis

A conceptual analysis is a crucial component of any research study, as outlined by Myburgh and Tammaro (2013): "Concepts themselves create a framework for understanding, making sense or meaning of the world, and they are articulated in an ontology" [115, p. 153]. The authors mention that without clear concepts, the world is not understood. More concretely, concepts should be understood to have a consensus over the meaning and allow further exploration. The conceptual analysis helps to create a shared understanding of concepts that are unclear because they are overused, allowing the researcher to refine the concepts [116]. Ultimately resulting in explicit definitions required in the understanding of the themes of the thesis.

The conceptual analysis is deployed to understand the core concepts of this thesis: migrants and digital inclusion. Tähtinen and Havila (2018) developed a conceptual analysis method (CAM) [25]. This method is applied to define the core concepts in section 1.2.

2.6 Semi-structured interviews

Literature has revealed that there is a lack of understanding how the digital society affects migrants in the Netherlands. Interviews can provide insight into what was previously unknown, which is the main reason to choose interviews as method in this research. Furthermore, face-to-face interviews support interaction with the respondent allowing to validate the answers and ensure the respondents' answers are their own [117].
On top of that, specifically semi-structured interviews are more flexible than for instance surveys, suiting this exploratory research, allowing to explore and go deeper into aspects mentioned by interviewees [118]. Adhabi and Anozie (2017) mention the possibility of interjecting in the interview, to make sure the interviewee understands the interview question [119]. Given the potential language barrier, the possible different cultural background and the technicality of the interview topic, it is an advantage to use a semi-structured interview, as this allows the interviewer to ensure the right question is answered and understood [119]. Furthermore, preset questions help guide the conversation, but the rigid format of structured interviews will be avoided to enable further questions into the provided answers and explore unthought-of answers by respondents [120], [121].

The above-mentioned benefits of semi-structured interviews are the reason this method

is chosen for this research. However, there are also some debates about the best way to approach an interview. There are advantages and disadvantages to all approaches.

For the approach in this research, the same interview questions were used for all respondents. This was decided with an eye on consistency. This decision could however lead to questions that are either too simple - obvious - for some, or too difficult - intricate - for others, as the questions were not specified based per interviewee. On the one hand this leads to consistency as the same questions mean equal opportunities and thus if differences occur, they can be attributed to different perspectives of the interviewee and not different questions by the interviewer. On the other hand, the same questions leads to inconsistency as equity is required to allow each interviewee to have the same level of understanding.

To ensure equity in this research for participants while keeping consistent results some measures have been taken. The questions were written in a language that is easy to understand without oversimplifying. Ensuring the questions are not leading and of an open nature [122]. Moreover, efforts were put into a level of understanding of the interview questions for all participants. Therefore, questions were made as comprehensible as possible. When deemed necessary, the questions were provided in translated format if confusion occurred during the interview. If there remained confusion, the interviewer would explain the questions in another way to the interviewee, or translation tools were used to communicate. Consistency is thus ensured by asking the same questions, while additional help provided equity and coherence in understanding.

To test the quality of the interview questions, before conducting the interviews, the questions were discussed within the research theme and have been through multiple iterations to finally arrive at the decided-upon set. Many changes were made in terms of the number of questions, the purpose of the questions and the understandability of the questions. To test the questions, a trial interview was held with a migrant who came to the Netherlands. Based on this interview, some questions were phrased differently for better understanding and misunderstandings were recognised to understand issues quicker during the actual interviews.

There are pitfalls that could occur during interviews. Yin (2017) reports that the interviewee could mention what the interviewer wants to hear, or that inaccuracies can happen due to poor recalling of what has been said [118]. The interviewer disclosed in

the beginning of the interview that the respondent is free to answer anything they want and can omit any question. The interviewee was explained the purpose of the research. Furthermore, all disclaimers were provided to ensure the respondent understood what they participated in. The respondent could stop at any time and could always request to take their answers out of the research. This is explained in the informed consent form which can be found in Appendix B. In here, it is stated that the interview will be recorded, this ensures that a poor recollection is countered.

The semi-structured interviews were all done face-to-face. This allowed for a good interview ambience and the synchronous communication, allowed for a natural conversation which helped to pick up cues that elevated the interview [123]. In-person interviews could for the interviewer take a lot of time and costs to perform depending on the location (ibid). Therefore, online interviews were also performed depending on the interviewees preference and location. Although there could be some negative effects, it opened up a lot of possibilities. The reach of participants was higher than in-person, having access to people all over the country and even outside of the country. On top of that, online interviews allowed for easier scheduling which is beneficial given the time constraints of this research. The interviews were conducted in both English and Dutch up to the interviewees preference. All these steps were taken with the interviewee in mind, to find ways that all participants felt comfortable and were represented in a manner suiting them.

2.6.1 Participant selection

There are two groups of participants for the interviews.

1. **Migrants**
   Migrants living in the Netherlands who experience the digital society.

2. **Experts**
   Experts who work with migrants, have a lot of contact with them and understand the individual's - as well as the group's struggles. Experts understand the struggle of migrants from a broader point of view, and they have a clearer vision of what is required in the Dutch society. On top of that, they are experts in the field, which provides insights into the possibilities of improving digital inclusion.

For the migrant group, another specification is made between forced migrants, economic migrants and international students.

Forced migrants have proven to be the most difficult category to get in contact with. Many organisations function as gatekeepers to ensure the safety and the least amount of stress for these migrants. Interview possibilities are often turned down. Furthermore, given the context of this study, reaching out to these migrants via digital tools and services, like social media or interest pages, could clash with the purpose of this research, and the target group might not represent the population by reaching out this way. Extra considerations were put into this as prior literature has shown that forced migrants have characteristics of a vulnerable group in the area of digital inclusion [1], [2]. The solution was presented by an organisation that was willing to help and ask forced migrants from Ukraine if they were willing to participate. Three participants in the category of forced migrants took part in the interview.

The difficulties experienced reaching out to forced migrants are ones that should be considered in future research. Section 6.3 will set out this topic in more detail.

For international students, it was more natural to find participants, given the fact that this is a master's thesis at a university that attracts a lot of international students. To ensure different perspectives of students, not all students come from the same university. Furthermore, their duration in the Netherlands varies significantly. On top of that, all participants come from different home countries.

Lastly, for the group of economic migrants, a social media platform was used to find participants. This has proven to be very effective. Even though the group of economic migrants currently does not cover the complete picture, it will provide a broader vision than hand-picking candidates. Therefore, this method was decided upon.

For the group of experts, various ways were used to connect with them. Most important in this process were the considerations on the area of expertise. Since the forced migrants in this study all come from one organisation and have the same background, experts on forced migrants were desired for this research to create a more complete picture. Therefore, two experts were contacted who could bring more insights into the situation of forced migrants. One expert was a refugee before herself. Now she has found work in which she helps and guides other refugees in their lives in the Netherlands. The

other expert works for the Dutch organisation whose main activity is providing permits to foreigners coming to the Netherlands. These two experts not only have a better oversight on the situation of migrants, but also show other sides of forced migrants and economic migrants, which would be potentially one-sided.

The third expert has a lot of connections with African immigrants and serves them as a community leader. These are both economic and forced migrants. This expert is close to the migrants, being a migrant himself. This provided different, closer insights into the community.

The last expert has his focus on economic migrants, particularly the people aged forty and above. This expert works to improve digital inclusion by creating an accessible way to learn about it.

In Figure 2.2, an overview is provided of the different types of migrants and experts who participated in the interview. The dots represent the migrants, and the colour of the dots indicates what the primary reason for arriving in the Netherlands is (red = forced, blue = student, green = economic). The arrows point to the area of expertise of the experts.
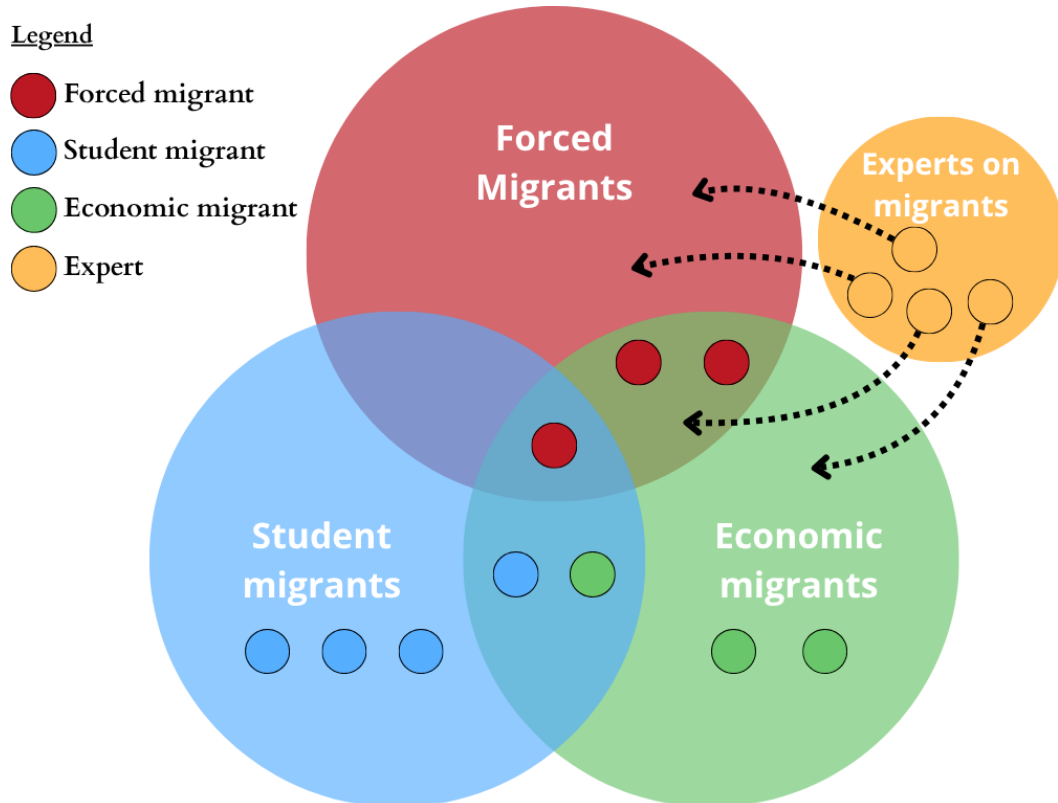
Figure 2.2: Overview of interview participants by migrant type (each dot represents a respondent)

2.6.1.1   Background of interviewees

The interviewees all differ from each other on several aspects. From the literature review, chapter 3, several sociodemographics are revealed to be focused on in current literature and are thought to have more effect on the digital inclusion of a person. These sociodemographics are applied to the interviewees in this research. The interviewees and their background are depicted in table 2.1. The interviews conducted with experts are not part of this table since the sociodemographics of the experts are assumed not to influence the interview results.

Nr.	Type of migrant (see section 1.2.2)	Gender	Age	Area of origin [124]	Time in the Netherlands
1	Forced migrant	Woman	35-40	Eastern Europe and Central Asia	± 3 years
2	Forced migrant	Woman	50-55	Eastern Europe and Central Asia	± 3 years
3	Forced migrant	Woman	40-45	Eastern Europe and Central Asia	± 2.5 years
4	Student migrant	Man	25-30	South Asia	± 2 years
5	Student migrant	Man	25-30	Latin America/ Eastern Europe and Central Asia	± 8 years
6	Student migrant	Woman	20-25	East Asia and Pacific	± 0.5 year
7	Student migrant	Woman	20-25	Western Europe	± 3 years
8	Economic migrant	Man	35-40	South Asia	± 1.5 years
9	Economic migrant	Man	35-40	Eastern Europe and Central Asia	± 5 years
10	Economic migrant	Woman	40-45	North America	± 2.5 years

Table 2.1: Sociodemographics of migrant interviewees

The group of migrant interviewees consists of a total of ten respondents. Of these ten, three are forced migrants, four are student migrants, and three are economic migrants. There are six interviews done with women and four with men. The ages range from 20 to 55 years old. The respondents' country of origin is from all across the world. Lastly, the time spent in the Netherlands at the time of the interview varies from half a year to eight years (see Figure 2.1).

The group of forced migrants shows the most similarities. They are all women from the same area of origin and have been in the Netherlands for approximately the same amount

of time. The results of this category are interesting to compare within the group of forced migrants themselves, as well as between forced migrants and the other types of migrants. Since the interviewees of this group are so similar, it is interesting to see if the results are also similar.

Student migrants, on the other hand, vary widely. There are equal men and women respondents, who are from all over the world. The time spent in the Netherlands also differs. Interestingly, looking at the men, although they are in the same age group, they come from different areas of origin and have a vastly different time spent in the Netherlands. For the women students, the same thing applies where the age group is similar, yet the time in the Netherlands and the area of origin are different.

The economic migrants' group varies most, in gender, age, area of origin, and time in the Netherlands.

The differences within the groups allow for a comparison within the type of migrant. Furthermore, interviewee 3 and interviewee 10 are identical, except for the type of migrant and the area of origin. Both comparisons between individual migrants as well as groups of migrants are performed.

2.6.2   Narrative behind the selection of participants

All participants that were interviewed had done so voluntarily. The researcher did not offer any rewards or benefits towards them or anyone affiliated. To ensure voluntary participation and honest answers.

For the forced migrants it was difficult to reach participants who were able to participate in the interviews. The participants have all been found via the same organisation. There are however, differences between them that make them unique in their cases. The choice was made to get in contact with this group of migrants via an organisation and not approach them directly. This is based on different reasons. First and foremost, this group has left their country for a reason, unwillingly, often with severe consequences to their home and families, which is why they are *forced* migrants. The participants could still be in a vulnerable position. To protect this position, an organisation has a better overview of what is possible and doable. Secondly, forced migrants are more likely not to speak the language of the host country or the English language, as they may not have had the time or intention to learn the language. An interview only works if there is an understanding between the interviewee and the interviewer. Again, an organisation can better estimate

what is possible and what is not, and possibly provide resources to solve this matter, like a translator. To have a fair assessment, it is important that a good picture of the group is created. Resources can help create a better understanding of the whole group and not just a part of it. This equitable approach is used to allow everyone to be able to participate.

For international students, decisions were made to consult different students from different universities and programs. Most students are from the same university. The choice was made to select students from different nationalities, programs as well and different durations of stay. Fewer issues occurred in understanding the students, as everyone had to speak English or Dutch to be able to conduct their studies in the Netherlands. However, the needs of the students were honoured and solutions were thought of in case necessary to ensure broader participation.

For economic migrants, it was chosen to inquire via a social media platform for interested participants. This has advantages and disadvantages. First, the obvious disadvantage is that the topic of this thesis is digital inclusion, and finding participants via a digital platform might distort the result. However, there are many advantages to this approach. A lot of interested people volunteered, which meant that the researcher had no influence on the choice of participants. Biases of the researcher are this way prevented. On top of that, a further reach than merely the university or social circle of the researchers were realised. Both in occupation and in the living area, a lot of differences are present. For this group, especially, since they are located around the country and their work schedules are packed, video calls were used as a way to conduct interviews, to accommodate them better.

2.6.3   Structured questionnaire

Part of the semi-structured interview is a structured questionnaire. The questionnaire is based on the study of Anrijs et al. (2020) [125]. This study was chosen for several reasons.

First, one of their categories, the *Digital Difficulties Scale* or DDS, is an "instrument that investigates difficulties in reaching specific outcomes related to income, housing,

and healthcare online" [125, p. 12]. This part of the research is very interesting as it shows the necessary digital skills people should be able to possess. This provides a way to measure digital inclusion that is otherwise difficult to measure [26].

Secondly, the authors mention the interest in applying their questions to disadvantaged groups like migrants for future research. Therefore, the study of Anrijs et al. (2020) fits seamlessly into this research and will be used to better understand the digital skills of migrants in the Netherlands. The full application and results of this part of the interview will be presented in section 3.2.2.2.

Overall, a structured questionnaire has the advantage that the results are less biased since they cannot be influenced by the researcher and the results are easily comparable among every respondent [126]. Negative sides are that questions could be unclear. To suit an equitable approach, during the time the questionnaire was filled in, respondents could ask questions to the interviewer to prevent any unclarities (ibid). The respondents all filled in the questionnaire themselves and were offered paper options as well as digital. Furthermore, the questionnaire was provided in the native language of the respondents if required, and the interviewer helped the respondents read and fill in the questions if needed. Since the questionnaire is not to test language but to test digital skills, these steps were taken to improve fair and useful research outcomes.

2.7 Thematic analysis

The thematic analysis follows from the results of the semi-structured interviews and the structured questionnaire. The phases of the renowned method of Braun and Clarke (2006) will be used [127]. The authors mention that there is not one way to perform a thematic analysis [127]. The decisions for the choices made are covered in this section.

Phase 1: Familiarisation with the data.
The researcher who performed the thematic analysis also did the interviews prior to the analysis. The researcher was thus familiar with the data present in the dataset. Furthermore, the researcher transcribed the interviews into text using the software of Microsoft Teams. The transcriptions were then checked for errors, and personal data were removed.

Phase 2: Generating initial codes.

The transcribed files were then each coded. Coding is done using the ATLAS.ti software. The coding in this research is done in two ways. The first part is done in a deductive way. The study of Jia et al. (2024) was applied to find codes that match the dimensions created in the research. More on the exact contents is presented in section 3.1.2.1. The second part of the coding is done in an inductive way, where codes were created based on the interviews and were open to changes. The themes of the coding are more theory-driven, as the questions were created based on previous literature.

As many codes as possible were created that are related to the topic of the study. The coding is an iterative process. Every transcript was open to changes to the code after new interviews were coded. On top of that, all transcripts were read through again after finishing the coding of the last interview.

Phase 3: Searching for themes. After the codes were created, the themes were searched for. To find the themes for the three research questions, clusters were created by labelling the research questions into smaller parts. This was done as follows:

SQ1: What are the different digital inclusion needs of migrants in the Netherlands?
Label: Needs of migrants

SQ2: What are the positive and negative experiences of migrants related to digital inclusion in the Netherlands?
Label: Negative experiences related to digital inclusion
Label: Positive experiences related to digital inclusion

SQ3: What strategies and technological innovations can enhance digital inclusion for migrants in the Netherlands?
Label: Strategies for digital inclusion
Label: Technological innovations for digital inclusion

The labels represent the part of the research question that they cover. The next step was to generate themes, for each label, codes will be assigned that fit the label. Then, once the codes were assigned to a label, different clusters can be created for that label. A cluster is a group of codes within a label that have similarities; a cluster is the pre-stage of a theme. The labels with the assigned codes were exported from ATLAS.ti to Microsoft Word to create clusters. Then themes were created from each cluster.

Phase 4 and 5: Reviewing and naming themes

The initial clusters for the research questions were then transformed into themes by reviewing them. After reviewing, the themes received names representing the codes they encapsulate.

Phase 6: Presenting the results [127], [128].

Braun and Clarke recommend synthesising and contextualising data as and when they are reported in the 'results' section [127], [128]. Here, the connection between the themes and the findings should be presented, with data that should support the evidence that is found or contradict it.

Furthermore, Powell and Clarke (2006) have applied thematic coding in their article [129]. The authors focused on the explanation of the code, which creates a full picture for the reader. Both Powell and Clarke (2006) and Byrne (2021) mention the importance of conveying the full picture to the reader.

The entire process of the thematic analysis is visually presented in Figure 2.3.

Finally, to create a coherent report, the decision was made to translate the interview snippets that were done in Dutch, to the English language. These translations will be marked with an asterisk. E.g. "This is an example"*. The star indicates that this sentence has been translated. The original snippet can be found in Appendix C.1.
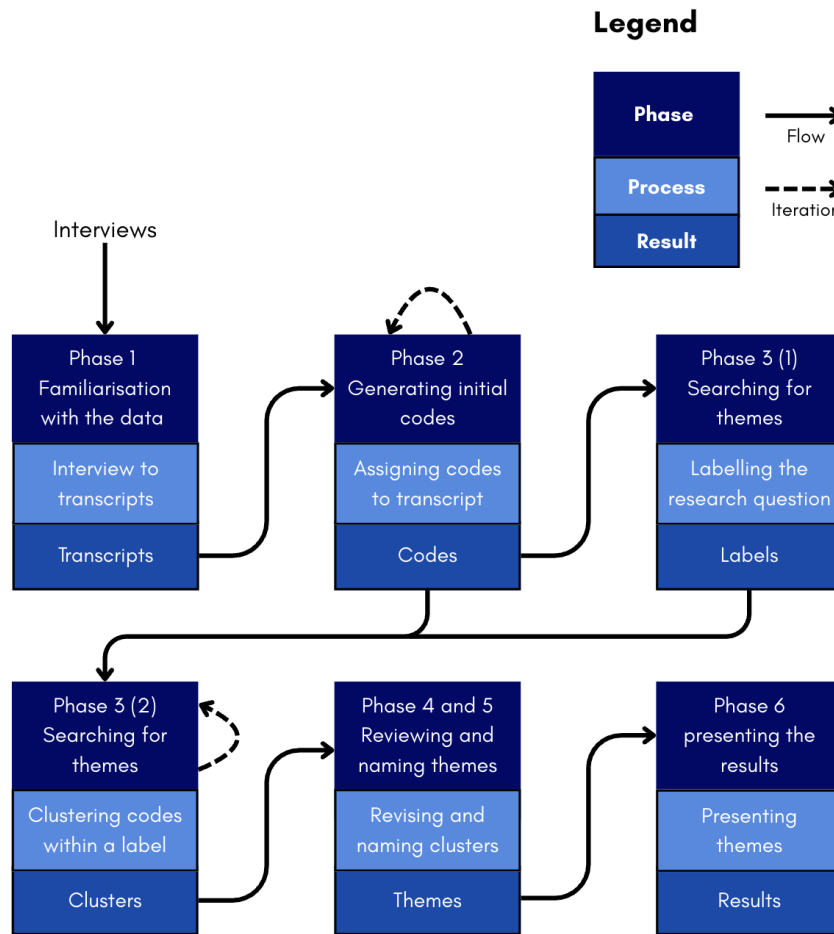
Figure 2.3: Thematic analysis schematic

Strengths of thematic analysis: Thematic analysis helps to simplify the data and create themes that are easy to understand and create cohesion within the data. Thematic analysis is best suited to identify similarities and patterns across a range of data.

Furthermore, a thematic analysis lends itself for a flexible approach as presented in this study using both deductive and inductive coding.

Weaknesses of thematic analysis: Because thematic analysis is so broad, the results could be unclear or vague. Furthermore, looking for patterns, might result in a broader understanding of the issues, but a more detailed analysis might be missing. To counter this, codes are presented in the research. This way, not only does the overarching theme get attention, also the codes that made up the theme are understood.

Chapter 3

Subquestion 1: Digital inclusion needs

This chapter concerns subquestion 1: *What are the different digital inclusion needs of migrants in the Netherlands?*. This question is addressed through a literature review to understand the current state of the literature. Subsequently, interviews are conducted, and their findings are illustrated.

3.1 Literature review

To kick off the research, it is imperative to comprehend the existing literature. The literature will provide insights into what is already understood and identify areas of uncertainty. The knowledge gap (section 1.3) has already indicated an absence of information on different migrant groups, as well as on the connection between digital inclusion and migrants in the Netherlands. Existing literature on digital inclusion for migrants in other countries will be reviewed to lay a basis for understanding the digital inclusion of migrants and develop interview questions for subquestion 1.

3.1.1 Search strategies and selection of literature

To find articles for this research question, the literature database of Scopus is used. In table 3.1, the synonyms used for this search are depicted. These synonyms are generated by asking the AI chatbot Grok for synonyms for Digital inclusion, Migrants and Needs. On top of that, the results of the conceptual analysis of section 1.2 are added to this.

Search Term	Synonyms
Digital inclusion	digital inclusion, digital gap, digital access, digital literacy, digital skills, digital equity
Migrants	migrant, refugee, immigrant, asylum seeker, displaced person, forced migration
Needs	need, requirement, challenge, barrier, demand

Table 3.1: Search terms and their synonyms SQ 1

The following search query is generated from these synonyms: "("digital inclusion" OR "digital divide" OR "digital gap" OR "digital access" OR "digital literacy" OR "digital skills" OR "digital equity") AND (migrant* OR refugee* OR immigrant* OR "asylum seeker*" OR "displaced person*" OR "forced migration") AND (need* OR requirement* OR challenge* OR barrier* OR demand*)"

This query yielded 312 results. These results were further specified by date of publication from 2021-2025 to ensure that the articles are recent. As digital inclusion is a term that is continuously evolving with technologies, it is important to keep the articles as recent as possible. Furthermore, articles are selected as the only document type, and the keywords must include either 'digital divide' or 'digital inclusion' or 'migrant'. 45 documents were identified for further analysis.

Of the 45 documents, 25 documents were unsuitable for the research, because the article did not cover the topic of interest. An example is the study of Muñoz-Hernández et al. (2021), which focuses on how to improve general participation in digital society; although migrants are part of the sample group, they are not the research's focus, and clear results from the group of migrants are lacking [130]. Therefore, this research will not be taken into account. Furthermore, articles that were inaccessible are excluded for this literature review.

Another example that appeared regularly is research about people: "*who were not born into the digital world but have, at some later point in [their] lives, become fascinated by and adopted many or most aspects of the new technology*" coined: '*digital immigrants*', in comparison with digital natives [131, p. 2]. Sources regarding digital immigrants are left out of this literature review. Digital immigrants miss a key aspect central to this study, namely that of moving to another country. For this study, a migrant is required to move from one country to another (see section 1.2.2). Digital immigrants are not physically

moving, but mentally, adapting to the new culture; however, within the same country and therefore not part of this study [132], [133].

The final three articles that were excluded had restricted access and are therefore disregarded in this research.

Altogether, this resulted in a total of seventeen articles being used. The steps taken for this part of the literature review are visualised with the PRISMA method in Figure 3.1 [134], [135].
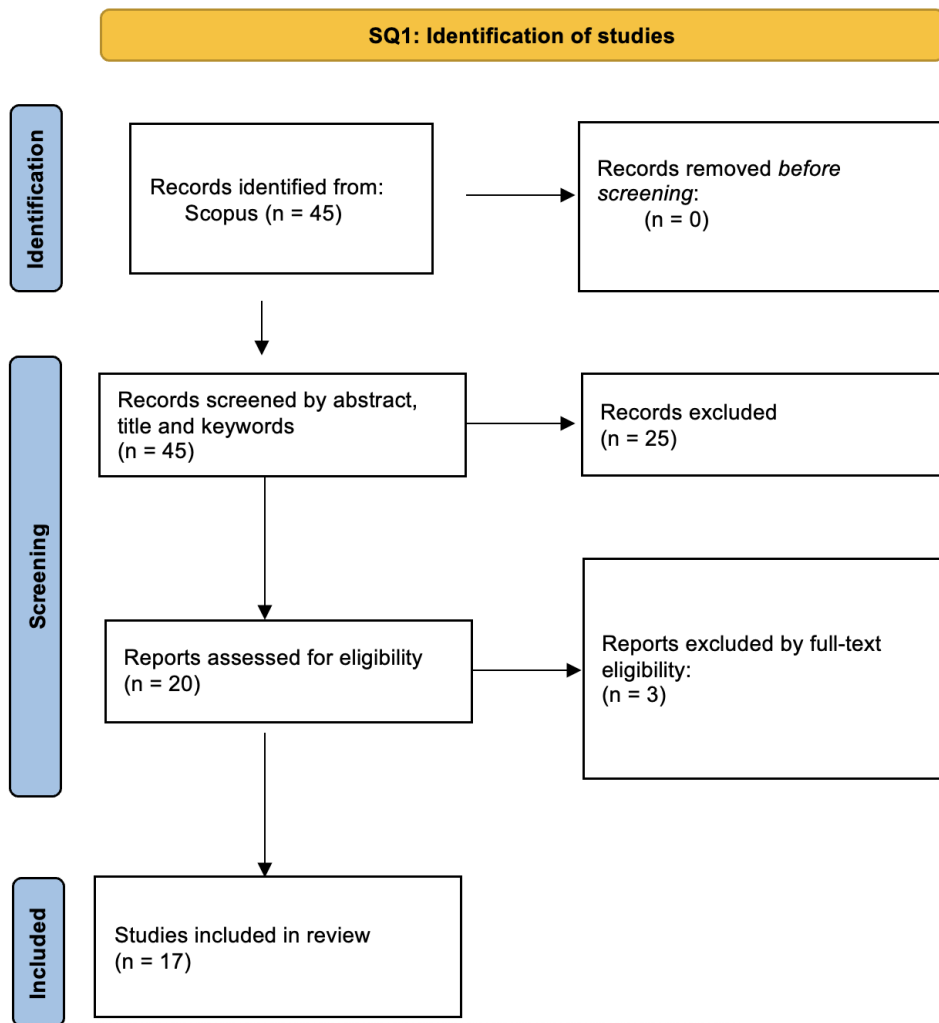
Figure 3.1: Prisma diagram SQ1 [134], [135]

Table 3.2 illustrates the results of the literature review. There are five columns: *Author(s)*, presents the authors of the article, *Article*, presents what the article is about, *Needs*, shows what the needs are the migrants are currently missing to be digitally included,

Aim shows what the authors try to accomplish with the article, and finally, *Migrant type*, makes the distinction between what type of migrant the article is about (i.e. forced migrant, economic migrants or international students) or whether it is not specified.

	Author(s)	Article	Needs	Aim	Migrant type
1	Guerrero-Romera et al. (2025) [73]	Creating a basic education program to improve Digital Skills of migrant women	Access to and use of technological resources	Improving digital inclusion of migrant women via	Not specified
2	Pierce et al. (2023) [136]	Understanding how access and engagement among vulnerable pregnant women is perceived of a digital maternity app	Encouragement to use technologies and access to technologies	Equal opportunities among all women in using digital technologies	Not specified
3	Knights et al. (2021) [137]	Impact of COVID-19 on migrants' access to primary care and implications for vaccine roll-out: a national qualitative study	Understanding the negative affects of digital services (like social media)	Understanding the pandemic's impact on recently-arrived migrants and their access to primary health care, and implications for vaccine roll-out.	Not specified
4	Ng et al. (2022) [30]	Creating a framework to understand how to include most people	Internet/digital access, affordability and skills	Making digital access universal	Not specified

Continued on next page

	Author(s)	Article	Needs	Aim	Migrant type
5	Turin et al. (2022) [109]	Identifying Challenges, Enabling Practices, and Reviewing Existing Policies Regarding Digital Equity and Digital Divide Toward Smart and Healthy Cities	Needs starkly vary between the target groups	Understanding the current state of knowledge on digital equity and the digital divide among racialized communities	Refugees, economic migrants, family migrants
6	Fung et al. (2025) [138]	Review of the Digital Divide Experienced by Migrant Women	Access and utilization	Understanding the problematic side of digital divide and factors leading to such divide	Not specified
7	Jauhiainen et al. (2021) [139]	Internet and social media uses, digital divides and digitally mediated transnationalism in forced migration with the case of Syrians in Turkey	Access, skills and resources of use	Understanding the internet and social media use of forced migrants	Forced migrants
8	Faye and Ravneberg (2024) [53]	A case study of how digital learning activities as a service are delivered outside the formal educational system by two libraries and one civic organization	Skills and encouragement	Understanding the opportunities and pitfalls of making vulnerable groups able to connect socially and digitally	Primarily refugees (forced migrants)
9	Silva et al. (2024) [105]	An Intersectional Approach to Digital Inclusion	Adoption and usage	Analysing the challenges and successes of vulnerable communities in developing techno-capital	Economic migrants

	Author(s)	Article	Needs	Aim	Migrant type
10	Zolbin et al. (2025) [140]	Experiences and Expectations of Immigrant and Non-immigrant Older Adults Regarding eHealth Services	Encouragement and skills	Understanding the perspectives of older adults of different backgrounds regarding eHealth services	Not specified
11	Bastick and Mallet-Garcia (2022) [18]	The effects of digital exclusion on undocumented immigrants during the COVID-19 pandemic	Access, encouragement	Examining how digital technologies mediated undocumented migrants' experiences of the pandemic	Undocumented migrants Not specified
12	Horsley et al. (2024) [86]	Online schooling and the digital divide: challenges and opportunities for migrant students' educational inclusion	Access, Environment	explored the challenges and opportunities of online schooling for the educational inclusion of Newly Arrived Migrant and Refugee Students	(Refugee/) Migrant students
13	Cohen et al. (2022) [141]	Exploring the Digital Divide among the Bhutanese Refugee Community during COVID-19	Access, encouragment (to counter historic inequalities)	Exploring how the digital divide exacerbates health disparities in a midwestern Bhutanese refugee community	Refugee, Not specified

Continued on next page

	Author(s)	Article	Needs	Aim	Migrant type
14	McMullin (2021) [142]	Migrant integration services and coping with the digital divide: challenges and opportunities of the COVID-19 pandemic	Skills, access, trust	Reflecting on the impacts of the shift to online service delivery for voluntary and community organisations	Primarily forced migrants
15	Notley and Aziz (2024) [107]	The unjust burden of digital inclusion for low-income migrant parents	Access, skills, support, encouragement	Understanding the relationship between digital and social participation in low-income family households, especially in households facing multiple forms of disadvantage and discrimination due to language, cultural or literacy barriers	Low-income migrant parents, Not specified
16	Gallagher et al. (2023) [106]	The Liminality of Digital Inclusion for Refugees in Ugandan Higher Education	Access, skills	Exploring educational participation by refugee students in Ugandan universities	Forced migrants

Continued on next page

	Author(s)	Article	Needs	Aim	Migrant type
17	Ahmed et al. (2022) [143]	Technology for empowerment: Context of urban Afghan women	Usage, access	Examining the perspective of technology usage among women in the context of urban Afghanistan	Forced migrants

Table 3.2: Existing literature on SQ1: digital inclusion needs of migrants

3.1.2   Results from the search

The literature offers valuable insights into the digital inclusion needs of migrants. It points out the specific needs of migrants and identifies the current gaps that hinder their digital inclusion. Consequently, the literature identifies areas that, according to the authors, should be addressed to facilitate a more inclusive digital society for migrants. Figure 3.2 presents the needs that are found in the literature. Section 3.1.2.1 explains the meaning of the results in depth. However, it is important to note that the insights presented are derived from literature from various countries worldwide. Moreover, the migrants do not all come from the same home country. Therefore, although the results are of vital importance given the lack of literature currently present, the shortcomings of this literature review should be kept in mind.

3.1.2.1   Digital inclusion needs of migrants

Figure 3.2 illustrates schematically the results of the literature review based on the needs. From existing literature, Access is the primary need for digital inclusion, which is mentioned in twelve of the seventeen articles. Followed by Skills which appeared in seven articles and then Encouragement which is mentioned in six articles. And lastly Use/Utilisation in four articles.

Jia et al. (2024) have done a similar research in which they looked at studies to measure digital inclusion [26]. They found five primary dimensions used to measure digital
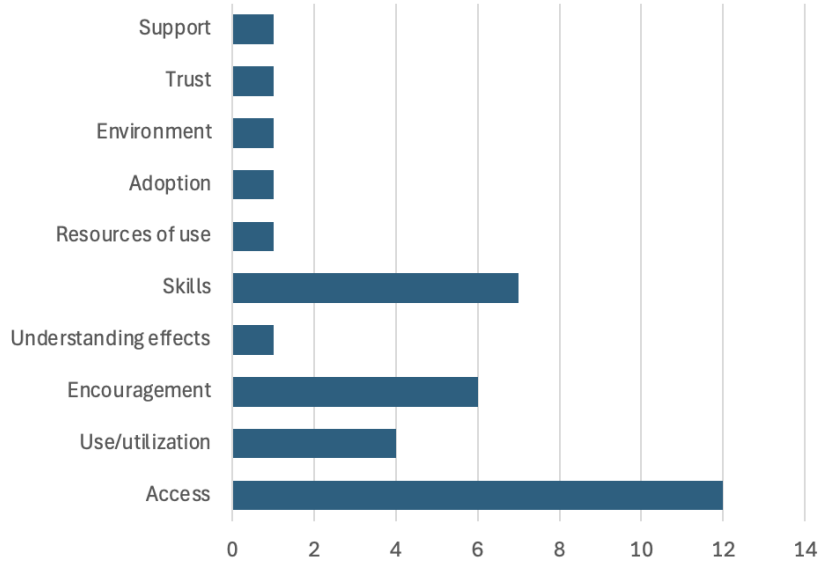
Figure 3.2: Digital inclusion needs of migrants stemming from the literature review

inclusion: Access, Skills, Usage, Acceptance, and Impact.

Access has been found in all studies in their literature review. Access is a complex dimension as it encompasses many different aspects. First, *connectivity*, meaning access to ICT devices, access to the internet and much more. Access to the internet in multiple different places has a positive influence on the digital inclusion of a person, especially being able to access the internet at home [144]. Second, *affordability*, which encompasses the cost of internet access and digital devices relative to income. Third, *readiness*; measured in infrastructure, electricity, security and policies. Readiness is thus partly influenced by the individual, but mainly by the country that provides the services and makes policies to help its citizens. Furthermore, the electricity, infrastructure and security are also aspects that are, for the majority, controlled by the government of a country.

Skills focuses on how well someone can use both digital devices as well as finds its way on the internet. The sub-dimensions mentioned in for this category are *digital skills* and *basic literacy*. The first sub-dimension is the main measurement, as basic literacy is mainly concerned with the language abilities of the person, forming a proxy indicator for the dimension Skills [26].

Skills are reported as difficult to measure. There are two reasons for this. First, there is no accepted method for the sub-dimension digital skills, and second, skills are based on how

the users perceive themselves, creating subjectivity [145]. The second challenge is present in this study as well. To counter merely the user judging themselves, the judgement of the interviewer was used comparing the results to other respondents' and comparing the results based on previously provided answers. In the end, no alterations were made by the researcher. Another method to counter this is using an equitable approach, instead of an equal approach. The interviewer helped understand the actual value of the interviewee's responses. The interviewer asked questions if the answers provided in the questionnaire did not seem to align with the conversation before. One interviewer performed all the interviews, when something was unclear for the interviewees, questions could be asked at any point. Lastly, a method was found and used to test digital skills and basic literacy. This is the method of Anrijs et al. (2020) [125]. A more elaborate explanation and application is provided in 3.2.2.2.

Usage focuses on how, and for how long digital devices are used, respectively the sub-dimensions *Diversity of usage* and *Extent of usage*. The usage also measures the availability of services and resources provided in the sub-dimension *content*. This sub-dimension is a constant for this research as the scope of this research is the country of the Netherlands. Therefore, no weight will be given to this sub-dimension. However, even though this sub-dimension is a constant, whether the respondents have knowledge of the digital services offered in the host country is of interest in this research.

For **Acceptance** Jia et al. (2024) mention that this category is the least covered in literature. This dimension "describes digital inclusion from a psychological perspective" [26, p. 5]. Acceptance has three sub dimensions; confidence, motivation and trust. However, *trust* is the only sub-dimension measured for Acceptance in their literature review [26]. The areas that trust is measured on are: online privacy, government websites and apps, non-government websites and apps, and information from social media [26]. *Confidence* and *motivation* are measured in this study using the semi-structured interviews. Where *confidence* means the believe in one's ability to do everything online, and *motivation* the motivation to solve ICT difficulties [26].

Impact has limited indicators in the study of Jia et al. (2023). It mainly looks at how digital inclusion influences the life of a person, focusing on social equality. Given the scope on migrants, for impact equality between migrants and natives is a factor that plays an important role in this research. This is the first of two sub-dimensions, *social equality*. The last sub-dimension, *digital well-being*, rather focuses on the impact of ICT

access and use on the individual level.

3.1.2.2   Literature review compared to Jia et al. (2024) [26]

Compared to the results of the literature review, some different dimensions are presented in Jia et al. (2024) [26]. Of these dimensions, *Access*, *Skills*, and *Usage* are present in both the literature review and Jia et al. (2024)'s study [26]. The other categories from the literature review (Support, Trust, Environment, Adoption, Resource of use, Understanding effects, Encouragement) are thus missing. However, a deeper look at the meaning of these categories reveals that they fit within the dimensions mentioned by Jia et al. (2024).

Support falls in the dimension Access under *readiness*, in the form of policies. *Trust* is a sub-dimension of Acceptance. Environment is linked to Access as a place to use the digital devices, thus falling in the sub-dimension *connectivity*. Adoption can be seen as using the services provided, which falls under Usage's *extent of usage*. Resources of use, falls within the category of Access, both for *affordability* and *connectivity*. Understanding effects, falls within the category of Acceptance, especially *confidence* and *trust*. Encouragement is comparable to *motivation* within the dimension Acceptance.

Even though the categories might not seem to align at first, Jia et al. (2024) covers the current literature on digital inclusion needs. Not only that, an extra dimension was added: Impact, which was not found in the literature review. The comparison between the literature review and the dimensions of Jia et al. (2024) is visualised in Figure 3.3.

There are some interesting differences and similarities. Access, like mentioned in Jia et al. (2024), is the dimension that is most often mentioned, this is similar in the literature review [26]. However, when the literature review is transformed to the dimensions of Jia et al. (2024), Acceptance is only the second largest dimension [26]. Jia et al. (2024) mention that acceptance has very low coverage in literature, which is contrary to what the literature review shows. The sub-dimensions that were not measured for Acceptance are provided with more context as a result of the literature review. Understanding the effects, has similarities with the sub-dimension *confidence* and *trust*. Whereas encouragement resembles parts of Motivation.

Impact is not mentioned in the literature, which is similar to Jia et al. (2024), since Impact is not a dimension that occurred frequently in their research either [26]. On the
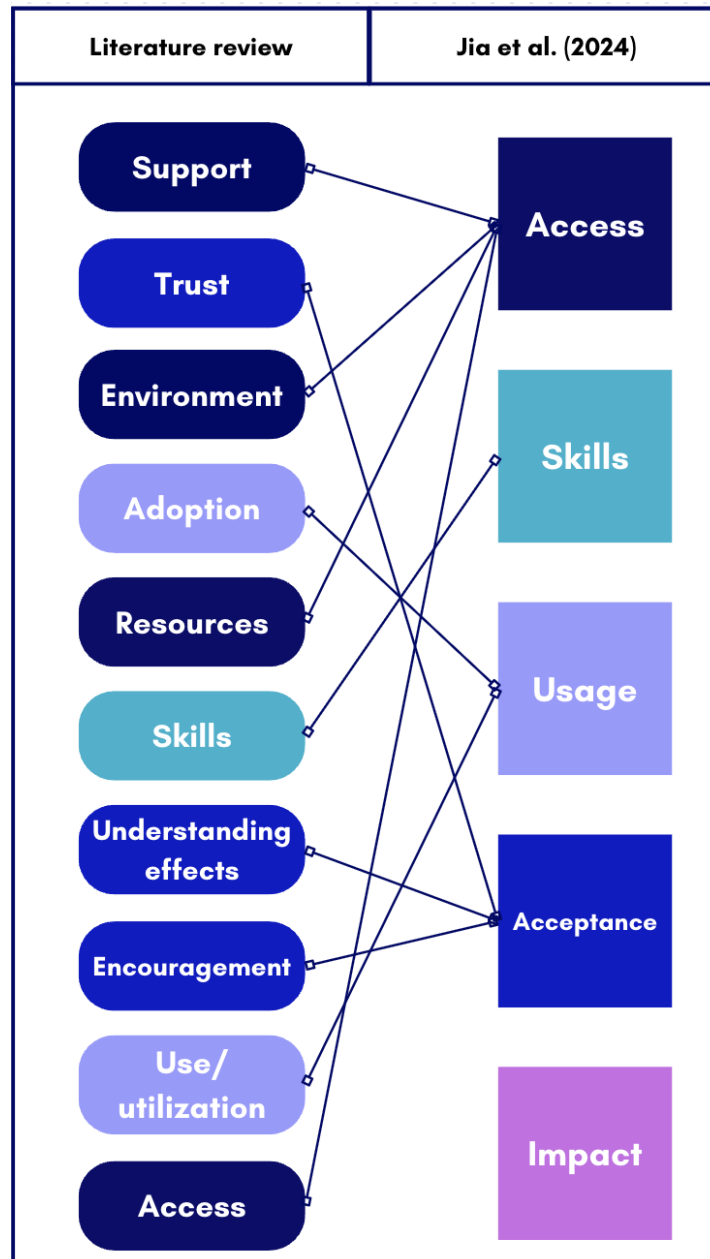
Figure 3.3: Author's literature review's dimensions compared to Jia et al. (2024)'s dimensions [26]

other hand, strictly looking at Impact, this is a dimension that does not necessarily measure digital inclusion needs, but is rather a consequence of the lack of compliance with the needs. Generally, social aspects form a motive to write an article, and are not the cause, which they are portrayed to be in this context. (E.G. I do not have Access to a computer (cause), therefore I cannot apply for a job online Impact (Impact is a consequence of dimension Access and could form a motive to write about improving Access)).

All in all, since Jia et al. (2024) has all the dimensions of the literature review and the added dimension Impact, the insights from this study will be used to create the research questions and answer subquestion 1. Extra attention will be given to the dimension Acceptance, since the literature review adds extra weight to this dimension.

3.1.2.3 Aspects influencing digital inclusion

Interestingly, as mentioned in section 1.2.2, the term migrant is often not specified in literature, even though it is a broad term that is not well understood. This study covers forced migrants, student migrants and economic migrants. However, even this specification is not accurate enough as literature shows the importance of specifying further on the basis of sociodemographics. What is often seen is the focus on gender, specifically women [73], [105], [136], [138], [146], older age [105], [146], [147] and poorer economic situation [30], [146]–[148].

Covid-19 has affected digital inclusion immensely as it forms the reason for many authors to write about digital inclusion [18], [86], [141], [142]. Although not relevant for this part of the research, it is typical for digital developments to abruptly change with new circumstances. Digital inclusion is a term that constantly changes and adapts to its surroundings. Covid-19 has proven to be a significant contributor to the development and use of digital technologies. With the changes in the digital landscape, naturally, the playing field for digital inclusion has changed. This has led to an abundance of literature related to Covid-19 and digital inclusion.

3.1.3 Conclusion of literature review

Literature shows that there are different needs which influence how digitally included someone is. Specifically Jia et al. (2024) has created a list of dimensions that corresponds with digital inclusion factors in literature [26]. The dimensions - Access, Skills, Usage, Acceptance, Impact - will be used to formulate questions for the semi-structured interviews.

Adding to the dimensions, the literature review showed that digital inclusion is also affected by certain sociodemographics. These sociodemographics are taken into account when there is a choice of participants for the interviews, to understand more in-depth

what influences digital inclusion.

3.2   Semi-structured interviews

From the results of the literature review, it is possible to formulate questions for the semi-structured interview to understand the needs of migrants in the Netherlands regarding digital inclusion. The approach for this process will be explained in the following sections. First, the steps taken to formulate the questions for the interview will be explained. Then, the relationship between the interview questions will be explained. After that, the results found in the interviews will be presented, with excerpts from the thematic analysis. After that, a conclusion will be drawn based on the findings of the interviews.

3.2.1   Formulation of interview questions: Themes

With the literature study in mind, the interview questions were created. The literature study has presented the dimensions that influence digital inclusion. The dimensions of Jia et al. (2024) covered the complete literature review. Differences presented themselves in that the dimension Acceptance had more weight in literature, and the dimension Skills less [26]. To formulate the interview questions for migrants, the dimensions of Jia et al. (2024) are used to understand the context of the Netherlands [26]. These dimensions are transformed into questions in the interview. The complete list of questions can be found in Appendix A.

Access is portrayed in questions 4, 6, and 7. Question 4 is focused on the sub-dimension of readiness. The essence is to understand whether the respondents use digital devices, or whether this is something new to them. This question was followed up with the question, Where do you use digital devices?, to understand the sub-dimension connectivity of Access. For which being able to connect to the internet from home is seen as an indicator for good accessibility [144].
Question 6 is focused on the affordability of devices and the experiences that come with getting a new device.
Question 7 covers the readiness from the view of policies. Understanding if there are sources of help.

For **Skills** another approach was used, the structured questionnaire by Anrijs et al.

(2020) [125]. The dimension Skills is explained in depth in section 3.2.2.2.

Usage is captured in questions 5 and 10. Primarily, the diversity of usage is measured. In other words, what digital services are used? This category resembles Skills, however, where skills is looking at *how well* digital services and devices are used, Usage focuses on *what* digital services and devices are used. Question 5 aims to understand the purpose of using digital devices, whereas question 10 mainly looks at what services are used.

Acceptance is presented in questions 7 and 8. Question 7 is also used for Access, to understand whether policies are present that offer help. For Acceptance, it is used for sub-dimension Motivation, i.e. do you want to solve difficult things online? And on the other hand, Confidence, the interviewees believe they can do everything online.
Question 8 looks at the sub-dimension of confidence. Its purpose is to understand if there are any participants who, if they could choose how to arrange something, would go back to a non-digital or in-person way of conducting services and devices. Trust is covered in this question, if participants trust using the online services and technologies.

Lastly, for the dimension **Impact**, question 9 is formulated. This question tries to understand how migrants themselves feel about using the internet. This question is formulated to be compared with natives. Since the scope is on migrants in the Netherlands, it is relevant to make a comparison. This particularly, will show what the differences are between migrants and natives. With this, the question is aimed at understanding if migrants feel digitally equal to natives, and therefore, if it affects their social equality. Furthermore, the question tries to understand how migrants feel in the digital world.

One last note, the semi-structured interview format allows for flexibility. Rather than looking at the questions statically, during the span of the interview other insights surfaced besides those from the questions posed. Naturally, all insights are taken into consideration for the results.

3.2.2 Results of semi-structured interviews

The results of the interviews are analysed using a thematic analysis. The steps used are explained in section 2.7. For subquestion 1, a deductive approach is followed, matching codes that fit within the dimensions of Jia et al. (2024) [26]. In this section, the results

are presented following the thematic analysis.

3.2.2.1   Access

Access is the dimension that appears most frequently in both the literature review and the results of Jia et al. (2024) [26]. However, these insights were not aligned with the findings from this study. All participants reported having access to the internet and to multiple digital devices. Suggesting that digital infrastructure in the Netherlands is broadly accessible to this group of migrants [144].

Question 4 of the interview, regarding whether digital devices are used by migrants, seemed redundant, as the interviewees responded to this question almost like it was a given to have digital devices. This was the case for all groups of migrants in this study: *"What do you want? What else we can do? [...] Can you imagine your life without it?" - Migrant 1 (FORCED)*

Economic migrants responded similarly. They showed that they used many different digital devices for a long period of time during the day. Their occupation requires them to use digital devices, however, digital devices for personal use were also present for economic migrants: *"Everything that you told plus smartwatch, plus heart rate monitors and this kind of stuff. Yeah, I use phone, I use tablet, I use laptop I use, whatever else." - Migrant 9 (ECO)*

Although accessing devices and the internet did not pose a problem directly, maintaining or replacing devices did present challenges. Questions 6 and 7 were used to understand the affordability.
Students faced issues with money. Buying a good device is only possible once for them. After that, it is increasingly difficult to get good-quality devices. Students also have no choice but to conduct their studies with digital devices like a laptop or tablet and a phone to keep connected. However, they do not have an abundance of devices, merely what is necessary. From interviews came forward that the Dutch culture is much more used to replacing devices if something breaks, while other cultures are accustomed to repairing them. This poses a difficulty for the migrants in this study. Replacing is expected, which results in a scarcity of places to repair a device in the Netherlands.
"I cannot spend like €1000 on a new device. So obviously repairing is important, but it is very difficult to find repair shops here. I was lucky to find one - Migrant 4 (STUD)".

And, travelling from one country to another, the hardware could change, adding another

level of difficulty to repairing devices.

"The problem was the keyboard of my laptop was in [home country alphabet] [...] So the Dutch [hardware store] didn't have the the stock of that the keyboard [...] and also the shape of the plug was different. - Migrant 6 (STUD)"

The last problem that came up was with forced migrants. Some migrants do not have a status when they arrive in the Netherlands. This limits their ability to buy with a credit card, even if they have the money for it.

All in all, purely accessing digital devices does not pose difficulties for the migrants in this group of interviews. Everyone has access to devices and the internet. Forced migrants could encounter difficulties purchasing devices because they do not have a status in the Netherlands. Students, on the other hand, face the issue that if they have a good device, they are often unable to afford another device to replace it. This forces them to repair their devices, which is uncommon in the Dutch culture. Lastly, coming from another country, the hardware can be different, which adds another level of difficulty to repairing devices. Economic migrants did not encounter any of these issues.

3.2.2.2 Structured questionnaire - Skills

To understand the dimension Skills, rather than asking open questions, a structured questionnaire is used to understand the digital skills of migrants in the Netherlands (see also section 2.6.3). These questions are derived from the study of Anrijs et al. (2020) [125]. This approach helps to measure the difficult-to-measure dimension - Skills, more uniformly for all respondents.

There are three categories of questions in the study of Anrijs et al. (2020): Specific Digital Difficulties (SDD), General Digital Difficulties (GDD), and Worries about Future Digital Difficulties (WFDD). The SDD questions of the study of Anrijs et al. (2020) are used to measure the dimension Skills for migrants in the Netherlands [125]. The category SDD was chosen because it represents the essential digital services a country has to offer. These services align with the concept of digital inclusion in this research, as these essential digital services are required to live comfortably in the Netherlands, or in other words, be digitally included.

The questions have been modified slightly, primarily to simplify them for better under-

standing. Since English is often not one of the native languages of the interviewees, this was an important consideration. Concretely, this means that the part: "*if necessary, to what extent would you have difficulty to*" from Anrijs et al. (2020) is removed from every question in the questionnaire [125, S1 Appendix]. Instead, the interviewer explained this premise before the questionnaire was filled in.

Moreover, the examples given in Anrijs et al. (2020) are changed to the Dutch context, as the Netherlands is the country of interest [125]. The full list of questions can be found in Appendix A, part 3.

Lastly, the answering options are changed to be more intuitive for the participants. From: (1) Having no difficulty; (2) Having rather no difficulty; (3) Having rather difficulty; (4) Having difficulty, to:

(1) I know how to; (2) I might be able to; (3) I would have difficulties; (4) I don't know how to. This scale was chosen to create more clarity for answering the questions and create more consistent answers. The participants could ask questions while filling in the questionnaire if they had doubts about which category their capacity fit in.

An explanation was provided to the participants before filling in the table:

'**I know how to**' means I know how to do it, I have done it, or I am fairly certain how this works and I do not see any issues arising.

'**I might be able to**' means I feel confident about it, but I am not completely sure how it works.

'**I would have difficulties**' I do not feel confident about it, but I have heard/seen it before, however, I would have a lot of struggles.

Lastly, '**I don't know how to**' means I have never seen or heard about it, and I do not feel confident about it at all.

The results are depicted in Figure 3.4. The scores are converted to a Likert scale, where the lowest score has the value of one and the highest score the value of four. The results show that the group of economic migrants score the best by far, leading in every category. Overall, the lowest average score is 1.5 for migrant students for question 14. There are thus still some difficulties, specifically government tasks (Q.11, Q.12, Q.14, Q.16, and Q.21) are scored the worst overall. Finding information using the internet (Q.13, Q.15, Q.17, Q.18, Q.19 and Q.20) is perceived as easier than interacting with the government.
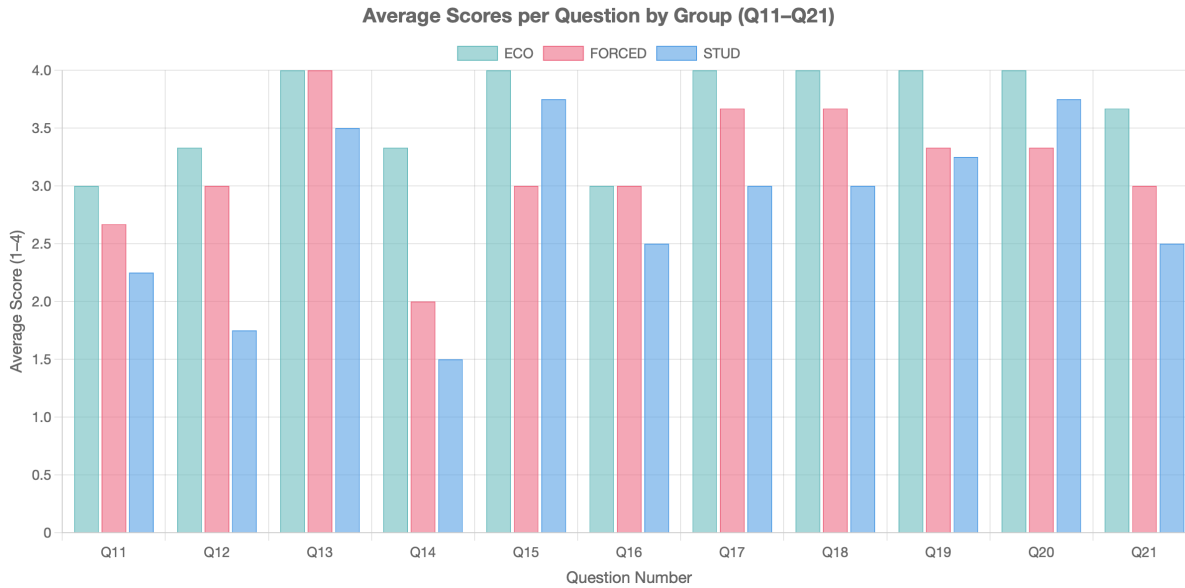
Figure 3.4: Result structured questionnaire Anrijs et al. (2020) [125]

The comparison between migrants 3 and 10, between individuals of similar gender, age and time in the Netherlands, but different in type of migrant and area of origin, presents interesting insights, see figure 3.5. The economic migrant outperforms the forced migrant on all questions, generally with a big margin as well. It seems like economic migrants are well integrated into the Dutch digital services. However, it is important to mention that this sample size is very small. Therefore, more tests are needed to understand the validity of this result.

Similar student migrants in this study, forced migrant 3 scores particularly low on Q.11, Q.12, Q.14, Q.16, and Q.21. When asked about how well she could operate government services, like a renewal of a driver's license or tax declarations, she said the following:

"Oh for me it's very big problem. I ask always my husband. He is very good user, or [...] for example I have questions with the childcare, I prefer to go to [helper]." - Migrant 3 (FORCED

Overall, all respondents seem to possess digital skills to navigate through the internet and use digital services. However, government tasks are still difficult for some respondents, especially student migrants. Economic migrants do not seem to struggle with any aspect. These results hint towards the fact that practising and having to deal with certain services help migrants in this group to improve their digital skills. It is understandable that economic migrants score better, since they encounter these services more often. Student migrants on the other hand score very well on Q.13, Q.15, Q.17, Q.19, and
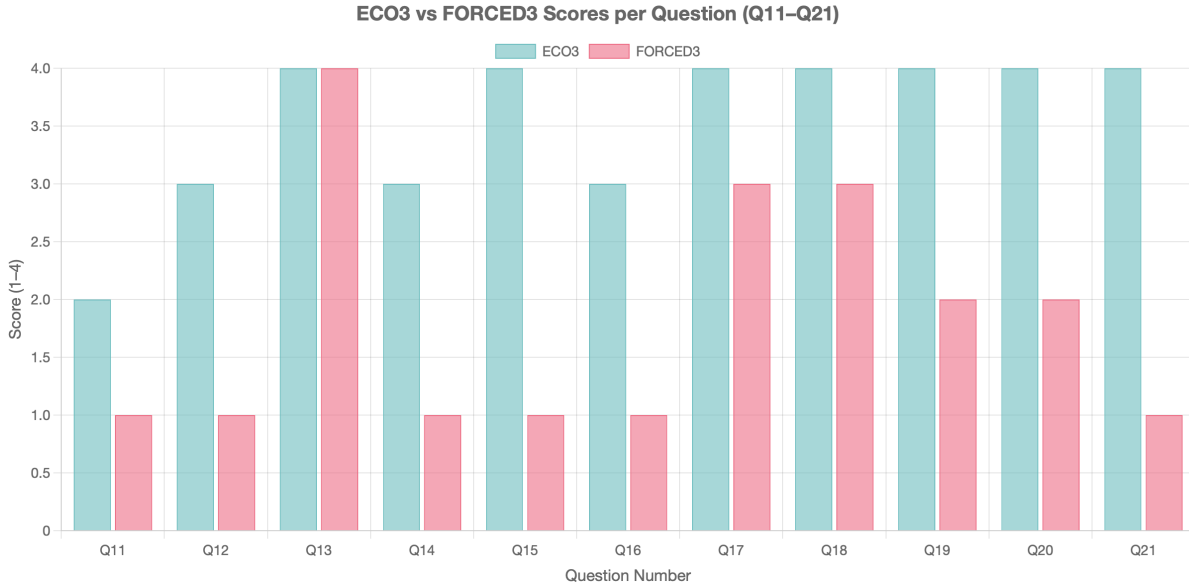
Figure 3.5: Economic migrant vs Forced migrant

Q.20 which are questions related to studying (Q.13. search for job vacancies, Q.15. apply for jobs), general search questions (find information online about: Q.17. insurances; Q.18. electricity, gas or water; Q.19. healthcare) and make online payments (Q.20.).

Lastly, like Jia et al. (2024) mention, Skills is difficult to measure because there is always the persons who have to judge themselves [26]. Here, the *confidence* of using digital skills influences the measurements of those digital skills. In other words, this shows that the dimension Skills of Jia et al. (2024) is not standing alone, but is influenced by Acceptance (confidence) [26].

3.2.2.3   Usage

The usage of digital devices is extremely diverse among all participants. The respondents mentioned that they use their devices for work/studies, government tasks and also personal lives. Phones are most often used for personal and non-formal affairs. Laptops on the other hand, almost entirely correspond with work or school tasks.

The dimension Access showed that these migrants have good access to digital devices and the internet. Although not specified by Jia et al. (2024), having access seems like a requirement for the dimension Usage. Because how could someone *use* digital devices and services without having *access* to it?

Interestingly, the usage is very diverse across the interviewees, but also the interviewees themselves seem to use an assortment of services. Depending on their work and studies. Furthermore, based on their needs and limitations, certain services gravitate towards making their lives easier. Migrant 3, a forced migrant who showed struggles in the Skills section, mentioned all the services she used. Surprisingly, these are a lot and very diverse. She talks about how she either needs them or is forced to use them because of the limitations she has in her current location.

"Here I started to buy online, before for me was better to see it and to touch. But now we live in [location] and I have no possibility to go by car all the time. So I started to buy on the internet. That's why I have Zalando, Action, everything so application for shops, what else? [...] Information about child care [...] Bank account of course. Hooray for work working hours. [...] I have bought a lot of dictionaries electronic. So now I do not need my paper dictionary. [...] I have Kobo. Then I have Bol.com, Marktplaats, Decathlon." - Migrant 3 (FORCED)

Although this migrant might not have scored high on digital skills, digital services and devices still offer a lot of support and assistance for her.

Generally, interviewees use digital devices to stay to connected to their home country's affairs. Whether for personal reasons, like contact with family, or official reasons like work or paying bills, technologies help these migrants.

One difficulty that was mentioned quite often is the language. More about language will be presented under the dimension Impact. Language also plays a part in usage. Some services or websites are only available in Dutch. Not having an English translation available hinders the usage for some migrants in this study, as it is more difficult to understand. Being proficient in the language of the host country - sub-dimension basic literacy of the dimension Skills - influences the usage of a person. This is what an economic migrant mentioned, how Dutch helps his daily life. He mentions how it takes time to get used to these services: *"So as my vocabulary is improved, the kind of things I look for digitally has also changed because, everything is accessible here in terms of finding information about anything you need in the Netherlands, but a lot of it is only in Dutch. So even when you go to the website, some of them don't translate automatically."*

Similar to the dimension of Access, Usage does not pose many issues for migrants in this group of interviewees. On the contrary, every single person interviewed uses many different services for different purposes. Although some services are better used than others, the interviewed migrants are using their digital devices a lot, and for different

purposes. Interestingly, as found in the Skills dimension, the ability to use certain services well is related to what is needed or enjoyed to be used. The first quote of this section illustrates this well. This quote originates from the same migrant who scored low on digital skills. But when there is a need to use applications, because they are required in daily life, there does not seem to be an issue. One challenge that hinders the usage for migrants is the language of the services and websites. The usage of services and websites is discouraged for migrants when there is no language available that they understand.

3.2.2.4   Acceptance

Acceptance differs across migrants. It has proven to be a category that is difficult to measure, since confidence and motivation are based on feelings. Although the experiences are factual, expressing these feelings and communicating them clearly is essential.

Forced migrants experienced issues that demotivated them to use digital devices. One issue that came up in interviews was extras that come with a service you want. For instance, a streaming service is offered on top of the required mobile phone connection. One migrant noted that she was paying for something extra that was not needed. The moment she thought it was solved, the next month she had to pay extra again. This was extremely discouraging, and it even resulted in her accepting to pay money for the extra she did not need.

A lot of interviewees try to find their way around the internet alone. This has the disadvantage that issues encountered online demotivate users to keep continuing. The task at hand can seem daunting and feel like it will take a lot of time. Subsequently this results in pushing the task back or not doing it at all. *"Well, by computer I feel like I have to look through everything myself and I feel like I'm wasting a lot of my own time. [...] When, when I do it, I do it myself. But I need to do it. You know, I have a long to do list of government stuff, I would say" - Migrant 7 (STUD).*

Investing time is easier for some than for others. Where some migrants feel discouraged by it, others see the importance of certain tasks and value doing it themselves. One migrant mentioned that she does everything herself. Even though it takes more time, she knows the importance of understanding what happened in the process. Something she observed that not everyone regards as important.

"I prefer to do it myself. Because I know exactly what I did or didn't do, it's important. Because sometimes people ask me, 'Why my price is changing'?. OK, I asked, what did you do? 'It was not me.' " - Migrant

1 (FORCED)

Other migrants have similar experiences. For some it is not as easy to find help so they have to do it themselves. With no help present, money is a motivator to find out how something works. Especially for students this is the case. The government offers exemptions that could alleviate the burden of taxes. To find out how that works takes time, but it simply has to be done.

The Acceptance on the basis of *motivation* and *confidence* varies across migrants. Although some migrants are highly motivated and believe they can solve everything online themselves, others encounter issues and are discouraged after a short while. Question 8 further specifies on *confidence*, by asking if interviewees would prefer to go back to before the digital ecosystem was in place. All responses were similar, where no one wanted to go back to before, as currently it is very convenient. However, most also see benefits that non-digital has to offer. One interviewee finds more solace in physically going somewhere if there is an option. She experiences the online services as difficult and would rather go to a place physically where she knows that they can help her. Doing it online means finding out everything herself, while in a physical place, someone could explain everything to her and her specific needs can be heard and met. However, she noted that these places do not exist anymore and they have all been replaced by a chat or phone call.

With online services, the expectations seem to change, at least that is how it is perceived by these interviewees. Asking for help seems more difficult, and digital services convey the expectation that you must do everything yourself. In addition, the workload has increased. Migrant 5, a student who has spent around eight years in the Netherlands, noticed this. He mentioned that with technology, everyone demands more and more, and agrees that the expectations are different now. Mentally, it creates an urge to respond quickly or to do something more frequently, because digital technologies allow you to. On the other hand, he experiences the convenience of recurring tasks that have been done many times before. These tasks are now second nature and the physical would in no way be able to replace the digital.

There are thus motivating factors and demotivating factors. Demotivating factors like the feeling to do everything alone seem easily fixable, with locations that offer help and good communication, ensuring these places are known. Changes in expectations are harder to find solutions for as they are partly rooted in the mental and cultural aspects of a person. Which varies a lot per person. Positives are expressed generally

by the interviewees. The ease of the Dutch services is expressed, not having to travel and saving lots of time and money. Another student acknowledged the ease of digital when comparing it to the university she studied at in her home country. Migrant 6, who had been in the Netherlands for a short amount of time, enjoyed the digital services, especially compared to her home country. In the Netherlands, physical books and pen and paper to write on are not required. A single laptop is everything that is needed, which is considerably lighter, she mentioned. And, for handing in the assignment, instead of signing the papers by hand and then walking to the professor's office, a digital copy submitted online was her preference, saving her a lot of time.

Regarding Acceptance, there is no clear conclusion to be made. Some migrants struggle with the acceptance of digital technologies and services, while others experience it only as convenient. Economic migrants benefit from the digital environment and see primarily advantages. Although sometimes they require help, this is mainly rooted in the importance of the task, where no mistakes should be made.

For student migrants and forced migrants, it depends on the person. Some radiate positivity of being able to do everything online, even though sometimes it might take more time. Others find more struggles and see the task as a mountain to be climbed.

On the sub-dimension *trust*, not many issues arise. All participants seem to trust the internet and the services it offers. Only two migrants were curious about the privacy and security of their information, which certainly does not mean their trust in these technologies discourages their use; rather, it shows their knowledge of the systems and their understanding of potential downsides. One interviewee mentioned that translating websites himself is possible, but in addition to it taking more time, he also mentioned some privacy concerns with official pages not having English versions available.

"I am not sure anymore if my data is being sent to their servers for translation. [...] I would have much preferred if they offer their websites in English as well." - Migrant 5 (STUD)

3.2.2.5 Impact

For the last dimension, Impact, the outcomes on social equality and digital well-being are measured. Migrants seemed fairly confident in their usage of digital technologies in the Netherlands, even compared to Dutch people. One barrier is that was mentioned frequently is language. Some respondents mentioned that websites are only in Dutch, or translations go wrong. Language formed the barrier that was experienced by all migrants at some point. Language is what migrants felt separated them from the natives in using

digital services in the Netherlands.

One thing that two economic migrants mentioned was the language used on government websites. The language is often still in Dutch, but of a very low level. This makes it easy to be understood even for non-natives, or at least easy to be translated by translation engines. These two economic migrants found it doable to navigate through these websites, even when they were in Dutch only. One of these economic migrants had travelled and lived in other countries prior to the Netherlands and noticed the accessibility and availability of government services, even for people just arriving.

One interviewee struggled with digital services and tools. Yet, it did not affect her life, because she is fine without using it and the struggles did not affect her participation in society. If she needed help, she would just ask for it. The dimension Impact was thus not affected. When asked if she struggled more than natives she replied affirmative: *" Yes, absolutely, absolutely. Because maybe it's not so interesting and important for me. I know that if I need something I can come and ask someone who is much more better at it. 'Do it please for me.' And for me it's not a problem."*

Some people are simply not as attracted to online services and technologies as others. That does not mean that they are not included, or do not participate in society.

All in all, migrants seem to find their way around the digital environment and even prefer using it more than the situation in their home country. Although there are some interviewees that prefer doing government task by going to a physical location, the majority enjoys the convenience of the digital environment. For the dimension Impact, it could be said that the digital landscape does not specifically influence migrants. The influence is rather positive than negative as it saves time, and on top of that, home country affairs can be dealt with.

For example, we have a deadline every couple months I need to pay the 20th. And then, if I just reminded, for example now it is the 20th of May and I remember at 11 o'clock, I said oh thank god I have an hour. I can do it just 5 minutes. That's done! So for me, yeah, it's easy." - Migrant 1 (FORCED)

3.2.2.6   Overall results of semi-structured interview

Access does not pose issues for any migrant who took part in the interviews. For all interviewees there is internet at home and they can go to other places to connect. Fur-

thermore, digital devices are present and used in abundance.

The dimension Skills differs per group. Where economic migrants score very well on all areas, student migrants only score well on specific services that they are accustomed to, or are important for their future. Among all participants, government tasks score the lowest; this is highlighted even more for students. For forced migrants, it is hard to draw a conclusion. Two of the three participants show very good digital skills for essential government tasks, while the third of this group does not score as well. But, on the other hand, as will be presented in the dimension Impact, it does not influence her social participation. Usage does not present issues for migrants. Depending on their occupation or interests, different services and devices are used. What comes forward in the dimension Skills, also applies to Usage; the services that are required, or enjoyed by the respondent, are used very well and do not create issues for them.

Acceptance is the category that creates the most obstacles for the interviewees. All interviewees see that the digital environment is required in the Netherlands. However, not everyone enjoys it as much as the other. For the vast majority digital technologies provide a way to keep in touch, decrease the time it takes to get tasks finished, and, in general, alleviate difficult tasks. However, two participants do not feel like tasks online are easier to do and push them away until they form a big pile of to-dos, which demotivates them even more.

The last dimension, Impact, brings everything together for this thesis. As presented by Jia et al. (2024), all these dimensions have an effect on digital inclusion [26]. The meaning of digital inclusion for this thesis is *getting everyone connected* (see section 1.2.1). This is a means to achieve a goal. The goal that needs to be achieved is not specified, but would be to be included in society, or in other words, the goal is social inclusion.
The dimension Impact showed that this is very well the case for the interviewees in this research. Although this dimension revealed that not everyone is as digitally advanced as others, basic digital skills are possessed. Furthermore, no respondent mentioned a negative influence on their lives. However, this must to be taken with a grain of salt. As this research is not embracing all aspects of digital inclusion and migrants might not even know what they could be missing. Still, the results for the dimension Impact are rather positive for migrants. Although not all migrants have the same skills, they either have someone who could help them, or it simply doesn't bother them, as they do not

want to use digital devices as much.

What does stand out is that Impact does not really influence digital inclusion, but rather, is influenced by digital inclusion. This is an observation that is of importance for the framework of Jia et al. (2024) [26]. More about the contributions to jia et al. (2024) will be presented in section 6.2.

For these results, it is important to understand the interviewees. The forced migrants are from Ukraine and have a special status, and all of whom have jobs. These forced migrants are in a different situation from other forced migrants, as will be presented in section 3.2.3. Furthermore, the economic migrants are highly skilled. There are also other economic migrants in the Netherlands, which are not part of this study.

To conclude this section, the sociodemographics of migrants will be briefly touched upon. As presented in section 3.1.2.3, Age (old), Gender (women) and a Poorer economic situation are the main demographics that have a negative effect on the digital inclusion of a person. Age and Gender are present in this study, but the Poorer economic situation is not measured and will therefore be left aside. Gender does not show a significant difference between the groups, as depicted in Figure 3.6.
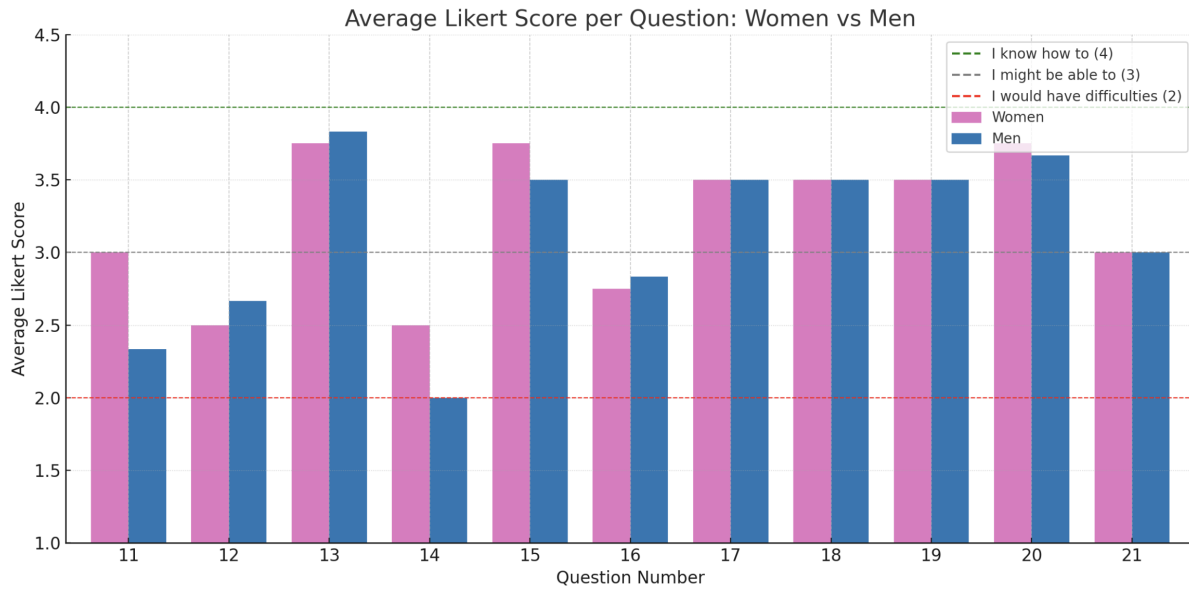
Figure 3.6: Comparison scores based on men/women)

The comparison for Age is difficult to measure in this study. A younger age is represented by student migrants, and older age by the forced and economic migrants as seen in table 2.1. Figure 3.4 already presents the results for age where student migrants - the

younger migrants - score worse in general, in comparison to the older migrants. Definitive conclusions are not possible to make as the age is represented by a complete migrant group, the student migrants, making it unclear what the cause is of the lower scores, as there are too many variables. One other comparison can be made, which is the time spent in the Netherlands. Spending 3 years or more is one group, and less than 3 years is the other. The results are depicted in Figure 3.7.

The group that spent the most time in the Netherlands scores consistently better. This matches with the results found in the interviews, where certain tasks that are done yearly or frequently are perceived as easy by the interviewees
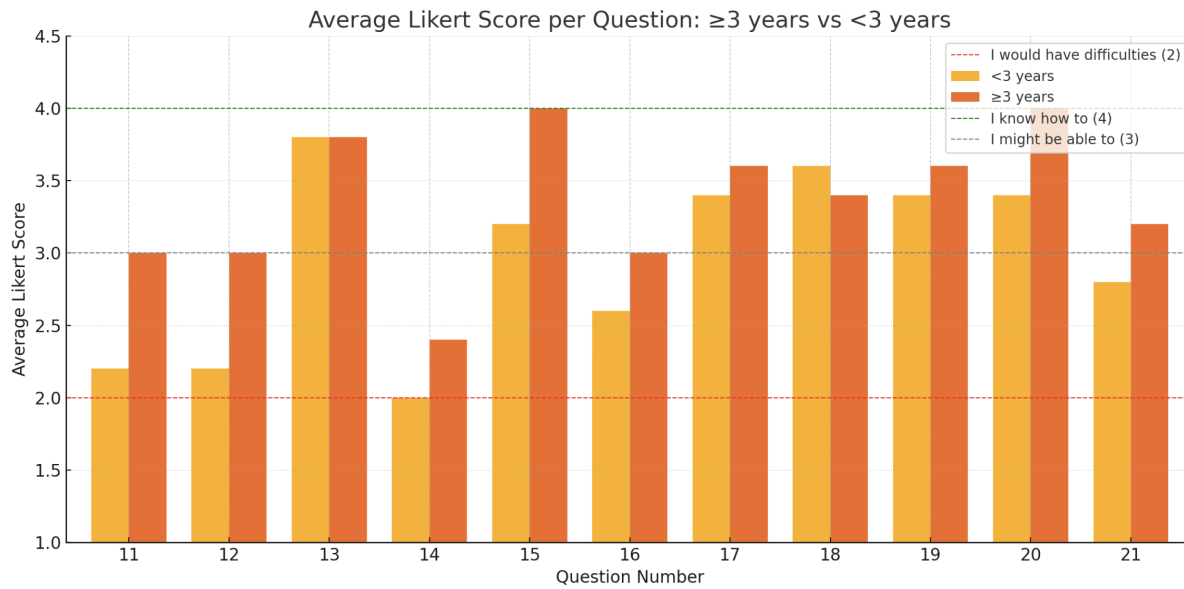
Figure 3.7: Comparison scores based on duration in the Netherlands)

To properly test the sociodemographics, a better sample has to be taken, with a bigger sample size and less differences between other sociodemographics. The duration of stay in a country does provide interesting insights, in any case that could be part of further exploration.

3.2.3   Experts consultation

After the interviews with migrants were done, the interviews with experts were conducted. In this study, the forced migrants all came from Ukraine. Forced migrants from Ukraine are subject to a special regulation that offers them, among other things, money to live, housing and health care [149]. This is just for the Ukrainian refuges. And, as

presented in Figure 2.2, these migrants work in addition to the money they receive from the government. Therefore, this might create a view of forced migrants that does not completely correspond with other migrants in this category. One of the experts who came to the Netherlands as an asylum seeker now offers help to other asylum seekers to find their footing in the Netherlands. She exposed the difference in situations between the forced migrants in this study and others that are also present in the Netherlands.

She mentioned that most migrants have a phone. However, often they do not have access to other digital devices. Money is also much more of an issue. The government provides them with a voucher that they can spend on things like bikes and laptops. Yearly, this accounts for around 150 - 350 euros. Although this could help, decent digital devices are often outside of this price range. Furthermore, the wide areas this money can be spent on do not always result in spending it on digital devices.
Another expert who works for the Dutch organisation whose main activity is providing permits to foreigners coming to the Netherlands, also does research mainly on asylum seekers. From what had seen in her visits of asylum centres, she could affirm that almost everyone has a mobile phone. But that is also often where it stopped, other digital devices were not seen present.

With the experts' experiences of asylum centres, it is evident that Access to digital devices for migrants is not as obvious as these interviews portray. Access has a definite influence on the Skills of a person and therefore the digital inclusion, which is echoed in literature [19]. Not having a desk computer or laptop hinders a person from conducting tasks, and limits access to potential digital skills beyond what a phone has to offer.

For Acceptance, two interesting examples from experts show that trust is a sub-dimension that is present among migrants.

An expert spoke about an occurrence when migrants were offered a phone and a new technology to measure their health for free, which would be directly communicated to their doctors to prevent any diseases. To the astonishment of the expert, however, they refused. The expert found out that they refused because of privacy concerns. Migrants are not always in the best position in society, and sometimes, they cross the line of what is allowed and what is not, just to be able to keep their heads above water. Therefore, they would rather survive with less than *risk* their home and family, for digital technologies and good health. The government played a massive part in this because the distrust that led to refusal is rooted deeply in these migrants, built up from all the years they have

been in the Netherlands.

All those suspicious ideas, based on the distrust, and the distrust based on the experiences of the last 30, 35 years that then resulted in the obstruction of the digital introduction."* - Expert 1

So even though from the migrant interviews, Trust does not seem a big issue, Trust definitely plays a role on some levels, especially for the economic and forced migrant groups, which the experts have expertise on.

Lastly, Trust has two sides. Trusting too little, like the example above, but also trusting too much. Trusting too much can cause issues, especially if the sources are questionable, like social media or other unofficial sources. An expert who has a lot of contact with African migrants, mentioned that cthe ommunity plays a big role for these migrants. Both sides of trust come back here. Distrust in official sources - government, municipalities - leads to trust in unofficial sources - community, social media. Positives are that there are people in the same situation, who come from the same background, and experience the same struggles: their communities. These communities offer a lot of help and support. However, the information provided by these communities is not always accurate or up-to-date.

"Many immigrants rely heavily on informal networks, such as WhatsApp or Facebook groups in their native languages, to exchange information. While this can be a strength, it also means they may receive outdated or incorrect information, especially when they're not connected to official digital sources." - Expert 3

Acceptance did not show as an important aspect from the literature review and Jia et al. (2024) [26]. However, the interviews show that without accepting - and thus trusting - digital technologies, migrants do not want the technologies. Providing Access to digital technologies for migrants is thus not an effective solution, as long as the technologies are not accepted by them. The dimension Acceptance has, therefore, an influence on Access. This relation will be further elaborated on in section 6.2.

3.2.4 Conclusion semi-structured interviews

The five dimensions of Jia et al. (2024) all have their own stories for migrants [26]. The results of the literature review and interviews are similar in some aspects, but differ in others.

Access does not pose problems for this group of migrants on the area of accessing digital devices and the internet. Student migrants experience some monetary difficulties,

and forced migrants experience difficulties regarding their status in purchasing items. Hardware from other countries can pose difficulties for migrants, especially when they want to repair devices, which is already difficult in the Netherlands.

All in all, Access does not pose major difficulties for this group of migrants. However, one marginal note has to be made. Expert interviews revealed that there are migrants, specifically forced migrants, who do not experience Access similar to the results of the migrants interviewed. Further research is needed to explore this category of migrants.

Skills differs far more per group. However, Skills does not seem to pose many issues for the migrant group. The skills the migrants possess are required for their daily activities, either because they need them or because they enjoy doing them. The Skills dimension shows that migrants can learn digital skills as long as they do it enough and keep trying. This was confirmed by the interviewees who mentioned that recurring digital tasks are now effortless.

Usage does not present difficulties for participants. The services and devices migrants need, or that they are interested in, are used very well and do not create difficulties. One challenge migrants experience while using certain services or websites is that some only offer the Dutch language.

Acceptance is an interesting dimension. Some participants do not like the digital environment and see it as cumbersome, while the majority enjoy it and are happy to handle their affairs online. The expert interviews show that there are some issues that arise regarding trust for particular groups of migrants. These issues pose concerns on the digital inclusion of migrants and are found to affect their Access to digital devices.

Impact does not have significant effects on digital inclusion. Some migrant interviewees are better at using digital technologies than others. Yet, they do not experience negative effects from this. It is a choice to not always be online.

Furthermore, this study found that the question should not be focused on how the dimension Impact influences digital inclusion, but rather the other way around. Impact is more focused on the social aspects and not the digital aspects. Meaning, digital inclusion influences social inclusion, as is previously illustrated in Figure 1.1. Section 6.2 will provide a more in-depth explanation on the relationship between Impact and digital inclusion.

3.3   Conclusion of subquestion 1

Subquestion 1: *What are the different digital inclusion needs of migrants in the Netherlands?* was answered in this chapter. A literature review is combined with the study of Jia et al. (2024) to understand the current digital inclusion needs of migrants [26]. All needs discovered in the literature review, were captured in the five dimensions presented in Jia et al. (2024) [26]. However, from the literature review, further emphasis was made on the dimension Acceptance, as this dimension had a strong presence in the literature review, being present in eight out of the seventeen articles. With this information, the Dutch context of digital inclusion for migrants was explored by creating interview questions that were centred around finding their needs, using the five dimensions presented by Jia et al. (2024) [26]. The answer to subquestion 1 came forth from the interviews with migrants and is as follows:

The results show that most of these dimensions do not pose severe difficulties for the migrants in this study. Some of these migrants experienced more difficulties than others. In general, all interviewees score well on Access, Usage and Impact. Every migrant mentioned having access to the internet and digital devices. For the dimension Usage, all migrants use different devices and different services. One issue that was experienced by migrants discouraging Usage was that websites and services were sometimes only available in the Dutch language. Impact on social inclusion was not seen in this group of migrants. The study found, however, that Impact is not affecting digital inclusion, but digital inclusion affects Impact.

The dimension Skills showed that many respondents are very well equipped to perform the tasks that are required for their occupation or needs. Students scored the worst on government tasks, which is the category that the interviewees scored the lowest on in general. Economic migrants scored well for all categories. The group of forced migrants are too different to make clear conclusions about. Most score well, but there are some difficulties that present themselves, mainly based on government tasks, too.
For Acceptance, most migrants in this study mentioned they like the digital environment of the Netherlands, improving their lives, making services cheaper and quicker. However, some migrants interviewed prefer to physically go somewhere and receive help.

Lastly, expert interviews showed that particularly forced migrants are not represented

well in this sample. The dimension Access, especially the sub-dimension access to digital devices, for migrants in this study, does not seem to represent other forced migrants in the Netherlands. This is subject to investigation in future studies. Lastly, the dimension Acceptance, especially the sub-dimension *trust*, is mentioned by the experts in this interview to provide some challenges for the economic and forced migrant groups. Either not trusting government services, or trusting too much in unofficial sources. The results of this study should always be seen within the context and scope of this study. The results should be interpreted with the research in mind and cannot be used blindly for any migrant group.

To conclude, the migrants in this study primarily experience needs on the areas of Acceptance and certain Skills. The other dimensions seem to work out fairly well for the migrants in this group, although they do pose some challenges.

A discovery that was made is that the dimensions mentioned by Jia et al. (2024) are not merely influencing digital inclusion but also influence each other. The Acceptance of digital devices and services and the Access to digital facilities determine someone's digital Skills. Also, the Acceptance of digital technologies has proven to be a first step, before Access to digital technologies is an effective way to let migrants engage with digital tools. Lastly, the dimension Impact does not influence digital inclusion, but is a result of how well someone is included digitally. Jia et al. (2024) emphasise the focus on both Acceptance and Impact in their framework [26]. Furthermore, the authors provide insights into the relations that exist between the dimensions. These discoveries and the comparisons with Jia et al. (2024) will be covered more in depth in section 6.2.

Chapter 4

Subquestion 2: Positive and negative experiences of digital inclusion

In this chapter, subquestion 2: *What are the positive and negative experiences of migrants related to digital inclusion?*, will be answered. To do this, the results of the semi-structured interview of chapter 3 will be used. This time, the thematic analysis followed an inductive method and different themes were created.

4.1 Semi-structured interview

The semi-structured interview used for subquestion 1 in chapter 3 is the same as for subquestion 2. A thematic analysis is used to analyse the interview. To answer this subquestion, first, the transcripts were coded. The coded transcripts were then used to see what codes fit within the research question. To simplify this, two different labels were created: (1) Positive experiences of digital inclusion and (2) Negative experiences of digital inclusion. These labels function as the starting point for the codes to be assigned to. From the list of codes that relate to either positive or negative experiences, the codes were further clustered together based on the codes that are similar to each other. The themes were then associated with a collection of codes. These themes help to understand what the main positive and negative experiences are for migrants. A more in-depth and visualised description of the steps of the thematic analysis is provided in section 2.7.

4.1.1 Thematic analysis

Semi-structured interviews were used to understand the experiences of migrants regarding digital inclusion in the Netherlands. After each interview, codes were generated based on the responses of the interviewee. These codes were open to changes based on future interviews. After all the interviews were completed and coded, the codes, if fitting, were assigned to the two labels for this subquestion: Negative experiences with digital inclusion, and Positive experiences with digital inclusion. Negative experiences comprised 52 codes, and positive experiences of 50 codes.

These codes are then coupled together to create themes. This resulted in five themes for negative experiences and four themes for positive experiences. The themes for each label are depicted in table 4.1. The themes with corresponding codes are provided in tables D.1 and D.2 in Appendix D.

	Negative experiences	Positive experiences
1.	Unclear (government) information and help	Accessibility is good
2.	Translations are missing	Help is present when needed
3.	Everything is technology	Digital landscape is advanced
4.	Home country is different from the Netherlands	Ease of use
5.	I don't know what to do	

Table 4.1: Comparison of themes of Negative and Positive experience

In Table 4.1, the themes of the negative and positive experiences of migrants are displayed next to each other.
The negative experiences are focused on both the services that are provided (1. Unclear (government) information and help, 2. Translations are missing) as well as the perception of the user (3. Everything is technology, 4. Home country is different from the Netherlands) or a combination (5. I don't know what to do). For the positive experiences, the same is visible. Services that are provided are visible in one theme (2. Help is present when needed). But, on the other hand, the perception of the users is also visible for positive experiences in the remaining three themes (1. Accessibility is good, 3. Digital landscape is advanced, 4. Ease of use).

A couple of things stand out while comparing the themes. First, a negative experience is

the *1. Unclear information and help*, particularly from the government. On the other hand, a positive experience is that *2. Help is present when needed.* These two seem to contradict each other, and will be specifically focused on.

There is one other comparison that already stands out. The negative experiences, *3. Everything is technology* and *4. Home country is different from the Netherlands*, showing that there is a gap between the Netherlands and the country of origin, which surfaced as a negative experience for migrants in this research. Yet, in the positive experiences, the theme *3. Digital landscape is advanced*, is present. This seems counter-intuitive, since even though there are issues with technology, and the interviewees experience a difference compared to what they are used to in their home country, the advanced digital landscape is seen as a positive. This is another comparison that will be explored further in this chapter.

4.1.1.1   Negative experiences

The negative experiences of digital inclusion fall into five themes. All five themes will be discussed in this section.

Translations are missing

This theme has proven to be a common thread through all interviews. The theme covers the language that is present in the digital environment in the Netherlands.

Many respondents mention that the language is either English or Dutch. But, for complicated matters or when more information is required, the language is primarily Dutch.

One forced migrant mentioned that she does everything herself, but some specific documents, like tax declarations, are not always translated correctly when doing it herself. Tax declaration is an issue for almost all migrants, definitely in the first years of arriving in the Netherlands. Some words are not well translated by the translation engines these migrants use to understand what is asked of them. Furthermore, the migrants interviewed mentioned that there are also difficulties in understanding which declaration form has to be filled in.

The solution for some interviewees was simply to learn Dutch. Even though that is a nice solution, it is not always possible or realistic for everyone arriving in the Netherlands. Those who stay only for a short period of time, or those whose days are planned full with taking care of children and working.

Interviewees mentioned that automatic translations are missing. Websites often do not offer an English alternative. When the migrants in this study were asked if there was anything they would improve in the Dutch digital environment, the vast majority pointed towards improving the available languages, departing from the Dutch-only approach. Not just would this save them a lot of time and effort, but it would also be more privacy secure.

One migrant mentioned the wish for English websites. Not just so everything is clearer, but also because he was unsure what happens with the data that is translated. This is a fair and important concern. Many interviewees mention that government websites and services are not available in English, for instance, tax declarations. These websites and services do, however, contain sensitive personal data that has to be handled cautiously. Specifically, difficult, more advanced topics offered in Dutch only. Ironically enough, difficult words, or jargon translated more often wrong in the interviewees' experiences.

The unavailability of websites and services in English is in contrast with the Dutch people, whom migrants experience as fluent English speakers. In a rare case, some interviewees experienced that Dutch people did not speak English, which made the situation more dire and difficult to deal with alone. One interviewee mentioned that when he had struggles to receive an allowance for his housing, the call centre was only in Dutch. To find the help he needed, he chose to ask one of his friends if they could do the phone call for him. This migrant experienced two different translations that were not available in English; Both the website - written text - and the help centre - spoken words - were not available in English for him.

The lack of translations creates a dependency for migrants, where they are unable to use the digital environment like natives. Language plays a big part in the digital inclusion of migrants in this study, and hinders their ability to navigate it alone. Either relying on translating devices or people who can help guide them.

To round up this theme, in the Netherlands, as one interviewee pointed out, the Dutch language is the main language with English as the second language spoken (not counting the official languages spoken in certain regions of the country [150]). Most people in the Netherlands speak Dutch and have a sufficient level of English. The fact that many respondents reported the lack of English-translated web pages is unexpected. One interviewee commented on this, mentioning that in his home country, there are 24 official languages, but they found a way to make content available for everyone to access and

understand. The reasons why the Netherlands is lacking in this area are unclear.

"I think funnily enough, we have more languages back home, but we use just two for all of our digital services and the thing is, you don't need to know both. [...] So all our digital services come in [home language] and English as a minimum. [...] If my digital environment over here had a completely English existence to it, I'd be happy." - Migrant 8 (ECO)

I don't know what to do

The second theme of Negative experiences continues on the aspect of confusion. Some migrants, as the name of the theme suggests, *do not know what to do.* The digital environment sometimes makes them feel like they have to figure everything out on their own. They encounter difficulties on top of the already existing challenges, coping with a new country's system that is more advanced than what they are used to in their home country. One of the interviewees pointed out that even when they asked natives or professionals for help, they could not always provide aid:

"And I have to ask someone that is a native speaker, but sometimes even the native speaker finds it confusing or doesn't know if it applies to me or not. And then the government officials themselves, I think they will also not know what applies for your specific case, or they don't have the time." - Migrant 5 (STUD)

For some services, the interviewees noted that it is unclear if they did it correctly. The way they find out is to wait and see if fines are showing up, or people knock on their door. Otherwise, they assume that they did it correctly.

Some instances occurred where migrants felt completely helpless. Someone mentioned paying for extra services because she was unable to get them removed:

"We didn't need this extra, please. We have to pay them, for example €32.00? [Then] why am I paying €50? [They say] next month it will be OK. But, next month again. When somebody take my money without my consent there. [...] And we are telling them and again the same problem and again the same problem. What?" - Migrant 3 (FORCED). When asked if she could do anything about it, she responded helplessly and said *"nothing, pay".*

Everything is technology

Theme 3 of negative experiences: *Everything is technology,* relates to the previous two themes. Migrants in this study experience the Netherlands as a place where they cannot physically ask for help for their problems. Everything seems digital, which is experienced

as demotivating by some interviewees, to solve their issues. Furthermore, if you run into problems, you have to find out for yourself what applies to you. And getting help also involves navigating through an online webpage to find out who can help and where help is offered. Furthermore, in the individual online world, 'running into' solutions is not as obvious as when meeting other people in person who struggle with the same topics. An economic migrant talked about the struggles of migrants in a similar position. Some in this group get a lot of guidance from their employer, others don't. If they have to find out everything themselves, they could miss out on services that are available to them, consequently bypassing opportunities offered by the country.

One other thing that was mentioned regularly is that migrants in this study experience that the basic information about a country is not readily available for newcomers. Natives have grown up with the technologies and services their home country has to offer, while migrants have not. However, this basic information is presumed to be present for everyone in the country. Finding information on these topics is even more difficult for migrants, because there is no help offered for it. The change in environment is not well understood by the country and therefore not facilitated. This is not only related to the government offering help, one migrant also talked about his WhatsApp chat group, where normally everyone is really active, but when a seemingly basic question for natives was posed, it fell silent. The question was so obvious for natives that they interpreted it as just being lazy.

Unclear (government) information

Help and information, especially from the government, are experienced as unclear by the migrants in this study. As previous themes have already shown, everything being digital creates more distance from the government. Migrants experience that most things are done in a digital way, which creates the view that the government does not help and the information is unclear. One migrant talked about child support. First, she was informed that she was eligible for child support, but then later in the year, when she had gotten child care, she received a letter that she had to pay back the money she received. She mentioned the confusion this created for her and that she now decided not to apply for it at all.

Ineffective government help does not feel like help, but like a burden. Trying to help people should thus be effective or the trust in the government decreases. Even help offered by professionals does not always lead to the right outcome, which always falls back on

the shoulders of the migrants. One migrant talked about the difficulties he encountered when he received an email that said they had to register for heating. The email stated that they had two months to fix this, or they would receive a big fine. The fines made him act, but this was also the first time he heard about registering for heating. When he tried to solve it by contacting energy providers, they kept asking for a customer number, which he did not have.

"[Provider], had a person who just sits at the [store] here in the shopping centre and we were like, OK, we'll go talk to him. And he just signed us up for everything. And he said, oh, yeah, heating is included, don't worry. Then three months later, this notice comes in, that is when we realised, OK, there was still something missing ..." - Migrant 8 (ECO).

Even after all these struggles, and contacting many people and companies, this migrant still could not find the right answers. This is an issue that is present in the Netherlands currently, as some information is not well-guided for certain groups, like migrants, in the Netherlands. Another migrant had a similar experience. His friend's bicycle got stolen. After struggling for a long time to find out how to report to the police, in the end, the police never showed up.

Although there are differences between the government, police and energy providers, these public bodies create difficulties for migrants. Difficulties which, even when trying hard to find solutions to them, are not easily solved. The migrants in this study do not only find it difficult to understand how to contact these public bodies, but they are also discouraged from contacting them again because of the poor help they receive.

Home country is different from the Netherlands

Coming to a country and feeling like you have to do everything alone because the information and help is unclear. This topic came up in prior themes. Arriving in another country and having to figure out a new system with new rules that are different from what you are used to. That is the last theme for negative experiences. This theme does not so much focus on one general issue, but rather on small things that migrants pick up that are different in the Netherlands. One of these things is digital devices. In the Netherlands, there is a culture of buying new devices instead of repairing them. For some interviewees, this is not an issue, and it works well. For others, it means either a big investment in a new product or spending a moderate amount of money for a device that is not as good as the one you had. Money issues are still present, primarily for student migrants.

"Yeah, probably, but not as good as the ones I have. [...] mostly because I have a lot of friends or anything that have second devices that I can just take from them, but not that I can purchase myself." - Migrant 7 (STUD)

Coming from another country, some migrants do not know what the applicable regulations and support services are for them. Although certain opportunities offered by the government may be relevant or applicable to you, they are not always pursued: *"I'm also not a permanent resident and [...] being on the highly skilled migrant visa, I so far have just sort of assumed that many of these benefits I'm just not eligible for. And so I haven't, I don't know how to do them. I haven't tried." - Migrant 10 (ECO)*

Struggles present themselves when coming from another country. Some things take time to get used to. And some things are just unknown until you (accidentally) encounter them. A couple of migrants mentioned that it would help them a lot if there were a place for migrants to ask questions. Not so they do not have to do anything themselves anymore, but just so they can be guided in the right direction and be assured that they are doing what they are meant to do.

4.1.1.2 Positive experiences

The negative experiences have exposed some of the issues migrants face when coming and residing in the Netherlands. However, it is inaccurate to say that migrants dislike the digital system. In fact, in the interviews, a lot of love and admiration is spoken out for the way the Netherlands organised their digital services. This section will dive into the positive experiences of migrants in the digital landscape of the Netherlands. The four themes for Positive experiences, presented in table 4.1 of the thematic analysis, are used to guide this section.

Digital landscape is advanced

To start where the negative aspects left off. The digital landscape of the Netherlands is perceived as positively advanced, according to the migrants in this study.

The negative aspects of the change of country were primarily focused on getting accustomed to the support a country has to offer, and money issues for new devices. However, there are many positives experienced by migrants that come with the Dutch digital services. One general positive thing is that there is still a great connection with the home

country. Furthermore, affairs in the home country can be continued from the Netherlands, and vice versa.

Some things that are second nature for Dutch people, are seen as very advanced and convenient for the newly arrived. For instance, cashless transactions saving the hassle of bringing cash. Furthermore, a student migrant mentioned that the public transport apps for buses and trains work excellently in the Netherlands, and they function smoothly.

Furthermore, the respondents mentioned that when the digital landscape is understood, it serves a great purpose and is perceived as very well designed and convenient. Even the tax system, which has posed difficulties for all migrants interviewed, is much easier to use than in other countries. However, it takes some time to get accustomed to. One interviewee summarised it quite nicely: *So if some other people, help [migrants] with using the digital technologies, they'll be really better off. And then overall this whole technology, it really helps migrants to do the procedures." - Migrant 6 (STUD)*

Another positive is that the digital world is designed for the user. One interviewee mentioned the difference between physical shops, where *they* want to sell you something and online shops, where *you* want to buy something. The digital experience can be fully customised to what the user would like it to be, without the distractions.

Lastly, while introducing the next theme at the same time, the digital environment is appreciated by its ease of use, especially compared to the hassle some migrants are experiencing in their home countries:
"It took me 3 steps, whereas if I had to do the same thing back home, it would take me a lot longer. The server would break and then restart the process. So it's a very high friction thing over there." - Migrant 8 (ECO).

Ease of use

The fact that the digital environment is easy to use is why migrants gravitate towards it. However, as seen previously, if not understood well, the digital environment can be a nightmare. The many different digital services that are present from different organisations on different websites have proven to be a maze, which is difficult to get out of when just arrived in the Netherlands. However, certain services are well appreciated by migrants, having everything in one place. Especially *MijnOverheid* is a service which is perceived well by the migrants in this study. Everyone with a citizen service number

has access to it and receives all communication from the government in one location.

The digital environment is advanced in the Netherlands, even so far that the migrants in this group are practising the Dutch language online. Furthermore, the integration into the Dutch systems seems to work well as everything is ready to be used for migrants. The process is perceived as easy to do. As long as access to DigiD, the Dutch online identification method, is taken care of, everything works smoothly.

The Dutch digital ecosystem is generally perceived as user-friendly and convenient. Nevertheless, it is crucial for users to comprehend the functionalities provided, as inadequate understanding can lead to negative consequences. Therefore, the introduction to digital services and processes could be an emphasis to help migrants understand how certain tasks have to be handled.

Accessibility is good

Migrants are impressed with the digital environment, especially from the accessibility aspect. They can - and do - use their digital devices anywhere.

Compared to some other countries, the Netherlands does not discriminate in access for migrants compared to locals, or those who have been in the country for longer.

Besides the access, the availability at any point in time for everyone is what makes the Dutch system stand out. The high accessibility of the digital services is different than in other countries where the Wi-Fi sometimes does not work for a couple days.

"Compared to [home country] in the Netherlands, I have seen very negligible disruptions in Wi-Fi. [...] But in [home country] it was quite often you would see disruptions. [...] Once a month or once in two months, and it was for 2-3 days." - Migrant 4 (STUD)

Help is present when needed

Help is not just a negative experience for migrants; it is also seen as a positive one. Not just help from the government, but a person's social circles especially play a significant role in providing support. Many times, help is not what migrants want, but something they need because they cannot figure it out alone. As mentioned before, the Dutch language creates a barrier for migrants. Furthermore, some devices are more suited to do certain tasks than others. For instance, one migrant mentioned that when he needs to

find information about something, and only his phone is available, he would struggle a lot. He then rather asks someone for help. Language creates a barrier for migrants and interferes with the independence of a person.

Oftentimes, help is asked for from the social circle. These people offer great help and, from the many responses, seem invaluable for migrants in this study. Yet, the help does not always teach the interviewee how it works. Furthermore, the help coming from unofficial sources does not always result in accurate outcomes.

"I got help from my neighbours. Thankfully I have very good neighbours which went over with me and then I was apparently declaring the wrong cost for education. Saying the whole amount I was paying but they were like, no, you cannot declare this amount from it for education. So I don't know things like that. I still don't fully understand. - Migrant 5 (STUD)"

When the government fails to provide information, there are people from the user's circle or strangers who offer help. Although it is nice that there are options besides the government, the question is whether this is good practice and if, in the future, the users are able to do it themselves.

Many Dutch citizens speak Dutch and are open to help, which many interviewees experienced. It feels like there's always someone to redirect you or communicate with about your issues, which goes a long way.

A more robust solution is the support provided by a workplace or educational system. Some interviewees found this support very helpful. Positives are that these organisations know much more about the struggles since they encounter them more often. Furthermore, the information they provide could be of a higher level, being closer to the government and again, encountering the same situation more frequently.

However, even if there is no help from the government, work or educational systems, there are always companies that can offer help. Although most interviewees prefer to do it themselves, for things that are really important and that cannot be messed up, paid help is the best option for them:

"The Belastingdienst (*tax authority), at least we decided because we are too new to the country and we don't understand the tax laws well. We're going through a service. So that's called [name of service]. So we are filing our tax returns through them because we want to don't want to do something wrong. And the thing is, when you are an economic migrant, especially one who is dependent on a visa. You're really

worried about making sure you do nothing wrong to jeopardise that visa." - Migrant 8 (ECO)

Options that are more reliant on technology seem to please interviewees. Although similar services are offered in other countries, the Netherlands seems to have the edge on them. One migrant mentioned in the interview that chatting and asking for help works well in the Netherlands. In other countries, having a text conversation for help felt like talking to a robot, while in the Netherlands, it really feels like somebody is fixing the problem. And all of this is more convenient given that waiting by the phone all day is not necessary.

All in all, many sources of help are available. There is not one to pick out that everyone uses. Migrants can find their own way through the digital landscape, but it also poses difficulties. As someone who has just arrived in the Netherlands, to find everything you need, you are required to know about many different services and organisations. Help is often sought in an informal, non-official way.

4.2 Experts consultation

In addition to interviews with migrants, four different experts are interviewed to create context behind the answers and to understand what their expertise group struggles with, and sees as positives in the digital landscape.

One expert provided great insights into the difficulties some migrants experience. These are mainly older people who have a Turkish background. He experienced that these people were a lot more comfortable with equals. People who experience the same struggles, in the same culture and language. But coming to a new country creates difficulties, especially since the digital culture can exclude them from participating. The expert interviewed tried to improve his group of migrants digital inclusion in the Netherlands. The expert explained that the digital skills of these migrants are not the issue. Better yet, these migrants feel impotent and powerless because they *think* they are unable to participate in society:

"So is this about technical skill? No, absolutely not. No, you have to first remove distrust, correcting that feeling and then they can start to learn better digitalization and that goes hand in hand with the understanding of what am I doing and what kind of letters do I get? There is no trust."

Distrust is rooted in the individual society, which these migrants are not used to. They are used to make decisions as a collective. This difference is difficult to change once

arrived in another country. The collective society and thinking is deeply rooted in some migrants. Feeling stronger together and learning from each other, rather than having to figure out everything alone.

To help migrants, it is therefore not as easy as finding one solution that works for everyone. It is vital to look at the differences in cultures. More importantly, however, is creating a bond and showing openness towards the migrants. Conveying the message that you are willing to help. An expert who has been in the same situation, who had to flee her country, now works to help people find their place in the Netherlands, knows what refugees need, regardless of culture. That is a welcoming and warm feeling.

However, not everything is as difficult, since some things can be fixed easily. Some experiences could go from negative to positive in the blink of an eye. Because, still, the biggest issue is translations on websites. Not only do the migrants experience this, but it is also recognised by an expert who does various research on migrants, when asked what the biggest obstacle is for migrants to use digital services independently. The expert also mentioned language:

"I think what I see now from the research is that language really is the biggest barrier. " (in the context of inclusion)*

Yet, digital devices like a phone are tools made to improve human lives. The ability to work with these devices has a big influence on participation in society and social inclusion. Big sums of money have been invested in the digital skills of the nation [151].

However, one expert made clear that once people do not feel estranged by the digital devices, the issues will disappear. In the end, the problem is thus not that people are unable to use digital devices, but rather, the motivation and encouragement to use digital devices are missing. The lack of automatic translations on websites contributes to a lack of encouragement and motivation.

One expert noted the opportunities digital devices and services can offer people, especially for migrants. Technology is a tool for humans, but they have to be used well. Once they are used well, many issues can be prevented and helped. The expert mentioned the possibilities technology has to offer, explaining a relatively simple app that alleviates the stress of many migrants he helps. *"Your device starts speaking. I received this letter from tax authorities and look, in this way it really alleviates the problems of 100 people. Because that uncertainty of, what is in the letter, how should I? Who can help me? That makes people sick."*

4.2.1   Discussion of thematic analysis

The five themes corresponding to the negative experiences related to digital inclusion all
present difficulties that migrants have experienced in the Netherlands. In short:

Language. Many Dutch people speak English very well, which migrants appreciate.
However, online websites and offline messages in the form of letters are frequently only
in Dutch. Help desks can offer help, but the individuality that the digital environment
carries with it means a lot of load on the shoulders of the users, as they have to find
their own way through it. Translating pages is a common practice for migrants, but with
mixed results.

The digital environment makes it so that the migrants in this study have to find
their way around issues, without physical alternatives seemingly present. Transparent
communication is lacking in this, as some people do not know what is going on. Questions
like: 'Did I do it well or is it still not solved?' and 'Why do I have to pay for this?' are
in the heads of migrants in this study, and they sometimes even just accept that it is
wrong, not to have to deal with it anymore. The digital system is not always easy, and
some people are more experienced than others. Natives are prone to encountering these
issues too, but they have the luxury of asking for help more easily.

In the theme Everything is technology, migrants' experience with technologies is seen
and compared to their home country. Migrants deal with a lot when coming to a new
country. In the Netherlands, everything they have to deal with is online and in another
language. Physical help seems far away, and it feels like everything has to be dealt with
alone. Migrants have to learn everything on their own, while natives growing up learn
little by little how everything works.

Information and help are sometimes not useful or at least seem far away. The unavailability
or unclarity of help, instead, pushes the government further away than that it helps the
migrants. In the end, the migrants noted that it felt like they have to face their issues
alone. The solution many migrants in this study refer to is to ask for help from people
close by.

The differences between the home country and the new country created difficulties
because some migrants in the study assumed things were similarly organised or did not
apply to them. Yet, this could well be the case, resulting in missing out on the services

provided for them.

However, many migrants report positive experiences with the digital environment. The digital landscape is advanced, allowing them to keep in contact with their home country. Furthermore, if understood how to properly orchestrate the digital devices and services, instead of working against the person, it is perceived as opening up a lot of possibilities.

Secondly, in general, the digital environment is seen as easy to use. Particularly, services like 'Mijnoverheid', which the interviewees experienced as effortless. They can find all their emails and notifications in one location, which helps them to create oversight. Furthermore, not much resistance is found for migrants specifically. Even after just arriving, everything is ready and available.

Accessibility is not so much an issue for migrants; it is seen as better than where they came from, which is a big plus. The internet connection works and is available in many different places.

Lastly, in contrast to the negative experiences, Help is present. A lot of people speak English and are helpful. This way, there is always someone or some place to ask for help. Even though the help does not always come from the government, everyone is willing to help, which creates a positive feeling that it can be solved.

In the introduction, contradictions between the positive and negative experiences were highlighted. The unclarity of government help has not been solved yet. The quotes in the text show that even when asking for help from official organisations, like the government, it does not always solve your issues. Either because they do not know your specific case, or the information provided is unclear.

Still, the contradiction is that migrants are positive about the help that is present. This seems to arise from the fact that this help often comes from an informal source, neighbours, friends, or even other migrants who are in the same situation. The positive that stands out is that there are a lot of people who speak English well, which is helpful. Yet, help for certain things would probably not be required to this extent if websites with information were also in English.

Everything is technology, and the home country is different from the Netherlands, compared to the digital landscape is perceived as a positive. The main difference between the two is that, at first, it seems like a lot to take in. But the interviews showed that

once the migrants are used to the changes, they experience the digital environment as pleasant. After finding your footing, knowing what applies to you, how a form works and understanding a little bit more of the culture - and of course having the finances to get through it - the digital environment is seen as convenient, even for the migrants in this study who seem to struggle with it.

Yet, it is always important that the differences between migrants are understood, just like with any person. Economic migrants seem to have found their way around the digital environment, and they also have more room for mistakes, because money does not weigh as heavily on them. Others, who do not particularly have an interest in technology, find more difficulties. The government seems to stand further and further away from the citizen by using technology. To keep everyone informed and up to date, it is not only important that help is available, but also visible for those who need it.

Learning Dutch would be the best way to, at least, understand what is going on a bit better, which seems to lead to a positive view on the digital services. But learning Dutch is not always as easy as it seems. Besides having to work or go to school, many migrants also have other obligations that should be taken care of, like families or affairs in their home country. Besides that, they navigate their way through the digital landscape, which everyone has to do, for them, it just takes more time.

Most importantly is thus to encourage and help migrants continue the journey, because after the hard work, there are merely positive reactions.

4.3   Conclusion SQ 2

To answer research question 2: *What are the positive and negative experiences of migrants related to digital inclusion?*, is not as easy as it seems. With a thematic analysis, the positive and negative experiences of ten migrants are told and analysed. Many negative experiences revolve around the language of websites and services being Dutch, and translations are not always sufficient in their purpose. This results in harder navigation through the digital landscape. Although there are options for help, the individual characteristics and the ineffective help from official organisations do not provide solace. These are the main difficulties experienced when dealing with the digital landscape. Yet, once these difficulties are tackled and overcome, mostly positive are spoken about

the options, speed and convenience the digital landscape offers. It has great benefits
for migrants in this study, however, it is important that these benefits are seen and
understood by the user, otherwise, the digital ecosystem is merely a nuisance to avoid
whenever possible.

Chapter 5

Subquestion 3: Strategies and Technologies

For the last research question, the technologies and strategies that could help migrants be more digitally included in the Netherlands are looked at. To answer the last subquestion, subquestion 3: *What strategies and technological innovations can enhance digital inclusion for migrants in the Netherlands?*, first, a literature review has been conducted on strategies used in different countries, and in the Netherlands to improve digital inclusion. Then, interviews were used to understand the views of migrants and experts on this area. Both the expert interviews and migrant interviews provide insights for this subquestion.

5.1 Literature review

This chapter starts with a literature review. The literature review delves into understanding the perception and recommendations of scholars from their studies to effectively help migrants.

To start this section, it is important to understand the central terms, which are *Technologies* and *Strategies*.

For technologies, the meaning is fairly straightforward. The Cambridge dictionary describes technology as: '*the practical, especially industrial, use of scientific discoveries*' [152]. Technology is a broad term, which is also the intent of the definition in this research. Technology can be any invention that could be applied to help migrants be more digitally included.

Strategies is understood as: '*a detailed plan for achieving success in situations such as war, politics, business, industry, or sport, or the skill of planning for such situations*', by the Cambridge dictionary, or simply '*a way of doing something or dealing with something*' [152]. For this research, again, the term will be interpreted very broadly. The definition for strategy in this research is: *a plan or idea on how to do something or deal with something*. A technology can therefore be part of the strategy, but does not have to be. A strategy does not have to involve technologies. However, the other way, a technology cannot suffice without the strategy around it, on how to deploy it.

5.1.1 Search strategies and selection of literature

To find articles for this research question, the literature database of Scopus is used. In table 3.1, the synonyms used for this search are depicted. These synonyms are generated by asking the AI-chatbot Grok for synonyms for Digital inclusion, Migrants, Strategies and Technologies. On top of that, the results of the conceptual analysis of section 1.2 are added to this. This is depicted in table 5.1.

Search Term	Synonyms
Digital inclusion	digital inclusion, digital gap, digital access, digital literacy, digital skills, digital equity
Migrants	migrant, refugee, immigrant, asylum seeker, displaced person, forced migration
Strategies	strateg* OR approach* OR method* OR tactic* OR plan* OR polic* OR framework* OR initiative* OR intervention* OR measure* OR scheme*
Technologies	Technological Innovations OR digital advancement* OR technological development* OR digital technolog* OR tech solution* OR innovative technolog* OR digital tool* OR technology application* OR tech innovation* OR digital system* OR advanced technolog*

Table 5.1: Search terms and their synonyms SQ 3

To find the final set of articles used for this subquestion, the results are limited to articles published between 2020 and 2025. Furthermore, only journal articles were included in the

search. This resulted in 26 articles. 15 records were excluded by relevancy after screening the abstract, title and keywords. Then, 3 records were inaccessible and therefore unable to be used for the literature review. Ultimately, 10 studies are included in the literature review, adding 2 extra studies from the previously performed literature review in section 3.1 of chapter 3. The PRISMA diagram visualises this, which is depicted in Figure 5.1.
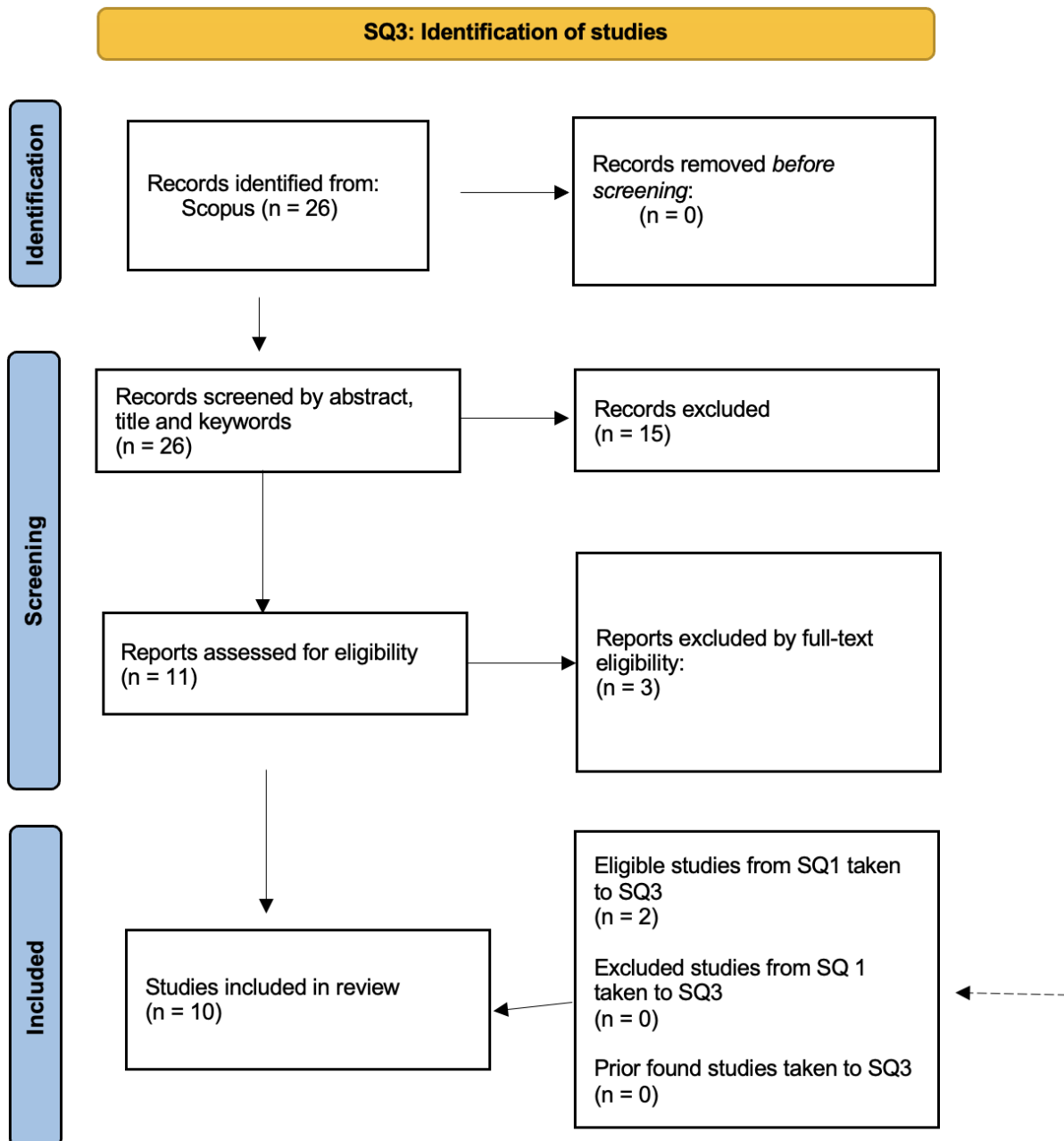
Figure 5.1: Prisma diagram SQ3 [134], [135]

The studies that are part of the literature review are written down in table 5.2. This table provides the Author(s), the Article it is about, whether it covers a Strategy or Technology, what the Idea is how to improve digital inclusion and lastly, what Findings they have based on the idea introduced.

	Author(s)	Article	Strategy or Technology	Idea	Findings
1	Kisa and Kisa (2025) [153]	Can digital storytelling improve health outcomes for immigrant and refugee populations? A scoping review	Technology	Using Digital storytelling providing a medium to especially migrants and refugees to share their health experiences	DST could serve as a bridge to overcome cultural and linguistic barriers to enhance communication, foster community engagement, and empower individuals
2	Lin et al. (2023) [154]	Exploring the intersections of immigrant seniors' digital literacies and social connectedness: a Canadian study	Strategy	Essential role of social interaction in community-based digital literacy programs for seniors	Social interaction plays a pivotal role in facilitating, fostering, promoting, and enhancing seniors' digital literacies. Effective digital literacy programs not only provide seniors with valuable skills but also promote a sense of purpose, agency, and social connectivity.

Continued on next page

	Author(s)Article	Strategy or Technology	Idea	Findings
3	Netto et al. (2021) [155]	Resilience, smartphone use and language among urban refugees in the Global south	Strategy	Central role of language and literacy among refugees, complex relationships between digital literacy and other literacies	Greater attention to the role of language and literacy in refugees' use of digital technology will contribute to better understanding of the capacity for resilience among these individuals and more effective digital solutions
4	Potocky (2022) [156]	The Role of Digital Skills in Refugee Integration: A State-of-the-Art Review	Strategy	Digital skills affect all domains of integration. many refugees in resettlement have limited digital skills for necessary integration tasks	(1) A need to develop, tailor, scale, evaluate, and sustain formal and informal, in-person and online digital skills training for refugees in integration and (2) There are collective impacts to be gained through collaboration among libraries, resettlement agencies, direct and indirect service providers (e.g., educational institutions, museums), and ethnic community-based organizations.

	Author(s)	Article	Strategy or Technology	Idea	Findings
5	Tour et al. (2021) [157]	"It's a Black Hole . . .": Exploring Teachers' Narratives and Practices for Digital Literacies in the Adult EAL Context	Strategy	A strength-based approach to teaching digital literacies can advance language education for adults from refugee and migrant backgrounds	Building from strengths and offering experiential learning worked well instead of focussing on weaknesses of student
6	Cunningham et al. (2024) [158]	Digital technology uses, purposes, barriers and training programs for culturally and linguistically diverse older adults: a systematic scoping review	Strategy	The existing training programs focus on enhancing self-efficacy and confidence and promoting attitudinal changes toward ICT, which is too broad	The barriers faced by these older adults in using ICT encompass fear and limited knowledge, language issues, lack of interest, limited access to technology and health concerns. Training programs could be designed around the explicit purposes of ICT use as identified in this review, such as building support networks and managing physical health

	Author(s)Article	Strategy or Technology	Idea	Findings
7	Creely and Henderson (2025) [159]	Artificial Intelligence and the Digital Dis/Empowerment of Migrant and Refugee Learners	Strategy and Technology	Migrants and refugee communities have a diverse set of needs that should be played into	Policy frameworks should prioritise equitable access to advanced AI technologies for migrant and refugee communities. This includes providing access to the latest tools but also ensuring that these tools are affordable and inclusive. Policymakers should also advocate for the development of AI systems that are trained on diverse datasets, minimising biases that could marginalise non-Western perspectives. The potential of genAI for offering individualised and potentially agentic approaches for learning that cater to individual learning goals and needs.
8	Baldassar et al. (2022) [160]	Digital Citizenship for Older Migrants in Australia: The Need for a Comprehensive Policy Framework	Strategy	Including older migrants into the digital system	Involving older migrants in the co-design and creation of digital solutions tailored to their skills and needs can be highly beneficial

	Author(s)	Article	Strategy or Technology	Idea	Findings
9	Turin et al. (2022)	Identifying Challenges, Enabling Practices, and Reviewing Existing Policies Regarding Digital Equity and Digital Divide Toward Smart and Healthy Cities: Protocol for an Integrative Review	Strategy	The urban population is generally extremely diverse, and each population group within an urban area may have unique advantages and disadvantages in terms of digital equity.	Being informed about those unique aspects will help develop workable and acceptable strategies to improve digital equity for all.
10	Fung et al. (2025) [138]	A Systematic Review of the Digital Divide Experienced by Migrant Women	Strategy	Understanding migrant women to create trainings	Needs assessment based on our identified digital divide factors should be conducted backed by childcare supports before the training programs for migrant women so as to more effectively bridge the digital divide

Table 5.2: Existing literature on SQ3: Strategies and technologies for digital inclusion of migrants

5.1.2 Results from the literature review

The literature review provides interesting insights into what effective strategies and technologies are for future applications for digital inclusion of migrants. Although there are only a few articles available on this topic, they show insightful results to consider when applying new ideas.

Lin et al. (2023) mention the importance of social interactions for older migrants to let seniors understand the importance of digital [154]. The Strategy should therefore not just be focused on improving digital skills, because it only works when the other aspects are also taken into account.

Potocky (2022) mentions that there should be cohesion and unanimity between *all* the organisations that provide help. Collaborating between these organisations would improve the digital skills and the integration of refugees. Furthermore, the author emphasises the importance of improving digital skills.

Tour et al. (2021) mention that teaching migrants should not be based on the thought 'You are not able to', but rather a strength-based approach, 'You excel in A, so we shall focus on A'.

Cunningham et al. (2024), on the other hand, say that the focus should be on the purpose of the ICT [158]. Instead of providing broad solutions that fit everyone (but are ineffective), the help should be more suited towards the user's needs and not try to help everyone at the same time. Baldassar et al. (2022) take it even a step further and say that the migrants should help design and create the digital solutions [160].

Netto et al. (2021) stipulates the importance of language. Language will help a better understanding and provide digital solutions that are more effective.

Turin et. al (2022) [109] mention that the different characteristics people possess lead to systemic inequities. This leads to different needs of people that should be respected to create fitting and working strategies. This is underlined for a different group by Fung et al. (2025) [138]. They mention the importance of understanding the needs and talking with closely related organisations before creating a training program.

Above are the strategies presented, which form the majority of the literature review. Two authors mentioned technologies that are effective in helping migrants in the digital context. The first is Kisa and Kisa (2025), who use Digital storytelling (DST), which they found is an effective way to enhance communication and participation by empowering individuals.

Lastly, Creely and Henderson (2025) talk about the potential of AI, specifically genAI [159]. This recent article mentions the potential that genAI has to help migrants. The adaptable perspective of migrants and refugees that can be programmed into AI has

great potential to have many benefits. However, the authors mention that this technology would only be helpful if the tools are inclusive and biases are minimised [159].

5.1.2.1   Literature review discussion

The literature shows several interesting aspects to keep in mind while designing strategies for improving digital inclusion of migrants. The general overview of the literature focuses on understanding the needs of users to shape strategies that fit them. Rather than just focusing on improving the skills of migrants, it is important to first understand how to reach them and to excite the specific target group about digital technologies. Language surfaces once more as an important aspect to effectively utilise digital solutions. Effective strategies require the actors who are knowledgeable and players in the field to collaborate and understand each other's offerings for migrants, in order to cooperate and use their strengths to create better services.

On the area of technology, there are two articles that show what possibilities technologies can bring for migrants. Specifically, AI jumps out as a fast-emerging technology that few authors have written about in this context, but could provide ingenious solutions.

5.2   Semi-structured interviews: migrants

The literature review results provide ideas on how to help migrants be more digitally included by effectively using certain technologies and understanding the strategies that work best to help migrants in the Netherlands. Besides the literature review, migrants had been interviewed. The needs explained in chapter 3 and the experiences from chapter 4 are central in ultimately understanding the point of view of migrants in the Netherlands.

Chapter 3 showed that the needs of migrants in this target group are mainly on the dimensions Skills and Acceptance. Skills is influenced by the requirements, necessities and interests of migrants. Acceptance varied most across the interviewees. Where some prefer non-digital services, others would not want a change in the advanced digital society. Yet again, others like some aspects of the digital environment but also see room for improvement.

Chapter 4 tried to understand the experiences of migrants. Many positive experiences are shared of using the digital environment in the Netherlands. On the other hand, there are negatives experienced. Many migrants experience language issues using websites,

especially government websites. Furthermore, help seems farther away when everything is online. Solutions are found in people close by, like friends, neighbours or their community, yet these have downsides that are discussed in the upcoming sections.

5.2.1 Thematic analysis

The analysis of the interview results are once again performed using a thematic analysis, similar to the one in chapter 4. Codes were already created when answering the previous subquestion. The codes are grouped for the research question. The research question is split up into two parts: *What strategies can enhance digital inclusion for migrants in the Netherlands?* and *What technologies can enhance digital inclusion for migrants in the Netherlands?* or in short: Strategies and Technologies, respectively.

The codes are then coupled together to create themes. This resulted in four themes for Strategies and three themes for Technologies depicted in table 5.3. The results of the themes with corresponding codes are depicted in tables D.4 and D.2 in Appendix D.

	Strategies	Technologies
1.	Clear communication	Provide help with technologies
2.	Different migrant groups, different needs	Unified system
3.	People close-by to help	Technology to motivate
4.	Different institutions for help	

Table 5.3: Comparison of themes of Strategies and Technologies

Interestingly, some of the themes of the literature review are also present in the thematic analysis. First of all, the theme *people-close-by to help* resembles the social aspects that appear in the literature review. Which mentioned not merely focusing on the digital, but also understanding how to bring the message. On top of that, the literature shows that migrants are different from each other, and that should be kept in mind when designing policies. Not only does it confirm the importance of making the distinction valued in this research. The results of this study also showed that there is no one group of migrants that is similar to the other. Therefore, to use the same solution for all does not seem fitting. The thematic analysis also shows this in the theme: different migrant groups, different needs. The topic of different institutions is also present in the thematic review, as it is in the literature review, which mentions the importance of collaboration between

organisations. Lastly, clear communication is an overarching subject, whether concerning language or just clear messages.

5.2.1.1 Technology

The themes of the group Technology and their meaning for migrants will be discussed in this section. Technology is started with, because then, the strategies can be formed around technologies. Furthermore, based on the technology, strategies can be developed. The other way is more difficult, to *fit* a technology into a strategy. In the end, both these aspects go hand in hand, which creates a suitable subquestion.

Unified system

Starting off with a *Unified system*. Migrants often mention that the system is difficult to understand. However, the longer they are in the Netherlands, the easier it gets. This could be related to the fact that there are many different sources of information and many sources that offer help, especially from the government. The government has around 1500 websites in the Netherlands [161]. Of these websites, although exact numbers are not present, it is believed that only around 50% are well accessible, despite a law obligating the websites to be accessible [162]–[164].

This should be considered as one of the reasons why it could be difficult to navigate the Dutch digital system. Not only are there a lot of pages, but they are also not all accessible. This is where the theme of a Unified system comes in. Different respondents mention that they either had a place where everything was together in their home country, or that they would like to have it in the Netherlands.

The Ukrainian interviewees talked about their system DIIA, which offers twelve government services and eleven digital documents [165], [166]. A similar service in the Netherlands could provide some more oversight and clarity to new people and people who struggle with digital services. It seems like the government tries to provide help; however, currently it is not perceived as effective.

Other migrants also mention their preference of having everything together. Not only having everything together in terms of documents and websites. Another thing that would help the migrants in this study would be a place where they can ask all their questions. It does not matter if this location does not immediately solve the issue, but

just someone who can point them in the right direction. One migrant mentioned how it would help him: *"If there is a migrant, help line to ask for issues [for those] who are not aware of everything. It will be easy and I think, yeah, that's all that needs to be done, a digital solution where migrants can ask for anything and it should not be for that, they have to go here for this, they have to go there. It should be a one, one for all kind of thing.[...] They can guide us to this place, this place."* - Migrant 4 (STUD)

Having all government services together is a great absence that would help migrants a lot. If that is not possible, it would still be helpful to have at least one place to ask for help.

Provide help with technologies

The theme *Provide help with technologies* covers technologies that provide help. This theme is closely related to the theme of *Technology to motivate*, which is discussed later.

One student talked about his experience with AI and the help it could offer, specifically the personalised help. But the disadvantages are also immediately recognised:
"So I believe now with AI coming in, things will get a lot more convenient and personalised in terms of answers and where to find information, but I think people will also be very misinformed of course, or they will be informed with things that are out of date, right? That was applicable three years ago because the AI was trained on that data." - Migrant 5 (STUD)

AI as a technology can offer a lot of help, like Creely and Henderson (2025) mention [159]. However, there are some disadvantages that must be considered for it to work well. The capacity of such a powerful tool has a lot of potential. A technology that helps migrants and *motivates* them, which is the last theme of technology.

Technology to motivate

In some conversations, the importance of technology came up. In the previous chapter, it was highlighted that technology can be a nuisance for some migrants. This goes hand in hand with the little understanding of why something had to happen and the bad guidance provided to make it happen smoothly. Yet, once migrants are encouraged to use digital technologies and they feel confident, they appreciate it immensely.

People should have control over the technology and not the other way around. Technology should be seen as a way to help people, but even better, motivate people to use it. One expert talked about an application that does exactly this. The application is called *Lees*

Simpel. It helps migrants understand the letters and emails they receive. It does so by slowly, in clear, short sentences, explaining who sent the letter and what it entails.

Many people complained about letters, what they meant and what they were supposed to do with them. The question asked by the developers of the app was, Why are official letters so difficult to understand? The expert explained:

"But official language and also regulations mention: 'stated there according to the article blah blah blah, reason'. People do not want a reason, people want to know what are the consequences? [...]. It [the application] is free, so you have a letter, take a picture and then a very simple letter appears.

Sender: from the tax authorities:

"You will first receive a warning"

"You have to pay so much money"

"If you do not do that, you will get a fine"

"More questions? Call here."

An almost 1.5 page letter, in a few sentences, then people understand the essence and the urgency of the letter."* - Expert 1

The app even has a translation function for some languages and a read-aloud function. The expert explained that this is a great help for migrants and it motivates them to do more, because before the app, they did not think that such a big issue could be relieved so easily:

"Then they feel, if they experience that for a moment, like Alice in Wonderland. 'Hey, the telephone is my tool! And it tells me everything.'

So then they [migrants] understand what the digital world is. Because if I come and tell them, Do you know what the digital world is, it is this and this and ... Well, that doesn't appeal to anyone, but if you experience it once, that's what it's all about. 'Hey, a mobile phone! Then almost half of my problems are solved.' "* - Expert 1

Technology has the capacity to motivate and help people, but it needs to be used well. The applications need to be thought about; only then will they reach the target audience, who can ease their way through the digital landscape. The examples are already there, the deployment has to follow.

5.2.1.2   Strategies

To start this section, a quote used from an interview with an expert is used to describe the importance of good strategies and the connection it has with technologies:

"I sometimes have doubts and questions about the growth of the internet and also digitalisation, everything is becoming more digital. But I see more positive sides than negative sides. Because technology is in the service of humanity. But, yes, if Elon Musk says, 'I just want to use it in that way', then it goes wrong, that is not because of the technology itself. But the people behind the technology who abuse it."* - Expert 1

Clear communication

Starting with *Clear communication.* Clear communication is aimed at the communication between migrants and the government. This can be via different sources, like letters, websites and telephone calls or physical conversations.

This topic closely relates to a unified system. Since, if there were to be a unified system, the situation would likely be improved already. Clear communication is a topic the interviewer discussed with an expert. She talked about the role of the government, especially naturalisation organisations, to be understandable and work in the service of the users.

The first, and probably most obvious step, is to improve the languages available. The efforts put into this could make a massive difference. Availability of English alone is enough, since currently a lot of websites are still only in Dutch. Using clear, understandable language has been shown to be very beneficial. This has already proven to be effective. Ukrainian migrants who came to the Netherlands because of the war mentioned in interviews that some websites offered information in Ukrainian as well as Dutch and English. This was received very well. The information was instantly clearer.

"No, in Dutch of course I cannot understand this. So it is not so easy. [...] If I need some, special information for Ukrainian refugees. Sometimes they put options in Ukraine, you know. So for example, if they have, options to change your driver's licence for Ukrainian people and you could choose English, Dutch and Ukraine. [...] It's more easy, of course." - Migrant 1 (FORCED)

People close-by to help

If there is no clear communication from official institutions, people try to find other ways to get information. Often, they go to the places where they feel most at home; their own people.

Many interviewees look for people from their own community to find help. These people

speak the same language, and they have dealt with the same situations. People in the community understand each other and are more willing to help, because they know how difficult it can be to find out everything by yourself.

The help is found both offline and online. One student talked about how he stumbled upon WhatsApp groups where he could connect with migrants in the Netherlands from the same background. They became so popular that multiple groups now exist to accommodate the demand.

These connections with people from the same place are beneficial as they can offer help in an understandable language, when needed. Another student who came from Asia also preferred connecting with another student from her home university who already studied at her new university.

Community has proven to make migrants feel at home and, in the context of this research, bring motivation to keep going. There are, on the other hand, also pitfalls arising from community help. Two experts talked about misinformation that can spread if the government is unable to reach migrants, and communities become the source of information. First, if there is something that is believed in the community, this belief can be passed on to others, even if this belief is not based on any truth.

"So I think that is a danger that if perhaps something has worked for someone in that way, then perhaps the community is inclined to think, 'oh but, does that work then?' [...] And then you see these questions coming up with: 'is it true that if I do this, that I will get my application granted sooner?' And yes, those are things that I think, oh, that is dangerous, if that is what lives in that community, if that is actually not the case. So I do see a danger there and I'm not saying that because of the community, but that's more, I also think about the [Organisation] of the government that we're not clear in how we work. So yes, support from the community is good, but as soon as it's about the content of the process of the [Organisation]. Then yes that might be quite risky." - Expert 2*

This expert also points to the task of governments and organisations communicating clearly. The lack and clarity of communication is a recurring theme in this study. Another seems to agree and adds the downside that informal sources of information are also not up-to-date anymore. Especially if that is the only source of information they receive:

"Many immigrants rely heavily on informal networks, such as WhatsApp or Facebook groups in their native languages, to exchange information. While this can be a strength, it also means they may receive outdated or incorrect information, especially when they're not connected to official digital sources. -

Expert 3"

Different migrant groups, different needs

One of the most important themes, also highlighted by the literature review, is to understand the different groups the policies will be designed for. On aspect that affects the attitude of migrants towards the digital ecosystem is their duration of stay. Some plan to stay in the Netherlands for the rest of their lives, while others are just passing through, staying for a short amount of time. *"I hope I will go back quick [to home country]. So it's difficult to really understand this, because for me, now it's temporary" - Migrant 1*

Yet was has been seen before is that a lot of migrants mention the ease of use after getting use of the services. That does not apply to those who leave the country again.

Not merely in duration of staying in the Netherlands, but also the reason to come to the Netherlands in the first place influences the migrants. The reason for migration, a central theme in this research, affects the information provided. One expert mentioned that forced migrants, specifically refugees, receive a lot of help and information. For student migrants and economic migrants, this is not the case. It depends heavily on the school or employer, respectively, on how much help is provided for settling in and conducting government affairs.

Different cultures come to the Netherlands. The Netherlands is famously a country that is very individualistic. Compared to other cultures, this means big differences in what they are used to, especially in the area of thinking from the individual instead of the collective [167]. Yaman et al. (2010) mention the changes related to an individualistic culture from a collective one [168]. This is also recognised by experts. Who mention that these migrants feel strong together and learn from each other.

The understanding of differences in migrant groups and what they need is currently still lacking. This is a crucial step to take to effectively offer help that might actually work. Two experts also mentioned that migrants sometimes just feel more at home asking people they know for help, instead of going to the government. Which, in their home country, is not to be trusted. Or, the government in the Netherlands is seen as distant and not welcoming. To create policies, it is thus important to understand the needs of the targeted migrant group.

Different institutions for help

The last theme is closely related to two already discussed themes, Clear communication and Unified system. The help offered for migrants, and anyone else for that matter, is offered by different institutions. Sometimes you have to be lucky to get the help, based on where you end up. Two students from different universities mentioned the help they received from their respective universities.

One student mentioned that on the first day, the university provided a lot of information and even had an app where everything is summed up. Yet, another student from a different university mentioned that everything she knows, she learned from her friends. She wished the university would provide this and thinks it is a good opportunity to do so.

An economic migrant also mentioned the difficulties among economic migrants. Depending on the job and company, the issues adapting to the new country are either difficult to deal with or all taken care of by the company.

Although extra help is always valuable, some migrants do not receive help at all, or for them, it is difficult to find help. If there were to be a central institution that would provide all the help, or if the institutions all worked together, help would be much better received. When creating new policies, a focus should be on centralising the sources of help and making them easily available for everyone.

5.3   Comparison results literature review and interviews

Many aspects of the same improvements that arise from the literature review also come back in the interviews. Surprisingly, there are no contradictions between the two. However, not much research has been done so far, which could influence this.

Clear communication has proven to be vital, language being the main issue that should be improved. Netto et al. (2021)'s research also tell this story [155]. A seemingly simple step, but translations are still missing on numerous websites in the Netherlands, while the English language is remarkably well spoken by its residents.

AI as a technology can be of great help, like Creely and Henderson (2025) mention [159].

However, there are some disadvantages that have to be considered before it can be used safely and accurately. The capacity such a powerful tool offers has great potential and therefore should definitely be introduced in conversations on how to improve digital inclusion, for migrants specifically. It can ease the current obstacles, motivating migrants to use digital technologies which comprises the last theme of technology.

AI might just be the option that is closest to the user while offering personalised help. The government seems too far away, and the services and help they offer are difficult to find and do not reach those who need them.

The needs of migrants are also discussed in both the literature review and the interviews. Where the literature has its focus more on understanding the migrants and then creating strategies, like including social aspects and allowing participation in the design of the strategies from the user. The interviews agree with this and, add the focus on differences between the cultures of migrants. Furthermore, it exposed the little knowledge of migrants we currently have, and the effectiveness of applied technologies and strategies.

There is a cohesion between the literature and the interviews. These insights are taken to provide recommendations for new technologies and strategies to be implemented to have more success reaching the audience and having an effect.

5.3.1   Discussion of findings SQ3

One expert interviewed helps migrants get integrated into the digital society in the Netherlands. He already applies many of the recommended strategies found in literature and interviews.

His approach is based on what the people do often and enjoy: drinking tea while talking with their neighbours. The neighbours are from the same community. The expert applied this knowledge of what these people enjoy to improve their digital abilities. This way, he understood what the migrants needed and appreciated instead of forcing himself onto them. Furthermore, the social aspect of drinking tea and coming together encourages the migrants to join.

The goal set by the municipality to reach twenty people in the first year was surpassed by a mile, reaching 375 people in merely three months. The expert reaches older migrants who never used a phone, who, after two years, are now using the internet and banking

apps. The expert noted:

"Then I found out. It's not about technical skills. The problem, is about feelings and emotions with fear. 'What if it goes wrong? Who's going to help me?' Or shame, 'what if I make mistakes?'[...] There is a course at the community center for example. I know that, they know that, they see that, but they don't dare to come and say, 'I really need help'. Because of language problem, experience problem and also the feeling that they were always excluded, also by their children and grandchildren." - Expert 1

Instead of offering help, help is *brought* to the person. During the sessions, the neighbours who often visit each other are now together again. While drinking tea, a new concept is added, using digital tools, primarily a phone. The concept of including neighbours is aligned with the concept that migrants, especially, feel more like a collective and not individuals. This way they can learn, and importantly, fail together. Guiding each other to achieve the same goals. There is trust within the group of people so that if anything goes wrong, it is not perceived as bad and help is close-by in the form of neighbours. The neighbours who are always available to help.

From this applied example, it can be seen that the theory works in practice. Results are reached when the migrants are understood and their needs are met.

Another idea that is already realised is the use of key figures. Key figures are persons who are closely related to the migrants they help. This can be based on language, culture or experience of a similar situation or a combination. These persons are employed by or have taken a voluntary position with the government. Therefore, they can bridge the gap between community and the government. They have the knowledge of the migrants. They know how to approach them and understand them better. And a similar language helps with the communication. Migrants see this person as part of their community, at the very least, not just as a person who comes from the government. This approach has proven to be successful as well.

One expert was an asylum seeker herself. Now she helps others who are in the same position she was in, to alleviate stress and help them understand what is required and guide them through it. In this position, many positive reactions are received by her. Making them feel welcome and at home. When asked if she thinks she is able to better help people, her answer was as follows:

"I used to be in the same situation and also know how people feel. How you feel everything. You have no

papers, stress, and also have children. I was also with my daughter when we came in [year] and then my son was also born in an asylum seekers centre. I know what the people feel here." - Expert 4

This expert has so much feeling of what it means to be in the same position as current forced migrants, that she is able to provide help and comfort. For her it does not matter where the migrants are from or what language they speak, she noticed that everyone comes with questions to her because she knows how they feel.

5.4 Conclusion subquestion 3

To answer subquestion 3: *What strategies and technological innovations can enhance digital inclusion for migrants in the Netherlands?*, a literature review and interviews are used to understand policies and technologies that would be beneficial to deploy in the Netherlands that enhance digital inclusion of migrants.

The literature review and interviews had similar results, pointing to several different aspects that would positively influence digital inclusion. On the technology side, migrants would benefit from a centralised system. A place where they can find all the information needed, without having to search the entire internet. Or a place where they can go and ask all their questions.

Another thing that would help is clear language, in English or the migrant's native language. An understandable language helps understand the core of the issue and prevents migrants from feeling lost, not knowing what to do or where to go.

Lastly, the rise of AI brings about possibilities that are currently underexplored, but have the potential to offer great benefits for migrants. This technology could transform the playing field for the newly arrived providing a personalised experience and guidance through the digital environment. One downside, speaking of digital inclusion, basic digital skills are required to operate an AI. This must be considered while designing and implementing such a technology. Technologies have already proven to be very effective in helping migrants adapt, like for instance the *Lees Simpel* app.

However, a technology is nothing without the right application in the right context. The strategies on how to apply a technology might consequently be even more important. One of the most essential strategies that is connected to all other strategies is understanding the migrants, and understanding that *migrants* is not one group of people, but a collection

of different cultures, religions, ages, genders and beliefs. Successful strategies keep that in mind and come close to the migrants of importance.

Social aspects help some migrant groups be more engaged, and co-designing the policies with the user group could help the rules fit better. Furthermore, language keeps emerging as an issue encountered by migrants. This results in a feeling of distance towards the government, and retreating to familiar terrain in the form of their own community. Community plays an important role in helping each other, but information should be verified to ensure accurate and up-to-date information.

Two examples in practice are provided that show these suggestions for new strategies are effective. The strategies mentioned are recommended to apply when creating new policies for migrants to increase their effectiveness.

Chapter 6

Discussion

The discussion chapter has a specific purpose in this research. Every chapter has a discussion section already. However, overarching themes that have not been discussed yet are presented in this discussion. First, the research questions are discussed together. Then the framework used in this research, Jia et al. (2024)'s, will be discussed with the findings of this research. Lastly, the steps taken to ensure inclusivity during the thesis will be discussed.

6.1 Discussion of subquestions

Subquestions 1 and 2 form the basis of this thesis. They provide insights into the experiences of migrants regarding digital inclusion that have not been studied before in the Netherlands.

In chapter 1, the importance of the dimension Acceptance was highlighted for the digital inclusion of migrants in the Netherlands. Chapter 2 again proves that Acceptance is an important dimension, as the trust in government greatly affects how the migrants in this study perceive the digital world of the Netherlands. Government services can change from something that *has to be done*, to something *convenient to use*, based on the perception of the person. When migrants are motivated and confident enough to face the difficulties of the online environment, after a while, instead of it being perceived as a hindrance, it becomes easy to use.

Subquestion 2 confirms thus the findings of subquestion 1 that Acceptance is indeed an important dimension required for digital inclusion. Subquestion 3 applied this knowledge

from the interviews and validated that, indeed, Acceptance is required for the group of migrants in this study and migrants who fall within the expertise of experts, to ensure that they feel digitally included.

Understanding how digital technologies and services work, and the narrative behind why something needs to be done, is an important step to improve digital inclusion for migrants in this study. The experiences of migrants can be brought back to the newly proposed framework of Jia et al. (2024) [26]. What has become clear in terms of digitally including someone is that of the five dimensions of Jia et al. (2025), Acceptance is shown to be an important one in literature and interviews. Acceptance seems to be the starting point, before the other dimensions can become focus points. For Acceptance, where it is just measured in trust in the study of Jia et al. (2024), they specify the importance of the other sub-dimensions. The interviews confirmed this and showed that Acceptance is even more important to be measured on the *motivation* and *confidence*. Jia et al. (2024) acknowledge this and specifically included Acceptance into their framework. This study confirms the importance of Acceptance for the framework.

Lastly, all three subquestions presented translation and language to significantly impact the digital inclusion of migrants. Migrants struggle with the lack of translations. The reason why translations are missing is still a question in a country where English is generally well spoken.

6.2   Contribution to Jia et al. (2023)'s findings

The framework central in this study is that of Jia et al. (2024). This framework has proven to be a great improvement from the previously existing ideas on digital inclusion. Yet, it is not complete. This study has shown the importance of the dimension Acceptance. Jia et al. (2024)'s theory of including Acceptance (and Impact) in their framework is thus of great importance to design inclusive policies.

Jia et al. (2024) show the interaction between the dimensions, but do not specify the relationships between them or what the important relationships are in their framework. The authors mention primarily the balance of the five dimensions. This study, however, revealed certain relationships between the dimensions, which would alter the framework.

Section 3.2.3 mentioned that the dimension Access has been found to influence the Skills

of a person, which is echoed in literature [19]. This feels logical, as digital skills are more difficult to develop if there is no access to the internet or digital devices. In other words, promoting digital skills to people who do not have access to digital infrastructure is not effective.

Section 3.2.3 also showed that, even though Acceptance did not seem an important dimension at first, it is required for people both to want, have and use digital technologies. If someone does not want access to the digital environment, they deny it. But, the relationship is not from the dimension Acceptance to the dimension Access. Looking at Access by its definition, this dimension is still fulfilled in case it is *willingly* denied. The constraint is, however, on the development of Skills. Willingly denying Access is a choice, falling in the dimension of Acceptance. Because Access is denied, and thus possible in case the person had accepted the Access. Therefore, Acceptance has an influence on Skills, since before Skills can be developed, but people must be willing to do so. This came forth in the results of the interviews. Therefore, Acceptance influences Skills.

Section 3.2.2.3 revealed that the sub-dimension basic literacy of the dimension Skills influences the dimension Usage. When people are not comfortable using services or technologies, for instance, because the language is not understood, they will refrain from doing so. Therefore, Skills has an influence on Usage. On the other hand, this section also highlights that when a digital service is required to be used, it is used very well. So, in the words of the dimensions of Jia et al. (2024), if a digital service is Accepted (albeit an external motivation), the Usage increases. The increase in Usage subsequently leads to better Skills. Usage and Skills thus influence each other.

Impact is purposively added to the dimensions of digital inclusion of Jia et al. (2024) by the same authors [26]. However, the literature review of subquestion 1 did not point towards the dimension Impact influencing digital inclusion. In section 3.2.2.6, it is pointed out that the social aspects making up Impact, are influenced by digital inclusion. The results in this study described that, when someone is digitally excluded, this would have grave consequences on their *social equality* and *digital well-being* in the Netherlands, which are the two sub-dimensions of Impact. Therefore, Impact does not influence digital inclusion, but is influenced by digital inclusion.

Lastly, a more abstract influence, Acceptance influences Skills, not on the side of the user, but on the side of the researcher. As explained in section 3.2.2.2, there is not one clear way to measure the dimension Skills. Since a person has to judge themselves, their

confidence plays a part in measuring the results of the dimension Skills. This relationship will not be taken into the changes of Jia et al. (2024), because it is too abstract. However, it would be interesting to find out the influence Acceptance has on measuring Skills in future research.

The dimensions of Jia et al. (2024) influence each other, like the authors depicted. However, the way they influence each other is specified with this research. The influences are based on the literature and interviews held. These relations are just what is found in this research. New relations should be added based on future findings, since this research is not all-embracing. An updated framework is presented in Figure 6.1. In this framework, a timeline is presented that depicts the order in which the dimensions should be tackled as described in this section. For the implementation of new strategies and technologies, the dimensions are recommended to be approached in this order to have the best chances of being effective. For each target group, first, the Acceptance has to be present. Then, if Acceptance is achieved sufficiently, Access must be ensured. When Access is available, then the dimensions Skills and Usage are recommended to be targeted. This order seems most effective for achieving digital inclusion. At what point a dimension is successfully and sufficiently fulfilled is an interesting topic for future research.
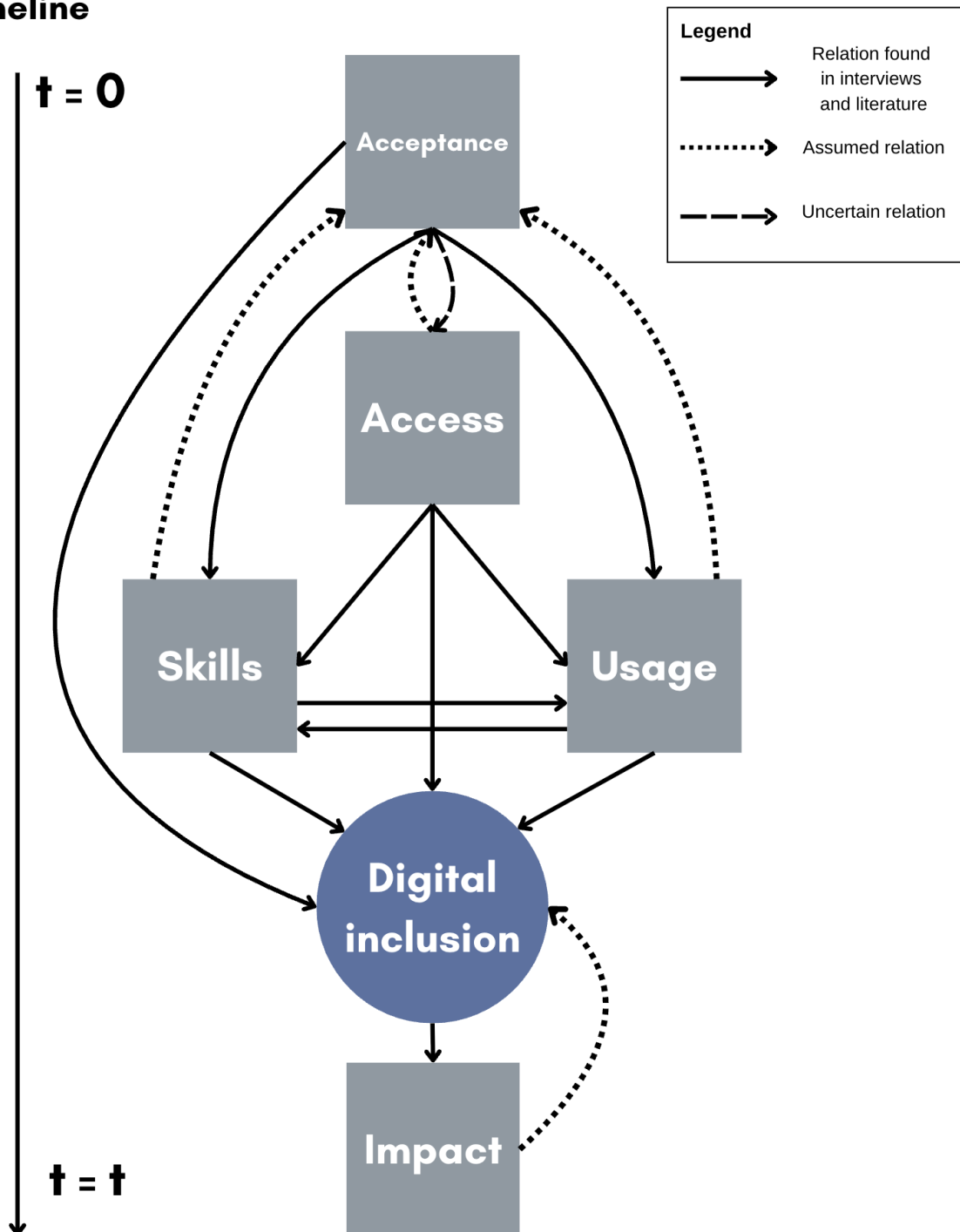
Figure 6.1: Relationship between digital inclusion dimensions, contributions to Jia et al. (2024)'s framework (author's own work)

6.3   Working with vulnerable participants

Several steps have been taken to, instead of addressing everyone equally, address the needs of the different participants as much as possible. As Aldridge (2012) mentions, "giving voices to the voiceless", preferably in their own voice [169, p. 117]. The diverse group of interviewees in this research required an approach that would suit every single one of them, and preferably an approach that fits with how they would like to be approached. Thus, adjusting the approach per person. Like subquestion 3 has shown, an important step for effective strategies is to understand the *different groups*, and their *different needs*. This is not just the case for the so-called *vulnerable groups*, but for everyone. As previously mentioned, the interviewees are the focus point and they are central in this research. To accommodate their needs, the researcher was open to different ways to conduct the interviews, as long as they still served the purpose of the research. Whether it was in person or online, and whether the language was Dutch, English or anything else.

To ensure participation, without exclusion, measures were taken to accommodate the interviewees. Furthermore, tools were brought to the interviews to ensure that everyone was provided with the assistance they needed. Interviews were conducted in English and Dutch. Furthermore, translations for other languages were provided if the interview got stuck at some point. And if required, a translator was on standby. On top of that, during the interview and questionnaire, at any time, there was a possibility to ask questions, which was encouraged by the interviewer.

Bringing out the voices of the migrants, however fitted them best, was central for this research and is thought to have benefited the results gathered. The purpose of this research is to understand and improve *inclusion* for migrants in the Netherlands; omitting appropriate inclusion measurements would be a flaw in the results.

These measures are taken to ensure that all migrants in this study are included as far as possible within the scope and timeframe of this research. Although the methods might not have followed all academic principles to the dot, Aldridge (2012) mentions specifically the necessity of these approaches to reach vulnerable groups [169]. Therefore, policymakers should value the results, because they are exposing the needs and experiences of vulnerable groups.

Lastly, vulnerable groups are not easily reachable. In the Netherlands, these groups

are well protected, and rightfully so. Specifically, forced migrants are dealing with a lot when they arrive in a new country. They did not choose to leave their country, but have to face that reality every day. Therefore, interview opportunities are often denied. To get in contact with these persons is, however, very valuable to understand their vision and ultimately create more specific strategies and technologies. Contact with public organisations like local libraries has been of great help to reach migrants and to get to know about alternatives for migrants. Relationships and a clear plan of what is required for the research have proven to be an important step in finding participants.

Chapter 7

Conclusion

This research aimed to identify how migrants experience the digital landscape in the Netherlands. The central question for this research is the following: How can digital inclusion be enhanced for different groups of migrants in the Netherlands? In this final chapter the research question is answered.

7.1 Main findings of this research

The first subquestion: *What are the different digital inclusion needs of migrants in the Netherlands?*, was answered with a literature review and semi-structured interviews. These methods presented that the needs of migrants coming to the Netherlands are fairly well taken care of. The major area of focus was the dimension Acceptance, as some respondents answered that they preferred physical services over digital alternatives, mainly due to the lack of confidence and motivation to use digital devices.

For the second subquestion: *What are the positive and negative experiences of migrants related to digital inclusion in the Netherlands?*, the primary point of concern was the lack of English on websites and digital services. Furthermore, options that provide help are difficult to reach, unknown, or experienced as ineffective for migrants. On the other hand, once someone has overcome these difficulties, many benefits are experienced by migrants in areas of the available options, speed and convenience.

The third and last subquestion: *What strategies and technological innovations can enhance digital inclusion for migrants in the Netherlands?*, answered how to effectively tackle the differences in digital inclusion. A centralised system and, in the future, AI could offer

technical solutions for digital inclusion of migrants. On the strategy side, it is particularly important to understand the needs of the migrants for whom the help will be provided. Examples of applications in practice that follow the principles set out in the strategies have proven to be effective.

These research questions revealed that the dimensions of the study of Jia et al. (2024) influence each other, and the dimension of Acceptance is a vital starting point to improve digital inclusion. Lastly, the dimensions are not independent and separate but follow an order in which they should be tackled to effectively improve digital inclusion.

Finally, to answer the research question: *How can digital inclusion be enhanced for different groups of migrants in the Netherlands?*. To enhance digital inclusion, the migrants themselves and the issues they experience with the digital landscape should be understood. The main concern is currently the lack of translation on websites and services. For further, more specified improvements, focused strategies based on the needs of particular migrant groups can offer great help. Technologies already offer important help and will continue to do so, if they are deployed accordingly. Strategies and technologies should follow the order of the dimensions found in this research. Lastly, the person behind the word *migrant* is essential and should be thoroughly understood before deploying any kind of strategy or technology for it to be effective. Following these steps, the digital inclusion of different groups of migrants can be improved.

7.2   Academic contributions

This research creates an understanding of the needs of migrants and their positive and negative experiences regarding digital inclusion in the Netherlands. These aspects were not covered in the existing literature. This research is a starting point to understand the context of digital inclusion in the Netherlands for specific migrant groups.

In this research, the importance of making distinctions between migrant groups is emphasised. In literature, the term migrants is used loosely and is often not specified. A distinction is essential to be made, as different migrant groups have very different experiences.

Strategies and technologies were similarly not present in the current literature on how to tackle the issue of digital inclusion in the Netherlands for migrants. This research

proposes concepts that should be considered to develop more effective strategies and technologies.

Lastly, this study enriches the work of Jia et al. (2024) by suggesting adjustments to better fit the concept of digital inclusion [26]. With these adjustments, the strategies and technologies can be more effectively created based on the order of the dimensions.

7.3   Societal contributions

Migrants are often portrayed in a negative light in the Netherlands. This research contributes to understanding migrants and their needs. With this understanding, not only can the vision of migrants be improved, but migrants themselves could feel more welcome in the country.

The ideas presented in this research should improve the digital inclusion of migrants and create a better climate for the many people arriving each year in the Netherlands. Digital inclusion influences social inclusion. If the digital inclusion can be improved the social inclusion and well-being of migrants should improve with it.

Being able to digitally include migrants is not only beneficial in social aspects, but also economically, it could save a lot of money. The proposed framework should improve the ideas to increase digital inclusion. The money spent on these ideas could be used elsewhere where they are effective. This is not only helping migrants but also natives, whose tax money would have been spend. Furthermore, migrants can more easily contribute to the Dutch economy when they are digitally included.

7.4   Research limitations and directions for future research

One limitation in this study is the group of interviewees who were fairly well off and did not seem to have dire financial situations. Experts' interviews pointed to, specifically, other forced migrants who are also residing in the Netherlands. They are unable to afford multiple digital devices. Furthermore, the economic migrants were similarly well off, while there are also economic migrants who have lower-paid jobs and are lower educated. More insights into these groups would be beneficial to better understand the situation and

implications of the Dutch digital environment for them.

The migrants representing each migrant group are in small numbers. The results could be influenced by the number of participants. Therefore, a similar study but with a larger group of migrants, would be beneficial to test the results. On top of that, using a larger group of similar migrants would provide more and clearer insights into the effect of the sociodemographics of migrants.

Furthermore, it was found that a lack of English translations causes issues for the migrants in this study. The reason why translations are missing is still a question, since English is generally well spoken in the Netherlands. It would be interesting to conduct research that tries to understand the viewpoint of policymakers on this topic.

Then, the effectiveness of certain campaigns and digital inclusion policies is still unclear for most applications. With the new framework from this research, an interesting topic for research would be a comparison of the effectiveness between the old approach and the newly proposed approach. Prior to that, the relationship between the dimensions must be tested and validated.

Lastly, an order of the dimensions of Jia et al. (2024) has been proposed. At what point a dimension is successfully and sufficiently fulfilled is as of yet unclear. This could form an interesting topic for future research, which would help to understand when to focus on which specific dimension.

Appendix A

Interview questions

A.1 Interview questions migrants

Part 1: Get to know the Interviewee

1. Can you tell me who you are?

2. Why are you here in the Netherlands?

3. What's a typical day like for you here in the Netherlands?

Part 2: Digital inclusion

4. Does your day involve using digital devices like a phone, computer, tablet, or anything else of that kind?

5. What do you use your digital devices for here in the Netherlands?

6. If a device breaks, could you get a new one easily?

7. Does anyone help you go online?

8. Would you use technology if you did not have to use it?

9. Do you feel you can use the internet as well as other people in the Netherlands?

PART 3: Digital government services survey

10. Are there digital services you regularly use in the Netherlands?

Digital services are services that are controlled by the user, to do themselves online or digitally without requiring to go somewhere physically and without requiring interactions with humans.

Examples of digital government services are the renewal of a driver's licence, a notification of moving or tax declarations. These tasks can be done online or via a mobile applications. Non-government digital services are for instance e-commerce or social networks.

The following questions are based on what the interviewee can do themselves, **alone**, without the help of others, in the context of **the Netherlands**. All questions are hypothetical situations.

To answer, please use the table provided to you. The possible answers are: I know how to; I might be able to; I would have difficulties; I don't know how to.

11. Would you be able to **apply for a subsidy or premium** from the government online? (e.g., for rental premium or child allowance)

12. Would you be able to **claim benefits from the government** online? (e.g., for unemployment, illness, disability)

13. Would you be able to **search for job vacancies** online?

14. Would you be able to **register as unemployed** with the government online?

15. Would you be able to **apply for jobs** online? (e.g., uploading a cv or motivation letter)

16. Would you be able to **find information about the services or assistance of social organizations online**? (e.g. the municipality for wmo/social support act)

17. Would you be able to **find information about health insurances, fire insurances or family insurances** online? (e.g., about the cost or reimbursement)

18. Would you be able to **find information about electricity, gas or water** online? (e.g., about the cost)

19. Would you be able to **find information about healthcare** online? (e.g., about a healthy lifestyle or hospital)

20. Would you be able to **make payments or transfers** online?

21. Would you be able to **fill out your tax return / do your tax declaration** online?

Part 4: Closing remarks, how further?

22. Are there aspects about the digital landscape in Ukraine that can improve the Netherlands?

23. Do you have any suggestion or solution that you are personally using that would help others?

24. How do you look at the future of digital technologies for migrants?

A.2   Interview questions experts

In this section the interview questions for experts are displayed. These questions are not followed as strictly as the questions for migrants. Because the experts have their expertise on different subjects, some questions are more relevant than others. Given this context, question are asked based on their expertise linked to digital inclusion for migrants.

Part 1: Professional Context and Experience

1. Can you describe your role and how you work with migrants in the Netherlands?

2. What migrants do you primarily interact with (e.g., refugees, economic migrants, international students, others)?

   - Rephrase: What is the reason for the migrants to come to the Netherlands?

3. Why did you decide to work with migrants?

   - Follow-up: How long have you been working with migrants now?

Part 2: Digital Inclusion Observations

4. How commonly do migrants use digital devices like phones, computers, or tablets in their daily lives in the Netherlands?

   - Do you hear any issues they encounter using digital devices?

5. What purposes do migrants typically use digital devices for (e.g., communication, job searching, accessing services)?

6. How easily can migrants replace a broken digital device?

   - Follow-up: Are there barriers they face in doing so?

7. Do you observe migrants receiving support to go online (e.g., from community organizations, family, or peers)?

   - Follow-up: If so, what kind?
   - Follow-up: Does this happen often?

8. Do you think migrants generally feel they can use the internet as effectively as others in the Netherlands?

   - Follow-up: Do you see differences within the migrant group you help?
   - If the question is unclear: For example based on if they have children or their age or education level?

Digital Services Digital services are services that are controlled by the user, to do themselves online or digitally without requiring to go somewhere physically and without requiring interactions with humans.

Examples of digital government services are the renewal of a driver's licence, a notification of moving or tax declarations. These tasks can be done online or via a mobile application. Non-government digital services are for instance e-commerce or social networks.

9. Are there any digital government services (e.g., tax declarations, benefit applications, information about insurance) that migrants commonly use?

    - Follow-up: Do you notice any challenges they encounter with these government services?

10. Are there any other digital services migrants use? (e.g., e-commerce, social media, making payments or transfers online, job registration)

11. Are there factors (like language, digital literacy, or legal status) that impact migrants' ability to use digital services independently?

Part 3: Strategies and Future Perspectives

12. What strategies or programs have you seen that effectively support migrants' digital inclusion (e.g., training, device provision, community support)?

13. Are there any initiatives by the government that you think are not helping the migrants (while they are designed to help migrants)?

14. Do you notice (a pattern in) struggles for migrants in the Dutch digital context?

    - Follow-up: What do migrants often struggle with in the Dutch digital context?

Part 4: Closing Remarks and Recommendations

15. Are there any lessons from other countries or contexts that could improve digital inclusion for migrants in the Netherlands?

16. Are there aspects that go really well for migrants in the Dutch digital context?

17. How do you think migrants can be best helped to be more digitally included?

18. How do you see the future for migrants regarding digital inclusion in the Netherlands?

19. Anything else you would like to add?

Appendix B

Informed consent form

You are being invited to participate in a research study titled 'The experience of digital inclusion for different migrant groups in the Netherlands'. This study is being done by Julian Jahangir from the TU Delft.

The purpose of this research study is to create a better understanding how migrants perceive the Dutch digital society, and build on this to provide better help when migrants arrive in the Netherlands. The interview will take you approximately 40 minutes to complete. The data will be used for writing the master's thesis. The master thesis will be published on the TU Delft repository. Furthermore, the thesis could be published in a scientific journal. We will be asking you to share your experience with digital inclusion in the Netherlands. Specifically the parts connected to the experience with governmental affairs, medical and healthcare and all aspects connected to the digital services and tasks you have experienced since being here. Both the positive and the negative side of it.

The interview will be recorded and transcribed. As with any online activity the risk of a breach is always possible. To the best of our ability your answers in this study will remain confidential. We will minimize any risks by keeping all participants anonymous in publishing the results. Personal Data will however be collected. The results will be published in a way that readers are unable to trace back to the interviewee. Data will only be stored on TU Delft One drive accessible to the TU Delft research team. There are several different participants that take part in this study. The full dataset will never be published, and all results will be reported independently from the previous or following answers of the participant. This ensures that no one knows who said what.

The personal data will be stored for 2 years at TU Delft, it may be reused for scientific and educational activities on the topic of digital inclusion. We will ensure that the participants are anonymous on any and all outputs.

Your participation in this study is entirely voluntary and you can withdraw at any time. You are free to omit any questions. If you wish to exclude any data from the interview, you must notify the researcher within 2 weeks after the interview took place. That is possible until the thesis is published or the 31st of July 2025, whichever comes first.

If you have any questions, please feel free to contact Julian Jahangir. In case there are concerns about the data after this date the contact person will be Anneke Zuiderwijk.

Included in the original informed consent form is a box for signature and the date.

Appendix C

Interview quotes and translations

C.1   Interview translations

Translation: "Yes most [migrants have] phones. [...] Computer no not everyone has a computer. No, no, but we also have a pass. That is a card and comes from the municipality. Every year € 150 people can use, for example if they want to use, buy a laptop or buy a bike and for the children € 350 example up to 17 years and children 4 years € 200 something. This people can use for example to buy a laptop."

Original: "Ja de meeste telefoons. [...] Computer nee niet iedereen heeft computer. Nee, nee, Maar we hebben ook pas. Dat is kaart en komt uit de gemeente. Iedere jaar € 150 kan Mensen gebruiken, bijvoorbeeld als ze willen gebruiken, laptop kopen of fiets kopen en voor de kinderen €350 voorbeeld tot 17 jaar en kinderen 4 jaar € 200 iets. Deze kan Mensen gebruiken voorbeeld voor laptop te kopen."

Section 3.2.3

Translation: I try myself. [Helper] helps me. OK yes, a lot and of course help, difficult information. I want to, myself, myself always myself. If it really doesn't work, I ask for help.

Original: Ik probeer zelf. [Helper] help me. OK ja, heel veel en natuurlijk hulp, moeilijke informatie. Ik wil graag, zelf, zelf altijd zelf. Als het echt niet gaat, vraag ik om hulp.

Section 3.2.2.4

Translation: Yes I, I can't speak for all migrants of course, but I have visited a number of asylum centers. And what I see there is that a mobile phone is very common, but there is no, for example, desks with desktop computers. Everyone has a mobile phone,

but after that, that is where it ends, I think.

Original: Ja ik, Ik kan Natuurlijk niet voor alle migranten spreken, Maar ik heb wel een aantal azc's bezocht. En wat ik daar zie is dat en mobiele telefoon wel heel gebruikelijk is, maar daar staat bijvoorbeeld geen. Hoe zeg je dat bureaus met desktopcomputers. Een mobiele telefoon heeft Iedereen wel, maar daarna, ja, dan houdt het snel op, denk ik.

Section 3.2.3

Translation: I said, did you understand me correctly, that is free and you just get extra telephone and equipment at home and then you are monitored. So your GP gets a message. Everyone looks at the ceiling or, but nobody looks me in the eyes. [...] 'What is going on?' They don't want that. 'Why?' Well we are afraid that they want to control us. A big brother thing. [...] Then I found out, those people are survivors and they sometimes also walk in gray areas. And if the government finds out about everything from us, then they catch us when we do something different. Or out of our behavior they are going to make a new plan for our new generations, to make them all Dutch.
All those suspicious ideas, based on the distrust and the distrust based on the experiences of the last 30, 35 years when that then resulted in the obstructing of the digital introduction, that core task with digital, at the highest level.

Original: Ik zei, heb je met goed begrepen, dat is gratis en je krijgt gewoon extra telefoon en apparaturen thuis en word je dan gemonitord. Dus jouw huisarts krijgt een melding. Iedereen kijkt naar het plafond of, maar niemand kijkt naar mijn ogen in mijn ogen. [...] 'Wat is er aan de hand?' Dat willen ze niet. 'Waarom?' Nou we zijn bang dat ze ons willen controleren. Zo'n big brother ding. [...] Toen kwam ik erachter,die mensen die zijn overlevers en die bewandelen soms ook op grijze gebieden. En als de overheid van ons alles erachter komen, zodat ze dan onze betrappen als wij iets anders doen. Of uit onze gedragen gaan ze een nieuwe planning maken voor onze nieuwe generaties, allemaal Nederlands te maken. Al die verdachte ideeen, gebaseerd op het wantrouwen en het wantrouwen gebaseerd op de ervaringen de laatste 30, 35 jaar toen resulteerde dat je dan de digitale kennismaking, die kerntaak met digitaal, op hoogste niveau te belemmeren.

Section 3.2.3

Translation: Your device starts speaking. I do this, letter from tax authorities and look, in this way it really alleviates the problems of 100 People. Because that uncertainty of, what is in the letter, how should I? Who can help me? That makes people sick.

Original: Je apparaat begint te vertellen. Ik doe dit, brief van belastingdienst en kijk, op die manier helpt het een echt 100 Mensen uit de brand. Want die onzekerheid wat

staat er In de brief, hoe moet ik? Wie kan mij helpen? Dat maakt mensen ziek.
Section 4.1.1.2

Translation: Youtube tool and a lot of practice with the online teacher Bart.
Original: Youtube tool ja en veel oefeningen met de docent online docent Bart.
Section 4.1.1.2

Translation: So is this about technical skill? No, absolutely not. No, you have to first remove distrust, correcting that feeling and then they can start to learn better digitalization and that goes hand in hand with the understanding of what what am I doing and what what kind of letters do U get? There is no trust.
Original: Dus gaat het hierom technische vaardigheid? Nee, absoluut niet. Nee, Je moet eerst wantrouwen wegnemen die gevoel corrigeren en dan pas kunnen ze Misschien starten beter digitalisering te leren en dat gaat gepaard met het begrip op wat wat ben ik aan het doen en wat wat voor brieven krijgen? Er is geen vertrouwen.
Section 4.2

Translation: But also individualization. You are an individual, so everything is based on the individual, while people from the migrant group, they come from the collective. They feel strong together, they learn from each other. [...] So they have distrust towards the system., but also pitying them, they have all those years of experience now.
Original: Maar ook individualisering. Je bent individu, dus alles is gebaseerd op het individu, terwijl dat de mensen uit de migranten groep, die komen uit het collectief. Die voelen zich samen sterk, die leren van elkaar. [...] Dus die wantrouwen tegenover het systeem, maar ook medelijden hier, die hebben al die jaren ervaringen nu.
Section 4.2

Translation: What is the first step that I do for the people, all people: I always come here with a smile, good morning, you come today and we talk together. I sit there with them drinking coffee. That way and then people can ask any questions, and others come also to me because they feel welcome here.
Original: Wat is de eerste stap wat ik doe voor de mensen, alle mensen: I kom hier altijd met lach, goedemorgen, kom jij vandaag en wij praten samen. Ik zit er met hun koffie drinken. Zo en dan mensen kan alles hebben vragen, en anderen komen, ook bij mij want zij voelen zich welkom hier.
Section 4.2

Translation: I think what I see now from the research is that language really is the biggest barrier.

Original: Ik denk wat ik nu zie vanuit het onderzoek dat taal echt de grootste barrière is.

Section 4.2

Translation: I sometimes have doubts and questions about the growth of the internet and also digitalization, everything is becoming more digital. But I see more positive sides than negative sides. Because technology is in the service of humanity. But, yes, if Elon Musk says, like, yes 'I just want to use it in that way', yes, then it goes wrong, But that is not because of the technology itself. But the people behind the technology who abuse it.

Original: Ik heb soms twijfels en vraagtekens wat betreft, de groei van internet en ook digitalisering, alles wordt digitaler. Maar ik zie dan meer positieve kanten dan negatieve kanten. Want de technologie is In de dienst in dienst van de mensheid. Alleen ja. Als we Elon Musk komt en zegt, zo van, ja 'ik wil er gewoon zo op die manier gebruik maken', ja dan gaat het verkeerd, Maar dat komt niet door de technologie zelf. Maar de mensen achter de technologie die het misbruiken.

Section 5.2.1.2

Translation: But official language and also regulations mention: 'stated there according to the article blah blah blah, reason'. People do not want a reason, People want to know what are the consequences? [...]. It is free, so you have a letter. Take a picture and then a very simple letter appears. Sender: from the tax authorities:

"You will first receive a warning"

"You have to pay so much money"

"If you do not do that, will you get a fine"

"More questions? Call here."

An almost 1.5 page letter, in a few sentences, then people understand the essence and the urgency of the letter.

Original: Maar ambtelijke taal en ook regelgeving staat daar volgens de artikel blabla blabla reden. Mensen willen niet een reden, Mensen willen weten wat zijn de gevolgen? [...]. Het is gratis, dus jij hebt een brief. Maak je een foto en dan komt er ook een heel simpel brief. Komt van belastingdienst: "Je krijgt eerst een waarschuwing"

"Je moet zoveel geld betalen"

"Als je dat niet doet, krijg je dan een boete"

"Meer vragen? Bel daar."

Een bijna 1,5 pagina brief, in een paar zinnen, dan begrijpen mensen de essentie en de urgentie van de brief.

Section 5.2.1.1

Translation: Then they feel, if they experience that for a moment, like Alice in Wonderland. Hey, the telephone is my tool! And it tells me everything.

So then they [migrants] understand what the digital world is. Because if I come to tell, Do you know what the digital world is, it is this and this and ... Well, that doesn't appeal to anyone, but if you experience it once, that's what it's all about. Hey, a telephone! Then almost half of my problems are solved.

Original: Dan voelen ze zich, als ze dat even meemeken als Alice in Wonderland. Hè, de telefoon is mijn tool. En die vertelt mij alles.

Dus dan begrijpen ze [migranten] wat de digitale wereld is. Want als ik kom om te vertellen. Weet je wat die digitale wereld is dit en dit en ... Nou ja, dat spreekt niks aan, maar als je het een keer, meemaakt ervaart, daar gaat het om. Hé, een telefoon! Dan zijn bijna de helft van mijn probleem opgelost.

Section 5.2.1.1

Translation: And the danger is that at least I sometimes hear from the [Organisation] that: 'Well you have to do this', because then apparently it lives in the community that if you do something in a certain way, that you will get your application granted sooner and those are sometimes, well. How do you say that, things that we as [Organisation] say, yes, but that's not how it works. So I think that is a danger that if perhaps something has worked for someone in that way, then perhaps the community is inclined to think, 'oh but, does that work then?' [...] And then you see these questions coming up with: 'is it true that if I do this, that I will get my application granted sooner?' And yes, those are things that I think, oh, that is dangerous, if that is what lives in that community, if that is actually not the case. So I do see a danger there and I'm not saying that because of the community, but that's more, I also think about the [Organisation] of the government that we're not clear in how we work. So yes, support from the community is good, but as soon as it's about the content of the process of the [Organisation]. Then yes that might be quite risky.

Original: En het gevaar is dat in ieder geval dat hoor ik wel eens bij de [Organisation] dat: 'Nou je moet dit doen', want dan blijkbaar leeft het dan in de community dat als je iets op een bepaalde manier doet, dat je dan eerder je aanvraag ingewilligd krijgt en

dat zijn soms, nou ja. Hoe zeg je dat, dingetjes waarvan wij als [Organisation] zeggen, ja, maar zo werkt dat niet. Dus ik denk dat dat wel een gevaar is dat als misschien iets voor iemand op die manier heeft gewerkt dan is misschien de community geneigd om te denken, 'oh maar, werkt het dan zo?' [...] En dan zie je deze vragen wel naar voren komen met: 'klopt het dat als ik dit doe, dat ik dan eerder mijn aanvraag krijg?' En ja, dat zijn dingen waarvan ik denk, oh, Dat is wel gevaarlijk, als dat nou ja leeft onder die community, als dat dan ook daadwerkelijk niet zo is. Dus ik zie daar wel een gevaar en ik zeg niet dat het aan de community ligt, maar dat ligt dan meer, denk ik ook aan de [Organisation] van de overheid dat we niet duidelijk zijn in hoe wij werken. Dus ja, support vanuit de Community is goed, maar zodra Het gaat over de inhoud van het proces van de [Organisation]. Dan ja is dat misschien best wel risky.
Section 5.2.1.2

Translation: You are an individual, so everything is based on the individual, while people from the migrant group, they come from the collective. They feel strong together, they learn from each other. [...] So they have distrust towards the system.
Original: Je bent individu, dus alles is gebaseerd op het individu, terwijl dat de mensen uit de migranten groep, die komen uit het collectief. Die voelen zich samen sterk, die leren van elkaar. [...] Dus die wantrouwen tegenover het systeem
Section 5.2.1.2

Translation: Yes exactly, do you quickly go to the government for help, or do you think, I'd rather look for it in my own community and ask for help there? So yes, maybe some migrants are just less inclined to go to the government for help or to go to the municipality for help. So that could very well be possible and and indeed we have very little insight into that at the moment.
Original: Ja precies, ga je dan snel naar de overheid voor hulp, of denk je nou, ik zoek het toch liever bij mijn eigen community en daar om hulp te vragen? Dus ja, Misschien zijn ja sommige migranten gewoon minder geneigd om naar de overheid te stappen voor hulp of naar de gemeente te stappen om hulp. Dus dat zou best kunnen en en daar inderdaad hebben we heb ik op dit moment heel weinig zicht op.
Section 5.2.1.2

Translation: Refugee work comes into contact with every migrant with an asylum background or who applies for asylum, so I think everyone knows about it. But other foundations or social workers, that communication, I don't know how that works. And I

have to be honest, like labor migration if they are informed about that, for example by their employer, I honestly have no insight into that.

Original: Vluchtelingenwerk komt iedere migrant met een asiel achtergrond of die asiel aanvraagt, komt daarmee in aanraking, dus ik denk dat dat iedereen daar wel weet van heeft. Maar andere stichtingen of maatschappelijk werkers, die communicatie, daarmee weet ik niet hoe dat gaat. En ik moet eerlijk zeggen, zoals arbeidsmigratie of zij daar van op de hoogte gebracht worden, bijvoorbeeld door hun werkgever dat daar heb ik eerlijk gezegd geen zicht op.

Section 5.2.1.2

Translation: I used to be in the same situation and also know how people feel. How you feel everything. You have no papers, stress, and also have children. I was also with my daughter when we came in [year] and then my son also born in an AZC. I know what the people feel here.

Original: Ik was vroeger ook dezelfde situatie en ook weet het, hoe mensen zich voelen. Hoe jij voelt alles. Je hebt geen papieren, stress, en ook kinderen hebben. Ik was ook met mijn dochter toen wij kwamen in [jaar] en daarna mijn zoon ook geboren op een AZC. Ik ken wat de mensen voelen hier.

Section 5.3.1

Translation: Then I found out. It's not about technical skills. The problem, yes, there is a problem, about feelings and emotions with fear. What if it goes wrong? Who's going to help me? Or shame, what if I make mistakes? Yes, look at me, right?

There is a course at the community center for example. I know that, they know that, they see that, but they don't dare to come and say, like, yes, I really need help. Because of language problem, experience problem and also the feeling that I was always excluded, also by their children and grandchildren.

Original:Toen ben ik erachter gekomen. Het ligt niet aan de technische vaardigheid. Het probleem is bij de gevoelens en emoties bij angst. Wat als het misgaat? Wie gaat mij helpen? Of schaamte wat als ik fouten maak? Ja, kijk eens naar mij, hé? Er zit een cursussen bij de buurthuis bijvoorbeeld. Dat weet ik, dat weten ze, dat zien ze, maar durfen ze niet komen om te zeggen, zo van, ja, Ik heb echt hulp nodig. Want door taalprobleem, ervaringsprobleem en ook een het gevoel van dat ik altijd buitengesloten werd, ook door hun kinderen en kleinkinderen.

Section 5.3.1

Appendix D

Tables

D.1   Thematic analysis tables themes

Table D.1: Themes for negative experiences with digital inclusion

Unclear (government) information and help	Translations are missing	Everything is technology	Home country is different from the Netherlands	I don't know what to do
A lot of different institutions that provide different services (confusing)	A lot of information is only available in Dutch	Basic tasks can be difficult as there is no help for it provided	difference between Netherlands and home country is big for digital services	Dutch digital system takes longer
Difficult to understand what goes on	Definitions of some (Dutch) words would be nice	Digitalisation creates loneliness	different situations are difficult	doing it myself is a waste of time

Even with help it is difficult to understand	difficult topics are difficult to translate	Even the supermarkets now include tech	getting new devices is a hassle	electricity, gas or water are needlessly complicated
Feels like we are paying for something extra	difficult words for native speakers as well	everything online/digital has consequences on the social aspect	Netherlands lacks behind in digital government	I do not know what I am doing
fines help to make people act	difficult words not translatable by apps	everything is digital nowadays	replacing a device is expensive	issues with digital services
Getting extra's that are not wanted	Dutch is required to navigate through the digital landscape	For personal issues there is not always help, for public services there is	some technical differences between hardware in Netherlands and home country make it difficult	no procedures that have to be followed
government help is unclear	English alone is not enough	getting information yourself and understanding the possibilities is difficult	the speed of technology brings more expectations	Some things take a lot of time that they are discouraging
government information is unclear	English version is not available	Hidden discrimination that if everything is digital	to understand Dutch system takes time	system is difficult to understand

If government offers help I will take it but then I have to pay it back				
if it is unclear it is difficult to know the follow up steps				
information provided on websites/services is unclear or not available				
Insurance is unclear				
issues with digital services				
Just paying is the easiest option, nothing to do about it				
mistakes can cause serious consequences				
no help from university				
not a contact person in university who can help				

paying for help otherwise government won't help			
Scared to do something wrong			
too much information is also not nice			

Table D.2: Themes for positive experiences with digital inclusion

Accessibility is good	Help is present when needed	Digital landscape is advanced	Ease of use
accessing online resources is not a problem	Ask anyone for help	digital services in home country are not as good	anyone can do it
all locations to use digital devices are good	asking for help if unclear	digital services keep connected with home country affairs	Anyone is able to use a phone
digital services are nice	automatic translation helps	digital technologies help migrants	digital ecosystem is easy to use
digital services are nice in the Netherlands	chat for help is really easy in the Netherlands	home country it is more difficult	easy to use so nice to do it
digital services are used well	compared to other countries English is well spoken	Netherlands is very digital	making mistakes is okay

digital services are well accessible for foreigners/migrants (in the Netherlands)	English version is available often	Online it is just about what I want	no issues with digital devices
Dutch digital system is safer	informal networks to gain information	Payment also online via apps and digital services	no issues with digital services
facilities to use digital devices are present	notices/fines are the way to understand if everything works	technology helps my life	no issues with language
all documents digital is nice	a place to get all the help I need for devices	unthinkable to live without Digital devices	no issues with the internet
library is a nice place to study at	translating helped understand		no issues with wifi
e-commerce has quick delivery	university helped gain digital knowledge		not difficult to use the internet
nothing special is required	university helps with government tasks		Once you are used to something it is really easy
having everything together is nice	University provides help to international students		online presence is not difficult
more positives than negatives for digitalization			the longer in the Netherlands the easier it gets

save cost and time with digital technologies			digital technologies are quicker than physical alternatives
Unified digital system			having everything online is nice and convenient
unified government system			having everything together is nice
			save cost and time with digital technologies
			transfer of money was easier

Table D.3: Themes for Strategies

Clear communication	Different migrant groups, different needs	People close-by to help	Different institutions for help
A low readability score is easy to understand and translate	being here temporary dont have to understand everything	Close and immediate help if something goes wrong	A lot of different institutions that provide different services (confusing)
compared to other countries english is well spoken	Differences in culture affect the differences in solutions	come together a lot of times	Little information from the government

Government has a task to communicate in an understandable way	different migrants different needs	Community is a good thing, but only for certain things	Nice to know there is a place to go to if online does not work out
Not all migrants can read and write	different migrants get differen sort of help	community plays an important role	notices/fines are the way to understand if everything works
Relation with the government is important	More advanced digital skills is not a step to start with	Key figures who can help those who do not know how to use the devices	So much digital sometimes the users dont even know it is digital
short and concise information only	Not the technical ability is the issue, but rather feelings and fears	Key figures who connect migrants and society	university helped gain digital knowledge
Some useful things are just stumbled upon	Once you are used to something it is really easy	local initiatives are very effective	university helps with government tasks
The help/resources offered are not known	Only one step further is enough to show it works	meetings with people from the same origin	University provides help to international students
the services are present but the information is sometimes not understood	reoccuring things are easier to do after a while	misinformation spreads in community	

the way to com-municate is fo-cussed on	Showing the posi-tive side, instead of only the nega-tive is important	More contact with Dutch speakers would help learn the language	
translating is something that can improve	The help offered is not suitable for the migrants	there are humans who want to help you if the ma-chines dont work	
	The solution is not to tell people okay come here, it is to go to them	very popular the whatsapp groups for expats	
	The solutions are not the right ones		
	To offer help we have to take the hand and go for it together		
	Too little knowl-edge about the differences in mi-grants		
	Too much money invested in the wrong thing		
	Which support is required when arriving in the Netherlands		

Table D.4: Themes for Technologies

Provide help with technologies	Unified system	Technology to motivate
Chat for help is really easy in the netherlands	DIA	A good technology can motivate people to be more digitally invested
If the government does not act, ai will be used to answer questions	having everything online is nice and convenient having everything together is nice	Easy to use so nice to do it Interface of website and services should be more clear lees simpel
Digital devices to help migrants	I wish there was someplace I can ask all my questions Unified digital system	some technical differences between hardware in netherlands and home country make it difficult
specific ukrainian language on websites		
With more languages in other country the digital services work	unified government system	system is difficult to understand You have to be digitally skilled to navigate in today's world

Appendix E

AI Statement

AI has been used for different purposes. The usage of AI is explained in this Appendix.

For the literature review, AI in the form of AI chatbot Grok, was used to generate synonyms for keywords in the search bar. The synonyms are used in this research.

Secondly, after composing the main research questions and the subquestions, AI chatbot ChatGPT was used to improve the research questions and suggest any ideas. The suggestions that were used, were mainly based on the phrasing of the research questions. To create more consistency, the research questions were carefully reviewed with these suggestions.

Different chatbots, primarily ChatGPT, Grok and Le chat Mistral, were used to generate Overleaf code to transform tables from Microsoft Word into Overleaf code. Tables were checked on mistakes and consistency, after which they were coded into Overleaf.

The interview questions were checked using the chatbot Grok, and suggestions were used to improve them. The suggestions that were used were to improve the order of the questions and to create consistency between the questions.

For the analysis of the data in the Skills part of chapter 3 subquestion 1, the chatbot ChatGPT was used to generate graphs on the data.

For the usage of quotes in this section. One part of the text was copied into ChatGPT to ask for improvements on this section, based on more coherence of the text and to write the information down analytically. This example was used to gain a better understanding

of how to write more to the point.

Grammarly was used to check the text of the thesis and suggestions were applied to improve readability and remove spelling and grammar mistakes.

Appendix F

Interview excerpts

F.1   Subquestion 1

F.1.1   Access

"What do you want? What else we can do? [...] Can you imagine your life without it?" - Migrant 1 (FORCED)

1. "Every day [...] I use mostly my phone but also computer and tablet" - Migrant 7 (STUD)

2. "When I wake up in the morning, obviously I check my phone. [...] Laptop on a daily basis, for working on my [study] - Migrant 4 (STUD)"

In terms of question 6 and 7 based on the affordability and help for migrants, responses were mixed.

Students struggled the most with replacing their devices. This is based on different reasons. Some money wise (see 1, 2) others more on the side of hardware capacity (3). When asked about issues that occur if a device doesn't work any more:

1. "I cannot spend like €1000 on a new device. So obviously repairing is important, but it is very difficult to find repair shops here. I was lucky to find one".

2. "I don't, I don't think so. Like. Yeah, probably, but not as good as the ones I have."

"Not really 'cause once I think it was like March last year, my PC like got broken, so the keyboard was not working and then I had to got like got my PC repaired. But the problem was the keyboard of my

laptop was in [home country alphabet] like in [home country's] keyboard. So the Dutch. [hardware store] didn't have the the stock of that the keyboard. So they said like and also the like the shape of the plug was different. Yeah. So basically they didn't have the stock of what I want. So I just asked my family to bring it in summer."

"Here is the problem, yeah, because for example I want to buy in credit. For example one month or three months they say no you can't because you have no ID normal ID. We have no status. We Ukrainian, we have no status for to buy something in credit. We must or buy cash. All price. Yeah. We can't take for part"

F.1.2 Usage

1. " Listen. No, I don't know if... Can you imagine your life without it?, no."

2. "Here. I started to buy in Internet before for me was better to see it and think to to touch. But now we live in [location] and I have no possibility to go by car all the time. So I started to buy in Internet. That's why I have Zalando, Action, everything so application for shops. Yeah. Then what else? Information about child care so photos from child care. What I have more? Bank account of course. Hooray for work working hours I can put here what Zalando, child care. I have bought a lot of woordenboeken (dictionaries) electronic. So now I mustn't have my paper woordenboek. OK, I have Kobo. This is one. Then I have. Bol.com, of course. Marktplaats, Decathlon. I will tell it van Dale woordenboeken (dictionaries). [...] I have two woordenboeken (dictionaries) electronic here. So for studying, for buying and and for photos."

Students

1. "Phone I need to get in contact with people and also to pay stuff because I have my card on my phone. Yeah, that's mainly it. Then computer I do it, I usually leave it at home because it's a bigger computer and it's quite heavy. But I do most of my work with it. If I have to do an assignment, I use my computer. Well, I watch TV and movies, of course. And then my tablet. I also have a keyboard with my tablet that I can bring to school because it's lighter and it's easier to carry."

2. "Mainly for like homeworks in the school, 'cause the. I think that most of the classes I took was using the like the [university portal], the portal and then the homework was basically on like word or like some

digital data. And also I sometimes had the meeting with the... my home university's like members. So I was also using the laptop for. Like having the online meeting. With them. Oh, yes, of course. I really use the Instagram to post the like a bunch of pictures."

Economic migrants

1. "Mostly for my job, but then, you know, just normal kinds of. Like social media use as well or. Basic emailing. Yeah, I mean, kind of everything, I guess work and then personal as well. "

2. "For so for me, I think initially it was really understanding a lot of the rules and regulations for things here because. Something as simple as garbage disposal when when you don't know Dutch, you certainly get confused because you walk up to the bin and you're like. Kranten is... oh kranten cool is magazines. And then you know you. I mean newspapers. And then you start learning it over time. But sometimes it was as basic as translating words that I didn't know in front of me. And then it's my as my. I can't speak Dutch fluently, but my vocabulary has gotten better. But so as my vocabulary is improved, the kind of things I look for digitally has also changed because. Everything is accessible here in terms of finding information about anything you need in the Netherlands, but a lot of it is only in Dutch, so even when you go to the website, some of them don't translate automatically. Then you would spend time to actually sit, print the page, print as and save as a PDF, upload the PDF somewhere translated so you have to start using stuff differently. But yeah, I think for me digital devices it is figuring life out here a lot of job hunting and then for my work as well. "

F.1.3 Acceptance

"Well, by computer I feel like I have to look through everything myself and I feel like I'm wasting a lot of my own time. [...] When, <u>when</u> I do it, I do it myself. But I need to do it. You know, I have a long to do list of government stuff, I would say" - Migrant 7 (STUD)

"I'm just thinking that it will be such a great piece of work. I'm thinking. OK, later. Later than later. Then it's a problem."

Interviewer *"So it takes a bit more time maybe?"*

Respondent "Yeah. But I prefer to do it myself. Because in the other way I know that I know exactly what I did it or I, I didn't do it anymore because it's important because sometimes people ask me, 'Why my price is changing'?. OK, I asked, what did you do? 'It was not me.' "

"I need time to understand how can I apply for exemption. I'm a student my salary is not that much. I don't earn about €20,000 or something, so I need to figure out a way to apply for exemption because they says you can apply for exemption."

"I would do it in person I would. I would rather go to someone's office and ask them to do it with their stuff or do it there with them, then having to do it with my computer because I feel like it's quite hard for me. [...] Also my health insurance I have I have to go through an app if I could go somewhere to ask about stuff it would be way easier for me than the app or also. [...] I would like to have like a reference where I can go at and ask them questions but I feel like it nowadays I can only do it through like a chat or like a phone call, but I would like to go somewhere and like bring my computer or like have some papers and then have because do it there with them with their help. [...] I feel that because if I have to do it with the computer, I have to understand a lot by myself, but if I go in person, a person can actually explain to me what how it works and I can tell them my needs and then they can show me how those needs can be met in a certain way."

"I could live without the technology, honestly, because. With the speed of technology comes more expectations. I think but. For I mean for the same purpose for things that happen in the same period of time every year or recur like this digital system is very easy. I will say that it's convenient, but sometimes I I see that it. It creates this urge. That you have to respond quickly that you have to do this quickly or it creates this thing that you have to do it more frequently because now you can do it more frequently because now it's more convenient. So yeah, I don't agree completely with that part of. Digitalising things. But I do believe for things that occur, for things that have to happen, technology is very convenient. "

"I prefer online because I don't know like I don't want to have the papers and like pens and stuff always. When I am taking the courses, maybe like I have to bring the textbooks and notebooks and dictionaries and stuff, right? So if I have to bring it all of them on like the real paper version, it would be really

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heavy. And then I don't want to do that. So if yeah, I have the like tablet or PC or something that would be really nicer. [...] Recently [home country] getting like more online, but still 'cause like my uni is a national uni, so. [...] They're really, slow to do the digital transfer. So you know for example, I need to submit the work, work report or something, but it has to be on paper and then I have to sign by my hand and then like I need to get a sign from my supervisor or teacher by hand of course. And then I have to submit the paper to the like specific office. So it's really troublesome. It takes time. I don't really like it."

"I think I also answered that a bit for the sources that are only offered in Dutch. I think I cannot use them as well as a Dutch person. For the services that have bilingual support for English. Those are, of course very easy to use, so thank you for whoever did the language translation."

"Not to the same level they can, because my language is a barrier. There are some things like figuring out. I keep bringing up garbage disposal because there are still days I get confused with it and I find something new. I have to get rid of and I'm like I don't where to store it, but in in a city like [smaller city], which is outside [big city], it's a little different. And then when I go to [big city] it's different and when I go to [other big city], it's different so. But unless you look it up online, all the information is in Dutch and I'm like, OK, if I'm on my phone, this is really hard. So then you just have to start asking people. And that's if they know they help you out. But yeah, there are sometimes where I know that my language is a barrier."

"I think I can use it better than 99% of the Netherlands. [...]
Look, all the government websites like the websites that they have to use like. Gemeente (*muncipality), whatever else Belastingdienst (*Tax administration), they are written in pretty simple language. [...]
Most probably it would be dumbed down to A2 level and it doesn't. There is no problems."

"I think so, yeah. I mean, I think. Yeah, I. And I mean like, actually that's quite a big contrast with when I when I was when I was living in [other country] because, there still are a lot of websites that they should be sort of for anyone living in the country, but because they have this very kind of out of date Citizen Service number. [...] So then a lot of digital services are completely, either impossible or just very difficult to access, and so coming to the Netherlands. Actually it was a big difference to that everything so far has been available and pretty easy to figure out. Also, the language like I read this anyway that the language which is used on Dutch government websites like, it's intentionally kind of written at a at a kind of a simple level

for people to understand. So even if you didn't autotranslate it, you'd have a chance of making sense of it."

"That's good enough. In my day-to-day life, I'm all absolutely pro technology. I don't want to go outside. I want to buy my tickets online and get them delivered, preferably on e-mail. Don't waste paper."

"But just imagine if it's impossible, what i should do? Then I should fill this whole paper, go to the post, to to wait and it's taking that months. Please. For example, we have a deadline every couple months I need to pay. At the 20th. And then, if I just reminded, for example, now it is the 20th of May and I reminded at 11, I said that oh thank god I have an hour. I can do it just 5 minutes. That done so for me. It's, yeah, it's easy."

F.2   Subquestion 2

F.2.1   Expert consulations

3.2.3 She brought more insights that were as following:

"Yes most [migrants have] phones. [...] Computer no not everyone has a computer. No, no, but we also have a pass. That is a card and comes from the municipality. Every year € 150 people can use, for example if they want to use, buy a laptop or buy a bike and for the children € 350 example up to 17 years and children 4 years € 200 something. This people can use for example to buy a laptop."

*"Yes I, I can't speak for all migrants of course, but I have visited a number of asylum centers. And what I see there is that a mobile phone is very common, but there is no, for example, desks with desktop computers. Everyone has a mobile phone, but after that, that is where it ends, I think."**

"I said, did you understand me correctly, that is free and you just get an extra telephone and equipment at home and then you are monitored. So your GP gets a message. Everyone looks at the ceiling or, but nobody looks me in the eyes. [...] 'What is going on?' They don't want that. 'Why?' Well we are afraid that they want to control us. A big brother thing. [...] Then I found out, those people are survivors and they sometimes also walk in gray areas. And if the government finds out about everything from us, then they catch us when we do something different. Or out of our behaviour they are going to make a new plan for our new generations, to make them all Dutch.
All those suspicious ideas, based on the distrust and the distrust based on the experiences of the last 30,

35 years when that then resulted in the obstructing of the digital introduction, that core task with digital, at the highest level."*

"I also filled, I filled everything right, but first of all, I choose a wrong declaration. I should choose the declaration because I didn't live all year here in Netherlands and that's why they sent the letter. They said. 'Oh please. Can you do it again and please? Choose this kind of declaration?' So i said, oh shit OK, I will do it! So it's a problem if you did something wrong, then they'll say it's wrong and then you could do it again. Yeah, OK. And you always can explain it, for example, that. Let's say say, oh, sorry, yes, it's my fault and my mistake because I understand understand this wrong translate is wrong."

"And I was relying a lot of Google Translate at the very beginning, but sometimes it shoots you in the leg. It translates wrong or it breaks the website. So as long as I improve my Dutch a little bit so I, I disabled it."

"The problem that here in Netherlands a lot of websites have no automatical translator. So I have to copy to put it in translator. This is a problem."

When asked what could improve about the digital environment in the Netherlands, many answers pointed towards the availability of English on websites:
"Yeah, I believe some of the government websites are only in Dutch. So I would have to use a different browser or an extension or something like that to translate. Some browsers have that sort of extension or service by default, but then I am not sure anymore if my data is being sent to their servers for translation or anything, right? So it's a bit of a..., I would have much preferred if they offer their websites in English as well."

On top of that, difficult words are harder to translate using applications. Many respondents noted that translating specific words creates more problems:
"I feel like it wasn't super doable all the time because the websites are always in Dutch and even though I translate the page with the Google Translate on the page, it doesn't translate in a manner that I can understand because it's very complicated words that they translate right and so they translate pretty bad"

"Translations for sure, yes, communicate like you can speak English. Most of the Dutch people do speak English, but why is there no communication in English as well as Dutch? That is something I would change not only in English, maybe multilanguage. You know for everyone or just English and Dutch is

fine. So I would like to see communication being improved."

" [...] for tax declarations I translate everything. Sometimes their website is, it doesn't work in English, so it's in Dutch, so you have to take your phone, keep it next to it to see OK translation. What exactly this means. So I think for, especially for tax declaration doesn't help. Then I was looking at few of the websites like they are in Dutch and don't have English translations. So there's the problem I have faced where the help is not received basically so one of the things I needed help with. It's it was so you get allowance right if you live in a studio in the Netherlands you get allowance from Dutch government. But, their call centre number is only in Dutch. So that time. So let's because I had a doubt about how much allowance I will get and stuff like that. So I had called them and it was in Dutch. So I had to take help of my Dutch friend just to you know, direct me to someone and then he had to talk to them in Dutch so that they transfer my phone call to English helpline."

F.2.2   I don't know what to do

"[In the Netherlands] you pick your provider and then people are like, 'oh, you know, the power, I mean, the rate changes per day. And then there's this and there's that. And then you change for everything.' Dude, we are too new to all this, you know. So yeah, we got really stuck over there, but now we're, I think now we're just like, OK, everything's running. Nobody sent us a notice, we're good."

"I don't understand everything that's happening when I'm doing it like I'm doing it because other people tell me. Tell you you're supposed to do it, but it's not like I actually know what's happening, you know."

F.2.3   Everything is technology

"Everybody else is struggling because they didn't know that you have to apply for the zoekjaar. They don't know this. They don't know that. And then housing and stuff. So. The availability of services, I think is fine, but if you don't come here through a company, it's kind of hard

"But I also feel like it's so ingrained in the culture already that maybe some Dutch people can take it for granted and be like, oh, what do you mean? This is how it works here. And because they come from here, they don't understand that for someone who doesn't come from here, this is very different."

"So yeah, that that was kind of difficult because even when we were trying to ask people. People thought it was too basic a question because they were like, if you've lived in the Netherlands even for two months, you should know this. [...] The information was unclear so but it was fairly basic information, but the thing is I don't I think very few people even in this building are in the situation we are in where we are not new to the country, but we are new to getting utilities. So it seems like you're just asking a question because you're lazy, not because you don't know. [...] But over there, this question also seems too basic. They're like, you should know this. I was like, OK, so sometimes you have a certain level of self-reliance and then anything beyond that, people want to help you"

F.2.4 Unclear (government) information

"With help for children; Kinderbijstand, OK. I have had this problem. So I ask about this help. Now one year, I think one year later they bring that we have give back one and half thousand back. I didn't need help, why I have give you back it, what for? What? For me. It's strange.
Now again €1400 give back. [...] You give me to use money and then you need to take it back. So this is in [home country]. The same very strange. We will help you. But then you will pay us for our help. So I think it's the same level in [home country] with the government with this."

"So I need to see where it is. I need to see if the document exists in English or not. So I think these are few things. If it can be like smooth and there is a help desk in English or their languages. To ask about anything for migrants, I think that will be really helpful, even for like my friends, you know, [friend], his cycle got stolen and it took us a long time to understand how to apply it to a police. [But the] Police never showed up."

F.2.5 Home country is different from the Netherlands

"I cannot spend like €1000 on a new device. So obviously repairing is important, but it is very difficult to find repair shops here."

F.3   Subquestion 3

F.3.1   Positive experiences

"For checking on tax, because I'm still employed in my company there, so I get like not salary but there are some details and we have the financial year as the March end, then we start tax declaration and it is a really big complex process in [home country] currently. So for that emails, talking to clients, I have still my work e-mail from [home country], so I use mostly emails and some [home country's] apps for payment. Or you know I have to pay to my friend in [home country's] currency I use that."

"Yes, yes, I think everything is here. Yes, actually it would be the opposite. I would want some things to take from here to there, but I can't so [...] Like a cashless transactions like tap and pay is a big thing. It's coming in [home country]. It's not yet. [home country] still operates on cash a lot. [...] And the app for travel, it's really smooth, it's really nice here. You can easily track things.Like NS app or 9292 to app. Oh, it's easy to take the passes. The bus tickets, the train tickets, whatever it is. Other than that. The weather app. It's really nice"

"In terms of like the tax, like online tax filing infrastructure and and and things that's much better in the Netherlands. And I'd say compared to [country]. It's also, yeah. It's also much better, honestly."

"And let's be honest, if you're talking about physical shops, sometimes it's like if I'm coming to the website, it's only about my business. I want to buy something. If you're coming to the physical shops, someone wants to sell you something. It's not only about your business here. Sorry, guys, I want to do my business."

"The online presence itself was not difficult. I got all the accesses that are needed. I even got the expanded access from digid that you got with you. Scan your ID that gives you access to your medical data. Everything was done, not a problem."

F.3.2   Accessibility is good

"Even if you're like a permanent resident or someone who's been in the country for a long time legally there you can't. The numbers are not exactly the same for a citizen and a and a foreign resident. So then a lot of digital services are completely, either impossible or just very difficult to access, and so coming to the Netherlands. Actually it was a big difference to that everything so far has been available and pretty

easy to figure out."

F.3.3 Help is present when needed

"But unless I when you look it up online, all the information is in Dutch and I'm like, OK, if I'm on my phone, this is really hard. So then you just have to start asking people."

"A few weeks ago I needed I was kind of late to do it because I kept putting it off. But I had to do like the Windows 11 upgrade and then then suddenly [...] it wasn't working. So I could easily just visit. The help desk in the building and they figured out what I needed to add."

"[University] communicates all the information about travel, from weather to everything. [...] University does provide knowledge about everything, how to survive, what to do, what emergency, about how you live in Netherlands, everything they do."

"I know that on the orientation day you have this market where you go through like the bank. You create a bank account, you go through the insurance, you get an insurance, if you haven't got them yet."

"It's really easy just to have a chat with customer service using WhatsApp. So you don't also don't need to call somebody and wait for a long time, whereas. In [other country], that was also possible to do a lot of online chats, like through those kind of social media services, but they weren't always resolved very well. They were not. And that might become more of a problem if everything's just like an AI chat bot, I guess, but so far I've actually, it's been pretty easy to do that. And I, I like that about the Netherlands, that there's a ..., I feel like there's actually somebody there who is fixing the problem without me having to be on hold on the phone for a long time."

"What is the first step that I do for the people, all people: I always come here with a smile, good morning, you come today and we talk together. I sit there with them drinking coffee. That way and then people can ask any questions, and others come also to me because they feel welcome here."*

F.3.4 People close-by to help

"There used to be one of them [WhatsApp group], but then they came to the limit of how many people you can put in a group. Apparently it's like, it used to be 1000 or something, so because people would not

fit in, they opened the second group. And that filled in pretty quickly. So now they're opening a third group, I think. So it's crazy, but like you have groups with thousand thousands of people participating, expect a very large expat groups. They on Facebook, there are a couple of of them as well. I am aware of and on LinkedIn as well you will find some expat groups."

"And then like I made connections with some students from my [home] uni, who is who was like already going to the Netherlands. And then I ask personally and then that helped me a lot. So yeah, community is helpful."

F.3.5 Different migrant groups, different needs

"But the first time I went to self checkout, I was completely confused. I'm like, I don't know what's happening here. Where's... what do I do? And then now it's second nature."

"Belastingdienst [tax authority], there's a lot of Dutch, scary Dutch words. So the problem was not accessing online resources. The problem was. Data on this online resources, which is absolutely OK. It's not even complicated data. They they did great job, but it was my first time so it was obviously... interesting."

"You are an individual, so everything is based on the individual, while people from the migrant group, they come from the collective. They feel strong together, they learn from each other. [...] So they have distrust towards the system."*

Bibliography

[1] G. Wilson-Menzfeld, G. Erfani, L. Young-Murphy, *et al.*, "Identifying and understanding digital exclusion: a mixed-methods study",
Behaviour and Information Technology, pp. 1–18, Jun. 2024.
DOI: `10.1080/0144929x.2024.2368087`. [Online]. Available: `https://doi.org/10.1080/0144929x.2024.2368087`.

[2] M. Ragnedda, M. L. Ruiu, and F. Addeo, "The self-reinforcing effect of digital and social exclusion: The inequality loop",
Telematics and Informatics, vol. 72, p. 101 852, Jun. 2022.
DOI: `10.1016/j.tele.2022.101852`. [Online]. Available: `https://doi.org/10.1016/j.tele.2022.101852`.

[3] H. Nyakarundi and H. Nyakarundi,
Digital Inclusivity Initiatives: All You need to know,
Apr. 2024.
[Online]. Available: `https://aredgroup.com/digital-inclusivity-initiatives-all-you-need-to-know/#:~:text=Government%2DLed%20Efforts&text=These%20programs%20often%20include:,citizens%20with%20essential%20digital%20skills.`.

[4] Digitale Overheid,
Wat is digitale inclusie? Digitale inclusie - Digitale Overheid,
Apr. 2025.
[Online]. Available: `https://www.digitaleoverheid.nl/overzicht-van-alle-onderwerpen/digitale-inclusie/wat-is-digitale-inclusie/`.

[5] Digital Inclusion and Skills Unit,
"Digital Inclusion Action Plan: First Steps",
Tech. Rep. E03286042 02/25,
Feb. 2025.

[Online]. Available: `https://www.gov.uk/government/publications/digital-inclusion-action-plan-first-steps/digital-inclusion-action-plan-first-steps`.

[6] NDIA,
State of digital inclusion in the States.
[Online]. Available: `https://www.digitalinclusion.org/state-of-digital-inclusion-in-the-states/`.

[7] I. Zandbergen,
Doe mee aan de Week van Digitale Inclusie,
May 2025.
[Online]. Available: `https://www.digitaleoverheid.nl/nieuws/doe-mee-aan-de-week-van-digitale-inclusie/`.

[8] Microsoft,
Microsoft Airband Initiative — Microsoft CSR.
[Online]. Available: `https://www.microsoft.com/en-us/corporate-responsibility/airband-initiative`.

[9] AT&T,
AT&T - Corporate Responsibility - bridging the digital divide.
[Online]. Available: `https://sustainability.att.com/cr/bridging-digital-divide`.

[10] Vodafone,
Code like a Girl.
[Online]. Available: `https://www.vodafone.com/about-vodafone/who-we-are/people-and-culture/uk-gender-pay-gap/code-girl`.

[11] T. Álvarez,
"Gen Z and digital inclusion: moving beyond digital natives to address digital access among youth",
Tech. Rep.,
Aug. 2024.
[Online]. Available: `https://digitalfuturesociety.com/report/gen-z-and-digital-inclusion-moving-beyond-digital-natives-to-address-digital-access-among-youth/`.

[12] D. Schurmans and L. Van Audenhove,
"Digitale mediaprofielen van jongeren in maatschappelijk kwetsbare situaties",

Feb. 2014.

[Online]. Available: `https://researchportal.vub.be/en/publications/ digitale-mediaprofielen-van-jongeren-in-maatschappelijk-kwetsbare`.

[13] S. Hartholt,
Feyenoord, Microsoft en Rotterdam samen aan de slag met digitale inclusie,
Jun. 2024.
[Online]. Available: `https://www.binnenlandsbestuur.nl/digitaal/gemeente- rotterdam-aan-de-slag-met-digitale-inclusie`.

[14] A. Samuel,
Opinion: Forget "digital natives." Here's how kids are really using the Internet,
May 2017.
[Online]. Available: `https://ideas.ted.com/opinion-forget-digital- natives-heres-how-kids-are-really-using-the-internet/`.

[15] A. Elena-Bucea, F. Cruz-Jesus, T. Oliveira, and P. S. Coelho, "Assessing the role of age, education, gender and income on the digital Divide: Evidence for the European Union",
Information Systems Frontiers, vol. 23, no. 4, pp. 1007–1021, May 2020.
DOI: `10.1007/s10796-020-10012-9`. [Online]. Available: `https://doi.org/10. 1007/s10796-020-10012-9`.

[16] S. Youssef,
Digital Inclusion: a gateway to integration for migrants,
Jul. 2024.
[Online]. Available: `https://urbact.eu/digital-inclusion-gateway- integration-migrants`.

[17] IOM,
Digital inclusion — International Organization for Migration.
[Online]. Available: `https://www.iom.int/digital-inclusion`.

[18] Z. Bastick and M. Mallet-Garcia, "Double lockdown: The effects of digital exclusion on undocumented immigrants during the COVID-19 pandemic",
New Media Society, vol. 24, no. 2, pp. 365–383, Feb. 2022.
DOI: `10.1177/14614448211063185`. [Online]. Available: `https://doi.org/10. 1177/14614448211063185`.

[19] K. Alam and S. Imran, "The digital divide and social inclusion among refugee migrants",

Information Technology and People, vol. 28, no. 2, pp. 344–365, May 2015.
DOI: `10.1108/itp-04-2014-0083`. [Online]. Available: `https://doi.org/10.1108/itp-04-2014-0083`.

[20] CBS,
"Integratie en samenleven 2024",
Tech. Rep.,
2024.
[Online]. Available: `https://www.cbs.nl/nl-nl/publicatie/2024/47/rapportage-integratie-en-samenleven-2024`.

[21] AFM,
"Dutch nationals with a migration background",
Tech. Rep.,
2021.
[Online]. Available: `https://www.google.com/url?sa=t&source=web&rct=j&opi=89978449&url=https://www.afm.nl/~/profmedia/files/rapporten/2021/afm-dutch-nationals-migration-background.pdf&ved=2ahUKEwj3-b6KjfCMAxWCgPOHHfvKIiQQFnoECBoQAw&usg=AOvVaw02zwSabeafNxcEtYOSie_D`.

[22] CBS,
Good command of Dutch enhances labour participation,
Nov. 2023.
[Online]. Available: `https://www.cbs.nl/en-gb/news/2023/44/good-command-of-dutch-enhances-labour-participation`.

[23] Centraal Bureau voor de Statistiek,
Nederlanders digitaal steeds vaardiger,
Nov. 2023.
[Online]. Available: `https://www.cbs.nl/nl-nl/nieuws/2023/45/nederlanders-digitaal-steeds-vaardiger`.

[24] Eurostat,
"Digitalisation in Europe",
Tech. Rep. KS-FW-24-001-EN-Q,
2024.
DOI: `10.2785/120017`. [Online]. Available: `https://ec.europa.eu/eurostat/web/interactive-publications/digitalisation-2024#:~:text=44%25%`

`20of%20EU%20citizens%20lack%20basic%20digital%20skills&text=However%`
`2C%20only%2056%25%20had%20basic,%2C%20and%20Czechia%20(69%25)..`

[25] J. Tähtinen and V. Havila, "Conceptually confused, but on a field level? A method
for conceptual analysis and its application",
Marketing Theory, vol. 19, no. 4, pp. 533–557, Sep. 2018.
DOI: `10.1177/1470593118796677`. [Online]. Available: `https://doi.org/10.`
`1177/1470593118796677`.

[26] S. Jia, J. T. Du, and H. Yan, "Towards a comprehensive framework for digital
inclusion: a comparison of international measurements",
Aslib Journal of Information Management, Dec. 2024.
DOI: `10.1108/ajim-06-2024-0494`. [Online]. Available: `https://doi.org/10.`
`1108/ajim-06-2024-0494`.

[27] S. Wagg, L. Cooke, and B. Simeonova, "Digital inclusion and women's health and
well-being in rural communities",
The Oxford Handbook of Digital Technology and Society, pp. 111–135, 2020.
[Online]. Available: `https://doi-org.tudelft.idm.oclc.org/10.1093/`
`oxfordhb/9780190932596.013.5`.

[28] K. Wiley and A. Goulding,
*The Conceptualization of Digital Inclusion in Government Policy: A Qualitative
Content analysis.*
Jan. 2023,
Pp. 527–543.
DOI: `10.1007/978-3-031-28032-0\{_}40`. [Online]. Available: `https://doi.`
`org/10.1007/978-3-031-28032-0_40`.

[29] J. Van Dijk,
The digital divide.
Polity Press, Jan. 2020,
ISBN: 978–1-5095-3445-6.
[Online]. Available: `https://www.politybooks.com/bookdetail?book_slug=`
`the-digital-divide--9781509534449`.

[30] I. Y. H. Ng, S. S. Lim, and N. Pang, "Making universal digital access universal:
lessons from COVID-19 in Singapore",
Universal Access in the Information Society, vol. 22, no. 3, pp. 1073–1083, Apr.
2022.

DOI: 10.1007/s10209-022-00877-9. [Online]. Available: https://doi.org/10.1007/s10209-022-00877-9.

[31] T. Morte-Nadal and M. Á. Esteban-Navarro, "Recommendations for digital inclusion in the use of European digital public services",
Humanities and Social Sciences Communications, vol. 12, no. 1, Feb. 2025.
DOI: 10.1057/s41599-025-04576-7. [Online]. Available: https://doi.org/10.1057/s41599-025-04576-7.

[32] Ministerie van Justitie en Veiligheid and College voor de Rechten van de Mens,
Digitale kloof en mensenrechten,
Nov. 2022.
[Online]. Available: https://www.mensenrechten.nl/actueel/toegelicht/toegelicht/2022/digitale-kloof-en-mensenrechten#:~:text=Als%20de%20samenleving%20steeds%20meer,oorzaken%20voor%20de%20digitale%20kloof..

[33] Fonds Werving Online,
Subsidie voor digitale inclusie: iedereen digitaal meedoen,
Jul. 2024.
[Online]. Available: https://www.fondswervingonline.nl/nieuws/subsidie-voor-digitale-inclusie-iedereen-digitaal-meedoen.

[34] X. Chen, B. Östlund, and S. Frennert, "Digital inclusion or digital divide for older immigrants? A scoping review",
Lecture notes in computer science, pp. 176–190, Jan. 2020.
DOI: 10.1007/978-3-030-50232-4\{_}13. [Online]. Available: https://doi.org/10.1007/978-3-030-50232-4_13.

[35] A. Satariano and S. Reinhard, "How Russia took over Ukraine's internet in occupied territories",
Aug. 2022.
[Online]. Available: https://www.nytimes.com/interactive/2022/08/09/technology/ukraine-internet-russia-censorship.html.

[36] L. Bojor, T. Petrache, and C. Cristescu, "Emerging technologies in conflict: The impact of Starlink in the Russia – Ukraine War",
Revista Academiei Forţelor Terestre, vol. 29, no. 2, pp. 185–194, Jun. 2024.
DOI: 10.2478/raft-2024-0020. [Online]. Available: https://doi.org/10.2478/raft-2024-0020.

[37]   S. K. Katara and A. K. Sharma,
       "Global ICT accessibility methodologies for persons with disabilities and initiatives
       in India",
       In *Global ICT accessibility methodologies for persons with disabilities and initiatives
       in India*,
       International Conference on Electronic Governance and Open Society, eGose 2017,
       Sep. 2017.
       DOI: `10.1145/3129757.3129768`. [Online]. Available: `https://doi.org/10.1145/3129757.3129768`.

[38]   C. K. Mori,
       'Digital Inclusion': Are We All Talking about the Same Thing?
       IGI Global, Oct. 2010,
       Pp. 45–64.
       DOI: `10.4018/978-1-61520-799-2.ch003`. [Online]. Available: `https://doi.org/10.4018/978-1-61520-799-2.ch003`.

[39]   A. Nguyen,
       Digital inclusion.
       Springer, Jan. 2022,
       Pp. 265–279.
       DOI: `10.1007/978-3-030-89594-5\{_}14`. [Online]. Available: `https://doi.org/10.1007/978-3-030-89594-5_14`.

[40]   C. Adams and T. Fitch,
       *Social inclusion and the shifting role of technology: Is age the new gender in mobile
       access?*
       Springer eBooks, Sep. 2006,
       Pp. 203–215.
       DOI: `10.1007/0-387-34588-4\{_}14`. [Online]. Available: `https://doi.org/10.1007/0-387-34588-4_14`.

[41]   T. Coombs, A. Nicholas, and J. Pirkis, "A review of social inclusion measures",
       Australian & New Zealand Journal of Psychiatry, vol. 47, no. 10, pp. 906–919,
       Jun. 2013.
       DOI: `10.1177/0004867413491161`. [Online]. Available: `https://doi.org/10.1177/0004867413491161`.

[42]   M. O'Brien and S. Penna, "Social exclusion in Europe: some conceptual issues",

International Journal of Social Welfare, vol. 17, no. 1, pp. 84–92, Jan. 2007. DOI: `10.1111/j.1468-2397.2006.00478.x`. [Online]. Available: `https://doi.org/10.1111/j.1468-2397.2006.00478.x`.

[43] N. Rawal, "Social Inclusion and Exclusion: A review",
Dhaulagiri Journal of Sociology and Anthropology, vol. 2, pp. 161–180, 2008. DOI: `10.3126/dsaj.v2i0.1362`. [Online]. Available: `https://doi.org/10.3126/dsaj.v2i0.1362`.

[44] T. Burchardt, J. L. Grand, and D. Piachaud, "Social exclusion in Britain 1991—1995",
Social Policy and Administration, vol. 33, no. 3, pp. 227–244, Sep. 1999. DOI: `10.1111/1467-9515.00148`. [Online]. Available: `https://doi.org/10.1111/1467-9515.00148`.

[45] R. Levitas, C. Pantazis, E. Fahmy, D. Gordon, E. Lloyd, and D. Patsios,
"The Multi-dimensional Analysis of Social Exclusion",
Tech. Rep.,
Jan. 2007,
Pp. 311–341.
[Online]. Available: `https://dera.ioe.ac.uk/6853/1/multidimensional.pdf`.

[46] Department of Economic and Social Affairs [DESA],
"Creating an Inclusive Society: Practical Strategies to Promote Social Integration",
Tech. Rep.,
2009.
[Online]. Available: `https://www.un.org/esa/socdev/egms/docs/2009/Ghana/inclusive-society.pdf`.

[47] L. Sayce, "Social inclusion and mental health",
Psychiatric Bulletin, vol. 25, no. 4, pp. 121–123, Apr. 2001. DOI: `10.1192/pb.25.4.121`. [Online]. Available: `https://doi.org/10.1192/pb.25.4.121`.

[48] T. van Regenmortel, "Empowerment als uitdagend kader voor sociale inclusie en moderne zorg",
Journal of Social Intervention: Theory and Practice, vol. 18, no. 4, pp. 22–42, Mar. 2025.
[Online]. Available: `http://www.journalsi.org/`.

[49] S. Davey and S. Gordon, "Definitions of social inclusion and social exclusion: the invisibility of mental illness and the social conditions of participation",

International Journal of Culture and Mental Health, vol. 10, no. 3, pp. 229–237, Mar. 2017.

DOI: `10.1080/17542863.2017.1295091`. [Online]. Available: `https://doi.org/10.1080/17542863.2017.1295091`.

[50] Coalitie voor Inclusie,
Wat is inclusie?,
Aug. 2023.
[Online]. Available: `https://coalitievoorinclusie.nl/vn-verdrag-handicap/wat-is-inclusie/`.

[51] United Way NCA,
Equity Definition: Understanding the difference between equity and equality,
Oct. 2024.
[Online]. Available: `https://unitedwaynca.org/blog/equity-vs-equality/`.

[52] T. Majoko and A. Dudu,
An African Perspective on Inclusivity, Equity, Equality, Accessibility and Empowerment.
Jul. 2023,
Pp. 103–121.
DOI: `10.1007/978-3-031-31115-4\{_}7`. [Online]. Available: `https://doi.org/10.1007/978-3-031-31115-4_7`.

[53] R. Faye and B. E. Ravneberg, "Making vulnerable groups able to connect socially and digitally—opportunities and pitfalls",
Frontiers in Education, vol. 9, May 2024.
DOI: `10.3389/feduc.2024.1346721`. [Online]. Available: `https://doi.org/10.3389/feduc.2024.1346721`.

[54] Migration Observatory,
Who Counts as a Migrant? Definitions and their Consequences,
Feb. 2024.
[Online]. Available: `https://migrationobservatory.ox.ac.uk/resources/briefings/who-counts-as-a-migrant-definitions-and-their-consequences/`.

[55] M. Ersözlü, M. Lahmuni, Y. Mdalalh, *et al.*, "Factors associated with patient and health care system delay among migrant and local tuberculosis patients in Istanbul: a cross-sectional study",
BMC Health Services Research, vol. 25, no. 1, Mar. 2025.

DOI: 10.1186/s12913-025-12460-y. [Online]. Available: https://doi.org/10.1186/s12913-025-12460-y.

[56] V. Mazzucato, "The double engagement: transnationalism and integration. Ghanaian migrants' lives between Ghana and the Netherlands",
Journal of Ethnic and Migration Studies, vol. 34, no. 2, pp. 199–216, Jan. 2008.
DOI: 10.1080/13691830701823871. [Online]. Available: https://doi.org/10.1080/13691830701823871.

[57] N. Geurts and M. Lubbers, "Dynamics in intention to stay and changes in language proficiency of recent migrants in the Netherlands",
Journal of Ethnic and Migration Studies, vol. 43, no. 7, pp. 1045–1060, Oct. 2016.
DOI: 10.1080/1369183x.2016.1245608. [Online]. Available: https://doi.org/10.1080/1369183x.2016.1245608.

[58] M. B. Erdal and C. Oeppen, "Forced to leave? The discursive and analytical significance of describing migration as forced and voluntary",
Journal of Ethnic and Migration Studies, vol. 44, no. 6, pp. 981–998, Oct. 2017.
DOI: 10.1080/1369183x.2017.1384149. [Online]. Available: https://doi.org/10.1080/1369183x.2017.1384149.

[59] V. Ottonelli and T. Torresi, "When is Migration Voluntary?",
International Migration Review, vol. 47, no. 4, pp. 783–813, Dec. 2013.
DOI: 10.1111/imre.12048. [Online]. Available: https://doi.org/10.1111/imre.12048.

[60] S. Kalogeraki, "Exploring potential impacts of using different operational definitions of migrants in quantitative research",
The International Journal of Community Diversity, vol. 13, no. 2, pp. 33–46, Jan. 2014.
DOI: 10.18848/2327-0004/cgp/v13i02/39945. [Online]. Available: https://doi.org/10.18848/2327-0004/cgp/v13i02/39945.

[61] Dokters van de Wereld,
Vluchteling, migrant en asielzoeker: wat is het verschil?,
Mar. 2025.
[Online]. Available: https://doktersvandewereld.org/vluchteling-migrant-en-asielzoeker-wat-is-het-verschil/.

[62] van Dale,
Migrant.

[Online]. Available: `https://www.vandale.nl/pages/gratis-woordenboek/migrant`.

[63] C. Talleraas,
Migration forms: What forms of migration can be distinguished?
Jan. 2022,
Pp. 111–116.
DOI: `10.1007/978-3-030-92377-8\{_}6`. [Online]. Available: `https://doi.org/10.1007/978-3-030-92377-8_6`.

[64] M. Bovens, M. Bokhorst, R. Jennissen, and G. Engbersen,
"Migration and Classification: Towards a Multiple Migration Idiom",
Tech. Rep.,
Jun. 2017.
[Online]. Available: `https://english.wrr.nl/publications/investigation/2017/06/26/summary-migration-and-classification-towards-a-multiple-migration-idiom`.

[65] E. F. Solheim and D. La Parra-Casado, "Identifying Refugees and Other Migrant Groups in European Large-scale Surveys: An Explorative Analysis of Integration Outcomes by Age Upon Arrival, Reasons for Migration and Country-of-birth Groups Using the European Union Labour Force Survey 2014 Ad Hoc Module",
Journal of Refugee Studies, vol. 32, no. $Special_Issue_1$, pp. i183–i193, May 2019.
DOI: `10.1093/jrs/fez044`. [Online]. Available: `https://doi.org/10.1093/jrs/fez044`.

[66] Ministerie van Algemene Zaken,
Hoe en waarom migreren mensen?,
Jul. 2018.
[Online]. Available: `https://www.rijksoverheid.nl/onderwerpen/migratie/vraag-en-antwoord/hoe-en-waarom-migreren-mensen#:~:text=Reden%20van%20migratie&text=Zo%20komt%20asielmigratie%20voor%20als,om%20te%20studeren%20(kennismigratie)..`

[67] Centraal Bureau voor de Statistiek, "Werk en gezin belangrijkste migratiemotieven voor immigranten",
Jul. 2020.
[Online]. Available: `https://www.cbs.nl/nl-nl/nieuws/2020/30/werk-en-gezin-belangrijkste-migratiemotieven-voor-immigranten`.

[68] R. Winter-Ebmer, "Motivation for migration and economic success",
      Journal of Economic Psychology, vol. 15, no. 2, pp. 269–284, Jun. 1994.
      DOI: `10.1016/0167-4870(94)90004-3`. [Online]. Available: `https://doi.org/10.1016/0167-4870(94)90004-3`.

[69] C. Slay,
      Motivations for international migration,
      Sep. 2024.
      [Online]. Available: `https://www.linkedin.com/pulse/motivations-international-migration-christopher-slay-ihf6e/`.

[70] D. Pollenne and C. Vargas-Silva, "Differences in migrants' reason for migration and subjective well-being: not so different after all",
      Comparative Migration Studies, vol. 12, no. 1, Feb. 2024.
      DOI: `10.1186/s40878-024-00371-6`. [Online]. Available: `https://doi.org/10.1186/s40878-024-00371-6`.

[71] International Organization for Migration [IOM],
      Who we are — International Organization for Migration.
      [Online]. Available: `https://www.iom.int/who-we-are`.

[72] IOM,
      "MIGRATION AND MIGRANTS: A GLOBAL OVERVIEW",
      Switzerland, ch,
      Tech. Rep. ISBN 978-92-9268-775-5 (PDF),
      2024.
      [Online]. Available: `https://publications.iom.int/books/world-migration-report-2024-chapter-2`.

[73] C. Guerrero-Romera, J.-A. Gómez-Hernández, D. S. Salvador, M.-Á. Vera-Baceta, J. A. M. Vega, and A. Cuevas-Cerveró, "Digital Skills for Empowering Migrant Women: A Basic Education program",
      IEEE Revista Iberoamericana de Tecnologias del Aprendizaje, p. 1, Jan. 2025.
      DOI: `10.1109/rita.2025.3542560`. [Online]. Available: `https://doi.org/10.1109/rita.2025.3542560`.

[74] R. K. Polat, "Digital exclusion in Turkey: A policy perspective",
      Government Information Quarterly, vol. 29, no. 4, pp. 589–596, Aug. 2012.
      DOI: `10.1016/j.giq.2012.03.002`. [Online]. Available: `https://doi.org/10.1016/j.giq.2012.03.002`.

[75] I. Czaja and M. Urbaniec, "Digital exclusion in the labour market in European countries: causes and consequences",
European Journal of Sustainable Development, vol. 8, no. 5, p. 324, Oct. 2019.
DOI: `10.14207/ejsd.2019.v8n5p324`. [Online]. Available: `https://doi.org/10.14207/ejsd.2019.v8n5p324`.

[76] I. Keygnaert, N. Vettenburg, K. Roelens, and M. Temmerman, "Sexual health is dead in my body: participatory assessment of sexual health determinants by refugees, asylum seekers and undocumented migrants in Belgium and the Netherlands",
BMC Public Health, vol. 14, no. 1, May 2014.
DOI: `10.1186/1471-2458-14-416`. [Online]. Available: `https://doi.org/10.1186/1471-2458-14-416`.

[77] R. Kawous, M. E. T. C. Van Den Muijsenbergh, D. Geraci, *et al.*, "The prevalence and risk of Female Genital Mutilation/Cutting among migrant women and girls in the Netherlands: An extrapolation method",
PLoS ONE, vol. 15, no. 4, e0230919, Apr. 2020.
DOI: `10.1371/journal.pone.0230919`. [Online]. Available: `https://doi.org/10.1371/journal.pone.0230919`.

[78] N. Ascoly, "Refugee women, pregnancy, and reproductive health care in the Netherlands",
Journal of Refugee Studies, vol. 14, no. 4, pp. 371–393, Dec. 2001.
DOI: `10.1093/jrs/14.4.371`. [Online]. Available: `https://doi.org/10.1093/jrs/14.4.371`.

[79] S. Khademi, C. Essers, and K. Van Nieuwkerk, "Iranian refugee entrepreneurship and inclusion in the Netherlands",
Journal of Refugee Studies, vol. 36, no. 1, pp. 105–127, Dec. 2022.
DOI: `10.1093/jrs/feac058`. [Online]. Available: `https://doi.org/10.1093/jrs/feac058`.

[80] A. Şafak-AyvazoĞlu, F. KünüroĞlu, F. Van De Vijver, and K. YaĞmur, "Acculturation of Syrian refugees in the Netherlands: Religion as social identity and boundary marker",
Journal of Refugee Studies, vol. 34, no. 1, pp. 555–578, Feb. 2020.
DOI: `10.1093/jrs/feaa020`. [Online]. Available: `https://doi.org/10.1093/jrs/feaa020`.

[81] P. Smets and S. T. Kate, "Let's Meet! Let's Exchange! LETS as an instrument for linking asylum seekers and the host community in the Netherlands", *Journal of Refugee Studies*, vol. 21, no. 3, pp. 326–346, Aug. 2008. DOI: `10.1093/jrs/fen026`. [Online]. Available: `https://doi.org/10.1093/jrs/fen026`.

[82] E. Onraet, A. Van Hiel, B. Valcke, and J. Van Assche, "Reactions towards Asylum Seekers in the Netherlands: Associations with Right-wing Ideological Attitudes, Threat and Perceptions of Asylum Seekers as Legitimate and Economic", *Journal of Refugee Studies*, vol. 34, no. 2, pp. 1695–1712, Nov. 2019. DOI: `10.1093/jrs/fez103`. [Online]. Available: `https://doi.org/10.1093/jrs/fez103`.

[83] M. Kox, I. Van Liempt, and A. Smits, "Shaping a Climate of Arrival: national and local media representations of refugees' arrival infrastructures in the Netherlands", *Journal of Refugee Studies*, vol. 36, no. 1, pp. 46–64, Dec. 2022. DOI: `10.1093/jrs/feac061`. [Online]. Available: `https://doi.org/10.1093/jrs/feac061`.

[84] D. M. Popa, "New versus Established Migrants in a Competitive Labor Market", *Intersections*, vol. 5, no. 2, Jul. 2019. DOI: `10.17356/ieejsp.v5i2.516`. [Online]. Available: `https://doi.org/10.17356/ieejsp.v5i2.516`.

[85] O. Visser, K. Van Der Kooy, A. M. Van Peppen, F. G. Öry, and F. E. Van Leeuwen, "Breast cancer risk among first-generation migrants in the Netherlands", *British Journal of Cancer*, vol. 90, no. 11, pp. 2135–2137, Apr. 2004. DOI: `10.1038/sj.bjc.6601821`. [Online]. Available: `https://doi.org/10.1038/sj.bjc.6601821`.

[86] N. Horsley, M. Kakos, C. Koehler, K. Kooijman, and T. Tudjman, "Online schooling and the digital divide: challenges and opportunities for migrant students' educational inclusion", *Intercultural Education*, pp. 1–10, May 2024. DOI: `10.1080/14675986.2024.2349863`. [Online]. Available: `https://doi.org/10.1080/14675986.2024.2349863`.

[87] K. Leurs, "Digital divides in the era of widespread internet access: Migrant youth negotiating hierarchies in digital culture",

In *Youth 2.0: Social Media and Adolescence: Connecting, Sharing and Empowering*,
M. Walrave, K. Ponnet, E. Vanderhoven, J. Haers, and B. Segaert, Eds.
Cham: Springer International Publishing, 2016,
Pp. 61–78,
ISBN: 978-3-319-27893-3.
DOI: `10.1007/978-3-319-27893-3_4`. [Online]. Available: `https://doi.org/10.1007/978-3-319-27893-3_4`.

[88] Centraal Bureau voor de Statistiek,
Hoeveel immigranten komen naar Nederland?,
Dec. 2024.
[Online]. Available: `https://www.cbs.nl/nl-nl/dossier/dossier-asiel-migratie-en-integratie/hoeveel-immigranten-komen-naar-nederland`.

[89] C. Qin, Y. Zhu, D. Li, and C. Liu, "The impact of digital skills on health: Evidence from the China General Social Survey",
Digital Health, vol. 10, Jan. 2024.
DOI: `10.1177/20552076241304592`. [Online]. Available: `https://doi.org/10.1177/20552076241304592`.

[90] D. Brucoli,
Dutch elections 2023: the impact at national and European level,
Dec. 2023.
[Online]. Available: `https://publyon.com/dutch-elections-2023-the-impact-at-national-and-european-level/#:~:text=The%20political%20landscape%20in%20the,(and%20last)%20Rutte%20cabinet..`

[91] European Commission,
Netherlands: Government presents new asylum and migration rules,
Sep. 2024.
[Online]. Available: `https://migrant-integration.ec.europa.eu/news/netherlands-government-presents-new-asylum-and-migration-rules_en`.

[92] Social Exclusion Unit,
"Preventing Social Exclusion",
Tech. Rep.,
Mar. 2001.
[Online]. Available: `https://www.bristol.ac.uk/poverty/downloads/keyofficialdocuments/Preventing%20Social%20Exclusion.pdf`.

[93] A4AI, A. Pulgarín, and T. Woodhouse,
      "The Costs of Exclusion",
      Tech. Rep.,
      2021.
      [Online]. Available: `https://a4ai.org/wp-content/uploads/2022/03/CoE-Report-English.pdf`.

[94] Cebr,
      "The economic impact of digital inclusion in the UK",
      Tech. Rep.,
      Jul. 2022.
      [Online]. Available: `https://www.google.com/url?sa=t&source=web&rct=j&opi=89978449&url=https://www.goodthingsfoundation.org/dam/jcr:66b39e6e-fb15-42e4-a706-214115da5717/GoodThings_EconomicImpactOfDigitalInclusion_2022.pdf&ved=2ahUKEwienoW8iKONAxVwhPOHHTAAITMQFnoECBgQAQ&usg=AOvVaw0LEWd-ZQaMiOCJQMKjEsy9`.

[95] N. Yousif,
      Six big immigration changes under Trump - and their impact so far,
      Jan. 2025.
      [Online]. Available: `https://www.bbc.com/news/articles/clyn2p8x2eyo`.

[96] C. Körömi, "Hungary reveals plan to send asylum-seekers to Brussels",
      Aug. 2024.
      [Online]. Available: `https://www.politico.eu/article/hungary-asylum-plan-brussels-migration-refugees-gergely-gulyas/`.

[97] ECRE,
      Netherlands: Government Announces 'Strictest Asylum Policy Ever',
      Sep. 2024.
      [Online]. Available: `https://ecre.org/netherlands-government-announces-strictest-asylum-policy-ever-and-requests-opt-out-from-eu-migration-pact-%E2%80%95-government-announces-end-to-state-funded-housing-for-rejected-asy/`.

[98] S. Sanderson, "Migrant offshoring: the EU039;s plan to deport more rejected asylum seekers under scrutiny",
      Apr. 2025.

[Online]. Available: https://www.infomigrants.net/en/post/63745/migrant-offshoring-the-eus-plan-to-deport-more-rejected-asylum-seekers-under-scrutiny.

[99] Y. Puar,
'Voters are led to believe migration can be kept away' — DUB,
May 2024.
[Online]. Available: https://dub.uu.nl/en/depth/voters-are-led-believe-migration-can-be-kept-away.

[100] Centraal Bureau voor de Statistiek,
Bevolkingsgroei.
[Online]. Available: https://www.cbs.nl/nl-nl/visualisaties/dashboard-bevolking/bevolkingsgroei/groei.

[101] CLO,
Bevolkingsgroei, 2016-2024,
Aug. 2024.
[Online]. Available: https://www.clo.nl/indicatoren/nl210209-bevolkingsgroei-2016-2024.

[102] NL Times, "Dutch population growing more slowly than last year due to lower immigration",
Oct. 2024.
[Online]. Available: https://nltimes.nl/2024/10/30/dutch-population-growing-slowly-last-year-due-lower-immigration.

[103] Ministerie van Binnenlandse Zaken en Koninkrijksrelaties,
Causes and effects of population decline in the Netherlands,
Oct. 2023.
[Online]. Available: https://www.government.nl/topics/population-decline/causes-and-effects-of-population-decline.

[104] A. Madgavkar, M. C. Noguer, C. Bradley, O. White, S. Smit, and T. Radigan,
Dependency and depopulation? Confronting the consequences of a new demographic reality,
Jan. 2025.
[Online]. Available: https://www.mckinsey.com/mgi/our-research/dependency-and-depopulation-confronting-the-consequences-of-a-new-demographic-reality.

[105] C. Silva, A. R. Mora, and J. D. Straubhaar, "'Yo soy la única burra' [I'm the only dumb one]. Not Anymore. An Intersectional Approach to Digital Inclusion",
Palabra Clave, vol. 26, no. 4, pp. 1–27, Feb. 2024.
DOI: `10.5294/pacla.2023.26.4.7`. [Online]. Available: `https://doi.org/10.5294/pacla.2023.26.4.7`.

[106] M. Gallagher, R. Najjuma, and R. Nambi, "Bidi Bidi Creativity: The Liminality of digital Inclusion for Refugees in Ugandan Higher Education",
Social Inclusion, vol. 11, no. 3, May 2023.
DOI: `10.17645/si.v11i3.6686`. [Online]. Available: `https://doi.org/10.17645/si.v11i3.6686`.

[107] T. Notley and A. Aziz, "The unjust burden of digital inclusion for low-income migrant parents",
Policy Internet, vol. 16, no. 2, pp. 428–442, Feb. 2024.
DOI: `10.1002/poi3.383`. [Online]. Available: `https://doi.org/10.1002/poi3.383`.

[108] J. Van Dijk and K. Hacker, "The digital divide as a complex and dynamic phenomenon",
The Information Society, vol. 19, no. 4, pp. 315–326, Sep. 2003.
DOI: `10.1080/01972240309487`. [Online]. Available: `https://doi.org/10.1080/01972240309487`.

[109] T. C. Turin, S. Subroto, M. M. H. Raihan, *et al.*, "Identifying challenges, enabling practices, and reviewing existing policies regarding digital equity and digital divide toward smart and Healthy Cities: Protocol for an Integrative Review",
JMIR Research Protocols, vol. 11, no. 12, e40068, Dec. 2022.
DOI: `10.2196/40068`. [Online]. Available: `https://doi.org/10.2196/40068`.

[110] M. Farwati, A. Scandinaro, E. A. Babcock, and A. Alnajar,
The question: Types of research questions and how to develop them.
Jan. 2025,
Pp. 101–107.
DOI: `10.1016/b978-0-323-91790-2.00061-7`. [Online]. Available: `https://doi.org/10.1016/b978-0-323-91790-2.00061-7`.

[111] H. Taherdoost, "What are Different Research Approaches? Comprehensive Review of Qualitative, Quantitative, and Mixed Method Research, Their Applications, Types, and Limitations",

Journal of Management Science Engineering research, vol. 5, no. 1, pp. 53–63, Apr. 2022.
DOI: 10.30564/jmser.v5i1.4538. [Online]. Available: https://doi.org/10.30564/jmser.v5i1.4538.

[112] A. Moser and I. Korstjens, "Series: Practical guidance to qualitative research. Part 1: Introduction",
European Journal of General Practice, vol. 23, no. 1, pp. 271–273, Oct. 2017.
DOI: 10.1080/13814788.2017.1375093. [Online]. Available: https://doi.org/10.1080/13814788.2017.1375093.

[113] F. A. Kalu and J. Bwalya, "What makes qualitative research good research? An exploratory analysis of critical elements.",
International Journal of Social Science Research, vol. 5, no. 2, p. 43, Sep. 2017.
DOI: 10.5296/ijssr.v5i2.10711. [Online]. Available: https://doi.org/10.5296/ijssr.v5i2.10711.

[114] P. Brereton, B. A. Kitchenham, D. Budgen, M. Turner, and M. Khalil, "Lessons from applying the systematic literature review process within the software engineering domain",
Journal of Systems and Software, vol. 80, no. 4, pp. 571–583, Aug. 2006.
DOI: 10.1016/j.jss.2006.07.009. [Online]. Available: https://doi.org/10.1016/j.jss.2006.07.009.

[115] S. Myburgh and A. M. Tammaro,
Constructing a theoretical framework.
Chandos Information Professional Series, Jan. 2013,
Pp. 133–172.
DOI: 10.1016/b978-1-84334-659-3.50007-4. [Online]. Available: https://doi.org/10.1016/b978-1-84334-659-3.50007-4.

[116] J. J. Fitzpatrick and G. McCarthy,
Concept analysis.
Jan. 2016.
DOI: 10.1891/9780826126825.0001. [Online]. Available: https://doi.org/10.1891/9780826126825.0001.

[117] K. L. Barriball and A. While, "Collecting data using a semi-structured interview: a discussion paper",
Journal of Advanced Nursing, vol. 19, no. 2, pp. 328–335, Feb. 1994.

DOI: 10.1111/j.1365-2648.1994.tb01088.x. [Online]. Available: https://doi.org/10.1111/j.1365-2648.1994.tb01088.x.

[118] R. K. Yin,
Case study research and applications.
SAGE Publications, Incorporated, Nov. 2017.
[Online]. Available: https://uk-sagepub-com.tudelft.idm.oclc.org/en-gb/eur/case-study-research-and-applications/book250150.

[119] E. A. R. Adhabi and C. B. L. Anozie, "Literature review for the type of interview in qualitative research",
International Journal of Education, vol. 9, no. 3, p. 86, Sep. 2017.
DOI: 10.5296/ije.v9i3.11483. [Online]. Available: https://doi.org/10.5296/ije.v9i3.11483.

[120] J. Ritchie, J. Lewis, C. M. Nicholls, and R. Ormston, "Qualitative research practice: a guide for social science students and researchers",
Choice Reviews Online, vol. 41, no. 03, pp. 41–1319, Nov. 2003.
DOI: 10.5860/choice.41-1319. [Online]. Available: https://doi.org/10.5860/choice.41-1319.

[121] C. Kakilla,
Strengths and Weaknesses of Semi-Structured Interviews in Qualitative Research: A Critical Essay.
Jun. 2021.
DOI: 10.20944/preprints202106.0491.v1. [Online]. Available: https://doi.org/10.20944/preprints202106.0491.v1.

[122] M. DeJonckheere and L. M. Vaughn, "Semistructured interviewing in primary care research: a balance of relationship and rigour",
Family Medicine and Community Health, vol. 7, no. 2, e000057, Mar. 2019.
DOI: 10.1136/fmch-2018-000057. [Online]. Available: https://doi.org/10.1136/fmch-2018-000057.

[123] R. R. Opdenakker, "Advantages and disadvantages of four interview techniques in qualitative research",
Forum qualitative Sozialforschung, vol. 7, no. 4, pp. 10–, Sep. 2006.
DOI: 10.17169/fqs-7.4.175. [Online]. Available: http://alexandria.tue.nl/openaccess/Metis202565.pdf.

[124] Unicef,

Regional classifications,
Jun. 2023.
[Online]. Available: `https://data.unicef.org/regionalclassifications/`.

[125] S. Anrijs, K. Ponnet, and L. De Marez, "Development and psychometric properties of the Digital Difficulties Scale (DDS): An instrument to measure who is disadvantaged to fulfill basic needs by experiencing difficulties in using a smartphone or computer",
PLoS ONE, vol. 15, no. 5, e0233891, May 2020.
DOI: `10.1371/journal.pone.0233891`. [Online]. Available: `https://doi.org/10.1371/journal.pone.0233891`.

[126] A. K. L. Cheung,
Structured questionnaires.
Jan. 2014,
Pp. 6399–6402.
DOI: `10.1007/978-94-007-0753-5\{_}2888`. [Online]. Available: `https://doi.org/10.1007/978-94-007-0753-5_2888`.

[127] V. Braun and V. Clarke, "Using thematic analysis in psychology",
Qualitative Research in Psychology, vol. 3, no. 2, pp. 77–101, Jan. 2006.
DOI: `10.1191/1478088706qp063oa`. [Online]. Available: `https://doi.org/10.1191/1478088706qp063oa`.

[128] D. Byrne, "A worked example of Braun and Clarke's approach to reflexive thematic analysis",
Quality Quantity, vol. 56, no. 3, pp. 1391–1412, Jun. 2021.
DOI: `10.1007/s11135-021-01182-y`. [Online]. Available: `https://doi.org/10.1007/s11135-021-01182-y`.

[129] J. Powell and A. Clarke, "Information in mental health: qualitative study of mental health service users",
Health Expectations, vol. 9, no. 4, pp. 359–365, Sep. 2006.
DOI: `10.1111/j.1369-7625.2006.00403.x`. [Online]. Available: `https://doi.org/10.1111/j.1369-7625.2006.00403.x`.

[130] S. Muñoz-Hernández, C. Benac-Earle, A. H. Nieva, and M. Gonzalez-McGuinness, "Sustainable Methodology for operational and formal digital skills acquisition: A case study of e-Health Inclusion",
Sustainability, vol. 13, no. 17, p. 9698, Aug. 2021.

DOI: `10.3390/su13179698`. [Online]. Available: `https://doi.org/10.3390/su13179698`.

[131] M. Prensky, "Digital Natives, Digital Immigrants Part 1",
On the Horizon The International Journal of Learning Futures, vol. 9, no. 5, pp. 1–6, Sep. 2001.
DOI: `10.1108/10748120110424816`. [Online]. Available: `https://doi.org/10.1108/10748120110424816`.

[132] E. R. Modeme and A. Adeogun, "Appraising the extent of digital divide between music teachers and students in Anambra state secondary schools, Nigeria",
International Journal of Music Education, vol. 39, no. 2, pp. 119–133, Jan. 2021.
DOI: `10.1177/0255761420986240`. [Online]. Available: `https://doi.org/10.1177/0255761420986240`.

[133] S.-H. Jeong and Y. G. Nam, "The Paradox of Digital Health: Why Middle-Aged Adults Outperform Young Adults in Health Management Utilization via Technology",
Healthcare, vol. 12, no. 22, p. 2261, Nov. 2024.
DOI: `10.3390/healthcare12222261`. [Online]. Available: `https://doi.org/10.3390/healthcare12222261`.

[134] PRISMA,
PRISMA 2020 flow diagram — PRISMA statement,
2025.
[Online]. Available: `https://www.prisma-statement.org/prisma-2020-flow-diagram`.

[135] M. J. Page, J. E. McKenzie, P. M. Bossuyt, *et al.*, "The PRISMA 2020 statement: an updated guideline for reporting systematic reviews",
BMJ, n71, Mar. 2021.
DOI: `10.1136/bmj.n71`. [Online]. Available: `https://doi.org/10.1136/bmj.n71`.

[136] P. Pierce, M. Whitten, and S. Hillman, "The impact of digital healthcare on vulnerable pregnant women: A review of the use of the MyCare app in the maternity department at a central London tertiary unit",
Frontiers in Digital Health, vol. 5, Apr. 2023.
DOI: `10.3389/fdgth.2023.1155708`. [Online]. Available: `https://doi.org/10.3389/fdgth.2023.1155708`.

[137] F. Knights, J. Carter, A. Deal, *et al.*, "Impact of COVID-19 on migrants' access to primary care and implications for vaccine roll-out: a national qualitative study", *British Journal of General Practice*, vol. 71, no. 709, e583–e595, Apr. 2021. DOI: `10.3399/bjgp.2021.0028`. [Online]. Available: `https://doi.org/10.3399/bjgp.2021.0028`.

[138] K. K. Fung, C. Y. Lai, S. L. Hung, Y. Yu, and L. He, "A systematic review of the digital divide experienced by migrant women", *Journal of International Migration and Integration / Revue de l integration et de la migration internationale*, Jan. 2025. DOI: `10.1007/s12134-024-01222-0`. [Online]. Available: `https://doi.org/10.1007/s12134-024-01222-0`.

[139] J. S. Jauhiainen, S. Özçürümez, and Ö. Tursun, "Internet and social media uses, digital divides, and digitally mediated transnationalism in forced migration: Syrians in Turkey", *Global Networks*, vol. 22, no. 2, pp. 197–210, Aug. 2021. DOI: `10.1111/glob.12339`. [Online]. Available: `https://doi.org/10.1111/glob.12339`.

[140] M. G. Zolbin, S. Kujala, and I. Huvila, "Experiences and Expectations of immigrant and nonimmigrant Older adults regarding eHealth Services: Qualitative Interview study", *Journal of Medical Internet Research*, vol. 27, e64249, Mar. 2025. DOI: `10.2196/64249`. [Online]. Available: `https://doi.org/10.2196/64249`.

[141] J. H. Cohen, A. Maleku, S. Pyakurel, T. Suzuki, S. Raut, and F. A. M. Ishino, "Exploring the Digital Divide among the Bhutanese Refugee Community during COVID-19: Engaged Research in Action", *International Journal of Environmental Research and Public Health*, vol. 19, no. 24, p. 16 854, Dec. 2022. DOI: `10.3390/ijerph192416854`. [Online]. Available: `https://doi.org/10.3390/ijerph192416854`.

[142] C. McMullin, "Migrant integration services and coping with the digital divide: challenges and opportunities of the COVID-19 pandemic", *Voluntary Sector Review*, vol. 12, no. 1, pp. 129–136, Jan. 2021. DOI: `10.1332/204080520x16076177287917`. [Online]. Available: `https://doi.org/10.1332/204080520x16076177287917`.

[143] N. Ahmed, M. Tasmin, and S. M. N. Ibrahim, "Technology for empowerment: Context of urban Afghan women",
Technology in Society, vol. 70, p. 102 058, Jun. 2022.
DOI: `10.1016/j.techsoc.2022.102058`. [Online]. Available: `https://doi.org/10.1016/j.techsoc.2022.102058`.

[144] E. J. Helsper,
Digital inclusion: An Analysis of Social Disadvantage and the Information Society.
Jan. 2008.
[Online]. Available: `https://www.researchgate.net/publication/41308950_Digital_Inclusion_An_Analysis_of_Social_Disadvantage_and_the_Information_Society`.

[145] E. Van Laar, A. J. A. M. Van Deursen, E. J. Helsper, and L. S. Schneider, "Developing performance tests to measure digital skills: Lessons Learned from a Cross-National perspective",
Media and Communication, vol. 13, Dec. 2024.
DOI: `10.17645/mac.8988`. [Online]. Available: `https://doi.org/10.17645/mac.8988`.

[146] H. Lee, M. K. Park, and Y. J. Cha, "Digital Divide and Life Satisfaction among Married Immigrant Women in Korea",
Asian Women, vol. 37, no. 4, pp. 69–97, Dec. 2021.
DOI: `10.14431/aw.2021.12.37.4.69`. [Online]. Available: `https://doi.org/10.14431/aw.2021.12.37.4.69`.

[147] L. Kemppainen, S. Wrede, and A. Kouvonen, "Migrants face Barriers to Obtaining Electronic Identification: A population-based Study Among Older Russian-speakers in Finland",
Journal of Medical Systems, vol. 47, no. 1, Apr. 2023.
DOI: `10.1007/s10916-023-01940-5`. [Online]. Available: `https://doi.org/10.1007/s10916-023-01940-5`.

[148] I. Paccoud, M. Baumann, E. L. Bihan, *et al.*, "Socioeconomic and behavioural factors associated with access to and use of Personal Health Records",
BMC Medical Informatics and Decision Making, vol. 21, no. 1, Jan. 2021.
DOI: `10.1186/s12911-020-01383-9`. [Online]. Available: `https://doi.org/10.1186/s12911-020-01383-9`.

[149] Ministerie van Algemene Zaken,

Aankomst, registratie en verblijf van vluchtelingen uit Oekraïne,
Jun. 2025.
[Online]. Available: `https://www.rijksoverheid.nl/onderwerpen/opvang-vluchtelingen-uit-oekraine/aankomst-verblijf-en-registratie`.

[150] H. Schmeets and L. Cornips,
Talen en dialecten in Nederland,
Jul. 2021.
[Online]. Available: `https://www.cbs.nl/nl-nl/longread/statistische-trends/2021/talen-en-dialecten-in-nederland?onepage=true`.

[151] Rijksoverheid,
Hulp bij verbetering digitale vaardigheden,
Nov. 2023.
[Online]. Available: `https://www.rijksoverheid.nl/onderwerpen/laaggeletterdheid/hulp-bij-verbetering-digitale-vaardigheden`.

[152] Cambridge Dictionary,
"Technology",
In
Jun. 2025.
[Online]. Available: `https://dictionary.cambridge.org/dictionary/english/technology`.

[153] S. Kisa and A. Kisa, "Can digital storytelling improve health outcomes for immigrant and refugee populations? A scoping review",
BMC Public Health, vol. 25, no. 1, Mar. 2025.
DOI: `10.1186/s12889-025-22209-1`. [Online]. Available: `https://doi.org/10.1186/s12889-025-22209-1`.

[154] C.-C. Lin, N. J. Li, and E. Lee, "Exploring the intersections of immigrant seniors' digital literacies and social connectedness: a Canadian study",
Frontiers in Education, vol. 8, Sep. 2023.
DOI: `10.3389/feduc.2023.1250240`. [Online]. Available: `https://doi.org/10.3389/feduc.2023.1250240`.

[155] G. Netto, L. Baillie, T. Georgiou, *et al.*, "Resilience, smartphone use and language among urban refugees in the Global south",
Journal of Ethnic and Migration Studies, vol. 48, no. 3, pp. 542–559, Jun. 2021.

DOI: 10.1080/1369183x.2021.1941818. [Online]. Available: https://doi.org/10.1080/1369183x.2021.1941818.

[156] M. Potocky, "Role of digital skills in refugee integration",
The International Journal of Information Diversity Inclusion (IJIDI), vol. 5, no. 5, Mar. 2022.
DOI: 10.33137/ijidi.v5i5.37514. [Online]. Available: https://doi.org/10.33137/ijidi.v5i5.37514.

[157] E. Tour, E. Creely, and P. Waterhouse, ""It's a Black Hole . . .": Exploring Teachers' Narratives and Practices for Digital Literacies in the Adult EAL Context",
Adult Education Quarterly, vol. 71, no. 3, pp. 290–307, Feb. 2021.
DOI: 10.1177/0741713621991516. [Online]. Available: https://doi.org/10.1177/0741713621991516.

[158] T. Cunningham, C. Murray, J. T. Du, N. Evans, and T. Ziaian, "Digital technology uses, purposes, barriers and training programs for culturally and linguistically diverse older adults: a systematic scoping review",
Aslib Journal of Information Management, Apr. 2024.
DOI: 10.1108/ajim-07-2023-0257. [Online]. Available: https://doi.org/10.1108/ajim-07-2023-0257.

[159] E. Creely and M. Henderson,
Artificial intelligence and the digital dis/empowerment of migrant and refugee learners.
Jan. 2025,
Pp. 47–64.
DOI: 10.4324/9781003422891-5. [Online]. Available: https://doi.org/10.4324/9781003422891-5.

[160] L. Baldassar, R. Wilding, L. Krzyzowski, and J. Mihelcic,
Digital citizenship for older migrants in Australia: the need for a comprehensive policy framework.
Jan. 2022,
Pp. 139–160.
DOI: 10.1007/978-3-030-94122-2\{_}7. [Online]. Available: https://doi.org/10.1007/978-3-030-94122-2_7.

[161] Ministerie van Onderwijs, Cultuur en Wetenschap,
Webarchivering Rijk (afgerond),

Mar. 2024.

[Online]. Available: `https : / / www . informatiehuishouding . nl / projecten / webarchivering-rijk`.

[162] Ieder(in),
Ondanks wettelijke verplichting maar 6 procent overheidswebsites volledig toegankelijk,
Sep. 2024.
[Online]. Available: `https : / / iederin . nl / te - weinig - overheidswebsites - volledig-toegankelijk/`.

[163] Overheid.nl,
wetten.nl - Regeling - Tijdelijk besluit digitale toegankelijkheid overheid - BWBR0040936,
Jul. 2018.
[Online]. Available: `https://wetten.overheid.nl/BWBR0040936/2018-07-01`.

[164] T. Doorenbosch,
Bijna helft overheidswebsites voldoet aan wet,
Apr. 2025.
[Online]. Available: `https://www.binnenlandsbestuur.nl/digitaal/bestuurscultuur/ bijna-helft-overheidswebsites-voldoet-aan-wet`.

[165] Digital state,
DIIA.
[Online]. Available: `https://expo.diia.gov.ua/#about-diia`.

[166] M. Danyliuk, M. Dmytryshyn, and T. Goran, "Digitisation of Ukraine in terms of public electronic services' distribution",
Scientific Horizons, vol. 24, no. 7, pp. 90–99, Dec. 2021.
DOI: `10.48077/scihor.24(7).2021.90-99`. [Online]. Available: `https://doi. org/10.48077/scihor.24(7).2021.90-99`.

[167] TIAS,
Cultural differences between Asia and The Netherlands,
Feb. 2020.
[Online]. Available: `https://www.tias.edu/en/news-and-articles/item/ cultural-differences-between-asia-and-the-netherlands`.

[168] A. Yaman, J. Mesman, M. H. Van IJzendoorn, M. J. Bakermans-Kranenburg, and M. Linting, "Parenting in an Individualistic Culture with a Collectivistic

179

Cultural Background: The Case of Turkish Immigrant Families with Toddlers in the Netherlands",
Journal of Child and Family Studies, vol. 19, no. 5, pp. 617–628, Jan. 2010.
DOI: `10.1007/s10826-009-9346-y`. [Online]. Available: `https://doi.org/10.1007/s10826-009-9346-y`.

[169]   J. Aldridge, "Working with vulnerable groups in social research: dilemmas by default and design",
Qualitative Research, vol. 14, no. 1, pp. 112–130, Aug. 2012.
DOI: `10.1177/1468794112455041`. [Online]. Available: `https://doi.org/10.1177/1468794112455041`.