

**Designing**

**For**

**Literacy**



Photograph on cover:  
The garden library for refugees  
and migrant workers in Tel  
Aviv designed by Yoav Meiri  
Architects. Photograph made by Y.  
Meiri retrieved on 31st of October  
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# Designing for Literacy

## *Architecture as a tool for literacy in Rotterdam-Zuid*

*[Keywords: Low literacy, Rotterdam-Zuid, literacy development, basic skills, Feijenoord, social inclusion, wicked problem]*

## Colophon

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Low literacy remains a persistent societal challenge, particularly in disadvantaged urban areas like Feijenoord, Rotterdam, where 36% of adults struggle with basic reading and writing. This research explores the potential role of architecture and the built environment in enabling literacy development. Through a combination of literature review, demographic analysis, interviews, and observations, this research aims to investigate if built facilities in Rotterdam-Zuid can promote and enable the development of literacy among residents to contribute to a more inclusive and destigmatizing society.

The findings reveal that existing literacy-promoting amenities in Feijenoord, such as community centers and libraries, face challenges related to visibility, accessibility, and stigma. Insights from interviews with low-literate individuals highlight the importance of multifunctional, inviting, and destigmatizing environments. Transparent entrances, clear signage, and a welcoming atmosphere can significantly reduce psychological barriers and encourage participation. The study also emphasizes the potential of multifunctional accommodations (MFAs) and camouflage learning, where literacy development is seamlessly integrated into everyday activities such as sports, cooking, and social interactions.

This research concludes that architecture, when thoughtfully designed, can contribute to enabling literacy by creating engaging, accessible spaces that support informal and formal learning. By leveraging spatial design strategies that prioritize inclusion, cities can empower low-literate individuals and foster more just urban environments.

**Keywords:** *Low literacy, basic skills, Feijenoord, literacy development, social inclusion, wicked problem*

A pivotal moment sparking my fascination in this research occurred on Sunday, September 8, 2024, while watching the NOS news. It was announced that, starting that day, “The news in easy language” would be broadcast daily, especially aimed at the 2.5 million adults in the Netherlands who have difficulty with the Dutch language (NOS, 2024). This news made me realize the extent of low literacy in our country, a challenge affecting 1 in 5 residents in my city of Rotterdam alone. It struck me that I likely encounter people facing this struggle daily without being aware of it. This insight opened my eyes to the importance of making information, services, and environments more accessible to everyone, regardless of language or literacy skills.

My experience with dyslexia has given me a personal perspective on language challenges. Dyslexia has impacted my confidence, particularly in academic settings where strong reading and writing skills in both Dutch and English are expected.

As an aspiring architect, I am driven by a personal ambition to help build a more inclusive and equitable society. Realizing that architecture, my passion, can play an important role in bridging this gap has only strengthened my dedication to this mission. Through the design of inclusive spaces, I hope to contribute to a world where everyone can navigate, access, and fully benefit from the built environment.

The social dimension of this research has been a big source of motivation for me. Speaking with two experts with firsthand experience of low literacy was especially impactful, this project would not have reached the same depth without their openness and trust in sharing their stories. I am sincerely grateful to them. These valuable connections were made possible through Inge Hootsmans from Eindhoven Engine, to whom I also extend heartfelt thanks. I am equally thankful to all the individuals I had the opportunity to interview; your insights were invaluable.

Special thanks to Alexandra Karmanova and Hendrik Posthouwer from the Municipality of Rotterdam for letting me take part in the workshops for De Persoonsdam. Being involved in a real, ongoing case gave my research and design a strong foundation and made the whole process feel more grounded and relevant.

Finally, a warm thank-you to all my mentors. Otto Trienekens and Andrea Fitskie from the Veldacademie, thank you for introducing me to new ways of thinking about the role of architecture and for guiding me through practice-based research. Wing Yung, thank you for your thoughtful support throughout the design process. Machiel van Dorst, my graduation studio supervisor, thank you for being there at the start and for your support along the way. And a special thanks to Leo Oorschot for your consistent support throughout the entire research phase.

I wish you an inspiring read.

*Siti Brandts*



Photograph  
Rotterdam aerial view  
vannuit en zuidelijk  
perspectief met Feijenoord  
rechtsonder gelegen  
Photographer Haven bedrijf  
Rotterdam (n.d.) retrieved on  
21st of February 2025, from  
Port of Rotterdam.

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**Literacy** is a core component of the right to education as recognised by the Universal Declaration of Human Rights. The right to literacy supports the pursuit of other **human rights**.

UNUESCO (2013)

Chapter 1

# ***Introduction***

## 1.1 The Landscape of Low Literacy in Rotterdam

In Rotterdam, as much as 21% of the adult population (16 to 65 years) struggles with reading and writing on a sufficient level, representing one in five residents with low literacy that limits their full participation in society (Gemeente Rotterdam, n.d., 2016a). Low literacy affects not only individual lives but also broader society, as people with limited literacy skills often face additional challenges such as increased risk of poverty, social isolation, and health problems (Kleffens & Smit, 2016; Pointer, 2023; Stichting Lezen & Schrijven, 2018b). They are also more vulnerable to the effects of migration, climate change, and economic instability (UNESCO Institute for Lifelong Learning, 2013), all contributing to a lower quality of life.

“...1 in 5 low-literate people live below the poverty line for at least 1 year.” – Gemeente Rotterdam (n.d.)

Literacy is not only essential for individual development but also for a well-functioning society. In the context of the Environmental Act, participation is a cornerstone of urban transformations, but effective involvement requires that residents can read and write. In neighborhoods with high levels of low literacy, such as Feijenoord, this can limit residents’ input and influence on their physical living environment, contributing to spatial inequality.

Within Rotterdam, the prevalence of low literacy varies considerably by neighborhood, with especially high rates in socioeconomically disadvantaged areas such as Rotterdam-Zuid (Dulk et al., 2023; Gemeente Rotterdam, 2016a). In the Feijenoord district, for example, as many as 36% of adults are low-literate (Gemeente Rotterdam, 2016a). This disparity underscores the urgent need for targeted interventions in such neighborhoods to equip residents with the skills needed for an active and engaged life. Feijenoord is particularly relevant to this study because of its high rate of low literacy and diverse demographic composition. This study examines how the built environment in Feijenoord can help foster literacy and offers insight into how spatial interventions can help address low literacy in vulnerable urban areas.



**Figure 1**  
Percentage of low literacy per area in Rotterdam (Gemeente Rotterdam, 2016)

## A national challenge

Although Rotterdam leads the statistics, low literacy is a major problem throughout the Netherlands. Nationwide, 12% of adults, about 2.5 million people, are low-literate, 65% of whom are native speakers of Dutch (Gemeente Rotterdam, 2016a; Kleffens & Smit, 2016; Pointer, 2023; Stichting Lezen & Schrijven, 2018b).

*'Low literacy in the Netherlands is on the rise and is a multifaceted problem.'*

*(Van Klei en Smit, 2016)*



**Figure 2**  
Percentage of low literacy by municipality (ROA, 2016)

*'The social costs of low literacy in the Netherlands are approximately €1.13 billion per year.'* - Stichting Lezen & Schrijven (2018)

This raises the question of why a developed and prosperous country such as the Netherlands still faces a significant low literacy problem. The rise in low literacy can be attributed to three main factors. First, we are dealing with an aging population; as people age, their cognitive ability decreases and with it their language skills, making especially those with already limited language skills more vulnerable to low literacy. The second cause is that the language skills of Dutch youth are drastically declining. Research shows that only 31% of students enjoy reading and 17.9% (15 years old) are at increased risk of becoming low-literate (Kleffens & Smit, 2016; Pointer, 2023; Stichting Lezen & Schrijven, 2018b). The third cause is migration: a growing number of people are coming to the Netherlands with limited reading and writing skills in their own language (foundation and pointer). To combat low literacy, the Dutch government has set up the "Tel mee met Taal" action program. Through this, funding is provided to municipalities and employers can apply for subsidies for language and literacy programs. Together with organizations such as the Reading and Writing Foundation, libraries and volunteers, training is offered to help people improve their language and digital skills (Ministerie van Onderwijs, 2013).

*‘Poor literacy skills are probably affecting more people in Europe than governments are aware of. Most European countries have simply assumed that everyone who passes through compulsory education will be equipped with adequate literacy skills. However, various surveys have shown that this cannot be taken for granted.’*  
(UNESCO, 2023, p18)

### **Low literacy as a global challenge**

Low literacy is not just a challenge in the Netherlands, it is a global problem affecting millions of people. Despite literacy being recognized as a fundamental right in the Universal Declaration of Human Rights (UNESCO Institute for Lifelong Learning, 2013), approximately 763 million youth and adults worldwide still struggle with simple reading, writing and math skills (Hanemann, 2023; UNESCO Institute for Lifelong Learning, 2016). This lack of literacy limits personal development but also hinders economic progress, social stability and sustainable development of a country.

Literacy is essential to enable people to pursue other rights and freedom. As philosopher Amartya Sen asserts, literacy enables individuals to make informed life choices and Paulo Freire, an influential educator and pedagogue, emphasizes that literacy enables individuals to understand and shape the world around them (UNESCO Institute for Lifelong Learning, 2013, 2022).

In our current society, in a digital age where information is increasingly or even solely provided online, literacy and digital proficiency are crucial for full participation in society. Digitization and technological advances have increased the need for people to critically evaluate information and use knowledge from a variety of sources (Hanemann, 2023; Stichting Lezen & Schrijven, 2018b; UNESCO Institute for Lifelong Learning, 2013, 2016). However, this poses a major challenge for people who struggle with literacy and digital skills. The 2030 Agenda for Sustainable Development further emphasizes the importance of lifelong learning and recognizes literacy as an ongoing process that affects all areas of life, from work and health to citizenship and digital engagement (Hanemann, 2023; UNESCO Institute for Lifelong Learning, 2016). Achieving these goals requires accessible and inclusive learning opportunities for all.

### Definition wicked-problem

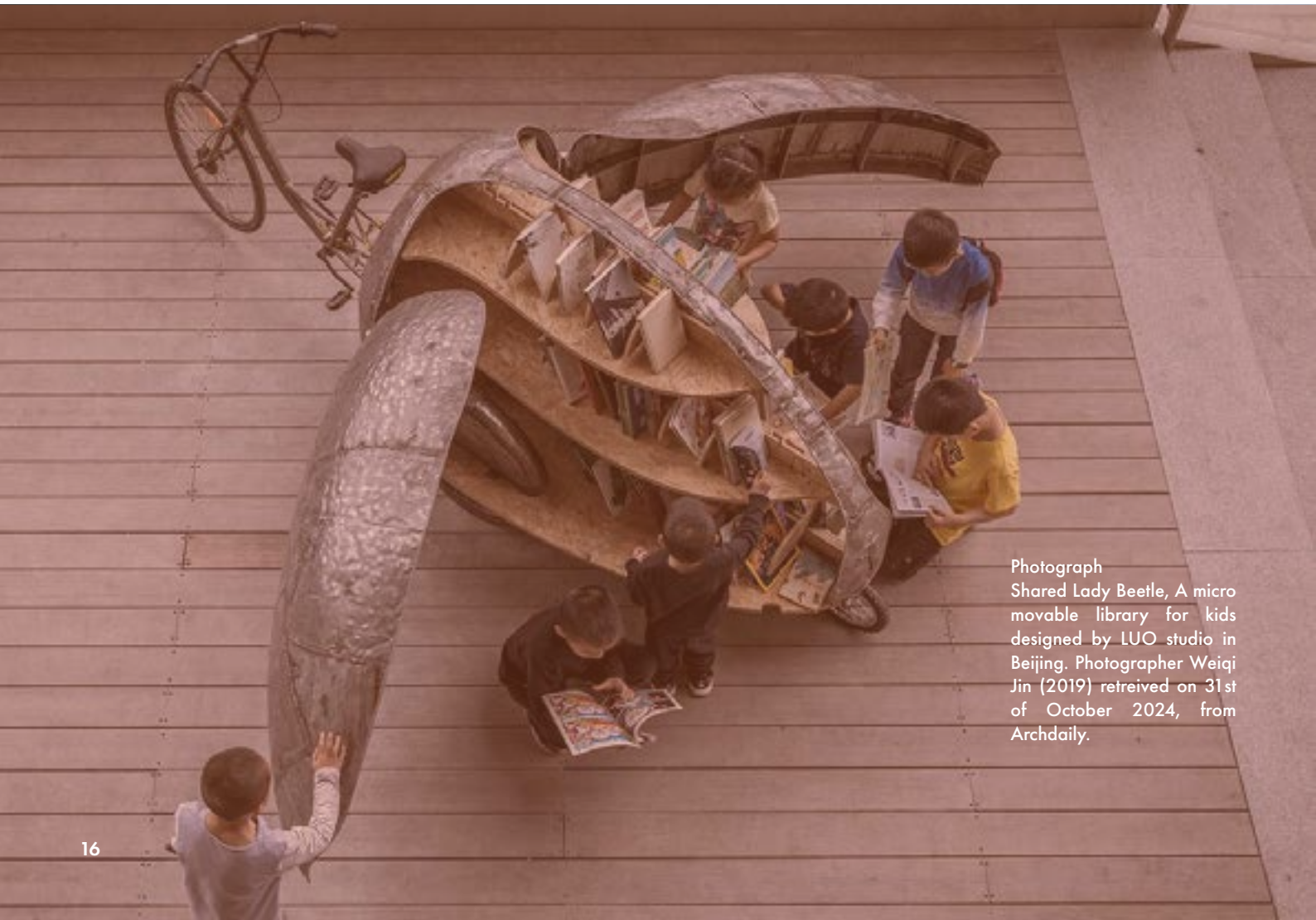
A wicked problem, as mentioned by Wong, is “a social or cultural problem that is difficult or impossible to solve because of its complex and interconnected nature. Wicked problems lack clarity in both their aims and solutions, and are subject to real-world constraints which hinder risk-free attempts to find a solution” (Wong, 2023).

### A wicked problem

Low literacy in the Netherlands remains a persistent, complex social issue, or so-called “wicked problem”. The number of low-literate adults continues to grow, despite concerted efforts by municipalities, civil society organizations, and volunteers. Addressing this problem remains difficult because those affected are often a hard-to-reach group due to stigmas and social barriers that prevent them from seeking help.

As contributing factors, such as an aging population, migration, and language deficiencies among youth, continue to increase, it becomes clear that traditional educational interventions may be too limited in scope. However, current approaches to low literacy may be too limited to address the complexity of the problem. Experts such as M&G doctors Van Klei and Smit (2016) argue that more diverse and innovative approaches are needed.

It is therefore essential to explore broader solutions, including those that go beyond traditional educational techniques. One area often overlooked is the potential role of architecture and the built environment to contribute to solving complex social challenges such as low literacy. This research aims to investigate if built facilities in Rotterdam-Zuid can promote and enable the development of literacy among residents to contribute to a more inclusive and destigmatizing society.



Photograph  
Shared Lady Beetle, A micro  
movable library for kids  
designed by LUO studio in  
Beijing. Photographer Weiqi  
Jin (2019) retrieved on 31st  
of October 2024, from  
Archdaily.

## 1.2 Research questions

Main research question:

*“Can built facilities, for example in Feijenoord, enable the development of literacy skills among people with limited basic skills?”*

Sub-questions:

1. Which amenities in Feijenoord and its surroundings are currently contributing to promoting literacy development?
2. How does the target group perceive and experience built facilities, considering the stigma surrounding this issue?
3. What kind of amenities attract and support the target group in improving their literacy skills?

## Definitions

### **Built facility**

Building facility means any structure, open area, or object that accommodates or is intended to accommodate residential, civic, commercial, industrial or mixed-use activities (Building Facility Definition, n.d.).

### **Literacy**

Literacy is the ability to read, write, understand, interpret, and create written and printed materials in various contexts, including personal, societal, and technological environments. It encompasses a range of skills—such as reading, writing, speaking, listening, and basic numeracy—and supports individuals in achieving personal goals, expanding their knowledge, and engaging actively within their communities and society. Literacy is also seen as a continuous process

of skill development that enables people to reach their potential and function independently in everyday life, meeting standards such as level 2F in the Language and Numeracy Framework in the Netherlands (Halewijn, et al., 2021; UNESCO Institute for Statistics, 2020).

### **Amenity**

A building, piece of equipment, or service that is provided for people’s comfort or enjoyment (Cambridge University Press, 2025).

## 1.3 Scope

### NT1

'Dutch as a first language' refers to adults who have Dutch as their mother tongue or low-educated non-native speakers who can hold a conversation and discussion in Dutch (at least level 2F) and need support in reading and writing (Stichting Het Begint met Taal, n.d.).

### NT2

Dutch as a second language. The term NT2 refers to the language education of people whose mother tongue is other than Dutch, where the purpose of this education is that they (further) acquire the Dutch language (Stichting Het Begint met Taal, n.d.).

This research focuses on the Feijenoord neighborhood in Rotterdam-Zuid, which has the highest percentage of low-literate residents. Feijenoord is also designated as a priority district under the National Program Rotterdam-Zuid (NPRZ), requiring additional care and funding (Marco Pastors et al., 2023). These factors make it an ideal focus area for this study.

The primary target group for this research is low-literate (young) adults aged 18 to 40, including both NT1 (Dutch as a first language) and NT2 (Dutch as a second language). This group has been identified by Hootsmans (2024) as particularly hard to reach. Unlike youth under 18, who are supported by the compulsory education system in the Netherlands, adults aged 18 and above face challenges in addressing their literacy skills independently (Hootsmans, 2024).

Excluded are individuals with intellectual disabilities (ZB), whose severe cognitive limitations prevent basic skills development, and those with mild intellectual disabilities (LVB), who fall outside the scope of basic skills support. Highly educated foreign nationals are also excluded, as their literacy level is generally high due to prior education.

## Definitions

### Basic skills

In adult education, basic skills refer to language, numeracy, and digital skills for low-educated adults. Language includes both Dutch as a native language and as a second language. With sufficient mastery of basic skills, an adult can navigate society independently. This person is self-reliant (Halewijn et al., 2021).

### Limited basic skills

Limited basic skills indicate a level below the required MBO2 level. Adults with limited basic skills often experience challenges in full social participation, which can have adverse consequences for themselves and society (Halewijn, et al., 2021).

Going forward, this study uses the term "basic skills" instead of "low literacy," because basic skills include digital skills and has a less stigmatizing connotation.

	Low-literate		Not low-literate		
<b>NT1</b> Dutch as first language	Illiterate	1F	2F	3F	4F
<b>NT2</b> Dutch as second language	A0	A1-A2	B1	B2	C1-C2
Similar level of education		End of elementary school	End vmbo and mbo 1,2,3	End mbo-4 or havo	End vwo-hbo/wo

Figure 3

Language level reference framework language and mathematics in the Netherlands (Guo, et al., 2024).

## 1.4 Methodology

The research employs a diverse set of methods to address the main and sub-questions. These methods were not followed in a fixed sequence but were carried out partially simultaneously, often providing input for multiple research questions.

### Literature Review

A key component of the research is the literature review on illiteracy in general and the specific situation in the Netherlands, with a focus on Rotterdam-Zuid and the Feijenoord district. Academic papers and policy documents from national and local sources, such as publications from the Ministry of Education (2013), the Municipality of Rotterdam (2019, 2022), and the Rijnmond labor market region (2020), were consulted. In addition, international sources from UNESCO (2022) were included. Documents were collected using databases like WorldCat and Google Scholar.

### Demographic Analysis

To map the characteristics of the target group in Feijenoord, the Neighborhood Profile (Wijkprofiel, Municipality of Rotterdam, 2024), Health Mapped by the GGD Rotterdam Rijnmond (n.d.), and the Onderzoek010 platform (Municipality of Rotterdam, n.d.-b) sources were consulted. Semi-structured interviews with employees from the social development department of the Municipality of Rotterdam and members of the Feijenoord district council provided additional insights into the neighborhood and its target group.

### Observations

For the analysis of existing facilities aiming to enable literacy in Feijenoord, an overview was compiled based on the 'Word beter in Taal' map provided by the Municipality of Rotterdam (n.d.-c). Subsequently, these locations were visited, and unstructured observations were conducted. This method was chosen because of the vulnerable and hard-to-reach nature of the target group. Observations were focused on aspects such as accessibility, reachability, design, and usage of the facilities.

### Interviews

Various interviews were conducted with both preselected participants and individuals encountered spontaneously. Semi-structured interviews were held with a language policy and welfare advisors of the municipality, the director of Stichting Proteas, the chairperson of the Feijenoord district council, and a community manager from the Feijenoord district's Vuurplaat neighborhood living room (Huiskamer van de Wijk). Additionally, informal conversations were conducted with residents, a community manager of 't Klooster community

center, the manager of SOL, and an administrative assistant for Spanish-speaking residents. These conversations provided insights into the use of existing facilities and challenges related to low literacy in Rotterdam-Zuid, particularly in Feijenoord.

In addition to these interviews, two separate in-depth interviews were conducted with individuals from the target group on the Eindhoven University of Technology (TU/e) campus. These interviews were held there because the participants were connected to the study through Eindhoven Engine, with whom I made contact during the Dutch Design Week 2024. The participants reside in Eindhoven, and Eindhoven Engine is located on the TU/e campus. While the focus of the study is on Feijenoord, finding suitable respondents in Rotterdam proved challenging due to the sensitive nature of the topic. However, the insights collected are considered broadly representative, as experiences with built facilities tend to be universally applicable rather than specific to any one region.

During the interviews, participants followed a predetermined route under guidance, visiting locations that represented various spatial scales (neighborhood, building, interior). This approach allowed them to focus entirely on sharing their experiences without worrying about navigation. All interviews were conducted following the ethical guidelines of the Human Research Ethics Committee (HREC) of TU Delft. Participants were fully informed about the purpose of the study, and their anonymity is guaranteed.



Photograph  
Microlibrary MoKa by  
SHAU in Indonesia.  
Photographer Andreaswidi  
(2021) retrieved on 31st  
of October 2024, from  
Archdaily.

## 1.5 Reading guide

This research is structured into eight chapters, systematically working toward answering the main research question. The study begins with two foundational chapters that establish the necessary context for the subsequent analysis.

Chapter 2 provides an overview of low literacy, drawing on literature and interviews to define the concept, examine its impact, and explore the stigma associated with it. This chapter lays the groundwork for the rest of the research.

Chapter 3 examines the Feijenoord neighborhood, exploring its history, demographics, and links to low literacy challenges, which is essential to understanding the complexity of the issue in this specific neighborhood.

Chapter 4 addresses the first research question: Which amenities in Feijenoord and its surroundings are currently contributing to promoting literacy development? It begins with an overview of Rotterdam's language policy before analyzing four key locations in Feijenoord and nearby areas where language lessons are offered, based on personal observations.

Chapter 5 addresses the second sub-question: How does the target group perceive and experience built facilities, considering the stigma surrounding this issue? Insights from interviews with two individuals from the target group are summarized and categorized into themes and three different scales, highlighting their perspectives, experiences, and the barriers they face.

Chapter 6 answers the third sub-question: What kind of amenities attract and support the target group in improving their literacy skills? This chapter explores what type of built facilities and functions can better engage and assist individuals with limited basic skills, fostering their language development. It emphasizes the synergy between building functions and how they can work together to enhance literacy growth.

Chapter 7 presents a summary of key findings and a discussion of the research outcomes.

Chapter 8 translates these insights into practical design guidelines, offering recommendations for architectural design that support literacy development.

## Chapter 2

# ***Low-literacy: a wicked problem***

This chapter delves into the complex issue of low literacy, first exploring what low literacy entails and then examining its impact on the lives of individuals with limited basic skills. It provides insights into how such limitations can affect various aspects of people's lives.

## 2.1 Understanding low literacy

Low literacy refers to having limited skills in reading, writing, numeracy, and digital literacy. These basic skills are essential in everyday life, for example when understanding a leaflet, filling out a form, or operating digital devices. Without these skills, people can struggle to participate in society (Gemeente Rotterdam, 2019; Stichting Lezen & Schrijven, 2018).

In a society increasingly dependent on technology and online services, the challenges for low-literate people are growing. Many (government) services are only available digitally, which requires people not only to be able to use devices such as computers or smartphones but also to be able to find reliable information online and handle their data securely (Stichting Lezen & Schrijven, 2018).

According to Buisman et al. (2013) definition, literacy is ‘the ability to use printed and written information to function in society, achieve personal goals and further develop knowledge.’ The lack of these skills has major consequences for both individuals and society (van Klei-van Kleffens & Smit, 2016).

## 2.2 The impact of low literacy on daily life

Language empowers individuals across various aspects of life, but those with low literacy often face significant challenges. Their struggles extend to many areas of daily living and personal growth.

### 2.2.1 Health and well-being

Low literacy can have health-related consequences. People who have difficulty reading and writing often also have limited health skills. They have a limited understanding of medical information, which can lead to misuse of medication or unhealthy choices, such as smoking, excessive alcohol consumption, or unhealthy eating habits (Morrisroe, 2014). The consequences are serious: low-literate people have on average, a lower life expectancy and poorer overall health. In addition, they often experience difficulties in navigating the healthcare system, further limiting their access to adequate care (Gemeente Rotterdam, 2019; Morrisroe, 2014; Stichting Lezen & Schrijven, 2018).

### 2.2.2 Work, education, and financial

A good mastery of language, math, and digital skills is essential for labor market success (Morrisroe, 2014; Stichting Lezen & Schrijven, 2018). People with strong basic skills are more likely to be employed, earn more, and are less likely to be unemployed (Buisman et al.,

2013). In contrast, almost half of low-literate people in the Netherlands do not have a job (Stichting Lezen en Schrijven, 2024).

The lack of skills makes it harder to find and keep a job (Buisman et al., 2013; Gemeente Rotterdam, 2019; Stichting Lezen & Schrijven, 2018a). Moreover, digital skills are becoming increasingly important, putting further pressure on the position of working low literate. These developments are not only harmful to individuals but also to the economy. After all, well-trained and skilled workers contribute to economic growth and innovation (Gemeente Rotterdam, 2019; Stichting Lezen & Schrijven, 2018a).

Low literacy increases the risk of financial problems. About 100,000 people in the Netherlands live in poverty due to limited language skills. They often have difficulty understanding financial documents and do not know where to get help.

The lack of self-reliance often leads them to seeking help from the wrong organizations. After several failed attempts, many give up (I. Hootsmans, personal communication, 21 October 2024). This leaves them stuck in a vicious cycle of poverty and debt. This cycle also affects future generations, as children of parents with financial problems often inherit the same challenges (Gemeente Rotterdam, 2019; Stichting Lezen & Schrijven, 2018a).

*'Low literacy is associated with poverty, as adequate literacy skills are a prerequisite for obtaining and maintaining a stable financial situation. But poverty can also lead to low literacy and this in turn leads to worse poverty. This vicious circle must be prevented[.]'*

*(Gemeente Rotterdam, 2019)*

### **2.2.3 Social Impact**

Low literacy significantly affects social cohesion, civic participation, and future generations. People with limited literacy often struggle to engage in their communities and feel isolated, reducing their involvement in volunteer work or political activities. This lack of participation weakens community development and social bonds (Movisie, 2020; National Literacy Trust, 2022).

The impact of low literacy often extends to future generations. Children of parents with low literacy are more likely to face similar challenges, not due to a lack of intelligence but because of limited access to resources, support, and educational opportunities. This intergenerational cycle of low literacy perpetuates inequality and restricts social mobility (Gemeente Rotterdam, 2019; Movisie, 2020; Stichting Lezen & Schrijven, 2018a).

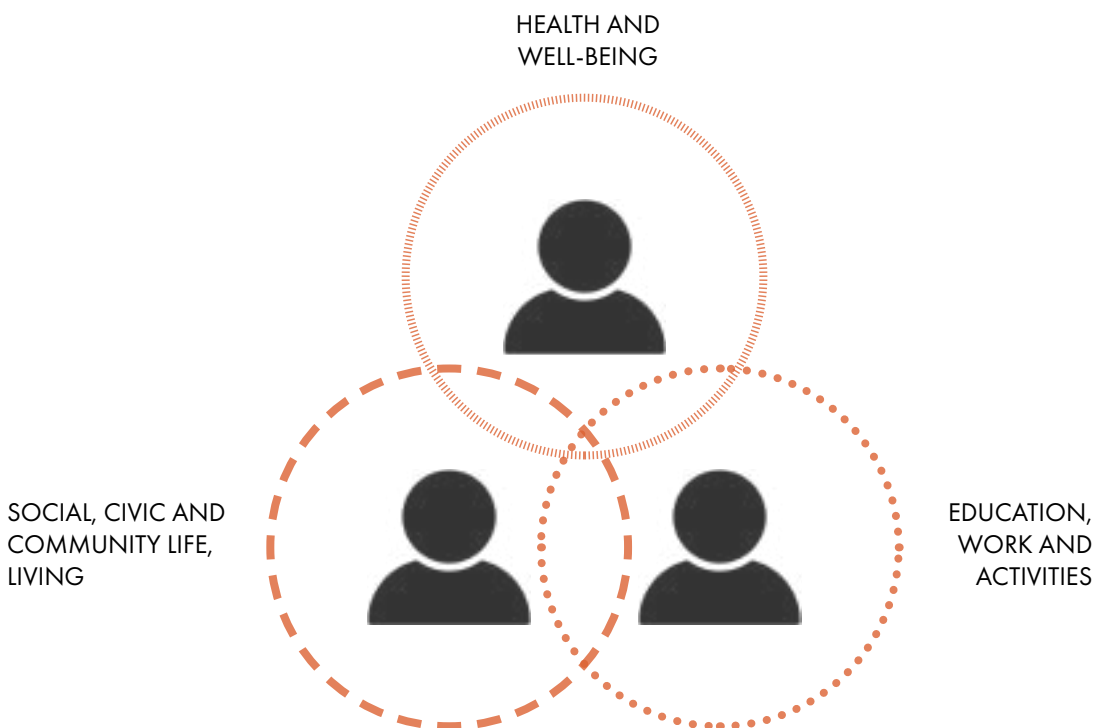
*‘Many people are ashamed of their language and financial problems, which leads to stress, health problems, and loneliness, among other things[.]’*

*(Stichting Lezen & Schrijven, 2018a)*

### 2.2.4 The stigma surrounding low literacy

The stigma associated with low literacy is shaped by the social expectation that everyone must meet a socially determined standard of literacy and education. People with low literacy are often labeled as ‘unproductive’, ‘stupid’, or ‘socially dependent’ (Ross Adkins & Ozanne, 2005), leading to feelings of shame and failure (Movisie, 2020; Ross Adkins & Ozanne, 2005; Stichting Lezen & Schrijven, 2018a). Many low-literate people feel personally responsible for their situation, which increases their shame (Ross Adkins & Ozanne, 2005). To avoid this negative social assessment, they often hide their low literacy and use compensatory strategies, such as lying or depending on partners or children without being aware of this dependence. This taboo makes it difficult for them to seek help or participate in language training, keeping the economic gap between low literacy and the rest of society (Hootsmans, 2024). This shame, insecurity, and dependence form a vicious circle that hinders access to support and exacerbates the problem.

*‘Low literacy is a subject surrounded with shame[.]’*  
(Movisie, 2020)



**Figure 4**  
This diagram visually represents the impact of low literacy skills on various aspects of life. The overlapping circles illustrate how challenges in one area can affect others, emphasizing the interconnected nature of literacy and its critical role in achieving overall quality of life and self-sufficiency (made by the author, 2024).

## Chapter 3

# **Feijenoord**

Feijenoord has the highest low literacy rate in Rotterdam, 36% (Gemeente Rotterdam, 2016). Therefore, this study focuses specifically on this neighborhood. This chapter outlines the context of Feijenoord and provides an overview of its history, demographics, and social characteristics. This context is essential for understanding the relationship between the neighborhood and low literacy.

### 3.1 History of Feijenoord

Feijenoord is Rotterdam's first expansion district south of the Nieuwe Maas river. The district is bordered by old harbor areas such as the Binnenhaven in the west, the Koningshaven in the north, and the Nieuwe Maas in the east. During construction, the municipality invested little, resulting in low-quality housing. As a result, Feijenoord soon acquired the reputation of 'the city's drain,' with facilities such as a plague house, an orphanage, and a tannery.

Around 1970, many of the original buildings were demolished and replaced by social housing. The district developed from a port area to a residential area where housing and industry still converge. Companies such as Hunter Douglas are located there, but Feijenoord continues to struggle with liveability and resilience challenges (De Geschiedenis van Feijenoord, 2025; Gemeente Rotterdam, 2024).



**Photograph**

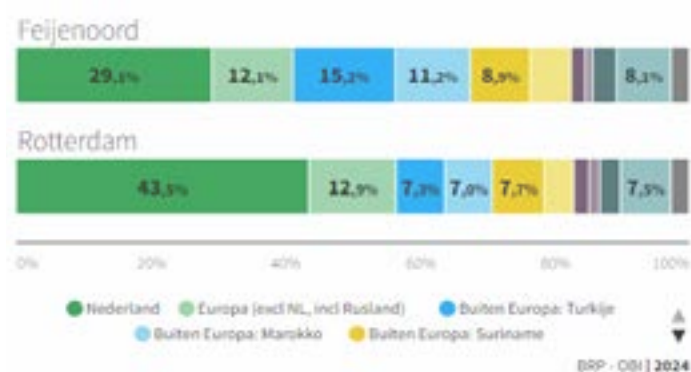
Feijenoord, Persoonshaven in circa 1920. Retrieved on 31st of October 2024 from Stadsarchief Rotterdam.

## 3.2 Demographic context

The demographic data of Feijenoord provides insight into the neighborhood's composition and is relevant for understanding its low literacy issues.

### 3.2.1 Population

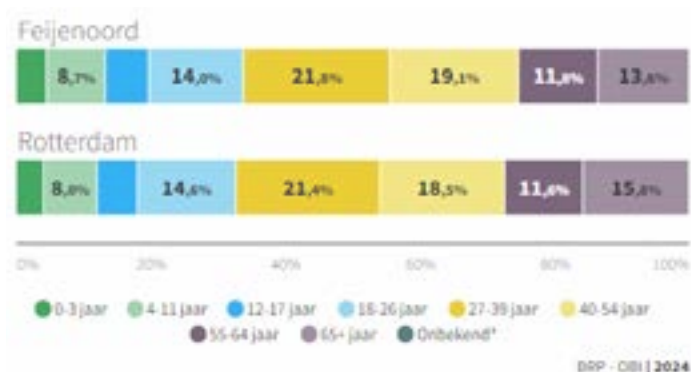
Feijenoord has a total population of 7.818 in 2024. The distribution across age groups shows that most residents fall in the 27-39 years category (21,8%), followed by 40-54 years (19,1%). Other age groups are 18-26 years (12,5%) and 65+ (13,6%). This distribution differs slightly from the average in Rotterdam, where the age distribution is somewhat less concentrated (Onderzoek010, 2024).



**Figure 5**  
Population by age group (onderzoek010, 2024)

### 3.2.2 Migration background

More than 80% of residents have a migrant background, mainly Turkish (19.9%) or Moroccan (17.3%). These percentages are significantly higher than the city's average (Onderzoek010, 2024). Close communities exist within the neighborhood, but interaction between different groups is limited, partly due to the neighborhood's spatial fragmentation (Gemeente Rotterdam, 2024).



**Figure 6**  
Population by origin (onderzoek010, 2024)

### 3.2.3 Households

In terms of households, single-person households make up 42.5% of households. Two-parent households make up 20.2%, while single-parent households account for 17.4% of households. Compared to Rotterdam, these percentages are respectively 17,0% and 10,2%, highlighting a significant difference (Onderzoek010, 2024).

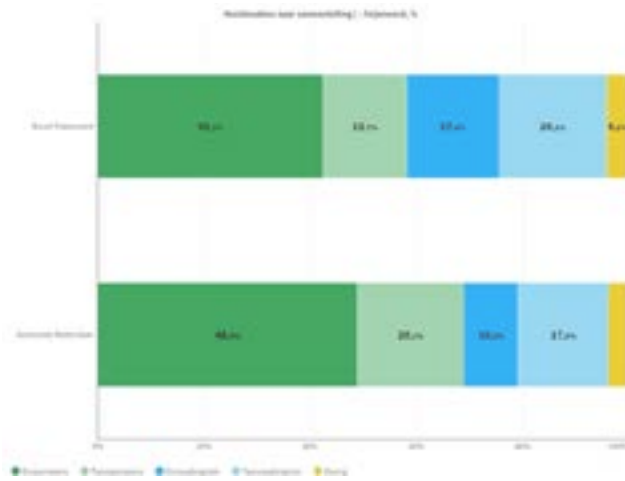


Figure 7 Household by composition (onderzoek010, 2024)

### 3.2.4 Education

A large proportion of the population (44%) has a low level of education (de Vos, 2023; van Dun, 2023). In 2024, 43% of young adults aged 18-22 do not have a starting qualification, significantly higher than the Rotterdam average of 32%. Among adults (aged 23-75), the percentage is also 43%, compared to 29% in the city (Gemeente Rotterdam, 2024). A starting qualification, defined as completing havo, vwo, or mbo-2 is considered the minimum level required in the Netherlands for full participation in the labor market or progression to further education. The lack of a starting qualification limits opportunities in the labor market and increases the likelihood of socio-economic disadvantage (Buisman et al., 2013; CBS, 2025).

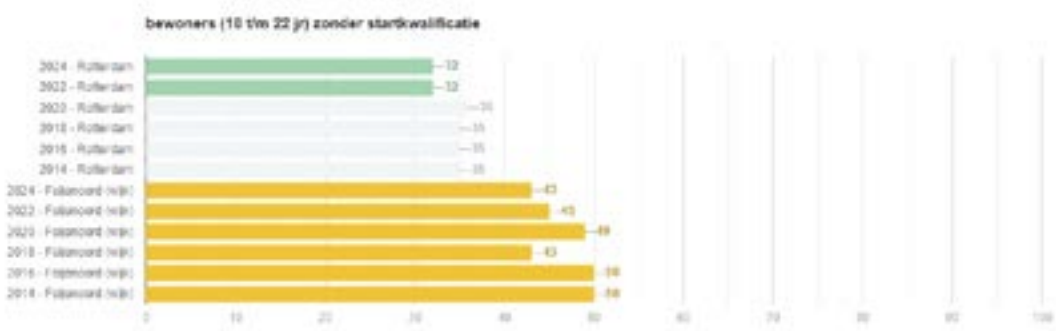


Figure 8 Residents (18 till 22 yrs) without starting qualifications (onderzoek010, 2024)

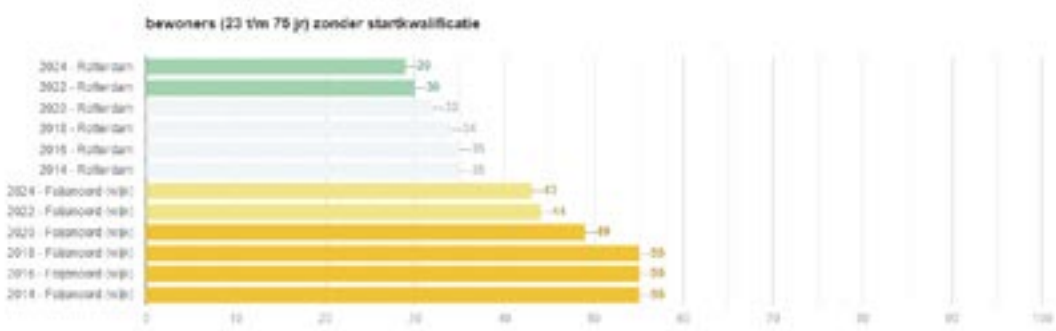


Figure 9 Residents (23 till 75 yrs) without starting qualifications (onderzoek010, 2024)

Although Feijenoord's dropout rate has declined over the past decade (as shown in the graphs above), this improvement is partially attributed to an influx of highly educated residents who have moved to Feijenoord in recent years (Gemeente Rotterdam, 2024; OnderzoekO10, 2024). This raises the question of whether the number of early school leavers has truly decreased or if the problem has become less visible. Despite this positive trend, educational disadvantage remains a significant challenge for the neighborhood.

### **3.2.5 Employment and Income**

Just 51% of residents aged 15-74 are employed, significantly lower than the city average of 64%. In addition, 32% of households live on an income just above the social minimum, compared to 17% in Rotterdam. The percentage of households dependent on welfare benefits (22%) is more than double the city average of 10 (Gemeente Rotterdam, 2024; OnderzoekO10, 2024).

## **3.3 Feijenoord and low literacy**

Low literacy is an urgent problem in the Feijenoord district, where 36% are low literate. The demographic, economic, and social characteristics of the district, described above, contribute to this problem.

### **3.3.1 Migration background and language**

The demographic composition is leading to a larger group of NT2 (Dutch as a second language). This is at odds with what is taking place nationally according to Tom Adriaanse. Although Dutch is the second language for many Rotterdam people (Gemeente Rotterdam, 2019), Feijenoord must also deal with NT1 (Dutch as a mother tongue), confirms neighborhood councilor Ed Arnold. Many residents' function within strong Turkish and Moroccan social networks, where they mainly speak their language. This reduces the need to learn and use Dutch. While this social 'bubble' provides support and connection it also limits opportunities to practice Dutch and improve language skills. The interviews highlight that when these safety nets fall away, residents quickly find themselves in difficulties, highlighting the vulnerability of this situation.

### **3.3.2 Social support and self-reliance**

Feijenoord is characterized by strong family and community ties. As district council member/resident of Feijenoord confirmed, there are high levels of solidarity. For instance, 82% of residents have weekly contact with family and 28% have regular contact with neighbors, slightly higher than the Rotterdam averages. Yet only 67% report receiving sufficient help from others, compared to 77% in Rotterdam (Gemeente Rotterdam, 2024). This is further supported by Yamina Keijser-Ghomriche, who notes in the interview that such issues are less commonly discussed within Turkish and Moroccan families. Moreover, the neighborhood scores significantly lower on self-reliance, with a value of 56 compared to the urban average of 93. This suggests that residents are more likely to struggle to navigate daily life independently, which may further reinforce low-literacy issues.

### 3.3.3 Education and Employment

The educational niche in Feijenoord plays a major role in the low literacy problem. The percentage without a starting qualification is very high. This contributes to limited opportunities in the labor market or further education and maintains a vicious circle of disadvantages.

In addition, only 51% are employed and the proportion of non-employed people and households on benefits is significantly higher than the urban average. Single-parent households (17.4%) face additional challenges, as possible time constraints and financial pressures can make it challenging to attend language classes or literacy programs.

### 3.3.4 Multi-problems

Low literacy in Feijenoord is closely intertwined with broader multi-problem issues, which is confirmed in several interviews. Many residents face overlapping challenges such as debt, unemployment, and health issues. For instance, 32% of residents experience health obstacles (compared to 24% in Rotterdam) and 15% often feel helpless when dealing with life problems (compared to 10% urban). As described in Chapter 2, low literacy is often linked to other challenges. These interconnected difficulties make it harder to identify and address specific needs, such as language proficiency, complicating interventions. In the interview, Yamina Keijser-Ghomriche noted that people often struggle to articulate their specific need for help.

### 3.3.5 Need for language support

Although 20% of Feijenoord residents report having difficulty speaking Dutch, and 23% and 24% have problems with reading and writing respectively, only 8% say they need language support, lower than the Rotterdam average of 10%. This discrepancy may be related to the reduced use of Dutch in daily life due to strong social networks within cultural communities. However, when individuals pursue independence or no longer have access to these networks/safety nets, they often encounter problems with basic skills, hindering their opportunities and integration.

*'It is therefore no coincidence that the Rotterdam neighborhoods with the highest percentages of low literacy also struggle with the most poverty. The same applies to life expectancy. Professor Burdorf from Erasmus MC demonstrated that life expectancy in these neighborhoods is significantly lower than in other parts of the city[.]'*

*(Gemeente Rotterdam, 2019)*

## Chapter 4

# **Key literacy spaces in Feijenoord**

This chapter addresses the question: *“Which amenities in Feijenoord and its surroundings are currently promoting literacy development?”* To provide context, a brief overview of the current literacy policy in Rotterdam will be provided. Following this, four key locations will be analyzed as notable formal examples of literacy promotion within and near the Feijenoord neighborhood, based on observations. The analysis will consider several spatial factors, including accessibility, classroom design, overall attractiveness, and the utilization of these facilities.

## 4.1 Language policy of the municipality of Rotterdam

Rotterdam acknowledges the serious issue of low literacy, with 21% of its residents struggling with reading and writing. This problem affects not only those directly involved but also the city. To address this, Rotterdam appointed the Netherlands' first language alderman in 2021 and developed a policy focused on prevention, early detection, and personalized support (T. Adriaanse, personal communication, 20 November 2024; Gemeente Rotterdam, 2019). This policy is implemented in collaboration with schools, libraries, and healthcare institutions and offers free language programs for all ages, linked to personal goals such as employment, health, or financial self-sufficiency (Gemeente Rotterdam, 2019).

The language policy is part of a broader regional approach within the Rijnmond labor market region (Gemeenten arbeidsmarktregio Rijnmond, 2020). In addition, the National Program Rotterdam-Zuid (NPRZ) ensures a long-term and consistent effort to combat low literacy in Rotterdam-Zuid, regardless of political changes. The focus on Rotterdam-Zuid is critical, as the issue is most pressing in this area (Marco Pastors et al., 2023).

Although the policy does not explicitly address the role of architecture, it does emphasize that existing organizations and facilities such as community centers, libraries, schools, sports venues, and care centers play an essential role in promoting literacy. These locations not only enhance the accessibility of language programs but also provide physical spaces that support learning and social interaction.

*'Language is not the goal but is a medium.'* –

*T. Adriaanse (2024)*

## 4.2 Amenities Supporting Literacy in and Close to Feijenoord



**Figure 10**  
Map showing locations of analyzed locations (made by the author, 2024).

### 4.2.1 Huis van de wijk De Dam: A neighborhood hub

Huis van de Wijk De Dam is a community hub offering activities, including language courses by SOL, and is the only location in the neighborhood Feijenoord providing language support.



**Photograph**  
Huis van de wijk De Dam in Feijenoord. Retrieved on 31st of October 2024 from SOL.

#### Location and accessibility

The center benefits from a central location in Feijenoord, situated on an open square surrounded by other social amenities, including a primary school, a sports hall, and a playground. This lively setting enhances its accessibility and appeal. A nearby bus stop further improves public transport access. However, despite large windows and a canopy at the entrance, the building's exterior does not feel particularly inviting.

### Spatial aspects

Inside, the atmosphere is warm and homely. However, the classroom, located on the first floor, is not directly visible, and there is no signage to guide visitors. This lack of visibility may leave potential participants unaware of the language lessons offered. The classroom itself features a minimalist design, with plain white walls and a large table, which, while functional, feels uninspiring. Additionally, the furniture is not particularly comfortable, making the space less inviting and potentially discouraging for those considering literacy classes at this location.

#### 4.2.2 Huis van de Vuurplaat

De Vuurplaat is a small community center that primarily serves older adults aged 60 and above. Language lessons are offered here through NL Training, but the classroom is modest in size and sparsely furnished. Beyond these lessons, there are limited activities available for other age groups, making it less appealing for a broader audience. A notable feature is the small book exchange library located near the building's entrance, which adds a touch of accessibility to reading materials.



#### Photograph

Huis van de wijk de Vuurplaat.  
Retrieved on 31st of October  
2024 from SOL.

#### 4.2.3 Huis van 't Klooster

Huis van de Wijk 't Klooster serves as a multifunctional community hub, combining various roles and activities. The building houses a neighborhood center, a theater hall, a small library corner focused mainly on children's books (often unstaffed), a kitchen, a school, a boxing gym, and a community hub. Language courses are offered here by SOL, alongside other programs.



#### Photograph

Huis van de wijk 't Klooster.  
Retrieved on 31st of October  
2024 from SOL.

### Location and accessibility

While Huis van de Wijk 't Klooster is conveniently located and easily reachable, it is not situated directly within the Feijenoord neighborhood. Residents must cross a busy road to reach the venue. Despite this, the location is popular and frequently visited. During observations, the space was bustling with activity, particularly young children with their mothers and elderly residents.

### Spatial aspects

The building itself is in poor condition, a fact acknowledged by the SOL manager. The interior lacks comfort and quality, making it a less welcoming environment for participants. The classroom for language lessons is situated on the first floor, down a long, dimly lit corridor. The space is uninspiring, with minimal natural light from small windows, and the furnishings are extremely basic and shabby. The overall atmosphere feels dark and unmotivating, with no comfort or visual appeal. Additionally, there is no visibility of the language lessons from other parts of the building, further isolating this activity from the broader functions of the center.

## 4.2.4 Library Feijenoord

A key initiative to promote literacy at this library is the Taalcafé. This program plays a central role in supporting language development and encouraging engagement with reading and language skills.



### Photograph

Library Feijenoord. Retrieved on 31st of October 2024 from De Bibliotheek Rotterdam.

### Location and Accessibility

Although the library is named after Feijenoord, it is not located within the Feijenoord neighborhood or even officially in its immediate surroundings. Its position across a busy road can pose a barrier for residents. Additionally, the distance may be an obstacle for some visitors, making regular visits more challenging. However, the library benefits from high visibility due to its prominent corner location along a busy street.

### Spatial aspects

The library is housed in a multifunctional building that includes medical, social, and cultural facilities. The glass facade gives the building an open and inviting character, ensuring that public functions, such as the library, are highly visible and easily accessible. Inside, various seating areas have been designed to encourage interaction and facilitate spontaneous encounters.

### 4.3 Conclusion

The current amenities in Feijenoord and its surroundings that contribute to promoting literacy development include community centers such as Huis van de Wijk De Dam, De Vuurplaat, and 't Klooster, as well as Bibliotheek Feijenoord. These facilities offer language programs and initiatives like language cafés and literacy courses, creating opportunities for skill development. However, challenges such as limited visibility of language activities, uninspiring and uncomfortable classroom designs, and accessibility barriers highlight the need for improvements in physical and spatial aspects. While these locations play a crucial role in literacy promotion, enhancing their appeal, comfort, and visibility can make them even more effective in fostering community engagement and reducing barriers for participants.

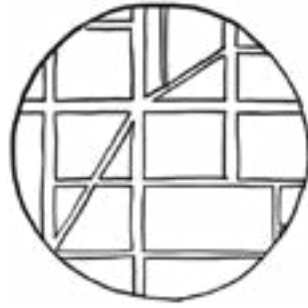
## Chapter 5

# **Experiencing architecture through the eyes of low-literate people**

This chapter examines how low-literate individuals perceive and experience the built environment, particularly in the face of stigma. It addresses the sub-question: *How does the target group experience built facilities given this stigma?*

To gain insight, two participants were interviewed, focusing on three scales: the neighborhood, the building, and the interior. The interviews took place independently on the TU/e campus in Eindhoven, chosen for its accessibility. This collaboration, facilitated through Eindhoven Engine during Dutch Design Week 2024, provided valuable perspectives despite the primary focus on Rotterdam's Feijenoord district.

A guided walking tour ensured open dialogue without navigation challenges. The findings, thematically organized, highlight key challenges low-literate individuals face in interacting with the built environment.



## 5.1 Neighborhood scale

This scale encompasses the broader context in which a person moves. Elements like layout, accessibility, public spaces, and the relationship between buildings shape how individuals navigate and feel about their surroundings. Clear wayfinding and logical urban organization are crucial for low-literate individuals to avoid confusion or exclusion.

### 5.1.1 Function mixing as a catalyst

Locations with multiple functions can generate curiosity and encourage participation. A location that combines different functions, such as a community center with sports activities and a café, provides an accessible and inviting environment. Combining functions allows users to observe the activities of others first, which increases curiosity and provides a sense of security. This facilitates informal interactions and casual participation in new activities, such as language classes.

*‘When different functions are combined in a building, such as sports and a library, it would make me more interested in the long term. Because I could observe the atmosphere of the library every time I go to exercise, for example. And it’s probably also very easy to approach someone and ask how it is there. So that would be added value for me. For instance, I could also ask my sports instructor, ‘Hey, I always see people there... do you know how I can join?’ This is much easier than having to look it up online myself[.]’ – Expert 1*

In addition, function mixing can reduce feelings of shame. When a location has multiple purposes, it feels less like going to a specific facility that may carry a certain stigma, such as a school for language lessons. This lowers the threshold and prevents a feeling of being judged by others. Multi-purpose buildings offer an inclusive atmosphere and invite users to discover what is possible in an approachable way.

Buildings with multiple functions are therefore less stigmatizing than single-purpose sites and offer more opportunities for interaction. They encourage residents to try new activities, thereby increasing accessibility and engagement.

*'This is also easier than having to go to a 'special' school because then people will immediately think, 'Oh, they're struggling with that!' When that's not the case, people won't think it's strange.'* – Expert 2

### **5.1.2 Inviting and transparent character**

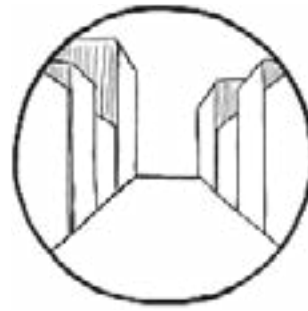
The interviews revealed that inviting and transparent building design plays an important role in promoting accessibility. A lack of windows or views of activities increases the threshold. As indicated by the experts by experience, this can lead to uncertainty about the function of the building and whether one is at the right address. This can then reinforce feelings of embarrassment and increase the threshold to enter. Transparency, such as a library where books are visible or a reception desk that immediately stands out using glass, increases recognition of a building's function.

### **5.1.3 Accessibility: lowering barriers**

The physical distance to a facility is considered less important when there is a strong intrinsic motivation to achieve a particular goal, as indicated by the experiencers. A willingness to travel may be present, provided the location adds value and is relevant to the user's personal goals.

However, this does not apply to everyone. In urban areas such as Rotterdam-Zuid, physical barriers, such as bridges or busy intersections/roads, can limit accessibility. Moreover, financial constraints, often associated with low literacy, may prevent people from having the means to use a means of transport or travel by public transport.

Accessibility also plays a role in lowering barriers to visiting facilities. An easily accessible location facilitates the process of participating in activities, which contributes to the success of these initiatives and user engagement.



## 5.2 Building scale

At this level, the design of individual structures comes into focus. Factors like entrance, signage, and overall functionality play a key role in how welcoming and intuitive a building feels. Buildings act as the intermediary between the larger neighborhood and the personal spaces inside them.

### 5.2.1 Entrance

A building's entrance acts as the building's advert and primarily determines whether visitors feel welcome and at ease. This first contact with the building can lower or raise the threshold, depending on how accessible and inclusive the entrance is. An accessible entrance, without obstacles such as high curbs, plays a role here. As expert 2 pointed out, "No one wants to cross a high curb to reach something, literally and figuratively." Long or unclear entrances, such as high steps, can discourage visitors because it takes extra time and effort. Every extra second can lead to doubt and uncertainty, as was said by expert 1, "Every second it takes is also a second I doubt I'm doing it right."

A poorly marked or unclear entrance increases the likelihood of confusion, which can lead to feelings of embarrassment or hesitation. The use of visual aids, such as colored elements to accentuate the entrance or clear signage, can overcome this problem. In addition, adding practical features, such as seating or a canopy at the entrance, can increase accessibility. These elements not only serve as a place to rest for a while or read the signage but also create an opportunity to gather courage or interact with others in an approachable way to possibly ask a question. This can reduce feelings of shame and being watched and condemned.

As discussed earlier, function blending can contribute to a lower threshold. However, in that case, it is even more important that the entrance is designed to be clear and accessible. If this is not the case, it only creates more confusion and therefore uncertainty, and separate entrances are preferred.

### 5.2.2 Visibility of functions

The visibility of functions within a building from the outside plays a crucial role in removing uncertainty and providing clarity and confirmation. Windows that offer an inside view help occupants quickly understand the building's functions. Seeing books in a library, for example, acts as reassurance, confirming that one is in the right place, and therefore lowers the threshold to enter.

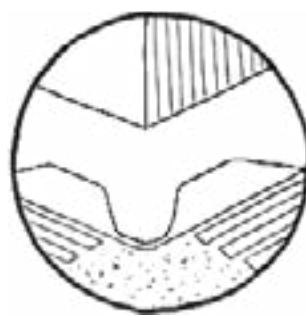
A clear and eye-catching logo also contributes to the building's recognizability. This can be enhanced using lighting, color, vertical placement, or visual elements such as icons that make the function of the building clear, e.g. a book for a library. This ensures that the logo does not 'get lost in a jumble of words, symbols, and signals, as one experienced expert emphasized.

### **5.2.3 Social functions**

Social functions in a building, such as a reception and an adjoining café or meeting area, play an important role in lowering barriers and creating an accessible atmosphere. Personal contact is essential here, as it is always the first point of contact for visitors with reduced basic skills. The reception should therefore be clearly visible and preferably located close to the entrance, so that it is easy to find, and visitors can be helped quickly. The lack of a direct point of contact can lead to frustration or even visitor departure, as was pointed out by expert 2, 'If I have to wait too long or don't see anyone at all, I'm just gone!'

*'For me, it's almost always the personal aspect of the person at the front desk that makes the difference.'* – Expert 1

In addition, a café or informal seating area near the entrance can contribute to a welcoming and relaxed atmosphere. This allows visitors to acclimatize for a while, gather courage, or even interact with others in a low-threshold way. The personal aspect of the person behind the reception desk is also very important, as this is often decisive for a positive experience. As was noted, 'For me, almost always the personal aspect of the person sitting at the front desk is the one that is the deciding factor.'



### 5.3 Interior scale

The interior deals with the most personal interactions people have with design. Elements like room layouts, furniture placement, and signage must support ease of understanding and use.

#### 5.3.1 Informal atmosphere

The interviews show that a homely and informal atmosphere is essential to lower the threshold for learning and promote social interaction. Both experts stress the importance of warm colors, cozy elements such as plants and decorations, and an arrangement that is not reminiscent of a traditional classroom. An arrangement where chairs are arranged in a circle or informally placed creates a more personal and safer atmosphere, as trainees and the teacher can look directly at each other. This promotes mutual contact and makes the environment less fraught. Large, bare spaces, on the other hand, are perceived as cold, impersonal, and discouraging.

*'You just don't have the space to be an adult individual who wants to learn something new. You're only given the space to be a student, but I'm not good at being a student. For me, learning and being a student are two different things[.]' – Expert 1*

Expert 1 says a cozy environment with murmurs helps her feel at ease, dare to ask questions, and feel less like she is being judged. Expert 2 adds that an informal, homely setting makes the atmosphere more accessible and pleasant. Both agree that a formal and school-like setting often evokes negative memories and can reinforce feelings of shame. For example, expert 1 says: "If it's in the living room, let's go. If it's this, really no mate. I've already been to school." Expert 2: "It is already quite a step to admit that you are behind, or that you are not that good at something and then you also must sit in a classroom like that which would then feel more embarrassing. If I look back to the past in school, I will think that's so boring... then I go back into the past... I already didn't have a good school, let's say." In contrast, a warm, informal space invites active participation and lowers the emotional threshold for learning.

### 5.3.2 Wayfinding

Unclear signage is a major barrier for people with reduced basic skills, as it often takes them more time to read and understand the information on signs. This can create feelings of embarrassment, especially in busy situations where they might cause a traffic jam, or someone bumps into them. Expert 1 indicates that these kinds of situations make her feel like a disruptor.

*'Yes, because then you don't have to keep stopping and looking. That's often a problem for me when it's busy somewhere, and there are signs up high. I'm walking, trying to read, and I need more time, especially when numbers and letters are combined. Left and right are also difficult for me. Very often, I cause a blockage, or someone bumps into me. And then you immediately feel like, 'See? It's my fault, something's gone wrong again[.]'*  
– Expert 1

It is therefore essential to make signage in a building simple and intuitive so that people with reduced basic skills feel more at ease. Both experience experts emphasize the use of color codes, pictograms, and short texts as effective tools. A color code, such as a line on the ground leading to a specific destination, is perceived as much more user-friendly than complex or inconsistent signs. This avoids confusion and reduces the need to constantly stop and search, which can be especially uncomfortable in crowded environments. Also, both prefer a limited number of clear directions rather than multiple separate signs. Marking functions or departments with different colors, such as a 'green zone,' makes orientation easier and accessibility significantly improved.

### 5.3.3 Use of color

The strategic use of color in buildings plays a crucial role in promoting orientation and accessibility for users. Expert experience shows that color not only helps create a pleasant and calming atmosphere but also has a positive impact on users' well-being by making them happier. Moreover, color can be used effectively to highlight specific interior elements, making the layout and structure of a building easier to understand.

*'Color is always calming and more pleasant, and people always feel happier with color[.]' –  
Expert 2*

In addition, color offers significant added value in signage and marking functions or departments within a building. Through color coding, these elements can be made more recognizable, which helps users orient themselves more easily. Visually distinguishing between different spaces and functions not only helps to improve navigation but also to increase the sense of confidence and comfort when exploring.

*'Using color in the handrail provides clarity. It allows me to immediately see, okay, I can go straight ahead, but there's also a twist in the staircase, and I can go back down the other side. So if I'm unsure if I should be here, I can walk halfway up to check[.]' – Expert 1*

### 5.3.4 Decoration

Decorative elements such as art, plants, and seating areas significantly enhance the accessibility and comfort of a space. Features like small exhibitions, cozy seating areas, and unique lighting create a welcoming atmosphere that helps users feel at ease. Expert 1 explains that spaces with displays or seating allow her to pause and gather her thoughts without feeling rushed or judged.

*'This is a pleasant entrance area because I can still look at something there (displays with exhibits) or I could sit here (café)[.]' – Expert 1*

Decorations also encourage interaction and connection. Exhibits or niches provide natural conversation starters, making it easier to engage with others in a low-pressure way. Additionally, features like art or plants give users time to relax and feel more comfortable while exploring or orienting themselves.

*'With a signpost or something like 'welcome,' I always find a bench or something like a statue or plant to be nice. Because then you can just look at it for as long as you want. No one will judge you for it[.]' – Expert 1*

Incorporating thoughtful decorations into interiors not only enhances the space aesthetically but also reduces emotional barriers, fosters inclusivity, and encourages positive experiences for all users.

## 5.4 Conclusion

People with limited literacy skills experience built environments through key factors such as accessibility, clarity, and the presence of welcoming non-stigmatizing features. Multifunctional buildings that combine different functions foster curiosity and reduce barriers by offering a low-threshold space for interaction and exploration. Transparent entrances, visible functions, and clear signage help alleviate confusion and create a sense of reassurance, encouraging participation. Informal, homely interiors with warm colors, decorations, and social spaces like reception areas or cafes further enhance comfort and reduce feelings of embarrassment or judgment.

At the neighborhood scale, fixed, recognizable locations and multifunctional spaces build trust and inclusivity. Inside buildings, clear navigation and inviting designs address practical and emotional needs, creating an atmosphere of support and belonging. Thoughtful, inclusive design strategies empower individuals to engage more freely with their surroundings, addressing the stigma associated with limited literacy and enabling meaningful connections within their communities.

## Chapter 6

# **Buildings with added value: promoting literacy through multifunctionality**

In this chapter, we examine which types of built facilities and functions can better support people with limited basic skills, attract them, and effectively help with their language development. By focusing on the synergy between functions within buildings, we explore how these can collectively stimulate language development. Synergy is defined as a collaboration that creates added value for all parties involved ('Synergie', 2024), strengthens the effect of amenities by combining functions and activities. This principle aligns with the goal of inclusive communities, where buildings and facilities play a key role in bringing people together and removing barriers (Uhlenbusch, n.d.).

The third sub-question, *"What kind of amenities attract and support the target group in improving their literacy skills?"*, is answered through literature research. Insights from earlier chapters highlight the need for accessible and inviting spaces that facilitate informal and integrated learning experiences. Multifunctional accommodations (MFAs) and the concept of camouflage learning play a central role.

## 6.1 Multifunctional Accommodations (MFAs)

Multifunctional accommodations are buildings where societal functions such as education, culture, sports, and care come together (Uhlenbusch, n.d.). This accommodation promotes inclusion by bringing different groups together and offering a wide range of activities. This contributes to the vitality and livability of a neighborhood (Otto, 2023). For people with limited basic skills, MFAs can create a low-threshold and accessible learning environment.

*'Facilities embedded in the local community add value to the neighborhood. They contribute to an 'inclusive society[.]'- Uhlenbusch (n.d.)*

### 6.1.1 The Value of MFAs

#### Accessibility

MFAs are often centrally located and feature shared spaces, reducing both physical and psychological barriers (SOURCE). This makes it easier for people with limited literacy skills to step into the facility and participate in activities.

#### Social Interaction

MFAs not only provide space for formal activities but also encourage spontaneous encounters and connections (Otto, 2023; Uhlenbusch, n.d.). Social interaction plays a significant role in the sense of belonging, which is crucial for personal development (Otto, 2023). For people with limited literacy skills, this social aspect can serve as a gateway to educational activities, without explicitly labeling them as learning.

#### Informal Learning Environments

MFAs provide a natural context for informal learning. Educational programs are intertwined with daily activities such as sports or cultural events. This reduces the threshold for participation and makes learning less intimidating.

### 6.1.2 Synergy within MFA's

One of the main advantages of MFAs is the synergy created by combining functions within one building (Gaasbeek, 2009). For example:

- A library in an MFA can collaborate with a sports center to organize language lessons during sports events, as in the “Samen in Beweging” program (Eyssen, 2020; Taalbom slaat twee vliegen in één klap met sportend Nederlands leren, n.d.).
- A general practitioner located in the same building can identify low literacy and refer individuals to a language program within the library (Otto, 2023).

These “cross-over” effects show how collaboration within MFAs provides innovative solutions for societal challenges (Otto, 2023), such as low literacy. By bringing together education, sports, culture, and care in one environment, MFAs lower barriers (BNetzwerk, 2024; Otto, 2023). This offers subtle and accessible learning opportunities for people with limited basic skills.



Photograph  
Odong Public Library by  
UnSangDong Architects in  
South Korea. Photographer  
Namgoong Sun (2023)  
retrieved on 31st of October  
2024, from Archdaily.

## 6.2 Camouflage learning

Camouflage learning is an approach where learning activities are integrated into everyday, informal contexts (Cultuur en Wetenschap Ministerie van Onderwijs, 2020; Leendertse, 2021). It makes learning less intimidating and more appealing for adults dealing with the stigma of low literacy or unaware of their limited skills, which can hinder their participation in society (Leendertse, 2021).

As Leendertse (2021) states: "You learn the language best when you're doing something else at the same time."

### 6.2.1 Architectural Integration of Camouflage Learning

To effectively support camouflage learning, built facilities can play a role. The physical space must be multifunctional and inviting, focusing on lowering barriers and encouraging informal interactions.

#### 1. Spaces for Integrated Activities:

Camouflage learning requires built facilities that bring together various functions in an inviting and flexible environment. For example, multifunctional accommodations (MFAs) can be designed with hybrid spaces where informal meetings and practical activities occur. Think of:

- A kitchen space that not only serves for cooking together but also subtly promotes literacy by having participants read recipes and create shopping lists (Cultuur en Wetenschap Ministerie van Onderwijs, 2020; Kolenburg, 2019).
- Workshops where manual skills are combined with simple instructions that require reading, such as following guides or safety posters (Leendertse, 2021).

By combining these spaces in one building, an environment is created where learning becomes a natural, daily activity. The design must be flexible enough to be adapted to a wide range of activities and target groups.

## 2. Spaces for Social Interaction:

Social interactions are a key component of camouflage learning. MFA designs can support this by creating places where people can meet informally:

- A neighborhood café that attracts people with a relaxed atmosphere and offers informal language workshops.
- Open workspaces: Shared tables and benches encourage group activities like cooking or crafting, where literacy is subtly promoted.

## 3. Practical Applications for Camouflage Learning:

The concept of camouflage learning offers concrete opportunities for architectural integration:

- **Kitchen Spaces and Community Meals:** In addition to social interaction, cooking together can be used to improve reading skills, such as discussing recipes and planning shopping lists.
- **Sports Activities and Language:** Sports halls and fitness spaces can be used for activities where instructions or game rules are explained in simple language, allowing participants to improve their language skills through play.
- **Gardening and Environmental Education:** A community garden can be designed as an educational space where participants learn about plants, sowing, and harvesting while applying reading and writing skills through informational boards or activity lists.
- **Performance Spaces:** Activities like spoken word or rap workshops offer low-threshold, creative ways to stimulate language development.

### 6.3 Conclusion

In exploring the synergy between multifunctional accommodations (MFAs) and the concept of camouflage learning, it becomes evident that the built environment plays a pivotal role in supporting people with limited literacy skills. MFAs, by combining various functions such as education, culture, sports, and care, create inclusive, low-threshold spaces that encourage social interaction and informal learning. These spaces not only reduce physical and psychological barriers but also foster a sense of community, vital for personal growth. The integration of educational activities with everyday life, as seen in camouflage learning, further reduces the intimidation associated with formal learning settings and makes literacy development more accessible and engaging.

By embedding learning opportunities in informal, everyday contexts, such as cooking, sports, or gardening, MFAs and camouflage learning offer practical and creative pathways to literacy. These spaces are designed to lower barriers, encourage participation, and offer learning without stigma. Ultimately, the combination of accessible design, multifunctionality, and informal educational activities provides a rich environment where language development can thrive organically.

## Chapter 7

# Conclusion and discussion

A literature review and field research have provided key insights to address the central research question:

***“Can built facilities, for example in Feijenoord, enable the development of literacy skills among people with limited basic skills?”***

This question is explored through three sub-questions:

Which amenities in Feijenoord and its surroundings are currently contributing to promoting literacy development?  
(Chapter 4)

How does the target group perceive and experience built facilities, considering the stigma surrounding this issue?  
(Chapter 5)

What kind of amenities attract and support the target group in improving their literacy skills?  
(Chapter 6)

*“A successful approach to a persistent problem like low literacy requires innovation.” - Gemeente Rotterdam (2019)*

## 7.1 Inclusive Design: Architecture lowers the threshold to literacy

Low literacy is a complex societal issue, a so-called wicked problem, that demands innovative and multidisciplinary solutions. One often overlooked aspect is the role of architecture and the built environment in addressing social challenges like low literacy. This study explored the role of architecture and the built environment in enabling literacy development in disadvantaged neighborhoods, specifically focusing on Feijenoord in Rotterdam-Zuid.

The study found that existing facilities, such as Huis van de Wijk De Dam, De Vuurplaat, 't Klooster, and Bibliotheek Feijenoord, play a key role in fostering language development through initiatives like language cafés and courses. However, the effectiveness of these facilities is hindered by issues such as limited visibility, uninspiring environments, and accessibility barriers. By addressing these spatial and physical challenges, these locations can play an even more significant role in enabling literacy.

Crucially, the research highlights that individuals with limited literacy skills perceive the built environment as more accessible when it is uncluttered, welcoming, and non-stigmatizing. Multifunctional buildings with transparent entrances, recognizable functions, and clear signage reduce barriers and enhance visitors' sense of orientation. Familiar and well-recognized neighborhood locations, along with social gathering spaces, contribute to a welcoming and supportive learning atmosphere. Thoughtful design choices can help reduce stigma and encourage low-threshold participation.

Moreover, the study emphasizes that multifunctional accommodations (MFAs), which integrate education, culture, sports, and healthcare, provide inclusive spaces where informal learning happens naturally. This approach aligns with the concept of camouflage learning, where language skills develop through everyday activities, lowering the psychological barriers associated with formal learning.

In conclusion, built facilities can play a key role in literacy development in neighborhoods like Feijenoord. To maximize their potential, however, careful attention to accessibility, multifunctionality, and social inclusion is necessary. While existing spaces already make a positive contribution, implementing targeted architectural interventions could further enhance their effectiveness.

## 7.2 Discussion

This research demonstrates that architecture plays a role in enabling literacy, but it also highlights clear limitations. The influence of architecture on the accessibility and participation of people with low literacy is evident, but it is important to emphasize that architecture alone is not sufficient to address low literacy only.

A key finding is that spatial interventions, such as creating multifunctional and inviting spaces, can lower barriers for people with low literacy. However, the impact remains limited without additional social and policy initiatives. Tackling low literacy requires an integrated approach in which spatial and social actions go hand in hand. This calls for closer collaboration between architects, policymakers, and social organizations.

### **Research limitations**

This research has some limitations that affect the interpretation and generalizability of the results. The study is largely qualitative, and just two people were interviewed from the target group, leaving room for subjective interpretation for that part. Future research should be expanded to include a larger and more diverse group of respondents, and it would be valuable to collect quantitative data to further explore the impact of architecture to enable literacy.

### **Environmental Law and Participation: Literacy as a Prerequisite**

The Environmental Law places participation at the centre of spatial transformation processes. However, participation is only meaningful if all citizens can genuinely take part. Low literacy presents a significant barrier: people who struggle with reading and writing often do not understand policy documents, which excludes them from decision-making about their living environment.

The participation process should explicitly consider those who are not heard. Policy documents and consultation procedures must be made more accessible. Otherwise, low-literate residents will continue to be structurally disadvantaged in a “civil society” where literacy is a strict prerequisite for full participation.

## Opportunities for Further Research and Impact

While this research provides valuable insights into the role of architecture in enabling literacy, there is room for further exploration. It would be beneficial to quantify the findings and investigate the effects of specific spatial designs on literacy development. Expanding the respondent base could also help draw more robust conclusions and better understand the impact of spatial interventions.

In this way, architecture, in collaboration with social and policy initiatives, can contribute more significantly to creating an inclusive society where everyone, regardless of literacy level, can fully participate.

## Chapter 8

# ***Design guidelines for inclusive architecture***

Inclusive architecture is crucial in strengthening communities and promoting accessibility for all. This chapter presents a set of design guidelines that, based on this research, provide direction for architectural design. Divided into three scales: neighborhood, building, and interior, these guidelines offer concrete tools for creating accessible and inviting environments for low-literacy individuals.



**Accessibility**

Central location and easy to reach.



**Mixed-use facilities**

Stimulate synergy and attraction.



**Visibility and Low treshold**

Recognizable and inviting.



**Wayfinding**

Clear and intuitive routing.



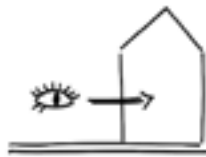
## Welcoming

Open building and inviting to interact and meet.



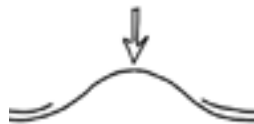
## Clear entrance

Visual and clear main entrance.



## Transparency

Open character lowering threshold to enter both from outside as well as within the building.



## Low threshold

Inclusive and safe spaces.



## Visibility of function

Intuitive orientation and understanding of functions.



**Informal atmosphere**

Relaxed and accessible interior that invites learning and interaction.



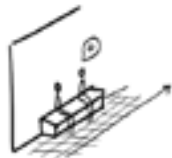
**Simple wayfinding**

Use of colors and pictograms.



**Inspiring interior**

Use of colors and decoration.



**Comfortable seating areas**

Informal meeting places and place to retreat.



**Clearly visible reception**

First point of contact and place to ask questions.

## Chapter 9

# **Reflection**

This reflection was written at the end of both the research and design process, and therefore includes a reflection on both aspects.

## The posed problem

*In Rotterdam-Zuid, low literacy affects 36% of adults in disadvantaged neighborhoods such as Feijenoord, limiting social participation and access to basic resources. Despite ongoing efforts, low literacy remains a persistent and complex challenge, deeply intertwined with issues like poverty, unemployment, and social isolation. Current approaches often fail to address the stigma and accessibility barriers faced by low-literate individuals. There is a need for innovative solutions that go beyond traditional education and leverage the built environment to create inclusive spaces that are low-threshold, encourage literacy development, reduce stigma, and foster social cohesion. This research explored the potential role of architecture and the built environment in enabling literacy development and creating low-threshold architecture. These framing positions architecture not merely as infrastructure, but as an active agent in addressing literacy as a condition for social justice.*

### Research question

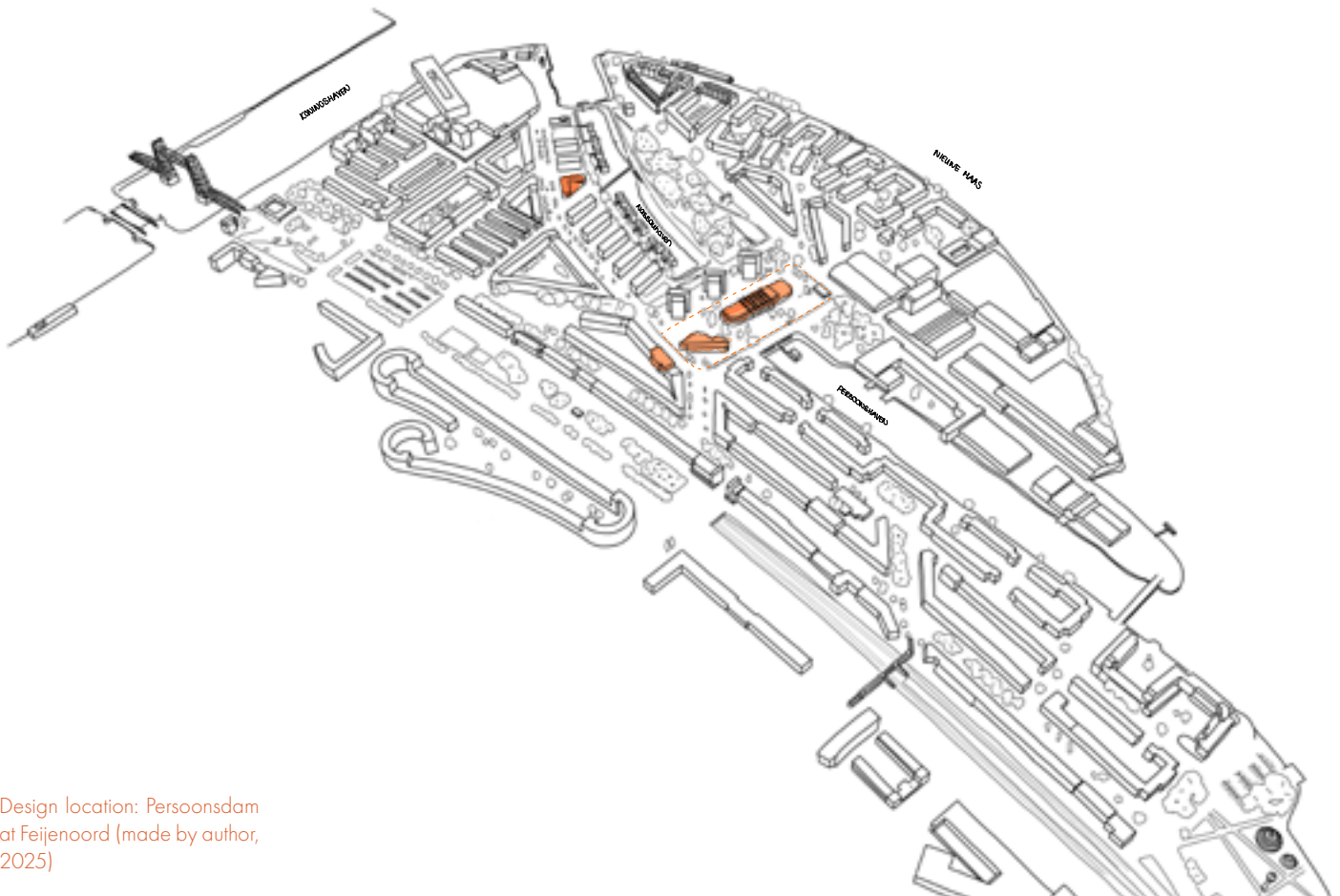
*“Can built facilities, for example in Feijenoord, enable the development of literacy skills among people with limited basic skills?”*

This central question guided both the research and design process, exploring the potential for spatial design to function not just as a passive backdrop, but as a catalyst in enabling literacy development in an inclusive and empowering way.

### Design project and choice of location

Feijenoord was chosen as the focus area due to its strikingly high percentage of low-literate adults, no less than 36% of the local population struggles with limited basic skills. Within this context, De Persoonsdam emerged as the specific project site through collaboration with the Municipality of Rotterdam. The municipality is currently engaged in a social redevelopment initiative, involving the replacement and relocation of two primary schools, a sports facility, and the community center Huis van de Wijk De Dam. The ambition is to create a new social heart for the neighborhood and its surrounding areas.

A social heart that is truly accessible to everyone, including low-literate individuals, aligned seamlessly with the aim of my research and design. De Persoonsdam therefore offers not only a relevant and timely context, but also a unique opportunity to explore spatial interventions that enables inclusion and literacy.



Design location: Persoonsdam at Feijenoord (made by author, 2025)

## 1 Relevance to the Faculty of Architecture and the Built Environment

This project aligns closely with the “Resilient Rotterdam” theme of the graduation studio Veldacademie. Literacy is a fundamental component of individual self-sufficiency and community resilience. By approaching low literacy as a wicked problem, one that is complex, multi-layered, and without a clear solution, this graduation project uses architectural design as a tool for social change. It fits within the Master track of Architecture by combining spatial strategies with deep societal engagement, aiming to create environments that empower individuals through accessible design, learning opportunities, and spaces that foster interaction.

## 2 The relationship between research and design

In this project, research and design were closely intertwined. Insights from the fieldwork were translated into concrete design guidelines, which formed the basis for the architectural design. These guidelines played a crucial role in creating an accessible design that addresses the needs of and barriers to low-literacy users. The final architectural design proposal translated these principles into spatial strategies, embedding the design in the lived experiences of the target audience.

## 3 Research methods

Due to the limited number of existing studies on the relationship between architecture and literacy, this research is largely based on fieldwork. The methods employed included site visits, spatial analyses, and various interviews. The most valuable insights came from two guided “walk-along” interviews with low-literacy participants. These interviews were able to take place thanks to collaboration with Eindhoven Engine, which I came in contact with during Dutch Design Week 2024.

The interviews took place on the TU Eindhoven campus, chosen based on where the participants lived. The interviews explored how the participants perceived and experienced their environment, at three different scales: the neighborhood, the building and the interior.

Although the limited number of participants presents limitations in terms of statistical generalizability, the insights obtained are considered generally applicable due to the universal characteristics of spatial perception. By combining these insights with observations and additional interviews with stakeholders, a form of triangulation was achieved, which strengthened the reliability of the research findings.

#### **4 Relevance to socio-spatial context**

This project introduces a new perspective on how architecture can contribute to addressing low literacy, a social challenge that has so far been overlooked in spatial discourse. Previous research has not yet explored how low-literacy people experience and perceive the built environment and how it can hinder or support their development.

The findings of this project indicate that the built environment can have a significant impact on the sense of orientation, dignity, and self-sufficiency of users with reduced basic skills. These insights are both socially urgent and academically innovative. The proposed design strategies are transferable and can inform future policies and architectural practices aimed at promoting more inclusive urban environments.

#### **5 Ethical considerations and dilemmas**

Several ethical dilemmas emerged throughout the research. The most significant involved engaging with low-literate individuals, a group often stigmatized and difficult to reach. It would have been inappropriate to directly ask individuals whether they were low-literate, due to the sensitive and personal nature of the topic.

Another ethical consideration lies in the practical implementation of the design: while the goal is to create inclusive environments, care must be taken not to unintentionally stigmatize users through spatial differentiation or overtly “targeted” solutions.

#### **6 Personal reflection**

The fieldwork-oriented approach of this studio was new to me, but I took on this challenge with a proactive attitude. From the beginning, I actively networked and connected with relevant stakeholders, which enabled me to conduct a large number of interviews, including two individuals from the target population. Without this proactive attitude, I would likely not have been able to gather such valuable first-hand insights.

Working on a real municipal case study provided access to a rich network of information, perspectives, and expectations. At the same time, this abundance of input also brought challenges: it was sometimes difficult to hold on to my creative freedom. Nevertheless, this turned out to be a learning experience in which I learned to prioritize, filter information, and deal with diverse interests and needs. These are skills that will be of great value in my future professional practice.

***Looking back, I have especially realized how architecture can not only address physical needs, but also be a powerful tool for empowerment, dignity and inclusion.***

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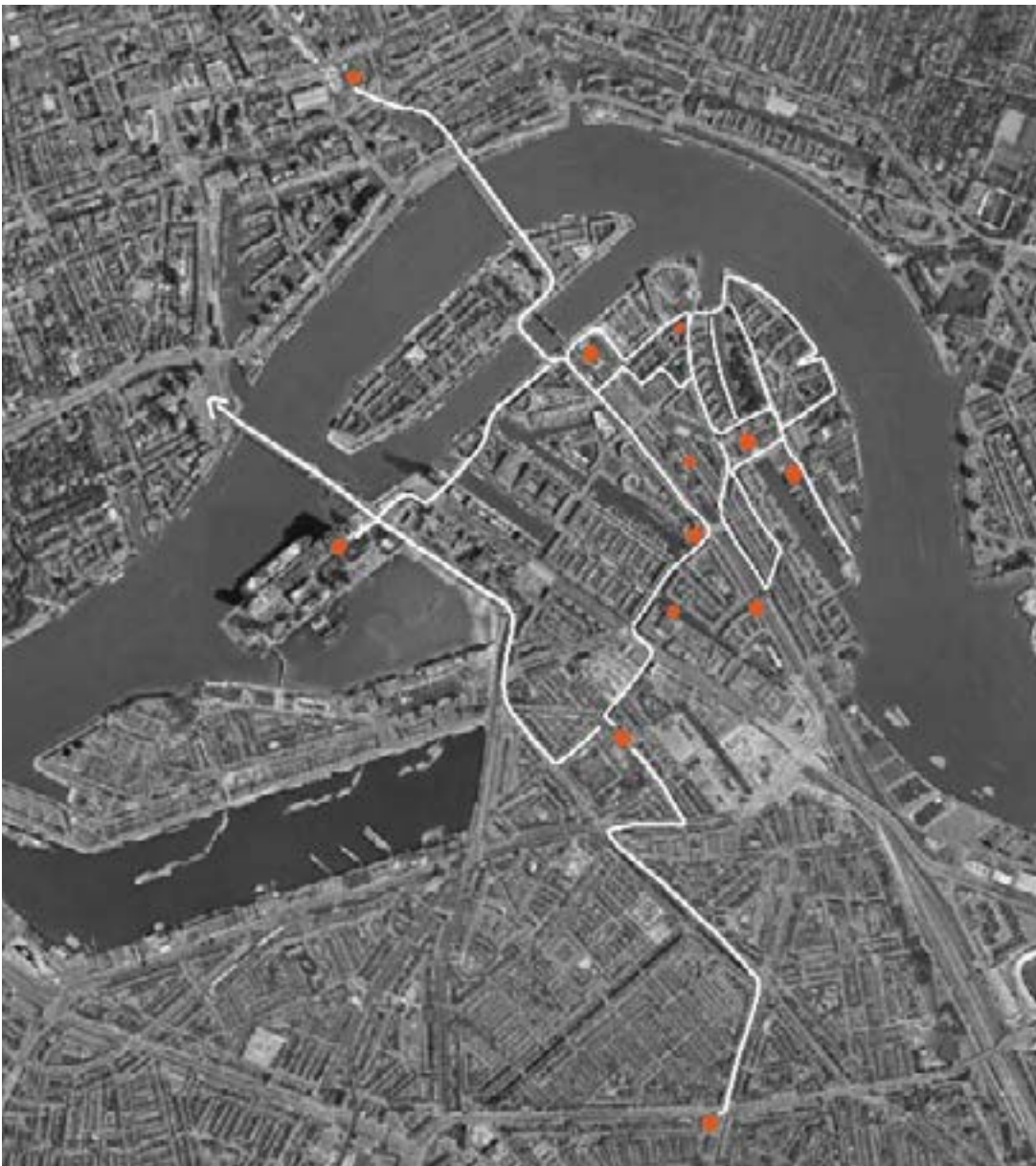


# ***Appendix***

## Overview fieldwork

### Fieldwork: observations and interviews in Feijenoord and surrounding areas

The map below highlights the locations, in Feijenoord and surrounding, I visited during the research. At these sites, I conducted observations and held both spontaneous conversations and prepared interviews with local residents and employees.



## **Fieldwork: interviews**

### **Target group:**

- Expert 1 - low literacy
- Expert 2 - low literacy
- Residents of the Feijenoord neighborhood

**Eindhoven Engine** - organization working on complex societal challenges such as low literacy:

- Inge Hootsmans, low literacy researcher

### **Municipality of Rotterdam:**

Department of social development:

- Pytrik van der Lugt, policy advisor for adult welfare in Feijenoord
- Yamina Keijser, policy advisor for youth welfare in Feijenoord
- Tom Adriaanse, policy advisor for language, Inclusive Society Team
- Hendrik Posthouwer, strategic advisor for Social Real Estate

Department stadsontwikkeling:

- Alexandra Karmanova, strategic real estate developer

### **Feijenoord neighborhood council:**

- Ed Arnold, chair of the neighborhood council

### **Neighborhood Hub Feijenoord:**

- Nathalie Helling, neighborhood networker

### **Huizen van de wijk (community centers) and SOL (welfare organization):**

Rafael Guinote, community manager hvdw De Dam

Dennis Said, manager at SOL

Kees de Kwaadsteniet, community manager hvdw t' Klooster

Sharmilla Badloe, community manager hvdw De Vuurplaat

### **Basischool de Wissel, Kop van Zuid:**

Sophie de Faix, teacher group 4

Marjet Hardeman, internal supervisor

Students of group 4 en 8

### **Stichting Proteas, Rotterdam:**

Nathalie Cheu-Choi, founder and project manager



Fieldwork: observations Huis van de Wijk De Dam



Fieldwork: observations Huis van de Wijk De Vuurplaat



## Fieldwork: walking interviews with experts

The map below outlines the route I walked on the TU Eindhoven campus with the two experts. It also includes a summary of key statements made by the interviewees.





## Participation in the workshop 'Aahh, ik snap het niet!!'

During Dutch Design Week, I took part in the workshop 'Aahh, ik snap het niet!!' organized by Eindhoven Engine. This workshop, developed by Inge Hootsmans, aims to raise awareness about the complex societal issue of low literacy. It took place early in my research process and proved to be highly valuable. It allowed me to gain insight into the daily struggles faced by individuals with limited basic skills.





