

Overcoming Polarisation

*Exploring ways to address algorithmic influences
on polarisation among adolescents*

*A master thesis Design for Interaction
Faculty of Industrial Design Engineering
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Master thesis - Design for interaction

Overcoming polarisation:

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In collaboration with

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Preface

Hi and welcome to this report.

My name is Lois, and over the past few months I had the opportunity to explore how design can contribute to overcoming polarisation. I feel very grateful to have worked on this topic. At the same time, polarisation is a complex societal issue, which has challenged me not only as a designer, but also as a person. I could not have completed such a complex project on my own, so I would like to take a moment to thank the people who supported me throughout this process.

First of all, I would like to thank Judith for the wonderful collaboration. Thank you for answering all my questions, for keeping me sharp and nuanced, and for your constant positivity, it truly encouraged me throughout this project.

I would also like to thank Milene and Değer for guiding me along the way. Your feedback challenged me, supported me, and helped me grow as a designer. I especially appreciated the openness in our meetings, which made it possible to share both ideas and struggles.

I want to thank all experts and participants who contributed to this project. Their insights, experiences, and critical perspectives greatly deepened my understanding of polarisation.

A big thank you to my fellow graduation students at IDE. In particular, Rixt, Ids, Roos, and Bart, thank you for always being there, listening, and sparring with me.

Finally, I want to thank my roommates, friends, and family for their continuous support. Thank you for always being there to listen and reflect with me.

This project marks the end of my time at IDE, a time I have truly enjoyed. It has shaped me both as a designer and as a person. With that, I hope you enjoy reading this report.

Best,
Lois

Reading guide

The content of the report is portrayed as followed structured as follows:

Key insights are marked in bold throughout the report.

Insights that informed the design criteria are highlighted light blue highlighted in light blue and described in Chapter 8.2.

The report is structured in four parts.

Part 1 consists of the exploration phase of the report and is marked in light red, based on a literature review, expert interviews, and field activities.

Part 2 consists of the reframing phase of the report and is marked in dark red, based on systemic design activities and co-creation methods.

Part 3 consists of the creation phase of the report and is marked in light blue, based on ideation sessions and iterative prototyping.

Part 4 consists of the delivering phase of the report and is marked in dark blue, presenting the final design, evaluation, and discussion.

Summary

This graduation project explores how polarisation is perceived among adolescents (16–25) in relation to their online environments, and how design can help reduce social media’s reinforcing effects. Polarisation is not simply about differences in opinion, but about growing emotional distance between groups. Research shows that while opinions themselves have not necessarily moved further apart, negative feelings towards others have intensified. At the same time, social media platforms amplify emotionally charged and extreme content through algorithmic systems, reinforcing existing beliefs while limiting opportunities for reflection. This project aims to understand how adolescents experience polarisation and how design can create space for awareness of online influences.

To address this complex societal problem, the project combines a systemic design perspective with co-creation and research-through-design methods. The research began with a literature study, expert interviews, and field observations to understand polarisation across societal, social, and individual levels. These insights were translated into clusters, a system map, and a central dilemma between freedom and safety within off- and online environments.

To incorporate youth perspectives, this dilemma was explored through creative sessions with adolescents, where their experiences and interpretations shaped the project direction. A key tension that emerged is the paradox between freedom and influence in online environments: adolescents experience social media as a space for self-expression, while being subtly shaped by algorithmic systems they are often unaware of. Although these systems strongly filter content, their influence is frequently underestimated. This creates an environment in which adolescents feel in control, while their views are continuously reinforced, limiting exposure to diverse perspectives and opportunities for reflection.

Based on these insights, the project resulted in a workshop that makes algorithmic influence tangible and open for reflection. Participants are

exposed to “donated” social media feeds, allowing them to step outside their own personalised bubble. By experiencing these feeds and mapping their emotional responses, they become aware of how content affects them and how perspectives differ. This process encourages reflection on both the emotional impact of content and their own role within these dynamics. Rather than aiming to change opinions, the workshop focuses on fostering awareness and opening space for dialogue about polarisation as a shared experience.

The workshop was iteratively developed and evaluated through multiple testing moments with adolescents and experts. Evaluations show that the format is engaging and accessible, and effectively encourages reflection. Experiencing different feeds was particularly impactful, as it made clear how algorithms shape different worldviews. However, while the workshop raises awareness, its long-term impact on behaviour and sustained attitude change requires further development.

Overall, this project demonstrates that polarisation among adolescents is a complex and systemic issue. It highlights the role of online environments, showing how algorithmic systems reinforce polarising dynamics in subtle but powerful ways. Addressing this requires supporting awareness, reflection, and dialogue about the mechanisms that shape what adolescents see and experience online. At the same time, polarisation extends beyond the online context, requiring broader societal action.

Content

Preface

Reading guide

Summary

1. Introduction

- 1.1 Aim & scope
- 1.2 Collaboration with Healthy Start
- 1.3 My positionality
- 1.4 Design approach and process

Part 1: Exploration

2. Understanding polarisation

- 2.1 Defining polarisation
- 2.2 Polarisation, a timeless phenomenon
- 2.3 Current perceived polarisation within the Dutch society
- 2.4 Humans as social animals
- 2.5 The influence of politics and social media
- 2.6 The dangers of polarisation
- 2.7 A flourishing democracy

3. Youth in polarising times

- 3.1 Adolescents as target group
- 3.2 The adolescent brain
- 3.3 The adolescents in the modern world
- 3.4 Polarisation within youth is not that different from adults
- 3.5 Adolescents need polarisation
- 3.6 Concluding this chapter

5	4. The influence of Social Media	40
6	4.1 Social media and polarisation	42
7	4.2 Content on social media	42
10	4.3 The use of social media	44
12	4.4 Opportunities of social media	45
12	4.5 The dangers of social media	46
13	4.6 A misunderstood world	47
14	4.7 Concluding this chapter	48

18	5. An overview of part 1	50
20	5.1 Looking at the levels as a whole	52

Part 2: Reframing

24	6. Uncovering the dilemma	54
26	6.1 Methodology	58
27	6.2 The 12 clusters	60
28	6.3 From clusters, to tension, to a dilemma	72
29	6.4 The dilemma of safety vs. freedom	75

32	7. Understanding the dilemma through the eyes of youth	80
34	7.1 Preparing the creative sessions	82
34	7.2 The creative sessions design	85
35	7.3 Reflecting on the generative sessions	94
36	7.4 The analysis approach	95
37	7.5 Insights from the analysis	96
38	7.6 From problem to solution	99

104	Part 3: Creation	104
104	8. From the problem to a response	104
106	8.1 Places to intervene in the system	106
108	8.2 The design goal	108
110	8.3 The approach	110
111	8.4 Exploring design directions	111
118	8.5 Developing the concept	118
126	8.6 Conclusion	126

128	Part 4: Delivering	128
130	9. The final design: a workshop	130
132	9.1 From research to an intervention: introducing the workshop	132
133	9.2 The workshop context and setup	133
141	9.3 The workshop process	141
149	9.4 The role of the facilitator	149
150	9.5 Steps after the workshop	150

152	10. Evaluating the workshop	152
154	10.1 The evaluation approach	154
155	10.2 Evaluating the workshop in practice	155
162	10.3 Evaluating the workshop as a whole	162
165	10.4 The workshop in relation to polarisation	165
166	10.5 Recommendations	166

170	11. Discussing the project	170
172	11.1 Limitations	172
174	11.2 Discussion	174
176	11.3 A personal reflection	176
177	11.4 AI Statement	177
178	References	178
182	Appendices	182

1. Introduction

This chapter introduces the relevance of the project and explains why polarisation is an important societal issue to address. It outlines the aim and scope of the project (1.1) and describes how the collaboration with Healthy Start helped shape its direction (1.2). It also discusses the researcher's positionality as both researcher and designer (1.3). Finally, it presents the overall approach taken to address these goals (1.4).

- **Chapter 1.1:** Aim & Scope
- **Chapter 1.2:** Collaboration with Healthy Start
- **Chapter 1.3:** My positionality
- **Chapter 1.4:** Design approach & process

1.1 Aim & scope

Research by the Dutch Social and Cultural Planning Office shows that three-quarters of people in the Netherlands believe polarisation is increasing (Miltenburg et al., 2022). Growing divisions in society can undermine social trust and democratic values. Many people express concern about the increasingly harsh tone of public debate and the declining willingness to listen to opposing views.

These dynamics are also strongly felt among adolescents. A recent UNICEF study shows that many young people in the Netherlands feel excluded or discouraged by societal debates on topics such as migration, discrimination, and the war in Gaza (UNICEF, 2024). Adolescence is a formative phase in which identity, belonging, and critical thinking are still developing, making young people particularly sensitive to these tensions. This project focuses specifically on adolescents aged 16 to 25.

At the same time, social media play an important role in shaping how adolescents encounter these debates. Platform algorithms often prioritise emotionally charged or extreme content as it drives user engagement, which can reinforce existing beliefs and contribute to the formation of echo chambers (Uhls et al., 2025). Features such as infinite scroll encourage continuous consumption without moments of reflection. Combined with adolescents' ongoing cognitive and emotional development, this can make them particularly vulnerable to the reinforcing effects of polarised online environments.

Therefore, this project focuses on polarisation among adolescents aged 16 to 25 and how social media can amplify these dynamics. **The aim is to explore how adolescents experience and perceive polarisation in relation to their online environments, and to identify opportunities for reducing the reinforcing effect social media can have on these divisions.**

- 1. Understanding what polarisation means in the specific context of adolescents and social media.**
- 2. Designing an intervention that contributes to reducing the reinforcing effects of polarisation in online environments.**

1.2 Collaboration with Healthy Start

This graduation project is part of a research initiative by Judith van de Wetering, who also acts as the client for this project. Judith is a researcher with a background in psychology within the Healthy Start Convergence programme.

Healthy Start is part of the Convergence Alliance, a collaboration between TU Delft, Erasmus University Rotterdam and Erasmus MC. The Convergence Alliance aims to strengthen collaboration between disciplines such as industrial design engineering, social and behavioural sciences, and paediatrics in order to address complex societal challenges (Crone et al., 2022). Within this alliance, the Healthy Start programme focuses on creating equal opportunities for young people to shape their early lives. The programme conducts multidisciplinary research and co-creates strategies together with partners and youth.

Within this programme, Judith explores how young people experience and understand polarisation and how it might be addressed (see figure 1.1). Through interviews and surveys conducted since May 2025, she has gathered insights into youth perspectives on polarisation. These findings form an important foundation for this graduation project.

To further explore how young people envision overcoming polarisation, Judith and I collaborated closely throughout the project. We organised several co-creation sessions and held weekly meetings to discuss findings, reflect on insights, and determine next steps. While Judith's work focuses on exploring youth perspectives and identifying their needs and ideas, my role within this graduation project is to build on these insights and translate them into a design-oriented intervention.

As a result of this collaboration, parts of this report draw on insights and materials that emerged from the joint research activities with Judith.



Figure 1.1: Collaboration picture of Judith (rights) and myself (left)

1.3 My positionality

In this project, my position as a designer-researcher inevitably shaped how the topic of polarisation was approached and how the research was conducted. I carried out this research as a white, female design student. My interest in polarisation stems from experiences in my own environment, where conversations about societal and political issues, such as elections or the Israel–Palestine conflict, have become increasingly tense and sometimes escalate into conflict. At the same time, I noticed how people in my surroundings often express concern about growing polarisation while speaking about those with different views in dismissive or judgemental ways, and rarely engaging in direct conversation. These experiences made me aware of how difficult it can be to engage with differing perspectives, and motivated my interest in how

people perceive polarisation and how online environments may shape these experiences.

I also recognise that I am not outside of these dynamics myself. While I hold personal opinions and political preferences, the aim of this project is not to persuade participants or influence their beliefs, but to understand how young people experience polarisation itself. Throughout the project, I aimed to remain reflexive about how my assumptions might influence the research and analysis. I did this by engaging with diverse and sometimes conflicting literature to seek nuance, deliberately slowing down my interpretation process by questioning why I identified certain patterns, particularly during mapping and the analysis of the co-creation sessions (Part 2), and regularly discussing my findings with peers and experts to check whether they were grounded in the data.

During the co-creation sessions with youth, I took on the role of facilitator. In this role, I aimed to remain as neutral as possible by not imposing my own opinions, avoiding leading questions, and creating space for participants to express their perspectives in their own terms. This also required me to actively manage my own reactions, particularly when participants expressed opinions I agreed or disagreed with, and to remain focused on facilitating the conversation rather than contributing my own views. At the same time, I was aware of the power dynamics between myself as a researcher and the participants, which may have influenced what participants felt comfortable sharing. Together with Judith van de Wetering, I attempted to reduce this distance by fostering a more informal and open environment, for example by connecting with participants beyond the structured sessions. However, I recognise that these dynamics could not be fully removed.

During the analysis phase, my influence as a designer-researcher became particularly visible. While the insights originated from participants' contributions, decisions regarding scoping, clustering, and structuring the findings were made by me or in collaboration with Judith van de Wetering, other design students, and experts. Through these decisions, I shaped how insights were grouped and how relationships between them were defined, which influenced how themes emerged and were understood. This means that the way in which findings are presented reflects my perspective as a designer-researcher. This became especially apparent when perspectives from literature did not align with participants' lived experiences. In these moments, I had to decide how to relate these differences, which made my interpretative role more explicit.

1.4 Design approach and process

This project explores how young people experience and respond to polarisation by combining systemic design, co-creation methods and insights from systemic design.

Systemic design

As polarisation among youth is shaped by multiple interacting factors, including social media, social environments and broader societal dynamics, this project adopts a systemic perspective. Systemic design combines systems thinking with design practice to explore complex societal challenges and understand how different actors, structures and influences interact (Van der Bijl-Brouwer, 2023). Rather than isolating a single cause, this approach helps identify patterns, relationships and tensions within the broader system, and explore where design interventions might contribute to change. This systemic perspective is reflected in the analysis of polarisation across different levels (macro, meso and micro) in Part 1, and in the clusters, system map and frameworks in Chapter 6, in which the methodology chapter explains how this is done (Chapter 6.1). Additionally, in Chapter 8.1 Meadows' (1999) leverage point theory is applied to look for places in the system to intervene.

Designing with youth

Since this project focuses on adolescents and their experiences with polarisation, young people are involved throughout the design process. Inspired by participatory design principles that position people as experts of their own lived experiences and as co-creators in the design process, youth are actively involved in shaping both the understanding of the problem and the exploration of the solution space (Sanders & Stappers, 2013). Through creative sessions, their perspectives help shape both the understanding of the problem and the direction of the design. In addition, several ideation and testing moments were conducted with adolescents from the researcher's own network. Although this was not a broad sample, these interactions helped reflect on early ideas from the perspective of the target group. This participatory approach becomes visible in the creative sessions and ideation activities described in Part 2, Chapter 7.

Research through design

Polarisation is a complex and evolving phenomenon without a clear problem definition or single solution. As a designer, I emphasise my role as a bridge between research and society, which requires a willingness to experiment and act, as further reflected upon in Chapter 11.3. Therefore, this project follows a Research through Design approach, in which designing itself becomes a way of generating knowledge (Stappers & Giaccardi, 2014). Through iterative cycles of prototyping, testing and reflection, design experiments were used to explore how adolescents respond to different ways of engaging with polarisation online. These experiments generated insights that informed the direction of the design throughout the end of the project (Part 3, Chapter 9).

The design process

Although the report is structured into four phases, exploration (Part 1), reframing (Part 2), creation (Part 3) and delivering (Part 4), this representation should be understood as a simplification. In practice, the design process was highly iterative, consisting of multiple cycles (loops) of divergence and convergence. Insights from interviews, observations, creative sessions and ideation continuously informed and reshaped both earlier and later stages. In Part 1 and 2, this took the form of iterative loops starting with literature research, interviews, and observations, followed by cycles of mapping these insights, and further deepened through creative sessions with adolescents, which provided additional depth and understanding to the mapping. In Part 3 and 4, the process evolved through repeated loops of ideation, prototyping, and testing.

Figure 1.2 visualises this iterative process, showing how activities are connected through feedback loops rather than positioned in a linear sequence. While the four parts provides a clear structure for communicating the project, the actual process evolved dynamically in response to emerging insights.

On the following pages, each part is described in relation to its goals and outcomes. An overview of all activities is provided in Tables 1.1–1.6.

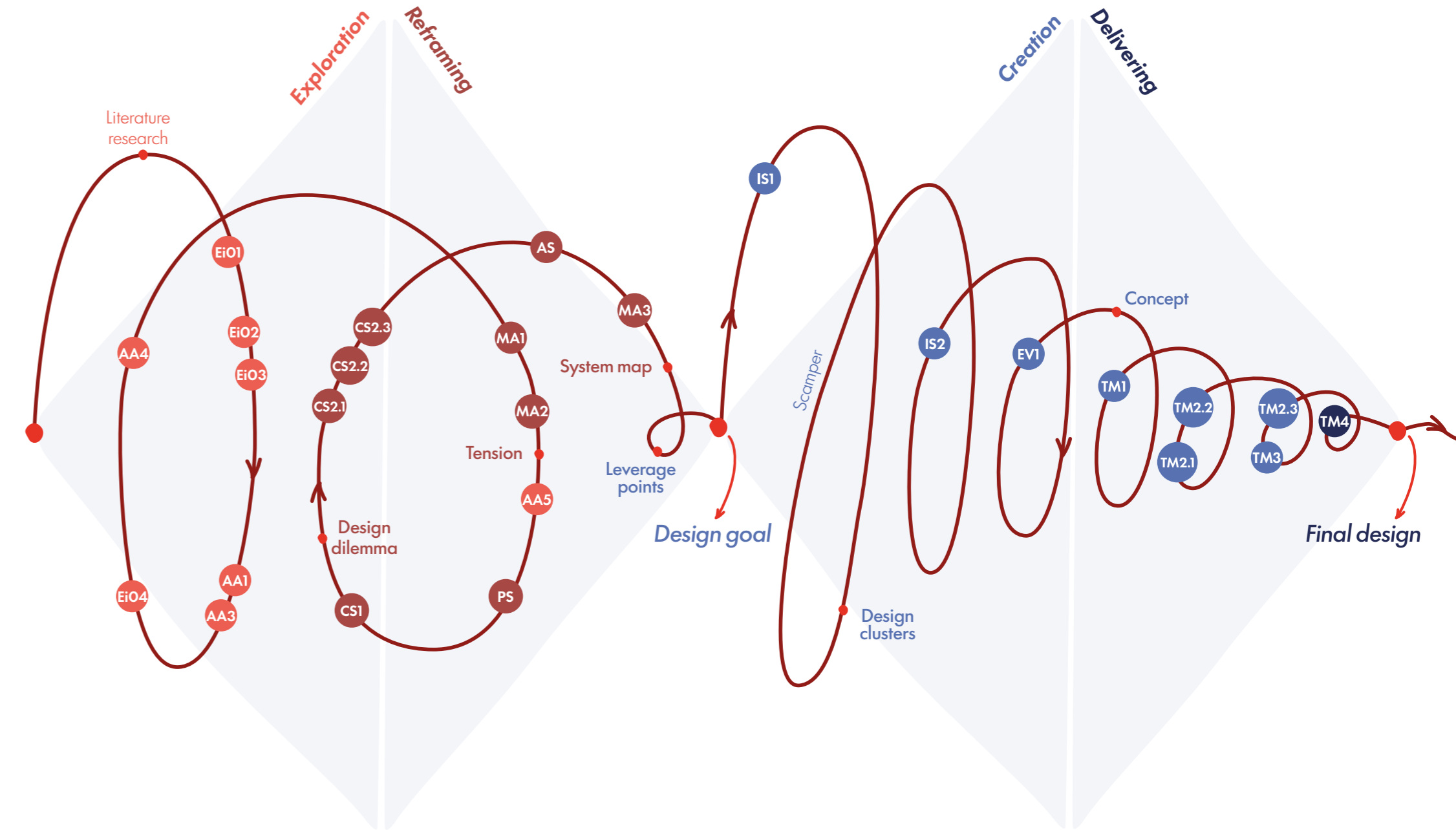


Figure 1.2: Overview of the iterative design process, guided by the design activities

Part 1: Exploration

The first phase focused on understanding how polarisation manifests among youth and which factors influence this process. A literature review was conducted to explore existing perspectives, complemented by news articles and social media content to capture its real-world relevance. Four expert interviews (Ei01–Ei04) provided insights into how polarisation is experienced and influenced in practice, while observations during relevant activities (AA1–AA5), such as a youth debate and theatre performance, offered an experiential perspective. Together, these methods revealed key patterns and tensions that formed the basis for further analysis.

Part 2: Reframing

This phase focused on identifying underlying structures and tensions within polarisation, in order to reframe the problem beyond surface-level observations. Insights from Part 1 were clustered and mapped (MA1–MA3) to uncover deeper systemic relationships. Creative sessions with youth (CS1–CS2.3) were then used to explore these insights from their perspective, helping to translate abstract findings into meaningful design opportunities.

Part 3: Creation

This phase explored how identified leverage points could be translated into design interventions that engage adolescents with polarisation. Based on these insights, a design goal was formulated to guide the development of concepts. Through iterative cycles of ideation (IS1–IS2), prototyping and testing (TM1–TM3), different directions were explored and refined based on how adolescents responded to them.

Part 4: Delivering

The final phase focused on evaluating how the developed design responds to the research question and its potential impact on adolescents, resulting in a final concept and reflection on its effectiveness, by testing the workshop with participants (TM4) and evaluating it with experts (EV2–3).

Activities part 1: Exploration

Code	Activity	When?	App.
AA1	Healthy Start Transformative Research Meeting Conference	08-10-2025 - 10-10-2025	
AA2	Youth debate hosted by Pakhuis de zwijger		
AA3	Theatre performance on polarisation by Time out	09-10-2025	
AA4	Tour at a Dutch organization that provides civic and political education for young people	16-10-2025	
AA5	IP-PAD conference	07-11-2025	

Table 1.1: Attended Activities during the exploration phase (phase 1)

Code	Activity	When?	App.
Ei01	Interview with expert on politics and youth 1	29-09-2025	A1
Ei02	Interview with expert on politics and youth 2	30-09-2025	A2
Ei03	Interview with expert on social media and youth	07-10-2025	A3
Ei04	Interview with a high school teacher social studies	30-09-2025	A4

Table 1.2: Expert interviews during the exploration phase (phase 1)

Activities part 2: Reframing

Code	Activity	When?	App.
MA1	Clustering activity with IDE Alumni	24-10-2025	B3
MA2	Mapping activity with 3 IDE Students	27-10-2025	B5
MA3	Mapping activity with fellow IDE student	09-12-2025	B6

Table 1.3: Collaborative mapping activities during the reframing phase (phase 2)

Code	Activity	When?	App.
PS	Preparing and validating creative sessions with Judith	13-11-2025	
CS1	Creative session 1 @ Stad Delft	12-11-2025	C1
CS2.1	Creative session 2.1 @ Beroepshavo Hilversum	24-11-2025	C2
CS2.2	Creative session 2.2 @ Hoge School Rotterdam	26-11-2025	C2
CS2.3	Creative session 2.3 @ Lieve Mark Leiden	28-11-2025	C2
AS	Analysing creative sessions with Judith	02-12-2025	

Table 1.4: Activities around the creative session with youth during phase 2

Activities part 3: Creation

Code	Activity	When?	App.
IS1	Ideation Session with 3 fellow student	18-12-2025	D1
IS2	Ideation session with 1 fellow student	28-01-2026	D4
EV1	Conversation for validation with designer @ The Youth	03-02-2026	

Table 1.5: Collaborative activities during the ideation phase (phase 3)

Activities part 3 & 4: Creation Delivery

Code	Activity	When?	App.
TM1	Test Moment of first prototype with 4 Students @ TU Delft	04-02-2026	E1
TM2.1	Evaluation of second prototype with expert on politics and youth	17-02-2026	E2
TM2.2	Evaluation of second prototype with expert on education and youth	18-02-2026	E2
TM2.3	Evaluation of second prototype with expert on social media and youth	23-02-2026	E2
TM3	Test Moment of 3rd prototype with 2 design students	18-02-2026	E3
TM4	Evaluation of final design with 3 participants and 1 facilitator	02-04-2026	E4
EV2	Evaluation of the final design with experts on politics and education	08-04-2026	
EV3	Evaluation of the final design with an expert on social media	13-04-2026	

Table 1.6: Collaborative activities during the delivery phase (phase 4)

Part 1: Exploration

To gain a clear understanding of the issue, part one of this report explores what polarisation is and how it manifests on social media among youth. This part introduces the different levels within the societal system, inspired by a schematic overview presented by Wouter van den Bos during the Healthy Start Transformative Research Meeting Conference (Van den Bos, Healthy Start Transformative Research Meeting, 2025). These levels include the **macro level** (societal), **meso 2 level** (social media), **meso 1 level** (social groups), and **micro level** (individual) (Figure 1).

Part 1 is divided into four chapters. Chapter 2 examines **what polarisation is and how it manifests** on a macro level. Chapter 3 explores **why young people are particularly sensitive to polarisation** on both the micro and meso 1 levels. Chapter 4 focuses on **the role of social media within polarisation** on the meso 2 level. Finally, chapter 5 provides **an integrated conclusion**, presenting a coherent understanding of how these four levels interconnect and shape the system as a whole.

- **Chapter 2:** Understanding polarisation
- **Chapter 3:** Understanding the experience of youth
- **Chapter 4:** Understanding social media use by youth
- **Chapter 5:** An overview of part 1

Insight from this report in Part 1 comes from several design research activities. **A literature review** was conducted, including references to the work of Judith Van de Wetering (2026), further referred to as (Van de Wetering, 2025). Insights were also drawn from **the Healthy Start Transformative Research Meeting Conference** (AA1), which brought together leading experts on adolescence, participatory research, and social media from various disciplines such as psychology, sociology, neuropsychology, and political psychology. Notes taken during the conference are cited throughout this report as (Name - Healthy Start Transformative Research Meeting, 2025).

Additionally, **four expert interviews** (Ei01 -Ei04) were conducted of each one hour: one with a high school social studies teacher, one with an expert on social media use among youth, and two with experts in politics and youth engagement (see Appendix A for interview transcripts). These interviews provided in-depth insights into how polarisation is experienced and addressed in real-world contexts, complementing findings from the literature. Complementary **field observations** (AA2 - AA6) were carried out during an online youth debate hosted by Pakhuis de Zwijger, a guided tour at a political youth centre, a theatre performance on polarisation by Time Out, and various online observations on social media. These observations provided contextual insight into how young people engage with polarisation and political topics, contributing to the deepening and validation of emerging insights.

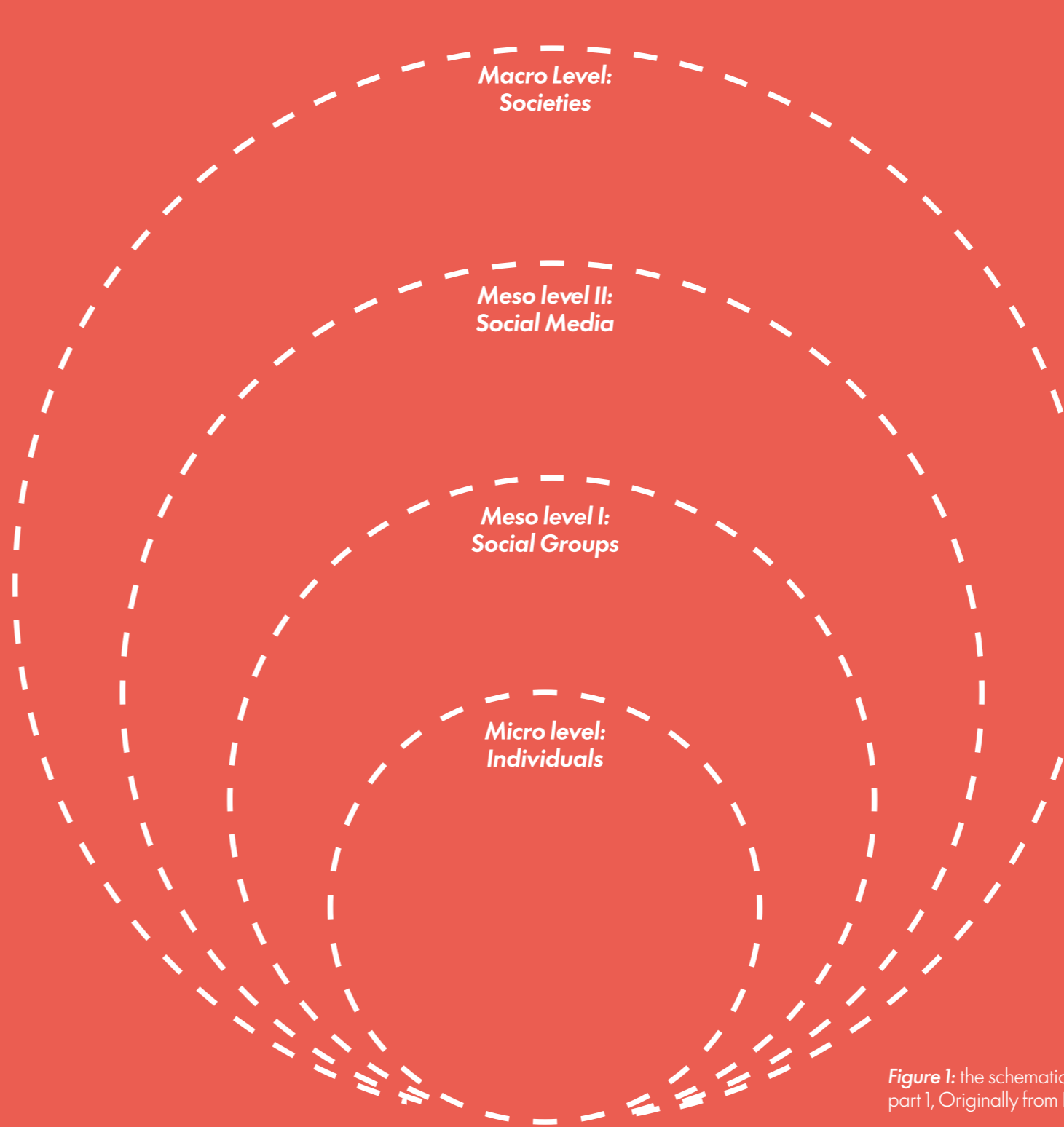


Figure 1: the schematic overview on the different levels research leading the structure of part 1, Originally from Bronfenbrenner (1994) interpreted by Van den Bos (2025)

2. Understanding polarisation

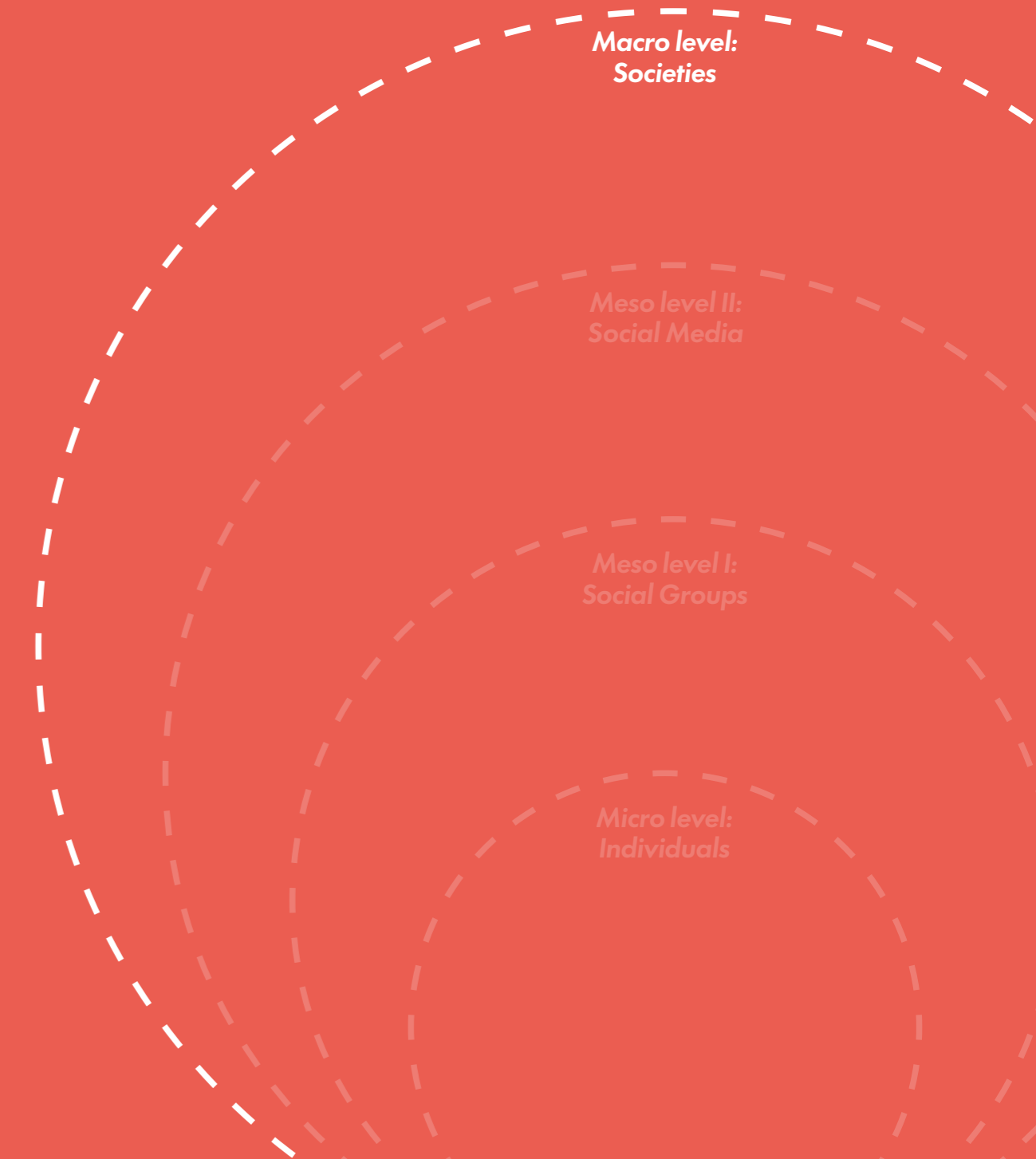
This chapter aims to develop a deeper understanding of what polarisation means and how it manifests on a macro level, the societal level. It explores how polarisation shapes and reflects Dutch society as a whole, setting the foundation for understanding its effects on smaller social and individual levels in the following chapters.

The central question guiding this chapter is:

“What is polarisation, and how does it manifest within Dutch society today?”

Each subchapter addresses a specific sub-question that together builds towards answering this overarching question. The chapter first defines the concept of polarisation (2.1) and introduces four main forms relevant to this study: ideological, affective, horizontal, and vertical polarisation. It then explores how polarisation has evolved over time (2.2), from post-war pillarisation to today’s fragmented political landscape. Following this, it examines the current perception of polarisation in the Netherlands (2.3) and why humans are naturally prone to “us-versus-them” thinking (2.4). The next section discusses the influence of politics and social media in reinforcing these divisions (2.5). Finally, the chapter reflects on the fine line between necessary democratic disagreement and polarisation that erodes social trust, emphasising that polarisation is not necessarily harmful, but can become damaging when it intensifies and hardens group boundaries (2.6).

- **Chapter 2.1:** Defining polarisation
- **Chapter 2.2:** Polarisation, a timeless phenomenon
- **Chapter 2.3:** Current perceived polarisation within the Dutch society
- **Chapter 2.4:** Humans as social animal
- **Chapter 2.5:** The influence of politics and social media
- **Chapter 2.6:** The dangers of polarisation Understanding polarisation
- **Chapter 2.7:** A flourishing democracy
- **Chapter 2.8:** Concluding this chapter



polarisation

noun (UK usually polarisation)

po·la·ri·sa·tion

the act of dividing something, especially something that contains different people or opinions, into two completely opposing groups.

2.1 Defining polarisation

What is polarisation?

The meaning of the concept of polarisation may seem simple. According to the online Cambridge Dictionary, polarisation is the act of dividing people into two completely opposing groups (Cambridge Dictionary, 2025). Yet in reality, it is a far more complex social process. **Polarisation is not just about having different opinions, it is about the growing distance and emotional tension between those differences.** So what does this word actually mean, and how does it manifest itself in Dutch society?

Before exploring how polarisation is experienced within the Netherlands, it is important to understand the different forms it can take. Researchers distinguish several types of polarisation, but the following four are the most relevant within the context of this study. These forms of polarisation provide a lens to better understand how divisions in society can take different shapes. Distinguishing between these types helps to analyse how polarisation manifests in the Dutch context. Throughout this report, these forms are used to interpret how polarisation is experienced. The definitions below are all based on the work of Lindenaar (2025).

Ideological polarisation: the process in which people's political or ideological views grow increasingly distant from one another, moving towards the extremes and intensifying the divisions between groups.

Affective polarisation: the process in which people develop strong negative feelings towards those who hold different political views, not just disagreeing with their ideas, but also disliking or distrusting the people themselves.

Horizontal polarisation: the growing divide and tension between different groups within society that exist on the same social level, such as polarisation between citizens. The absence of social cohesion and connection, which characterises horizontal polarisation, can have negative consequences for society as a whole.

Vertical polarisation: the increasing divide between citizens and those in positions of power, such as the government, media, or other institutions. One effect of this type of polarisation can be a growing distrust in public institutions.

2.2 Polarisation, a timeless phenomenon

Is polarisation a trend?

Polarisation is a hot topic in the news and politics at the moment, within news articles, political debates, podcasts it is heavily discussed. Yet, it is important to recognise that differences in opinion are an essential part of a democracy. Polarisation is not unique to our time, it has always existed, although it takes on different forms throughout history (Dekker, 2022).

After the Second World War, polarisation in the Netherlands was mainly expressed through 'verzuiling' (pillarisation). This system created a high level of social segregation, as people from different religious or ideological backgrounds lived largely separate lives within their own institutions. The biggest pillars were the Catholic, Protestant, socialist and liberal communities (Koops, 2021). As a result, people with different beliefs rarely engaged in direct debate. Strong boundaries existed between groups and there was less open social or political conflict, as the elites of the various pillars cooperated within a shared, pillarised consensus, a *polder model avant la lettre*. The so-called polder model refers to the Dutch tradition of consensus politics, in which representatives of different social groups negotiate pragmatic compromises to maintain stability and prevent open conflict (De Vries, 2014). As Lijphart (1990) explains, Dutch society at the time was characterised by a strong segmentation into separate subcultures, each with its own social and political organisations. The main dividing lines during this time were economic and social, for instance between different classes or educational groups (Nederlands Jeugdinstuut, n.d.).

Today, polarisation takes on a different shape. It has become more visible in public life and often revolves around global themes, such as migration, climate change and safety (Nederlands Jeugdinstuut, n.d.). Alongside this globalisation, the Dutch political landscape has become more fragmented. There is an increasing number of smaller political parties., leading to a large ballot paper for the Dutch election is 2025 (figure 2.1). This fragmentation of smaller political parties has resulted in the largest party winning the fewest seats in history (Van Loon, 2025). As a consequence, forming a majority government

now requires cooperation between at least four parties, whereas fifty years ago, this could almost always be achieved by just two. Next to this, traditional party loyalties have weakened, leading to an increasing number of zwevende kiezers (floating voters) (Liefing & Van Loon, 2025).

As a result of this fragmentation and the floating voters, **the political climate has grown more complex and unpredictable, reflecting a broader sense of uncertainty and division within society.**

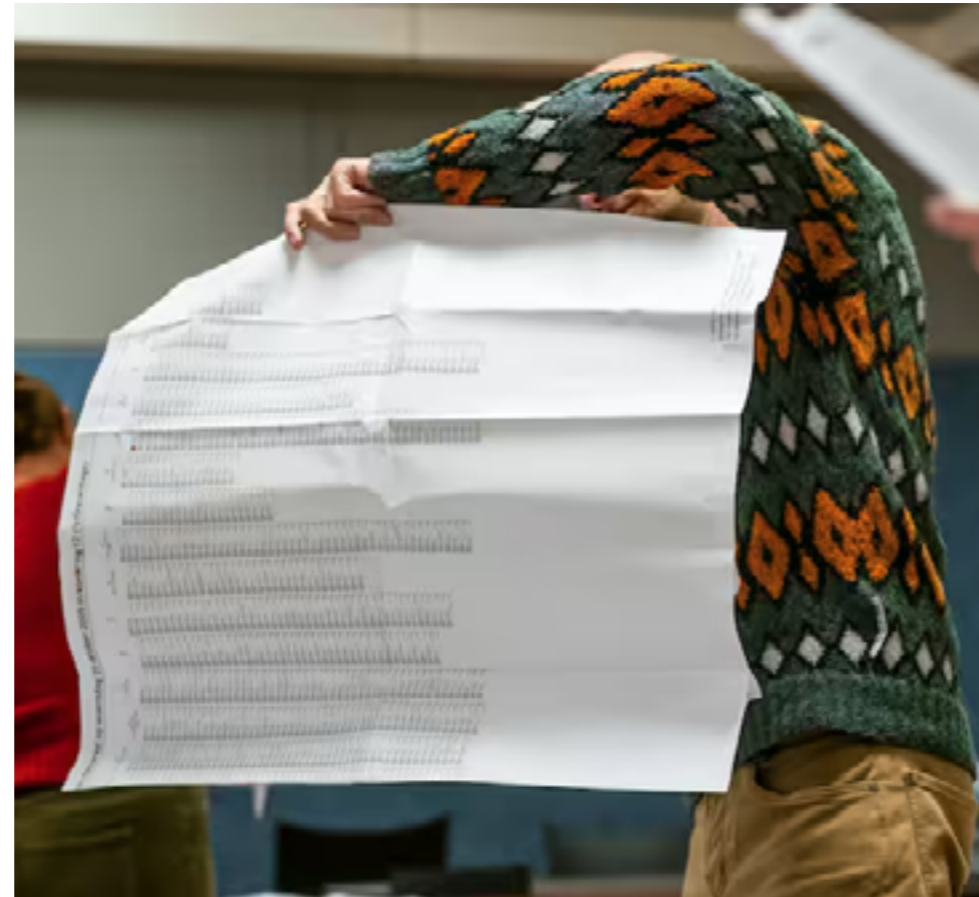


Figure 2.1: The increasingly fragmented politics resulted in an extremely large ballot paper (Nu.nl, 2025)

Interestingly, the topics that cause polarisation are also timeless. Migration, for instance, has been a polarising issue in the Netherlands since the arrival of labour migrants in the 1970. These are two examples from 1972 and 2025 from the far right movements against polarisation.

In 1972, Dutch citizens from across the country gathered in the south of Rotterdam. In those neighbourhoods, Turkish guest workers lived in boarding houses. "There are too many of them," people said in radio and television reports from that period. "They're taking our houses." The demonstrations escalated, with Dutch protesters throwing bricks through windows and walls, as shown in figures 2.2, 2.3 and 2.4 (Albayrak & Tap, 2022). A similar situation occurred in October 2025, when demonstrators gathered in The Hague to protest against migration, see figures 2.5, 2.6 and 2.7. Slogans such as "Make the Netherlands ours again" and "They're taking our houses" were shouted. The demonstration eventually ended in violence and destruction (NOS News, 2025).

As mentioned before, polarisation is not a temporary trend but a recurring phenomenon throughout history. What has changed is the societal structure in which it takes shape (Boutellier, 2025). In the past, collective identities were dominant, resulting in pillarisation. Depillarisation, driven by secularisation, democratisation, individualisation and the rise of mass media, weakened rigid group boundaries. Religion and church lost their central role, citizens increasingly made independent choices rather than following pillar elites, and television exposed people to perspectives beyond their own ideological communities (Kockelmans, 2015). As a result of these developments, the individual has become more central in society. The consequences can be seen today, Dutch society has become increasingly individualised, where people shape their own beliefs, identities, and media environments, for example through personalised social media use (Van Den Berg, 2022). **If polarisation was once addressed by breaking down closed collective structures, a possible solution may lie in rebuilding forms of shared dialogue and collective responsibility.**



2.3 Current perceived polarisation within the Dutch society

What does this change over time mean for the polarisation nowadays?

Research by the Dutch Sociaal en Cultureel Planbureau (2022) shows that three-quarters of people in the Netherlands believe that polarisation is increasing. Dutch citizens experience a growing sense of division on political topics such as migration, climate change, and safety. Next to this, they noticed a decline in civility and an increasing harshness in both political and public discourse. However, research also indicates that the actual differences in opinions between groups have changed very little (Bennema, 2023). In other words, Dutch society is not *ideologically polarised*, as introduced in section 2.1. **On many issues, there is more agreement than people assume, yet the feeling of being divided has grown stronger.**

This development points to an increase in *affective polarisation*, as introduced in section 2.1, a process in which people's emotions towards opposing groups become more negative. In the Netherlands, this manifests as stronger "us versus them" thinking and a growing emotional distance between societal groups (Miltenburg et al., 2022). According to research, these false perceptions of division are largely driven by the quest for social recognition in an increasingly individualistic society. As people identify more strongly with narrower social groups, such as educational or ideological segments, the perception of being divided deepens (Muis, 2024).

2.4 Humans as social animals

Why is the human species vulnerable to polarisation?

As polarisation is a returning phenomenon, it is interesting to understand why humans are vulnerable to polarisation. Humans are naturally herd-animals. In our evolution, belonging to a group was essential for survival: together we could gather food, defend ourselves and share knowledge (Loontjens, 2024). As a result, our brains are deeply wired to view inclusion as safe, while exclusion feels threatening (Lieberman, 2014).

This tendency to attach ourselves to "our group" forms the basis of what social psychology calls in-group and out-group behaviour. People tend to favour their own group, we think more positively of those who are like "us" or belong to "our" group, and often view those we see as "different" with more suspicion (Balliet et al., 2014).

This mechanism is not inherently bad, it strengthens belonging and trust within a community. But in a complex, diverse society, it can also lead to polarisation (Kim et al., 2023). When differences between groups are emphasised, or when a sense of threat arises, the boundaries between groups grow. The other is no longer seen as an individual but as a representative of "the other side". **In this way the natural desire to belong gradually turns into a "us-versus-them" mindset.**

2.5 The influence of politics and social media

Where does polarisation manifest?

Polarisation is often not directly visible in people's everyday surroundings. In daily life, most people remain within their own safe bubble, surrounded by those who share similar values and opinions (Sunstein, 2017). However, unlike fifty years ago during pillarisation, the rise of the internet and social media has made it easier to access perspectives beyond one's immediate environment. In theory, people can now more easily encounter different opinions. In practice, however, this does not necessarily mean that people actively seek out or engage with these perspectives.

Instead, interactions with opposing views are often limited, selective, or shaped by algorithmic systems that reinforce existing preference, as will be further discussed in Chapter 4.5. Politics and (social) media can further reinforce these stereotypes, distorting how people perceive both themselves and others (Muis, 2024).

Around election time, however, polarisation becomes much more visible and tangible. During the period of this research, the Dutch national elections were taking place, and the public debate felt more heated than usual. News outlets, and especially social media, tended to portray polarisation in a negative and cynical light, often highlighting conflict and division rather than understanding or nuance. An example is given in figure 2.8.

In politics, polarisation is particularly alive. The fall of the government, the rise of political extremes, personal attacks between party leaders, and the tone of the new election debates all contribute to a charged political climate (see figure 2.9). These confrontations do not exist in isolation, politics reflects society, and society reflects politics. The tensions we see in parliament often mirror the tensions felt in society.

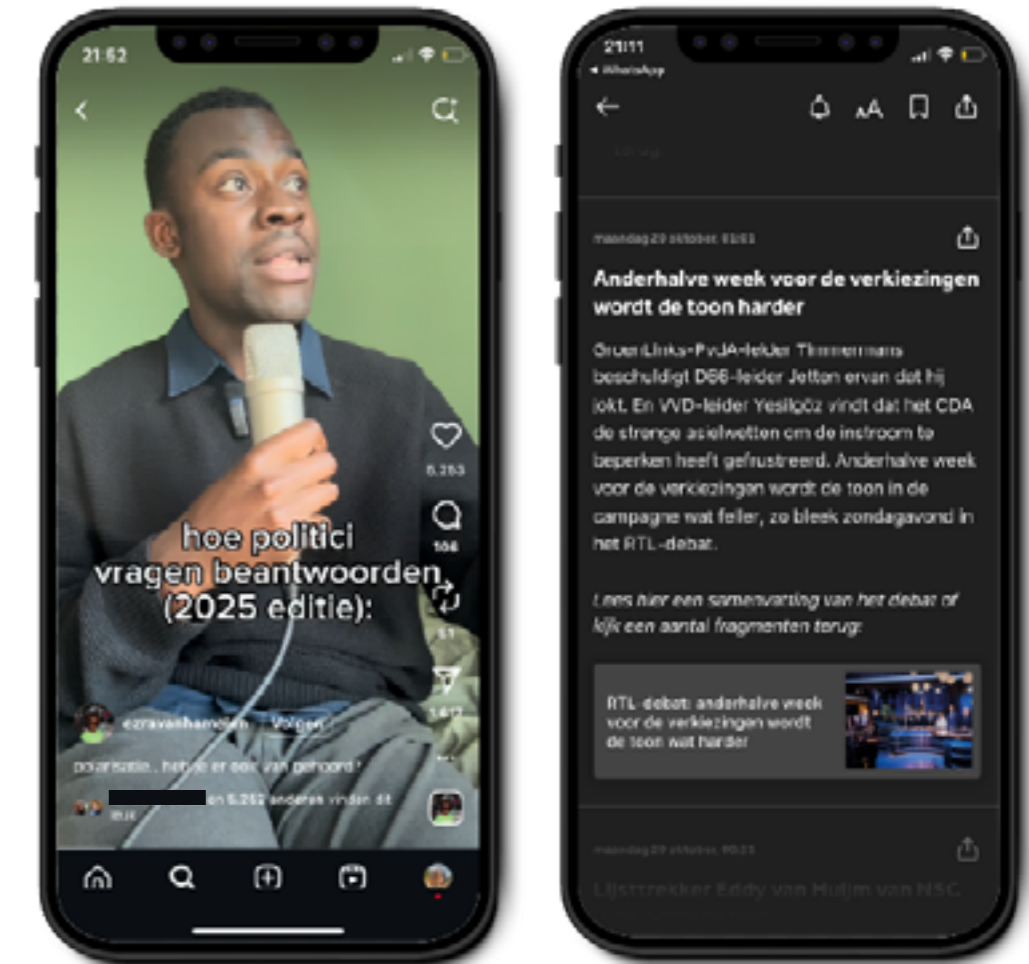


Figure 2.8: Cynical Instagram meme by a Dutch influencer expressing distrust in Dutch politics, depicting a humorous scene in which a politician avoids answering a question and instead blame other parties for polarisation and a lack of compromise. (Retrieved from @ezravanhamelen).

Translation:
'How politicians answer question (2025 edition)'

Picture 2.9: Nos news article about the increasingly thougher debate just before Dutch elections in 2025 (NOS Nieuws, 2025).

Translation:
'A week and a half before the elections, the tone is getting harsher. GroenLinks-PvdA leader Timmermans accuses D66 leader Jetten of lying. And VVD leader Yesilgöz says that the CDA has frustrated the strict asylum laws aimed at limiting the influx. A week and a half before the elections, the tone of the campaign is becoming more heated, as was evident Sunday evening in the RTL debate.'

2.6 The dangers of polarisation

What makes polarisation dangerous for society?

So when do we speak of undesirable polarisation? We speak of undesirable polarisation when the process leads, or threatens to lead, to conflict between groups, social segregation, or the disappearance of space for nuance (Nederlands Jeugdinstituut, 2021).

How people respond to polarisation differs from person to person, yet several recurring patterns can be observed in everyday life, which are further elaborated. People notice an **increasingly hard debate**, the **lack of listening** to others. People **avoid talking to each other**. Others feel forced to choose a side, resulting in **a decrease of the middle ground**, leaving no room for nuance.

What remains is a climate of tension, where expressing nuance feels risky, and listening becomes an act of courage.

Decrease of the middle ground

The political and social middle ground seems to be gradually disappearing. Increasingly, people feel compelled to choose one side of the spectrum, leaving less and less room for doubt, empathy, or nuance (Bakker, Healthy Start Transformative Research Meeting, 2025). At the same time, however, we can also observe an opposite trend: a rise in support for centrist positions and for voters who deliberately choose a more positive outlook (Van den Dool, 2025). Nevertheless, political psychologist Gijs Schumacher emphasises that the decline of the middle ground remains noticeable (Van Wijnen & Schumacher, 2025). He refers to the song "Het stille midden, daar mag het wankelen bestaan" ("The quiet middle, where wavering may exist") by actress Julia Diepstraten, from the performance Theater Time Out.

Increasingly hard debate

Some people respond with verbal aggression, interrupting, shouting, or attacking the person rather than the argument (Sociaal en Cultureel Planbureau, 2022). Online, this tendency becomes particularly visible in comment sections filled with sarcasm, ridicule, and anger, where minor differences of opinion can quickly escalate into personal insults.

Lack of listening

People increasingly notice that conversations are becoming more difficult and defensive (Sociaal en Cultureel Planbureau, 2022). Instead of engaging in genuine dialogue, individuals often talk at each other rather than with each other. Many now enter discussions with a combative attitude, as if every exchange were a confrontation (Van de Wetering, 2026).

Avoiding talking to each other

Others respond in the opposite way: by avoiding confrontation altogether. They remain silent during family dinners or choose not to share their opinions at school or work, out of fear of being judged or labelled (Conference Healthy Start, 2025).

2.7 A flourishing democracy

Is polarisation necessarily something bad?

Although polarisation is often portrayed in news articles and media posts as something negative, it does not necessarily have to be harmful to society. A certain degree of tension and disagreement is, in fact, essential for a healthy democracy. Article 7 of the Dutch Constitution, which guarantees freedom of expression, ensures that people can voice different opinions, even when they clash.

This is highlighted by an expert on politics and youth, who beautifully phrased during a guided tour at a political youth centre: "Lichte wrijving geeft glans" (EiO1, Appendix A1). Translated as: "A little friction brings shine." Polarisation can stimulate reflection, creativity, and progress and lets a healthy democracy blossom. Although some degree of polarisation can be beneficial for democracy, the lack of a shared identity is eroding democratic values, particularly among younger generations (Muis, 2024). When conflict becomes too moralised, it threatens to undermine the very democratic systems it is meant to challenge.

This is something I as a designer gain inspiration from, **how can we go from unhealthy polarisation to a healthy democracy in which disagreements exist? There is a fine line between necessary democratic disagreement and polarisation that erodes social trust.** Emphasising that polarising views do not necessarily have to be harmful, but can become damaging when it intensifies and hardens group boundaries.

'A little friction brings shine.'
- Expert on politics and youth (EiO1, App A1)

2.8 Concluding this chapter

The aim of this chapter was to answer the question:

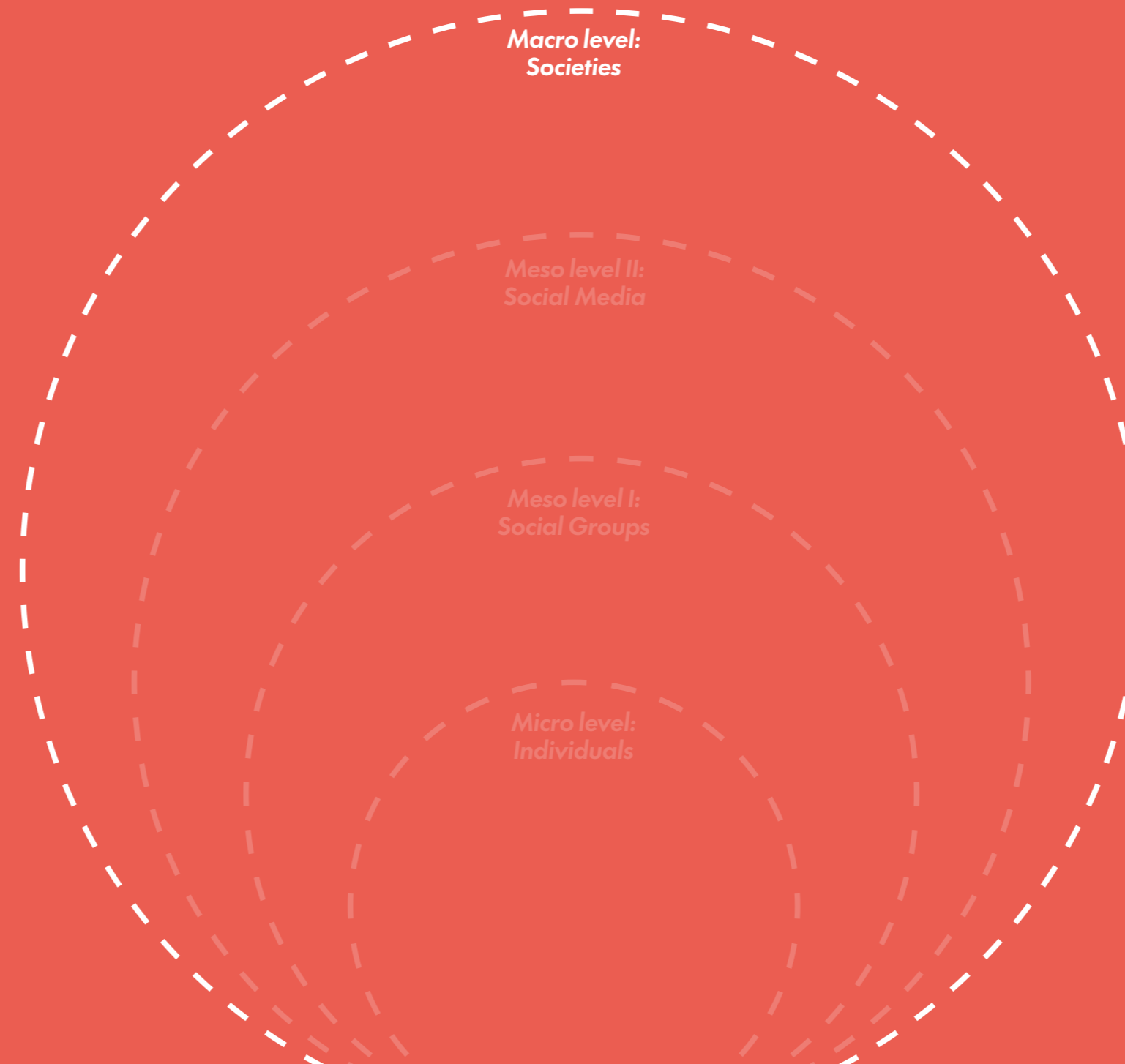
“What is polarisation, and how does it take shape within Dutch society today?”

This chapter shows that polarisation is much more than simply having different opinions. It is a social and emotional process that reveals how people relate to one another, and how those relationships can shift over time. Polarisation is a natural part of society, it can both connect and divide. Some level of tension is necessary for democracy to stay alive, but when that tension turns into distrust or hostility, it starts to harm society.

After the Second World War, polarisation in the Netherlands mainly took the form of *verzuiling*, a system where people lived largely within their own ideological or religious circles. Today, those boundaries have faded, but new dividing lines have appeared. Society has become more individualised and public debate has become more visible, louder, and more emotional because of changing political climate and the influence of (social) media.

Although many people feel that society is becoming more divided, research shows that our actual opinions have not drifted that far apart (Bennema, 2023). What has changed is how we feel about those who think differently. This marks a shift from ideological to affective polarisation: not so much about what we believe, but about how we view the people who believe something else. Social media and politics play an important role in this process, as they both amplify contrasts and dramatise differences. In response, people either become more defensive and outspoken, or they withdraw and avoid confrontation altogether, both reactions that reinforce the feeling of division.

Polarisation therefore shows both the strength and vulnerability of Dutch democracy. It reflects a society in which freedom of expression and diversity of thought are valued, but where the ability to listen and find common ground is under pressure. Understanding where the line lies between healthy and unhealthy polarisation is essential.



Key take-aways

- Polarisation is not just disagreement, it's about the emotional distance and tension that grow between groups.
- The four key forms relevant to this study are ideological, affective, horizontal, and vertical polarisation.
- Polarisation has always existed in the Netherlands, but its shape has changed: from the stable structure of *verzuiling* to today's fragmented political landscape.
- The fragmentation of political parties and the rise of *zwevende kiezers* reflect a broader uncertainty and search for identity in society.
- Most Dutch citizens perceive polarisation as increasing, even though differences in opinion have hardly grown.
- This perceived division mainly stems from affective polarisation, growing distrust and negative feelings towards people who think differently.
- Humans are social beings; our natural tendency to seek belonging and define "us" and "them" makes us vulnerable to polarisation.
- Politics and (social) media play a major role in amplifying contrasts and dramatizing conflict.
- Polarisation can also be productive, a certain degree of friction helps ideas evolve and keeps democracy dynamic.
- It becomes unhealthy when people stop listening, avoid conversations, or feel forced to choose sides.
- The middle ground is shrinking, and showing nuance increasingly feels risky.

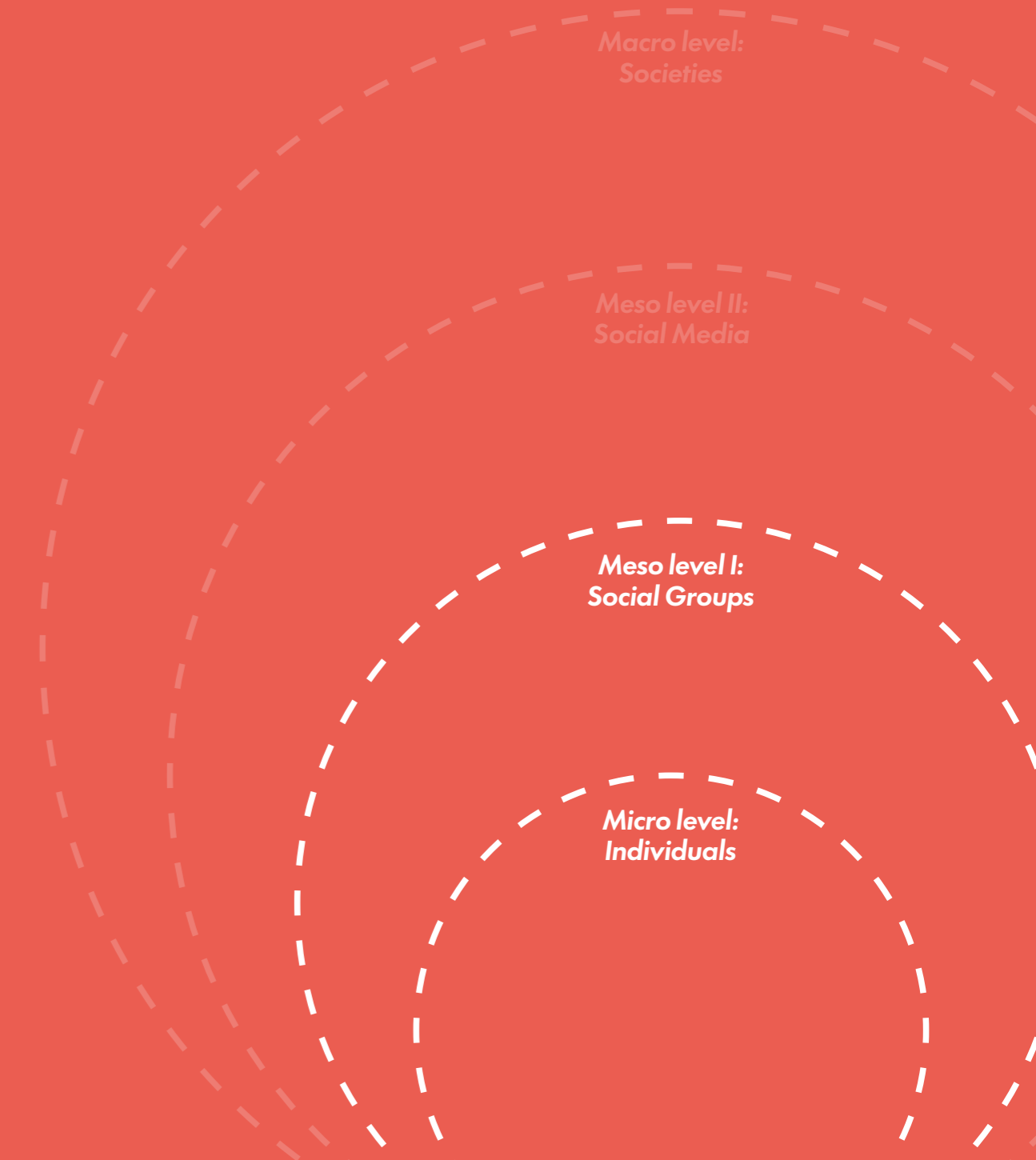
3. Youth in polarising times

Now that we have explored what polarisation is and how it manifests on a societal level, this chapter zooms in on the micro and meso-1 level, adolescents, the main focus group of this project. It examines how young people experience and interpret polarisation, and to what extent these experiences differ from those of other demographic groups. Understanding adolescents' social, emotional, and cognitive development is essential for identifying both their vulnerabilities and strengths within polarising contexts. The central question guiding this chapter is:

“How do adolescents experience polarisation, and what makes them particularly sensitive to it?”

Each subchapter addresses a specific sub-question that contributes to answering this overarching question. The chapter first defines who adolescents are and clarifies the chosen age range for this study (3.1). It then explores why the adolescent brain is especially sensitive to social and emotional influence (3.2). The following section discusses how modern societal pressures and feelings of exclusion affect young people's trust, wellbeing, and political engagement (3.3). It then looks at how polarisation manifests among youth (3.4), highlighting both similarities and differences compared to adults. Finally, the chapter reflects on the constructive side of polarisation in adolescence, showing how taking strong positions can also be a natural and necessary part of identity formation (3.5).

- **Chapter 3.1:** Adolescents as target group
- **Chapter 3.2:** The adolescent brain
- **Chapter 3.3:** The adolescents in a modern world
- **Chapter 3.4:** Polarisation within youth is not that different from adults
- **Chapter 3.5:** Adolescents need polarisation
- **Chapter 3.6:** Concluding this chapter



3.1 Adolescents as target group

Who are the adolescents?

There is much discussion about which age groups are considered adolescents (Sawyer et al., 2018). Some psychologists define adolescence as ranging from age 10 to 22, while others extend it up to 25. In this report, I will refer to adolescents between 16 and 25 years old. This age range is chosen because, from the upper years of secondary school onwards, young people are introduced to subjects such as social studies (maatschappijleer) and politics, while their brains continue to develop until around the age of 25.

Prefrontal cortex, responsible for critical thinking and reflection.

Striatum, responsible for dopamine activity and heightened reward system



Figure 3.1: The undeveloped prefrontal cortex and the highly active striatum within the adolescent brain, making them sensitive for strong emotions and polarised narratives. (Retrieved from Okinawa Institute of Science and technology.)

3.2 The adolescent brain

Why are adolescents so sensitive to polarisation?

During adolescence, the brain goes through major developmental changes that strongly influence behaviour and social sensitivity (see figure 3.1). The medial prefrontal cortex (mPFC), which plays an important role in self-evaluation and perspective-taking, is still maturing during this stage (Blakemore & Mills, 2013). At the same time, the brain's reward system, involving dopamine activity in the striatum, is already highly active. The heightened reward system in combination with undeveloped prefrontal regions responsible for regulation, planning, and nuanced thinking, shows an imbalance. This creates a sensitivity to strong emotions and rewards. As a result, adolescents are more responsive to peer influence and polarised narratives (Crone & Dahl, 2012). At the same time, this developmental pattern should not only be seen as a weakness, but also as a potential strength. This heightened responsiveness to rewards is closely linked to adolescents' tendency to seek out new and exciting experiences, which plays an important role in exploring and learning from the social world and gaining new experiences during this formative stage of life (Romer et al., 2017).

The adolescent brain is highly malleable and strongly oriented towards the social world, as this is a crucial period for identity exploration. This heightened social orientation makes adolescents particularly susceptible to social influence, the process through which individuals internalise group norms that shape identity, attitudes, and behaviour (Telzer et al., 2017). When social belonging becomes central to self-definition, strong group identification can easily lead to conformity and the formation of ingroup-outgroup distinctions, the us-vs-them thinking (Telzer et al., 2017).

Importantly, social influence in adolescence is a double-edged sword. Exposure to 'negative' peer examples, such as rule-breaking or selfish behaviour, can decrease rule compliance and prosociality, especially among younger adolescents. Conversely, exposure to positive peer examples, peers who behave fairly or follow rules, can increase prosocial and cooperative behaviour (Molleman et al., 2022). High-status peers and online influencers, in particular, have a strong impact on adolescents' attitudes and behaviours

(Telzer et al., 2017). While peers gain increasing importance in adolescents, the parents remain a salient context for both positive and negative development, continuing to influence adolescents' values, attitudes, and decision-making (Lub et al., 2010).

Moreover, adolescence is also a period of marked improvements in cognitive abilities such as abstract reasoning, problem solving, creativity, and curiosity (Crone & Dahl, 2012). Interestingly, more than half of young people report being curious about others' opinions, even when they disagree, suggesting that adolescents are not only socially sensitive but also intellectually open to diverse perspectives (Van de Wetering, on going). This openness towards different perspectives was also reflected in the expert interviews (Ei03, App. A4), where a social studies teacher emphasised that adolescents are eager to learn through emotions and listen carefully to emotional 'lived' knowledge. She recalled the following: "There's a different kind of power in lived knowledge, it makes students lean in, especially when the topic is emotional."

Taken together, adolescence represents a period of both vulnerability and opportunity: a stage in which young people are highly sensitive to social influence and polarised narratives, while at the same time being open, curious, and capable of engaging with diverse perspectives. This makes it a particularly important phase to foster constructive dialogue and social connection, and to explore ways of engaging with polarisation in more reflective and inclusive ways.

"There's a different kind of power in lived knowledge, it makes students lean in, especially when the topic is emotional."

- Expert teacher social studies (Ei03, App. A3)

3.3 The adolescents in the modern world

Why are adolescents so sensitive to polarisation?

Research shows that this age group, once considered the happiest stage of life, has now become one of the least happy (EenVandaag, 2025). Several societal and psychological factors contribute to this shift. One major influence is the pervasive use of social media among adolescents, which I will discuss further in Chapter 4 (Nederlands Jeugdinstituut, 2021).

This decline also reflects broader societal changes. Modern society has become increasingly fragmented and individualistic, often valuing success over wellbeing. At the same time, young people face rising pressure to perform and to take responsibility for global crises, from climate change to war (Janse, Healthy Start Transformative Research Meeting, 2025). During the Healthy Start conference, the head of Lieve Mark, an organization advocating for adolescents, noted that many young people today hear messages like: "Your generation is going to solve climate change." These expectations place global responsibility on adolescents, creating a sense that they carry the weight of crises that are far beyond their control.

Furthermore, demographic changes such as an ageing population mean that public focus and resources are often directed more towards older generations (EenVandaag, 2025). Because of this, many young people feel that their voices are not heard and that their worries are not really taken seriously by policymakers or older adults. This connects to a broader trend in Dutch society: almost 110,000 young people in the Netherlands say they feel left out of public debates about migration, discrimination, and the war in Gaza (UNICEF, 2025). A large majority (87%) feel that this sense of exclusion has grown over the past year, and 43% mention that the intense and emotional tone of public discussions makes them feel sad or discouraged.

This combination of high pressure and the feeling of exclusion contributes to feelings of isolation, uncertainty, and dissatisfaction among today's youth (Nederlands Jeugdinstuut, 2021). As a result, trust in the government appears to be relatively low among both adolescents and adults (Van de Wetering, 2026). This limited trust is further reinforced by the perception that political leaders have failed to address major societal challenges or, in some cases, have even played a role in creating them (Bennema, 2023).

These developments can be related to what was described as **vertical polarisation** in Section 2.1, referring to a growing distance between citizens and institutions. This is, for example, reflected in adolescents' voting behaviour. Many adolescents no longer feel represented or connected to political institutions. As a consequence, some choose not to vote at all, while others are drawn to more extreme parties that appeal to emotions and frustration (Nederlands Jeugdinstuut, 2021). This sense of disconnection was also reflected in the expert interviews. A social studies teacher (Ei03, Appendix A4) emphasised the importance of listening to adolescents who are still forming their views. As she explained, "I think it really helps young people who are still figuring out where they stand if you don't dismiss them, because that's how radicalisation starts. Otherwise, they lose respect for you and just start shouting their opinions even louder." **This highlights the importance of listening to adolescents: when they feel unheard, they may hold on more strongly to their views, reducing the potential for meaningful dialogue and connection.**

"I think it really helps young people who are still figuring out where they stand if you don't dismiss them, because that's how radicalisation starts. Otherwise, they lose respect for you and just start shouting their opinions even louder."
- Expert teacher social studies (Ei03, App. A3)

3.4 Polarisation within youth is not that different from adults

How does polarisation show within youth?

Although youth is more sensitive for polarisation, it does not manifest a lot different than within adults. Research by Judith van de Wetering (2026), as introduced in Section 1.2, based on interviews and surveys with young people, shows that adolescents appear to be somewhat affectively polarised, similar to earlier studies among Dutch youth and adults (Laffineur et al., 2025).

Polarisation is a complex and abstract concept for many young people, yet they clearly experience a growing gap between different groups and perspectives, on issues such as gender, abortion and migration (Van Wetering, 2026). These issues such as migration and gender also popped up in in one of the expert interviews with an expert on politics and youth (Ei02, Appendix A2). Most young people (65.9%) reported that polarisation in the Netherlands has recently increased. They noticed that people disagree more often (79.9%), think more negatively about those with different opinions (78.4%), and encounter more extreme or harsh views on social media (81.4%) (Van de Wetering, 2026), reflecting patterns of **increased harsh debate** as discussed in Chapter 2.6. Judith's research further shows that young people who feel less heard in society and who are more politically engaged tend to perceive stronger polarisation.

Differences between groups partly arise because young people avoid contact with those who think differently, reflecting the tendency of **avoiding talking to each other** described in Section 2.6, or because parents express strong opinions about 'the other group,' influencing their children's attitudes (Nederlands Jeugdinstuut, 2021). **At the same time, many young people emphasise that unsolicited sharing of opinions is not appreciated.** As one participant in a survey in Van de Weterings' research (2026) put it: "Everyone may have their own opinion, but I don't need to hear it." They argue that people should think carefully before speaking out, because you might hurt someone, you might put yourself at risk, and sometimes they simply no longer feel like discussing certain issues.

3.5 Adolescents need polarisation

Is polarisation necessarily bad for youth?

Adolescence is a phase of identity formation, a period in which young people are exploring who they are and where they stand in relation to the world around them. As a social studies teacher noted in one of the expert interviews (Ei03, Appendix A3), "When we talk about young people, we have to see polarisation in the context of their development." She added that taking strong positions or exploring extremes can be a way for adolescents to test boundaries and clarify their own values. Building on this perspective, this project acknowledges that **polarisation should not be seen purely as a social problem, but also as part of a developmental process in which adolescents search for belonging and self-definition.**

However, this process requires space, guidance, and recognition. As the teacher in social studies mentioned (Ei03, A3), when young people feel dismissed or not taken seriously, their opinions tend to harden, and the distance between "us" and "them" grows. Concluding, disqualification or moral judgment can easily trigger defensiveness and even radicalisation. Therefore she mentioned: "I think we need spaces where young people feel seen, and where there's room for the difficult conversations." Building on this insight, **this project emphasises the importance of creating environments in which adolescents feel safe to ask questions, express doubt, and encounter perspectives beyond their own.** Providing such spaces can help maintain dialogue and support the development of identity, empathy, and critical awareness.

"When we talk about young people, we have to see polarisation in the context of their development."
- Expert teacher social studies (Ei03, App. A3)

"I think we need spaces where young people feel seen, and where there's room for the difficult conversations."
- Expert teacher social studies (Ei03, App. A3)

3.6 Concluding this chapter

The aim of this chapter was to answer the question:

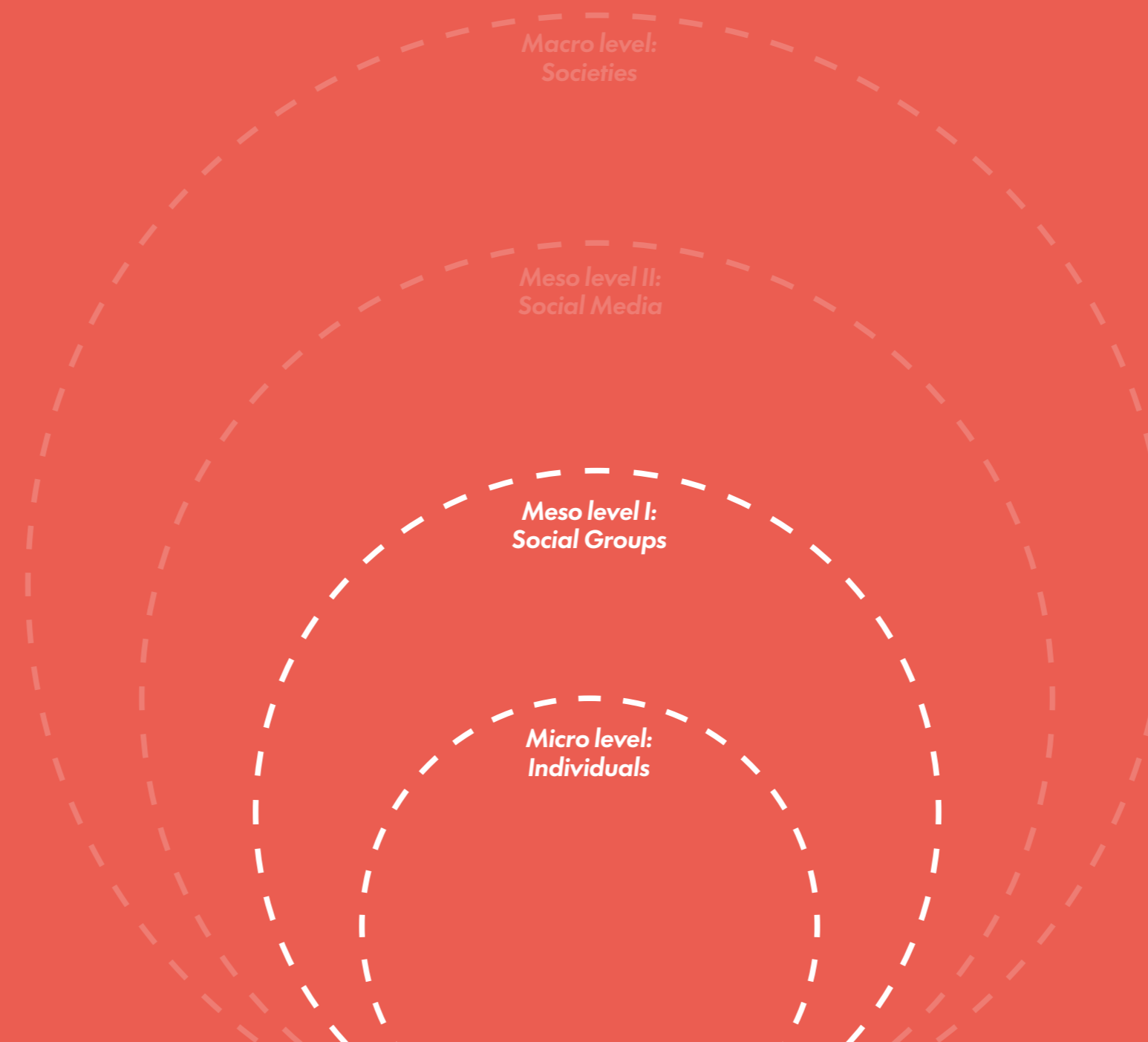
“How do adolescents experience polarisation, and what makes them particularly sensitive to it?”

Adolescence is a sensitive phase in which belonging and identity are central. Young people are in the process of shaping their views about the world, but also about themselves and where they fit in. Because their brains are still developing, especially in areas related to emotion, reward, and regulation, adolescents are more responsive to social influence and strong emotions. This makes them particularly vulnerable to polarising messages and group dynamics.

At the same time, adolescents are curious, empathetic, and eager to understand others. However, modern society, with its pressure to perform and focus on social media, often leaves little room for uncertainty or doubt. Many adolescents feel unheard or unrepresented in public debates, and this lack of recognition can lead to frustration and contributes to a growing sense of distance between young people and those in power.

Although adolescents may experience polarisation more intensely, their experiences are not vastly different from those of adults. The main difference lies in the emotional intensity with which they experience and express their opinions. Adolescents often take strong positions or explore extremes as part of their identity formation.

Polarisation during adolescence, therefore, has two sides. It can foster the us-vs-them mentality, as adolescents are particularly sensitive to polarising messages. However, it can also serve as a constructive force that helps them grow, reflect, and engage with the world, as long as they are given the space and support to do so.



Key take-aways

- Adolescence (16–25) is a phase where identity formation and social belonging are central.
- The adolescent brain is still developing, particularly areas linked to emotion, reward, and regulation, making adolescents more sensitive to social influence and polarising messages.
- Adolescents are strongly influenced by peers, role models, and social media, which can reinforce both positive and negative behaviours.
- Their heightened social orientation makes them vulnerable to ingroup-outgroup thinking, where group identity plays a big role in shaping attitudes.
- Social media and modern pressures like performance expectations contribute to stress and feelings of exclusion.
- Many adolescents feel unheard in political debates, which leads to frustration and a growing sense of distance from institutions.
- While polarisation among youth is not fundamentally different from adults, it tends to be more emotionally intense.
- Avoiding confrontation is common, as adolescents seek emotional safety from differing opinions.
- Strong positions or exploring extremes can be part of their identity formation process.
- Not being taken seriously can cause adolescents to harden their views and increase the distance between groups.
- Creating safe spaces for dialogue helps prevent defensiveness and supports empathy and critical thinking.

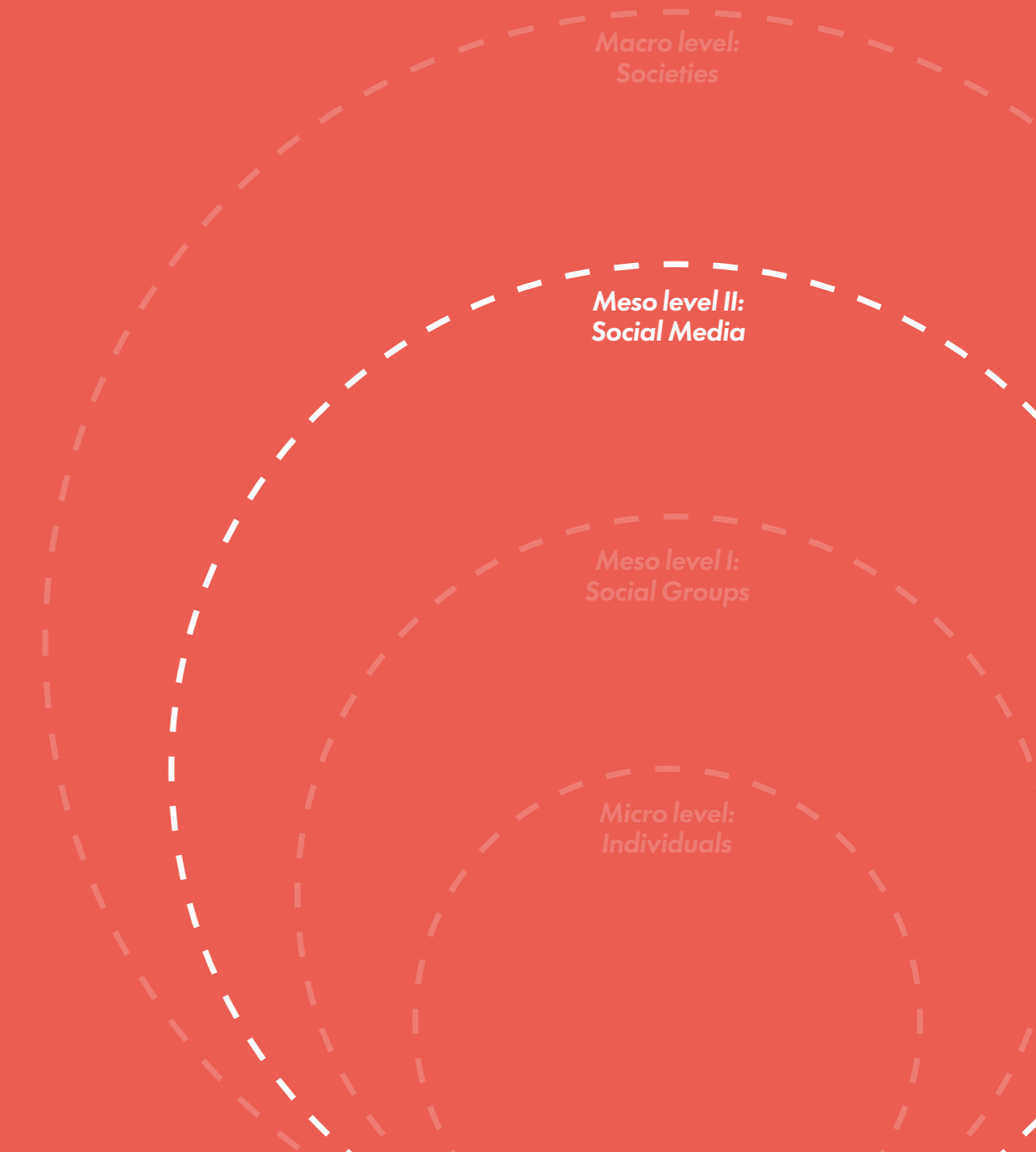
4. The influence of Social Media

Having looked at the broader dynamics of polarisation and its impact on youth, this chapter zooms in on one of the many influences on adolescents today: social media, meso-2 level. Social media plays a central role in how young people form identities, encounter different viewpoints, and engage in public discourse. While these platforms offer opportunities for self-exploration and exposure to diverse perspectives, they can also amplify division through algorithmic filtering, emotional engagement, and the rapid spread of polarising content. The main question guiding this chapter is:

“How does social media contribute to polarisation among adolescents, and how do they engage with polarised content online?”

Each subchapter addresses a specific sub-question that contributes to answering this larger question. First, the role of social media as a catalyst for polarisation is explored (4.1). Then, the focus shifts to what young people encounter on social media (4.2), including how they consume information and how platforms affect their political views. Next, the ways in which adolescents use social media are examined (4.3), looking at their motivations and the emotional and cognitive factors involved. This is followed by a discussion of the opportunities social media offers for identity exploration and civic engagement (4.4). After that, the risks are addressed, such as algorithmic bubbles, misinformation, and emotionally charged content (4.5). Finally, this section looks at how adolescents remain misunderstood in their online world (4.6).

- **Chapter 4.1:** Social media and polarisation
- **Chapter 4.2:** Content on social media
- **Chapter 4.3:** The use of social media
- **Chapter 4.4:** Opportunities of social media
- **Chapter 4.5:** The dangers of social media
- **Chapter 4.6:** A misunderstood world
- **Chapter 4.7:** Concluding this chapter



4.1 Social media and polarisation

Why is social media important in tackling polarisation?

The online world is an important part of adolescents' lives. Young people aged 13 to 24 spend an average of more than three hours a day on social media (TeamAlert, 2020). Given its central role in adolescents' daily lives and the ways in which these platforms shape the visibility and amplification of opinions, this project focuses specifically on the role of social media within the problem of polarisation. These social platforms offer many positive aspects: they provide spaces to meet others, explore interests, and discover who you are. However, social media also has its downsides, especially when it comes to polarisation (Nederlands Jeugdinstituut, 2021).

Online as a catalyst for polarisation:

Because of the algorithms used by social media platforms, users are often exposed to personalised streams of content, creating so-called algorithmic bubbles. At the same time, social interactions on these platforms can reinforce echo chambers, in which users mainly encounter beliefs or opinions that align with their own, reinforcing existing views. Many adolescents notice that "shouting" online pays off: the more extreme the statement, the more attention it receives. The online space also makes it easy to express extreme opinions anonymously, which further fuels division.

Online as a space to observe polarisation:

Professionals and parents can see signs of polarisation online through posts, photos, shared news items, and the networks that young people engage with. The online world offers valuable insight into what moves young people. For professionals and parents, being present and attentive online can help them understand these dynamics and stay connected to the digital realities young people live in.

'If you intentionally search for different viewpoints, you can expose yourself to content outside your immediate social circle.'

- Expert on social media use (Ei04, App A4)

4.2 Content on social media

What do adolescents see on social media?

Among 20-year-olds, Instagram is currently the most commonly used social media platform, followed by YouTube, Snapchat, and TikTok (Zonneveld, 2024). However, these preferences are changing rapidly as new platforms and trends continue to emerge.

In recent years, short-form videos have become extremely popular, as they offer quick and engaging content with strong one liners. Users can experience something valuable within just a few seconds, a format that fits perfectly with the increasingly short attention spans of adolescents (Follo Agency, 2023). Some are meant to entertain, such as memes or influencers (see figure 4.1 and 4.4), while others are more informative or opinion-based, for example resembling a snippet from talk shows (see figure 4.2) or street interviewers (see figure 4.3).

Social media has also become the primary source of information on political and social issues for young people. Among respondents aged 16–30, 42% rely on social media for news, compared to 39% who prefer television. This preference is strongest among 16–18-year-olds (45%) (European Parliament, 2025). This trend is also visible in which politicians adolescents recognise: those who are most active on social media, such as Rob Jetten or Thierry Baudet, are generally the most familiar names among young people as an expert on politics and youth mentioned during one of the expert interviews (Ei02, Appendix A2).

Many adolescents describe social media as a space where they encounter diverse opinions (Van de Wetering, 2026). However, exposure to different viewpoints is not always automatic. As an expert on social media use among youth explained in one of the interviews (Ei04, Appendix A4), "If you intentionally search for different viewpoints, you can expose yourself to content outside your immediate social circle." At the same time, the type of content adolescents engage with is often not derived from verified sources. Only about 5% of the content they consume comes from certified news platforms such as RTL Nieuws or NOS Stories. **As a result, most of what they encounter online originates from uncertified accounts, increasing their exposure to misinformation and disinformation** (Ma, Healthy Start Transformative Research Meeting, 2025).

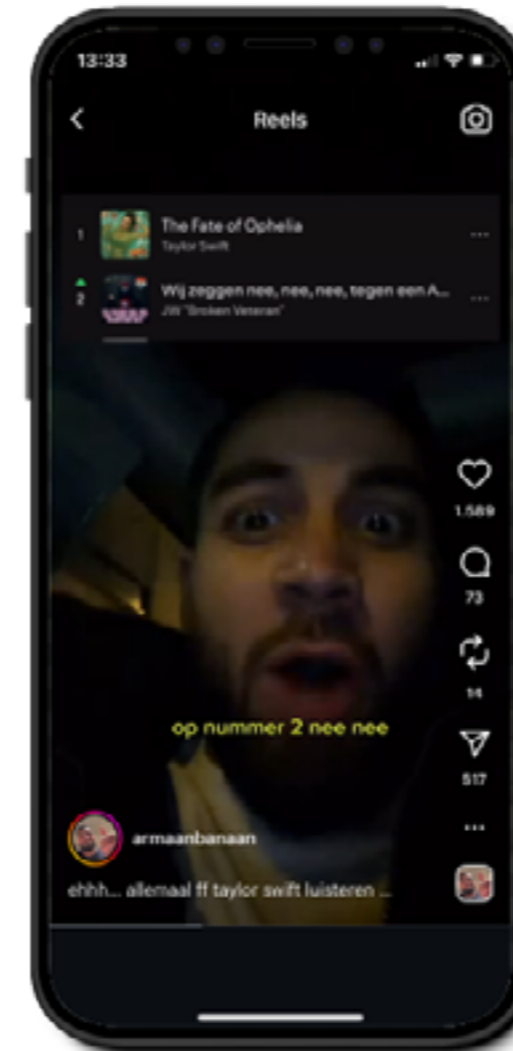


Figure 4.1: Emotionally charged Instagram meme by a Dutch influencer expressing frustration over the song 'Nee, nee tegen AZC' ranking in the Spotify Top 40. The meme uses humour to criticise the song's popularity and encourages a counter-response movement, thereby reinforcing oppositional dynamics and illustrating how content online can intensify existing divisions. (Retrieved from @Armaanbanaan)

Translation:
'Number 2 listened on spotify is 'no no, against asylum seekers' centre'
'Ahhh, everyone should quickly listen to Taylor Swift!'



Figure 4.2: Instagram post featuring Minister Faber discussing her strict asylum policy proposals for Parliament during a Dutch talk show. The short video fragment presents her policy stance in a concise and mediated format, illustrating how complex political debates are transformed into brief, easily circulated content on social media. (Retrieved from @pauwendewit)



Figure 4.3: Instagram post by a well-known Dutch street interviewer showing footage of an anti-migration demonstration in The Hague, during which protesters attacked the police. The video captures the escalation of tensions on the polarising topic migration, and illustrates how the online circulation of confrontational scenes can evoke emotional responses and reinforce polarised narratives. (Retrieved from @benderbijofficial)

Translation:
"The crowd starts to run"
'Always herres (drama) at the Malieveld'

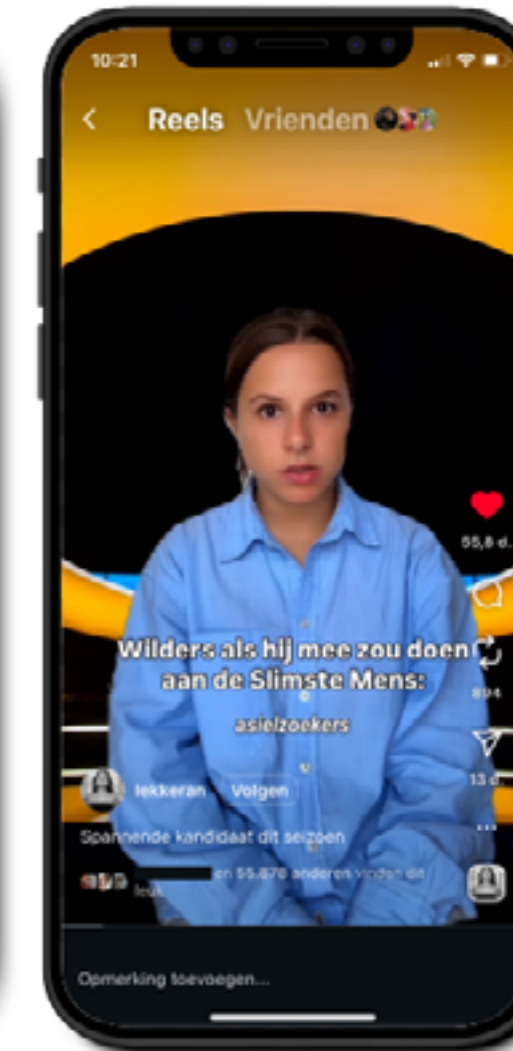


Figure 4.4: Satirical Instagram sketch depicting Geert Wilders, leader of the PVV, as a quiz show participant who responds to every question, regardless of the topic, by linking it to migration. The humour highlights the perception that political debates are reduced to a single polarising issue. (Retrieved from @lekkeran)

Translation:
'Wilder if he would attend de Slimste Mens: asylum seekers.'
'Exciting candidate this season'

4.3 The use of social media

How do youth use social media?

As mentioned in one of the expert interviews (Appendix A, Ei04), many young people use social media primarily in a passive way. Consuming content is by far the most common activity, including scrolling, watching, and taking in information. Activities such as sharing and receiving content occur less frequently. A more recently identified activity, observed during participatory research by the Erasmus MOVE Lab, is managing (Doorhein et al., 2025). Due to the abundance of content and the wide range of apps, adolescents spend considerable time sorting, organising, and grouping information. Although this research was conducted with a younger age group than 16–25-year-olds, the findings remain relevant for older adolescents and even adults.

For many adolescents, sharing posts with friends is less about the content itself and more about social connection. As mentioned by an expert on social media use (Ei04, Appendix A4): "We also realised that it's [social media use] connected to social norms and group status, certain activities on social media come with specific social advantages." As mentioned in chapter 3.2, the adolescent brain is highly sensitive to social validation and peer influence. Young people tend to share content they find funny, ironic, or relatable because it helps them connect, gain approval, or fit in with their group. Their online behaviour is therefore closely linked to offline social norms and status; it becomes a way of expressing who they are and how they wish to be perceived. In addition to peer influence, social

media influencers also play a significant role (Hoffner & Bond, 2022). They function as contemporary role models, shaping ideals, opinions, and trends. Because influencers often present themselves as authentic and relatable, their impact on adolescents' values, self-image, and worldview can be particularly strong.

When engaging online, the brain often relies on faster, more emotionally driven processing. As noted by the social media expert (Ei04, Appendix A4), "we often make choices with our lazy brain; we don't choose consciously, but take quick routes when judging content," highlighting how online decision-making is often intuitive rather than reflective. For adolescents, the prefrontal cortex is still developing, as mentioned in Chapter 3.2, meaning that executive functions such as self-control, reflection, and planning are not yet fully mature. As a result, adolescents are more susceptible to emotionally driven and impulsive responses. Taking a step back to question the truth or relevance of online content requires conscious effort, yet social media platforms are not designed to encourage such reflection. As the social media expert noted (Ei04, Appendix A4) "People get pulled into endless scrolling and constantly search for better content. There are no 'traffic lights' online." Due to the infinite scroll, there are no natural pauses between pieces of content, making continuous consumption easy and limiting opportunities for reflection.

This creates a mismatch: young people have access to powerful digital tools, while their cognitive and emotional regulation systems are still developing, making it challenging to navigate these tools critically and responsibly (Flanagin & Metzger, 2020).

"We often make choices with our lazy brain, we don't choose consciously, but rather take the quick route when judging content, without being particularly critical."

- Expert on social media use (Ei04, App A4)

"We also realised that it's connected to social norms and group status, certain activities on social media come with specific social advantages."

- Expert on social media use (Ei04, App A4)

4.4 Opportunities of social media

What are the benefits of social media?

In the past, online and offline spaces were often viewed as separate spheres. Today, however, digital spaces are deeply intertwined with offline relationships and experiences. Rather than existing as an alternative world, social media functions as an extension of adolescents' social lives. Young people use these platforms primarily to develop and maintain friendships, understand their peers' feelings, and feel more connected to others (Uhls et al., 2017).

Building on the interconnectedness, since the introduction of the infinite scroll online, digital media offer young people unlimited access to information, education, and diverse perspectives. It supports identity exploration by allowing adolescents to explore different perspectives, interests, and communities, both locally and globally (Flanagin & Metzger, 2020). Social media and digital platforms have also created new spaces for civic engagement and political participation, lowering barriers for youth to express their opinions and be heard. For marginalized groups in particular, online spaces can provide supportive communities that may not exist offline. These platforms can help young people, especially those who struggle to find like-minded peers in their immediate surroundings, feel less lonely and more confident in expressing who they are (Uhls et al., 2017).

Research shows that time spent on social media is associated with several positive outcomes, including increased self-esteem, stronger social capital, the resources and support gained through one's relationships, and opportunities for safe identity exploration and self-disclosure (Uhls et al., 2017). In this way, social media can serve as a valuable environment for practising essential skills related to identity development, such as self-presentation and reflection. This function of identity exploration was also highlighted in one of the expert interviews: "For the children in our study (Erasmus Movez Lab), it was about personal growth, social media is a way to explore who they are and who they want to become." (Ei04, Appendix A4).

Recognising these positive functions is essential. **In analysing the role of social media in polarisation, it is important not to overlook its social, developmental, and connective value. Any intervention or design proposal should therefore take into account that social media is not merely a source of risk, but also a meaningful and embedded part of young people's everyday lives.**

"For the children in our study (Erasmus MOVE Lab), it was about personal growth, social media is a way to explore who they are and who they want to become."

- Expert on social media use (Ei04, App A4)

4.5 The dangers of social media

What are the dangers of social media?

As mentioned earlier, social media allows adolescents to encounter different perspectives. However, during one of the expert interviews, the diversity of these perspectives was questioned (Ei04, Appendix A4): *'Social media can help them encounter different opinions, though the question remains: how different are those opinions really?'* **This highlights that, although social media is often perceived as a space for diverse perspectives, the actual range of viewpoints adolescents encounter may remain relatively narrow.**

Growing up in a digital environment shaped by algorithmic curation, adolescents are repeatedly exposed to personalised streams of content. While this increases relevance and engagement, it can also reinforce existing beliefs and limit exposure to alternative viewpoints, a phenomenon often described as an algorithmic bubble, or in Dutch, an algoritmevuik, which can contribute to the formation of echo chambers over time (Uhls et al., 2017). This does not necessarily mean that adolescents experience these environments as restrictive, in the creative sessions (explained in Chapter 7) many indicated that they do not feel they are in an echo chamber. Next to this, Uhls suggests that consuming polarising media can synchronise brain activity among like-minded individuals, strengthening group identity ('we think alike') and reducing openness to opposing views (Uhls, 2025). For adolescents, who are still forming their sense of self, this may contribute to the development of more rigid worldviews.

However, the extent to which adolescents actually experience such echo chambers remains debated. While the concept is often used to describe online environments, research findings are mixed and sometimes even contradictory. Some studies suggest that echo chambers may be less widespread than often assumed, and that the extent to which media use contributes to polarisation remains unclear (Arguedas et al., 2022).

Another danger of the algorithms online, operated by large technology companies, is that it prioritises emotionally charged and extreme content as it generates attention and engagement (Brady et al., 2017). As a result,

provocative language and simplified, extreme statements often gain more visibility than nuanced discussion. Adolescents themselves recognise this dynamic. A survey from research by Van de Wetering (2026) shows that a 8 out of 10 young people report encountering increasingly extreme content online. Online, the most confrontational voices tend to rise to the top, while anonymity lowers the threshold for expressing extreme opinions. At the same time, anonymity combined with the bystander effect discourages others from intervening, even when they disagree or encounter harmful content. In an environment characterised by information overload, misinformation, and polarised narratives, critical evaluation becomes increasingly difficult, especially as adolescents' cognitive control and reflective capacities are still developing (Flanagin & Metzger, 2020).

In addition to algorithmic filtering, the design of platforms plays a role. The infinite scroll and the absence of natural 'traffic lights', explained in 4.3, make it difficult to step back and assess the relevance or reliability of content. Yet such pauses are precisely what young people need in order to remain critical, curious, and open within complex digital environments, as mentioned in one of the expert interviews (Appendix A, Ei04): *"While young people actually need those moments to pause and reflect, to assess what they are seeing."*

At the same time, algorithms do not only constrain; they can also be used strategically. When young people intentionally seek out perspectives that differ from their own, they can broaden their worldview. However, this potential is not always realised in practice. As an expert during one of the expert interviews noted: **There appears to be a gap between what adolescents know about algorithms and how they act upon that knowledge.** (Appendix A, Ei04).

*"There appears to be a gap between what adolescents know about algorithms and how they act upon that knowledge."
- Expert on social media use (Ei04, App A4)*

4.6 A misunderstood world

Why is it so difficult to support adolescents in navigating social media in a critical and constructive way?

Parents, teachers, and professionals express growing concern about the influence of social media on young people. At the same time, **many professionals and caregivers struggle to develop a consistent approach to working online.** They are often unsure about the possibilities and risks, how to present themselves in digital spaces, and what is legally permitted (Nederlands Jeugdinstituut, 2021).

In contrast, adolescents show a strong willingness to talk about their online experiences. As noted during one of the expert interviews (Ei04, Appendix A4): *"That's what young people want. They want to be heard. They want to talk about their online world. Those conversations can also spark critical reflection."* Research from the VU Amsterdam, using Youth Participatory Action Research methods, shows that young people greatly value exchanging experiences with peers (Anselma, 2020). Listening to others and sharing their own stories helps them gain insight and develop a more reflective, balanced relationship with social media. Adolescents are still in a stage of openness and exploration, often less fixed in their views than adults, which makes these conversations particularly meaningful.

*"That's what young people want. They want to be heard. They want to talk about their online world. Those conversations can also spark critical reflection."
- Expert on social media use (Ei04, App A4)*

4.7 Concluding this chapter

The aim of this chapter was to answer the question:

“How does social media contribute to polarisation among adolescents, and how do they engage with polarised content online?”

Social media play a crucial role as a catalyst for polarisation among adolescents. The algorithms used by platforms are designed to reinforce existing beliefs by promoting content that aligns with users’ views, which creates echo chambers. These echo chambers lead to adolescents being exposed primarily to content that reflects their own opinions, further entrenching their beliefs and fostering division. As a result, social media amplifies the polarising narratives that adolescents encounter, making it difficult for them to engage with alternative viewpoints.

Adolescents’ ongoing cognitive and emotional development makes them especially vulnerable to these effects. They are more likely to engage with content that aligns with their emotions or group affiliations, which can shape their worldview in ways that are reactive rather than reflective. Peer influence and the drive for social validation also play a significant role in how adolescents use and share content, often reinforcing polarised perspectives.

Despite the risks, social media also offers adolescents opportunities for growth. It allows them to connect with diverse perspectives and engage in identity exploration and civic engagement, which can contribute to their development and personal growth. However, the challenges posed by misinformation, polarising content, and algorithmic bubbles cannot be overlooked. Adolescents’ limited ability to critically evaluate content makes them more vulnerable to these negative influences.

One of the key issues is the lack of understanding among adults and professionals about how to support adolescents in navigating the complexities of social media. Many professionals, including parents and educators, are uncertain about how to approach adolescents’ online lives, which prevents them from intervening effectively. **Adolescents themselves are eager to talk about their digital experiences, but there is a clear mismatch between this willingness and the lack of structured support that helps them engage with online content in a critical way.**



Key take-aways

- Social media are central to adolescents’ lives, offering spaces for identity exploration, social connection, and civic engagement.
- Algorithms on social media platforms reinforce existing beliefs, creating echo chambers that amplify polarising content and increase polarisation.
- Adolescents are particularly vulnerable to these effects due to their developing cognitive and emotional systems, making them more susceptible to emotional content and peer influence.
- Many adolescents use social media passively, engaging with content for social validation rather than critically evaluating it.
- Adolescents encounter a mix of opinions online, but much of what they see comes from uncertified sources, exposing them to misinformation and polarising narratives.
- Social media provides opportunities for identity development and engagement with marginalised communities, offering new avenues for expression and connection.
- The dangers of social media include algorithmic bubbles that limit exposure to diverse perspectives, as well as emotional content that reinforces extreme views.
- Anonymity on social media encourages extreme opinions and division, while infinite scrolling and a lack of reflection moments prevent critical engagement with content.
- Adolescents are eager to discuss their online experiences, but adults (such as parents and professionals) struggle how to help, leaving adolescents without sufficient support to engage critically with digital content.

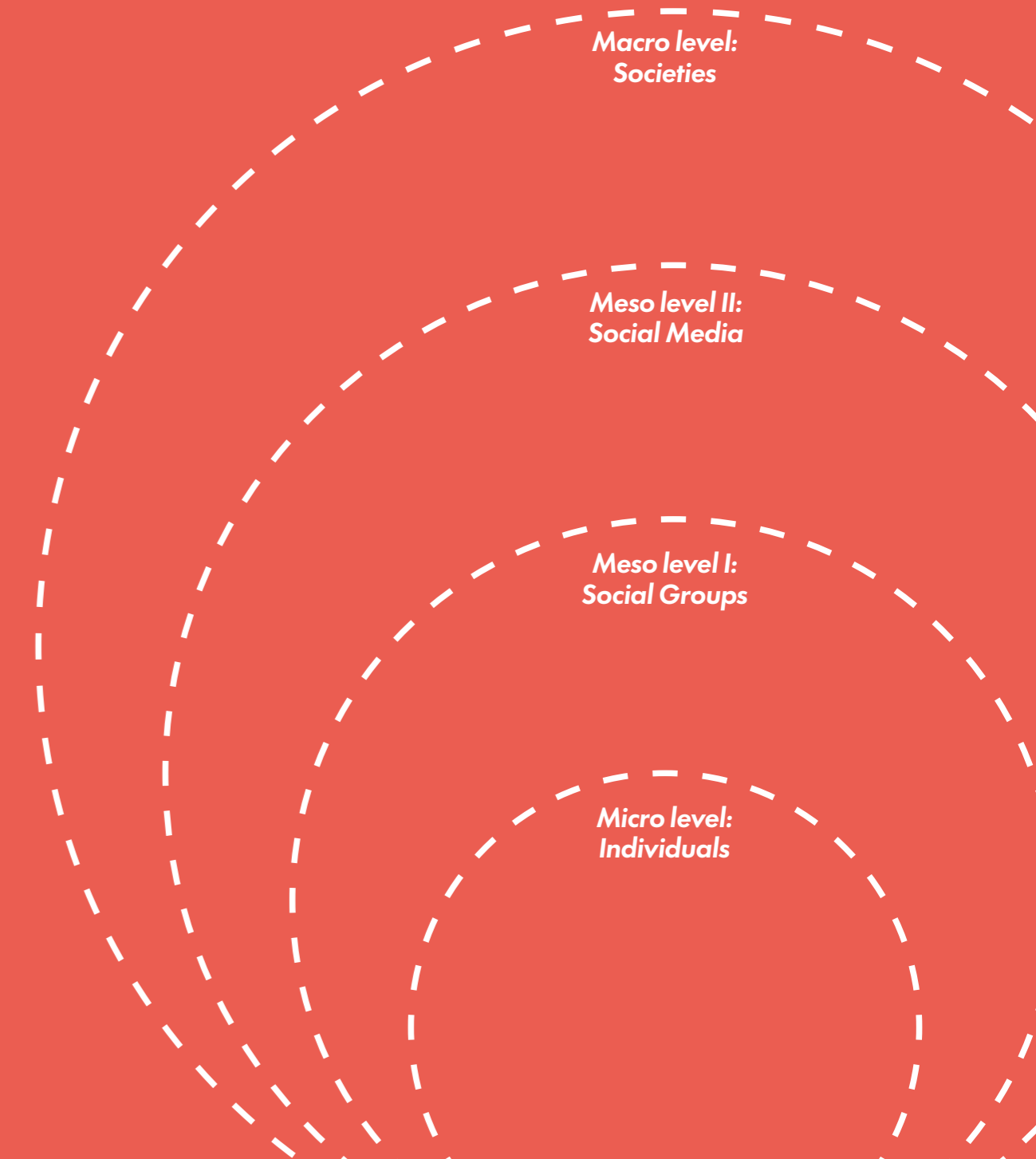
5. An overview of part 1

After exploring polarisation on a societal level, within youth, and on social media, this chapter brings these perspectives together. It looks at how the different levels of the system, macro, meso, and micro, interact and reinforce one another. By connecting the findings from the previous chapters, this part aims to create a more integrated understanding of how polarisation moves through society. The central question guiding this chapter is:

“How do the different levels of polarisation influence one another?”

This chapter explains how the different levels, individual, social, media, and societal, are interconnected and continuously affect one another. Next to this, it discusses how social media act as a magnifying glass of society and unhealthy polarisation is essential.

- **Chapter 5.1:** Looking at the levels as a whole



5.1 Looking at the levels as a whole

How are the levels connected to each other?

A total overview of the levels together is shown in figure 5.1. Looking at these levels together provides a more systemic understanding of how polarisation emerges across different layers of society, as mentioned in 1.2. This perspective will be further explored in Part 2. The different levels in this model are strongly connected, shaping and reinforcing one another. **Polarisation does not just live in one place, it moves between people, groups, media, and society as a whole.** For example, what starts as a personal feeling or opinion at the micro level can spread through social groups, get amplified by social media, and eventually shape public debate. At the same time, the tone of politics and media influences back down, affecting how people think, feel, and relate to one another.

At the micro level, adolescents' emotions and need for belonging make them extra sensitive to polarising messages. At the first meso level of social groups, these feelings are shaped through interaction, young people learn social norms, seek approval, and are influenced by the attitudes of peers, parents or influencers. The second meso level, social media, magnifies this again: opinions become visible, measurable, and public through likes, shares, and comments. Finally, at the macro level, these amplified dynamics contribute to the tone of public debate and the growing sense of division, which then loops back down into daily interactions.

Seeing the levels together makes clear that polarisation is not just an problem acting on one level. It's a broader social process that moves between individuals, social groups, media platforms and society. **Therefore, in this report, social media is seen as a magnifying glass for what's already happening in society. It doesn't create polarisation by itself, but it makes it more visible and more emotional.** The same tensions that exist offline are amplified online, where algorithms reward emotional and extreme content.

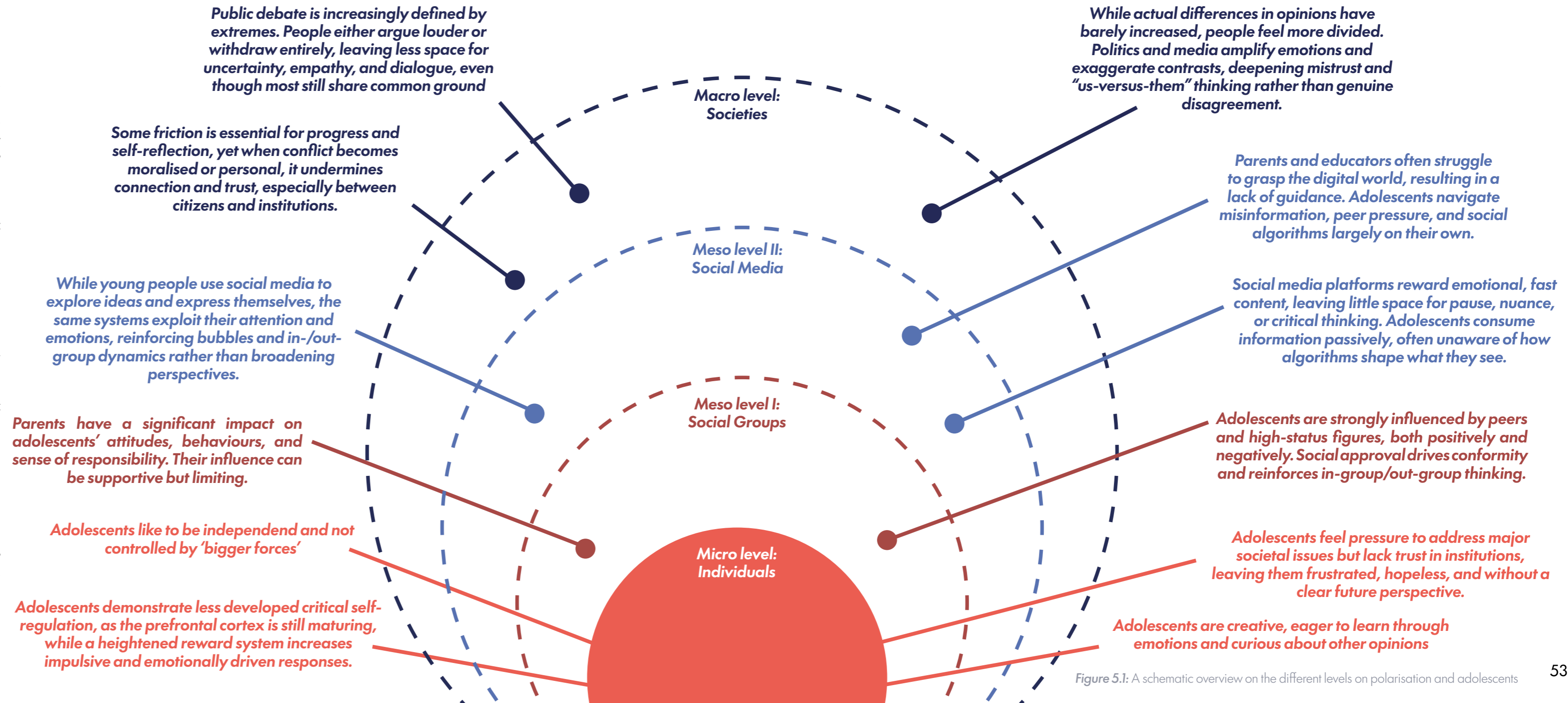


Figure 5.1: A schematic overview on the different levels on polarisation and adolescents

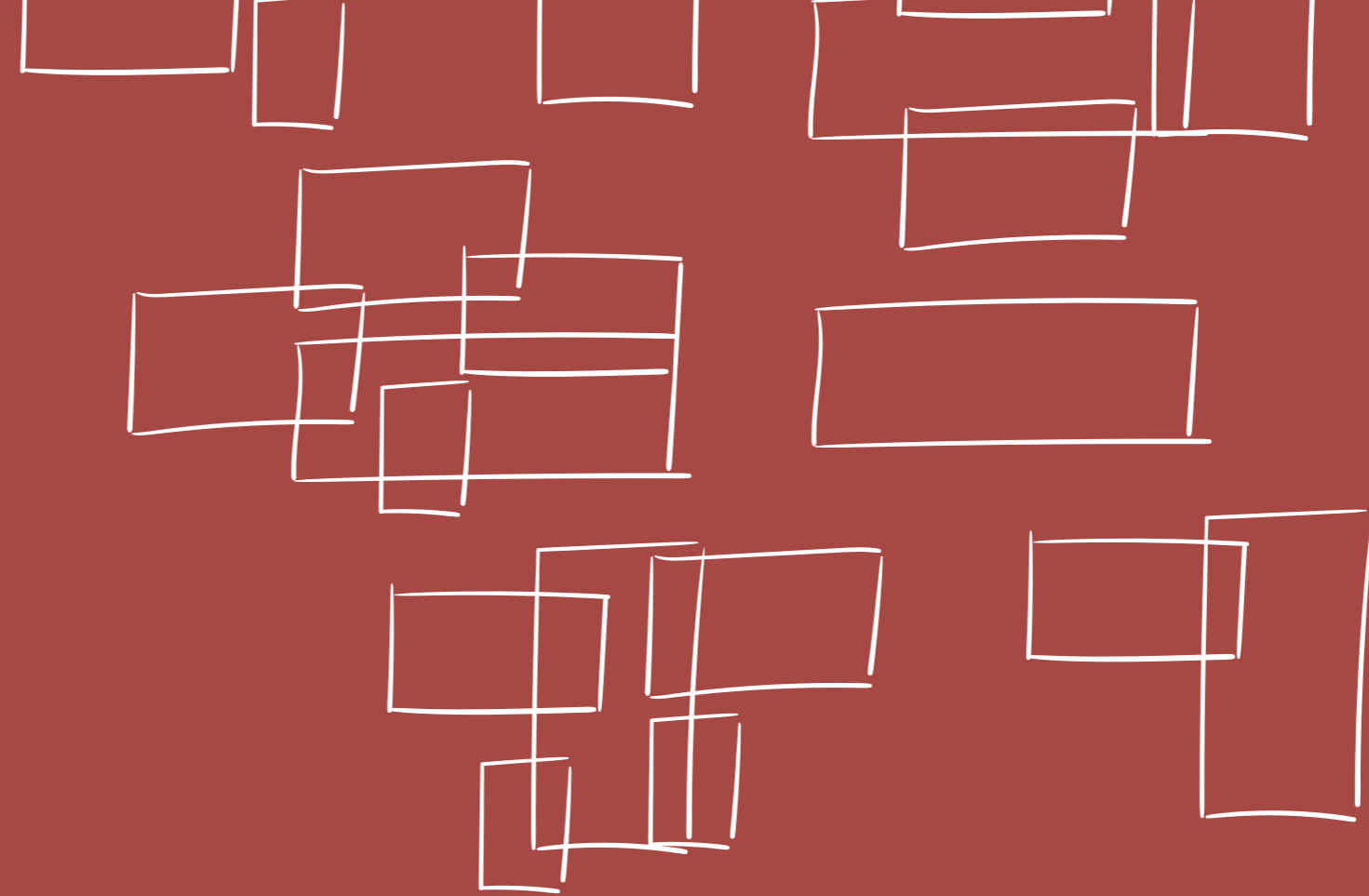
Part 2: Reframing

Building on the insights from Part 1, this section moves from understanding polarisation towards identifying where meaningful change might occur. While the previous chapters explored how polarisation manifests across different levels of society, Part 2 focuses on making sense of the relationships and tensions within this complex system and reframing the problem.

Through mapping and clustering in several mapping activities (MA1–MA4), insights from literature, expert interviews, and observations were organised and analysed to reveal relationships and patterns within the system. This process builds on the systemic perspective introduced in Chapter 1.4 and allows for a more holistic exploration of polarisation. It uncovers underlying dynamics and contradictions that shape how polarisation develops and is experienced. In addition, this part explores the issue from the perspective of youth, building on insights gained during the creative sessions (CS1, CS2.1, CS2.2, CS2.3), identifying points of interest that may open up possibilities for future directions.

Part 2 consists of two chapters. Chapter 6 maps the system surrounding youth and polarisation by clustering insights and visualising their relationships. Through this process, several underlying tensions within the system become visible, ultimately leading to the formulation of a central design dilemma: safety versus freedom. Chapter 7 then zooms in on how adolescents themselves perceive and respond to this dilemma, drawing on insights from the creative sessions. Their perspectives help to further interpret the dilemma and inform the direction of the design phase that follows in Part 3.

- **Chapter 6:** Uncovering the dilemma
- **Chapter 7:** Understanding the dilemma through the eyes of youth



6. Uncovering the dilemma

This chapter brings together insights from the previous chapters to make sense of the complex system surrounding polarisation. While the previous chapters sketched a comprehensive picture of the problem, the aim of this chapter is to structure these insights and identify key tensions within the system.

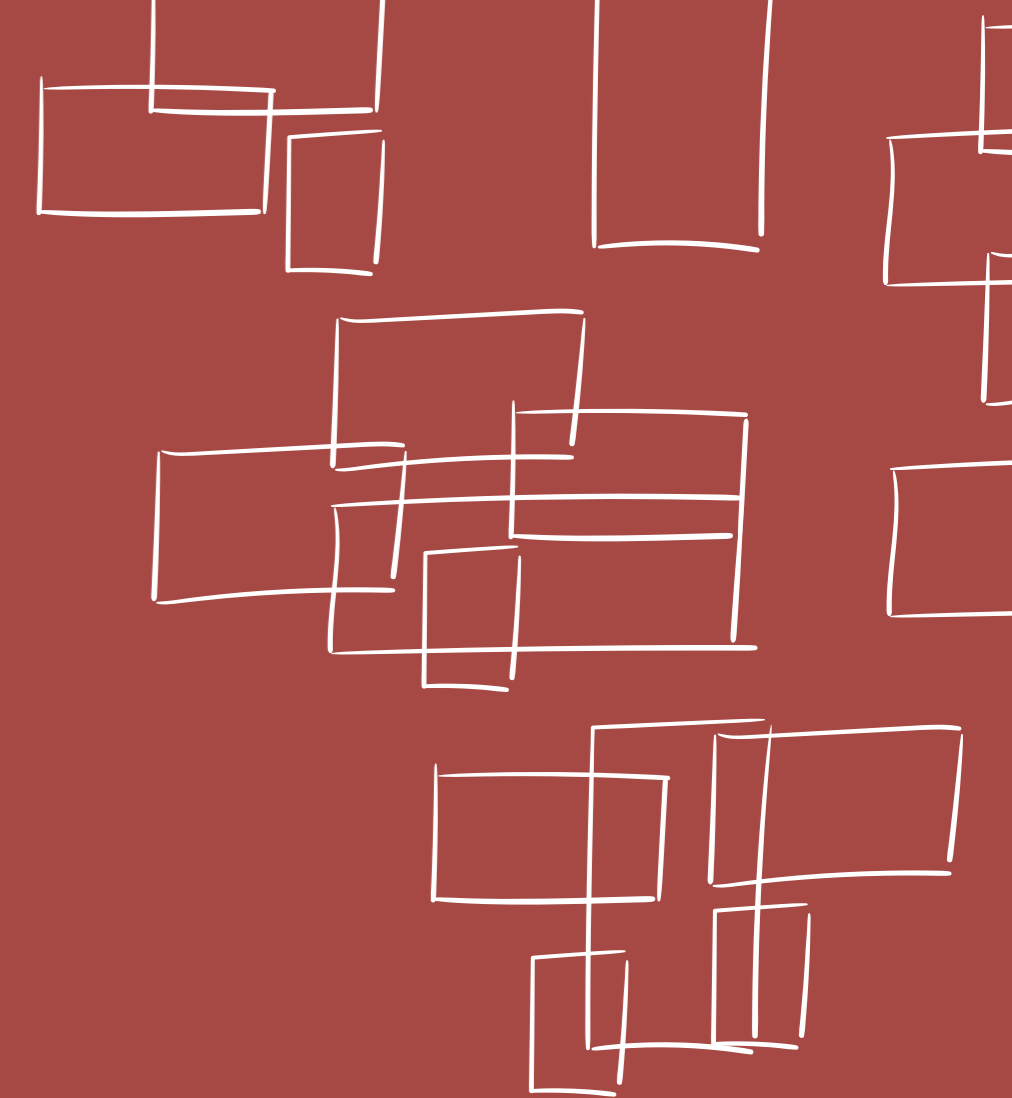
By mapping and clustering the collected insights, relationships between different context factors become visible. This process helps reveal underlying dynamics and contradictions that sustain the current dynamics of polarisation. These tensions illustrate the conflicting forces shaping the system and form the basis for a central design dilemma.

The central question guiding this chapter is:

“Which friction points shape the current system of polarisation, and how can we reframe these frictions into a design dilemma?”

The chapter starts with a brief explanation of the methodology (6.1), describing how insights from previous research were translated into clusters and visualised through iterative mapping. It then presents the twelve clusters that emerged from this process (6.2), illustrating the broader context surrounding youth and polarisation. Building on these clusters, the following section identifies the underlying tensions and translates them into a central design dilemma (6.3). Finally, the chapter introduces the dilemma freedom versus safety, which will guide the design exploration in the following chapters (6.4).

- **Chapter 6.1:** Methodology
- **Chapter 6.2:** The 12 clusters
- **Chapter 6.3:** From clusters, to tension, to a dilemma
- **Chapter 6.4:** Freedom vs. safety



6.1 Methodology

How were the insights from Part 1 translated and reframed into a central design dilemma?

Writing about complex societal issues is challenging. As Van Driel (2025) describes, when engaging with complexity, boundaries between challenges often blur and overlaps become unavoidable. It is therefore neither possible nor useful to attempt to capture an all-encompassing picture of the system. Instead, this project approaches polarisation as an intertwined and evolving system. Drawing on complexity theory and the probe-sense-respond approach (Snowden & Boone, 2007), the goal is not to provide an all-encompassing representation of the system, but to identify patterns, relationships, and tensions that can inform the design process.

To explore these dynamics, insights were gathered throughout Chapters 2, 3 and 4 through multiple methods, including literature research, expert interviews (Ei01-Ei04), field observations (AA1-AA5), and later the creative sessions (CS1-CS2.3), which will be described in detail in Chapter 7. Each method served a different purpose: literature research helped identify existing academic and societal perspectives on polarisation, expert interviews provided practice-based insights, field observations offered contextual understanding of how polarisation becomes visible in everyday and mediated settings and the creative sessions added the lived perspectives of adolescents themselves. Together, these methods generated a broad set of insights, including observable behaviours, perceived tensions, societal developments, values, and interaction patterns.

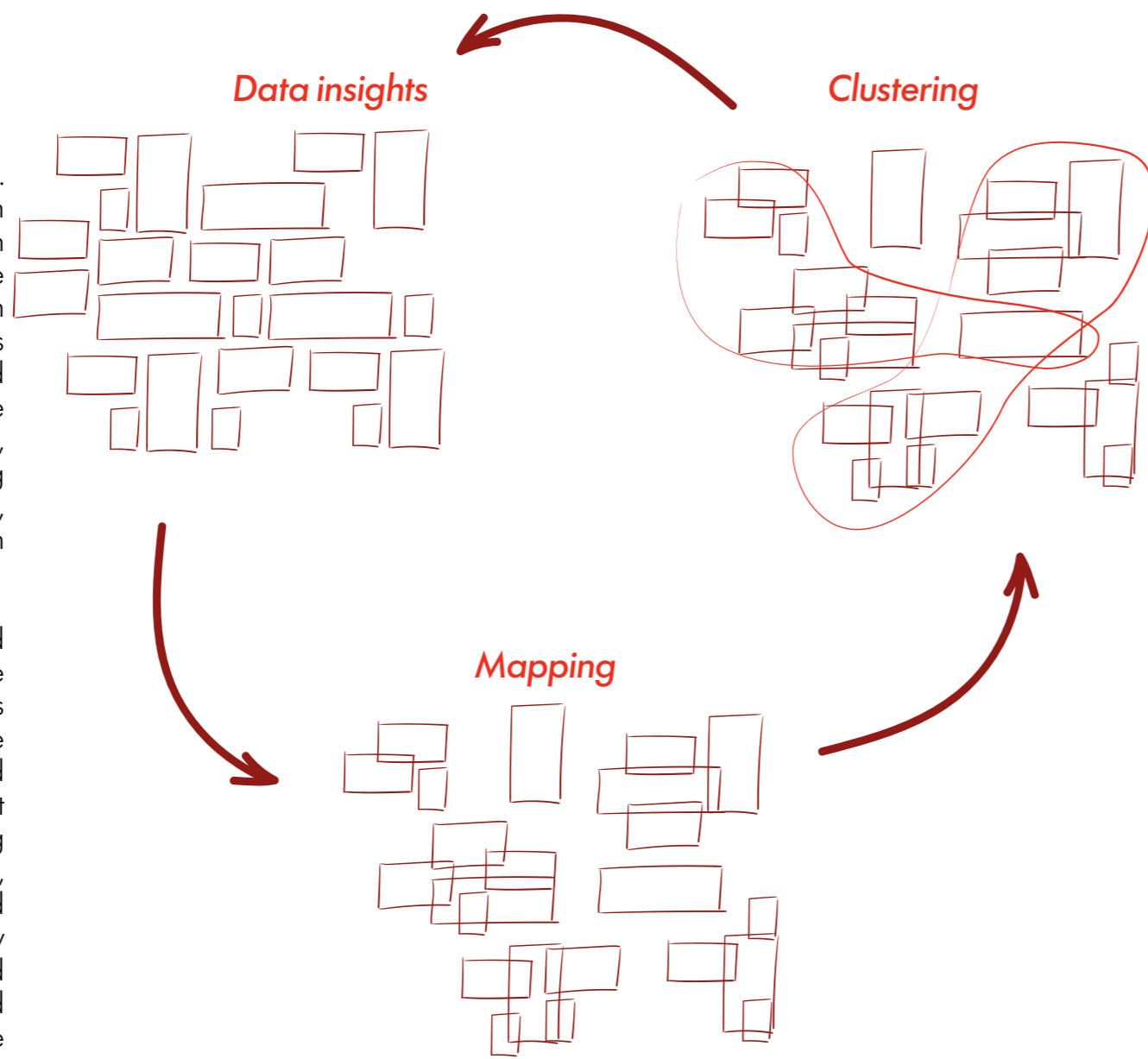
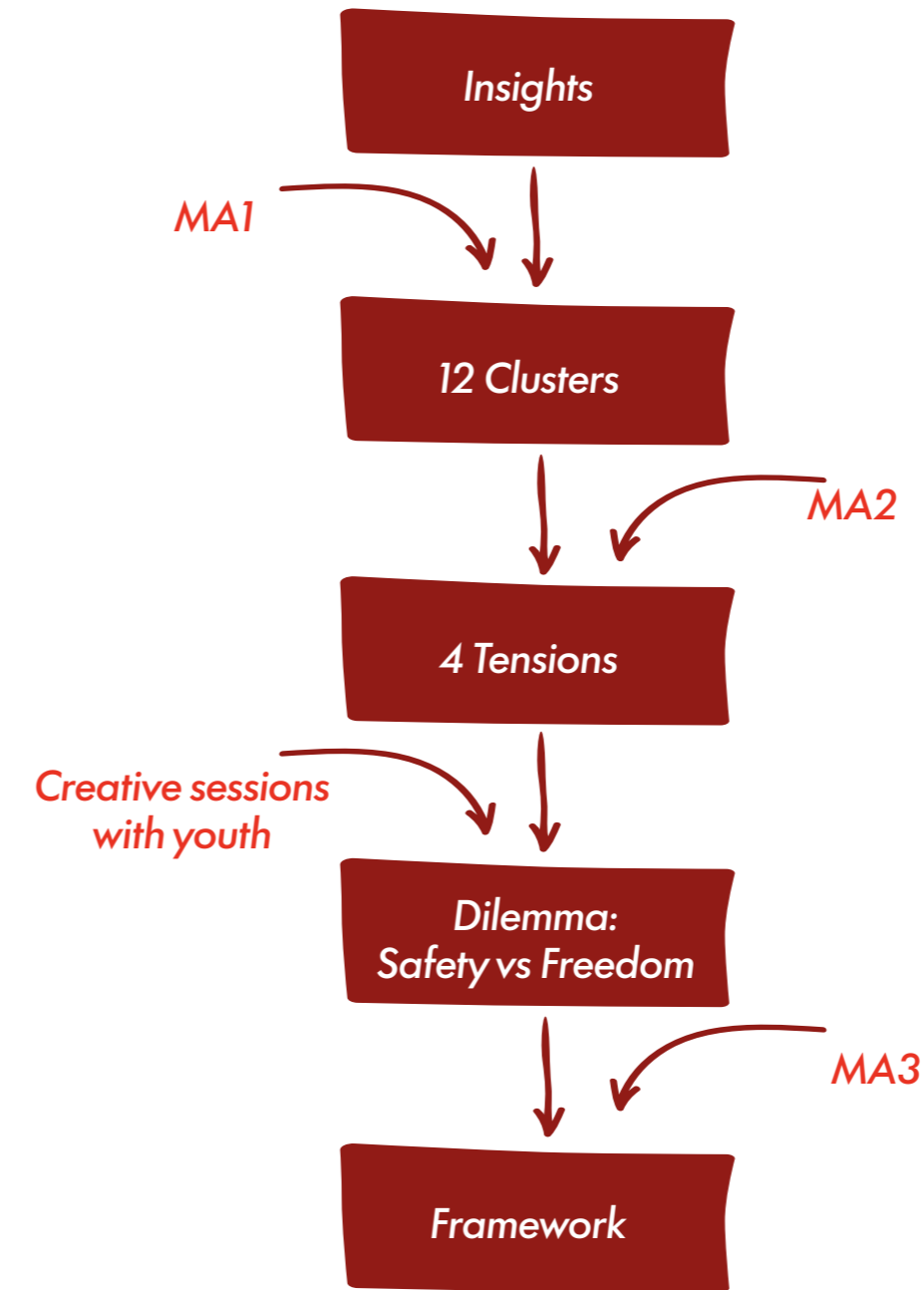


Figure 6.1: Schematic overview of the process of mapping and clustering insights



Picture 6.2: Schematic overview of the process of mapping and clustering insights

These insights were then analysed through an iterative mapping process, building on the systemic perspective introduced in Chapter 1.4, to uncover deeper systemic relationships. This process alternated between collecting insights, mapping them, and clustering emerging patterns (see figure 6.1). The findings were continuously analysed and structured as the understanding of polarisation evolved throughout the project. To support this process, multiple mapping activities were conducted both individually and collaboratively with fellow design students to validate and refine the analysis (MA1–MA3, Appendix B).

Through these iterative cycles, insights were continuously refined through clustering, mapping, and interpretation, leading to increasingly deeper levels of understanding of the system. The outcomes of this process can be understood as three layers.

First, individual insights were mapped into twelve thematic clusters (MA1), which helped structure the complexity of the system. These clusters were not fixed categories, but evolved throughout the process as new insights were added and existing ones reinterpreted.

Second, by mapping relationships between these clusters, underlying connections, contradictions, and reinforcing dynamics became visible (MA2). This resulted in the identification of four overarching tensions that reflect key frictions within the system of polarisation.

Finally, through continued iteration and reflection, these tensions were further synthesised into a central dilemma: safety versus freedom. This dilemma did not emerge in a single step, but developed through repeated cycles of analysis, in which insights were continuously deepened and reframed. Building on this, an additional collaborative iteration was conducted (MA3), which informed the framework presented in Chapter 6.4.

A schematic overview of this process, from clustering to tensions, to the identification of a central dilemma, and ultimately to the development of the framework, is shown in figure 6.2. The individual and collaborative activities are further elaborated in Appendix B. The following sections present the twelve clusters (6.2), the tensions and framework (6.3), and the dilemma (6.4).

6.2 The 12 clusters

How can insights from Part 1 be organised into meaningful clusters?

On the next pages the clusters are explained. In appendix B.1 the collected context factors are presented within the clusters.

1 The illusion of division

The sense of division keeps growing, not because people actually disagree more, but because conflict is everywhere in our media and information environment. Although the public debate often suggests that society is becoming more polarised, research shows that the actual differences in opinions have not grown significantly, only the extremes have become more visible (Bennema, 2023)(Muis, 2024). As one participant in the creative sessions pointed out (CS2.2), *"It is unrealistic that everyone agrees with each other"*, highlighting an awareness that differences are normal and part of society, rather than a sign of deep division.

At the same time, many people do experience a lack of connection and togetherness, resulting in adolescents becoming increasingly concerned about societal polarisation (Van Wetering, 2026). During the creative sessions (CS2.2), young people described society as highly individualistic and mentioned that there is little sense of social cohesion. As one participant said, *"There is no real feeling of togetherness anymore, everyone is mainly focused on themselves."*

How divided people feel also strongly depends on the topic. Issues such as migration, gender or Israel–Palestine tend to evoke stronger emotions and sharper positions than other topics (Nederlands Jeugdinstituut, n.d.). Politics and media often reinforce this by highlighting extreme viewpoints and presenting complex issues in simplified, black-and-white ways (Bjornsgaard & Dukic, 2023).

Online, this effect becomes even stronger. Algorithms favour emotional and conflict-driven content, and because of anonymity and limited moderation, there is little social correction (Flanagin & Metzger, 2020). As a result, nuanced perspectives are easily drowned out by strong, emotionally charged statements.

This makes it seem as if society is deeply divided, even though many people actually hold more mixed or moderate views.

In this way, the idea of a divided society keeps reinforcing itself. Not because people are moving further apart, but because conflict is constantly foregrounded in the information environment. **The illusion of division thus feeds itself, not through growing ideological gaps, but through the perception of conflict that dominates our information environment.**

"It is unrealistic that everyone agrees with each other."

- Youth, creative session at Rotterdam (CS2.2)

"There is no real feeling of togetherness anymore, everyone is mainly focused on themselves."

- Youth, creative session at Rotterdam (CS2.2)

2 When emotions overrule listening: a growing lack of dialogue

Public and political debates are increasingly driven by emotion rather than understanding, creating heated discussions in which people speak but do not truly listen. Negative feelings towards those with opposing views are growing, and affective polarisation is where people dislike or distrust those with different opinions, deepens frustration and discourages constructive dialogue (Sociaal en Cultureel Planbureau, 2022; Muis, 2024). Politicians often appeal to emotions and public distrust through charged language and personal attacks, leaving little room for nuance or genuine dialogue (Nederlands Jeugdinstituut, 2022). At the same time, international developments and global debates highlight differences between social groups in the Netherlands, adding further pressure to existing divisions (Prins, 2024).

Next to this, adolescents are increasingly confronted with a diversity of opinions, both online and offline. While this exposure can broaden their perspective, it is not always experienced as positive. As a participant in an enquête from Van de Wetering (2026) noted: *"Everyone may have their own opinion, but I don't need to hear it."* Many discussions are dominated by fixed opinions, leaving little room for nuance, curiosity, or respect. During creative sessions, young people indicated that conversations often feel unsafe because others are not truly listening, but only waiting to respond or prove their point. People enter conversation with an 'fixed mindset'. As a result, conversations often turn into exchanges of statements rather than opportunities for mutual understanding. Although this mindset is not appreciated by youth themselves, as one participant in the creative sessions explained (CS2.3), *"It's important not to enter a conversation just to prove that you're right."*

On social media, this dynamic is further reinforced by anonymity, allowing users to express anger and frustration without facing direct social consequences (Flanagin & Metzger, 2020). Young people also mention that humour, irony, and sarcasm are frequently used to dismiss different opinions, instead of engaging in open dialogue (Follo Agency, 2023). Because adolescents' social reward systems are still developing, they are more sensitive to emotionally charged content and social validation, making them extra vulnerable to polarising dynamics (Crone & Dahl, 2012).

Although freedom of expression is highly valued, in the creative sessions a participant mentioned (CS2.3): *"Freedom of speech is important, but it shouldn't come at the expense of others."* They emphasise the importance of taking others into account, listening with respect, and not entering a conversation solely to be right. However, in the current climate of emotional debates, fixed opinions, and low willingness to change one's mind, these values are often overshadowed. **This creates an environment in which discussions become heated, people feel unheard, and social safety is under pressure.**

"Everyone may have their own opinion, but I don't need to hear it."

- Youth in a survey from Van de Wetering (2026)

"It's important not to enter a conversation just to prove that you're right."

- Youth, creative session at Leiden (CS2.3)

"Freedom of speech is important, but it shouldn't come at the expense of others."

- Youth, creative session at Leiden (CS2.3)

3 Unheard voices of youth

A growing divide is emerging between adolescents and political institutions, leaving many young people feeling excluded from the political conversation and unheard by those in power. Politicians often speak about young people rather than with them, rarely engaging in direct, meaningful contact. As one adolescent in the creative sessions expressed (CS2.3), "Politicians talk about us, but they don't really know us."

Adolescents are currently the least happy age group, lacking a sense of future perspective. Many also feel pressure and responsibility for the ongoing polycrisis, including climate change, social inequality and global instability, which amplifies their uncertainty about what lies ahead (Conference Healthy Start, 2025). Young people describe this as carrying problems that previous generations did not face in the same way. One participant in the creative sessions shared (CS2.2): "This generation is facing much bigger societal challenges than earlier generations. The climate crisis is a really big one." Additionally, several young people described a growing sense of individualism and isolation. Where earlier generations may have relied more on collective structures, today's adolescents feel they are expected to navigate complex global problems largely on their own.

At the same time, the aging population shifts political attention towards the concerns of older citizens, further reducing the visibility of youth perspectives in decision-making (EenVandaag, 2025). This weakens their trust in politics and public institutions and fuels frustration about their ability to influence change.

As a result, many adolescents feel unrecognised by the government, with unresolved concerns around issues such as migration and inequality (Bennema, 2023). Trust in political systems continues to erode, and young people increasingly withdraw from political engagement (Van de Wetering, 2026). **Their voices risk fading in a system that rarely listens back.**

"Politicians talk about us, but they don't really know us."

- Youth, creative session at Leiden (CS2.3)

"This generation is facing much bigger societal challenges than earlier generations. The climate change is a really big one. This is, I think, reinforced by individualism."

- Youth, creative session at Rotterdam (CS2.2)

4 Finding identity in division

Heated discussion and polarisation are not inherently negative; for adolescents especially, they can be a necessary part of growth and identity formation. In the creative sessions, young people indicate that it is healthy to debate and that a certain level of intensity is simply part of moving forward. As one participant mentioned (CS2.3): "Heated moments in discussions are sometimes just part of it, you want to respond quickly." When opinions clash, quick and emotional responses can happen, and rather than immediately labelling this as problematic, it may be something we need to learn to accept and navigate.

As an expert on politics and youth mentioned in the interview (Ei01, Appendix A1): "Society benefits from a balance between healthy polarisation, in which some degree of polarisation is beneficial for democracy, helping society to reflect, adapt, and move forward." This so called healthy polarisation stimulates dialogue and reflection, allowing people to better understand both their own views and those of others. Unhealthy polarisation, on the other hand, fosters division and hostility. As mentioned by a social studies teacher (Ei03, Appendix A3): "In a way, adolescents need a bit of polarisation to figure out who they are." For adolescents, who are still searching for who they are and what they stand for, polarisation often becomes part of their identity exploration. Taking a stance, sometimes even a strong or opposing one, helps them navigate their beliefs and find a sense of belonging.

Social media plays a key role in this process of exploration. Young people emphasise the importance of being able to express themselves on social platforms, while still taking others into account (Uhls et al., 2017). Through posting, reacting, and engaging in discussions online, they can express opinions, connect with others, and explore contrasting viewpoints as a way to define themselves (Flanagin & Metzger, 2020).

In this way, polarisation is not only negative, but also part of how adolescents explore who they are, with social media providing a platform for this process.

"Heated moments in discussions are sometimes just part of it, you want to respond quickly."

- Youth, creative session at Leiden (CS2.3)

"Society benefits from a balance between healthy polarisation, in which some degree of polarisation is beneficial for democracy, helping society to reflect, adapt, and move forward."

- Expert on politics and youth (Ei01, App A1)

"In a way, adolescents need a bit of polarisation to figure out who they are."

- Expert teacher social studies. (Ei03, App A3)

5 Fuelled by algorithms, ruled by extremes

Social media are not a free platform. What users see, engage with, and believe is largely shaped by algorithms controlled by Big Tech companies. These systems prioritise emotionally charged and extreme content because it captures attention and drives engagement, ultimately serving commercial interests (Flanagin & Metzger, 2020). As a result, moderate perspectives receive little visibility, while extreme voices appear louder and more dominant than they truly are (Adam & Magaji, 2025).

Online debates are therefore often framed in simplified, black-and-white terms, pushing nuanced voices aside. Conflicts remain visible without context or moderation, reinforcing the illusion that there are only two opposing sides (Bjornsgaard & Dukic, 2023). As attention shifts towards extremes, the political middle is marginalised, leaving complex societal issues without space for reflection or alternative viewpoints.

During a creative session (CS2.1), young people reflected on this dynamic, mentioning: *"The absence of sensation and the presence of positive content doesn't necessarily have to be boring."* While social media with fewer stimuli is often perceived as 'boring', several adolescents challenged this assumption, stating that a lack of sensation or more positive content does not necessarily lead to a dull environment.

At the same time, many adolescents during the creative session (CS2.1) expressed concern about the role of algorithms, AI, and bots in shaping online discourse. Several were surprised by how much influence Big Tech companies have over what becomes visible on their feeds, revealing that these systems are not always understood as active forces shaping behaviour and opinion. Even when young people know that algorithms exist, they often do not fully understand how these systems shape what they see and engage with..

Adolescents often experience a sense of powerlessness: the feeling of being steered by an invisible, top-down system controlled by powerful companies

(Silva, 2024). As mentioned during an expert interview (Ei04, Appendix A4), the constant flow of content and addictive design of platforms make it difficult to pause, reflect, or step outside these dynamics, especially for adolescents, who are still learning to navigate critically. While young people strongly value self-expression and authenticity, they frequently underestimate or overlook how their choices, visibility, and self-presentation are shaped by commercial and technological interests.

This creates an illusion of autonomy: Social media are experienced as a space of freedom and self-expression, while in reality behaviour and opinions are guided by algorithms designed to maximise engagement and profit. As a result, self-expression takes place within a framework that is far from neutral, reinforcing extreme voices and limiting genuine agency.

"The absence of sensation and the presence of positive content doesn't necessarily have to be boring."

- Youth, creative session at Hilversum (CS2.1)

6 Online and offline social influences

Online and offline worlds continuously influence one another. Especially for adolescents. Belonging is a central force in adolescence: young people learn and internalise group norms through imitation, interaction, and feedback, making them highly responsive to both inclusion and rejection (Telzer et al., 2017). This sensitivity shapes how they behave within their social environments and how they position themselves in relation to others.

Peer pressure in offline settings influences how adolescents present themselves online, while what they see and experience online shapes their behaviour, attitudes, and self-expression offline. Notably, within the creative sessions (CS2.3), adolescents often recognise these influences in others, but rarely in themselves, underestimating the extent to which their own behaviour is shaped by social dynamics across both spaces.

Peers, parents, and online influencers all play a role in shaping adolescents' opinions, attitudes, and choices. High-status peers and online influencers can have a particularly strong impact, both positive and negative (Molleman et al., 2022). As an expert on social media mentioned during one of the expert interviews: *"Offline social norms and group status strongly influence how adolescents behave online on social media."* These dynamics are intensified: approval becomes visible through likes and comments, encouraging more performative or extreme expressions.

This creates a continuous cycle of influence between online and offline environments. This affects how they express themselves, connect with others, and make sense of who they are.

"Offline social norms and group status strongly influence how adolescents behave online."

- Expert on social media use (Ei04, App A.4)

This cluster informed the design criteria presented in chapter 8.2.

7 Holding space for complexity

With the right guidance and open dialogue, adolescents can learn to respect differing opinions and seek understanding. This mindset enables them to engage critically and hold space for complexity in an increasingly polarised world.

As mentioned by a teacher in social studies (Ei03, Appendix 3) *"It is important to encourage diverse perspectives and nuanced thinking, although this does not always happen."* In a society where online discussions are often simplified into extremes, holding space for complexity has become increasingly important. Adolescents grow up surrounded by fast, emotionally charged content that leaves little room for nuance or uncertainty. In one of the creative sessions (CS2.3), an adolescent described the following: *"I feel the pressure to 'pick a side' when it comes to serious issues, like people's lives, you do feel like you have to say something."* They recognise that remaining neutral does not always feel appropriate.

Despite the polarised tone of online spaces, many adolescents express a genuine desire for reliable information and meaningful conversation. Rather than engaging in quick, emotional reactions, they indicate a need for more context, nuance, and space to explore different perspectives (I. Ma – Healthy Start Conference, 2025). At the same time, as a social studies teacher emphasised (Ei03, Appendix A3): *"It's really about the space in between, between the bubbles. Polarisation among young people will always exist, but how we fill that space in between makes all the difference."* This highlights the importance of creating environments in which young people are supported in navigating differing viewpoints.

Finding nuance requires guidance and structure. When adolescents are encouraged to engage with different perspectives in a supported way, they are better able to handle disagreement with respect and openness. Guided conversations in classrooms, at home, or online help young people develop the ability to question, reflect, and sit with uncertainty. Open discussions about taboos also contribute to greater self-awareness and confidence, helping adolescents feel more secure in expressing their own views.

Creating spaces where complexity is allowed, rather than avoided, is essential for nurturing open-minded, critical, and empathetic citizens.

*"It is important to encourage diverse perspectives and nuanced thinking, although this does not always happen."
- Teacher social studies (Ei03, App A3)*

*"I feel the pressure to 'pick a side' when it comes to serious issues, like people's lives, you do feel like you have to say something."
- Youth in co-creation at Leiden (CS2.3)*

*"It's really about the space in between, between the bubbles. Polarisation among young people will always exist, but how we fill that space in between makes all the difference."
- Teacher social studies (Ei03, App A3)*

8 When hopelessness ends the conversation

Many adolescents withdraw from public and political conversations because they feel that speaking up does not change anything. This sense of hopelessness leads them to disengage, even though continuing the conversation is crucial.

A strong underlying reason for this withdrawal is the feeling that their opinions are not taken seriously. Political discussions are often dominated by adults and experts who use distant and complex language, making adolescents feel unheard and excluded (UNICEF, 2025). This lack of recognition creates frustration and lowers their motivation to participate. Next to this, adolescents noted that a lot of time there is spoken about them, but never interacted with them.

Online, this sense of powerlessness is amplified. As hostility and polarisation become more visible, many adolescents choose to remain silent, reflecting the online bystander effect. As an expert on social media and youth noted (Ei04, Appendix A4): *"The more bystander there are, the less responsible individuals feel to intervene. Extreme content can circulate more easily online because people feel less responsible."* Instead of joining the conversation, they observe from the sidelines. At the same time, limited offline in-person dialogue has contributed to a growing fear of confrontation, making it even harder to speak up (Wang, 2025). Together, these dynamics create a growing silence.

Insights from creative sessions show that adolescents have developed coping strategies to deal with this. One participant shared (CS2.3): *"I can shut it out and let it go a little, I have my own life too; I've learned that over the years."* At the same time, they admitted: *"It still affects me, some topics more than others."* This illustrates the tension between emotional self-protection and genuine concern. By distancing themselves, adolescents try to protect their wellbeing, but this also increases their disengagement from societal issues.

As a result, many adolescents choose silence, not because they do not care, but because they feel powerless, unheard, and uncertain about the impact of their voice.

*"Extreme content can circulate more easily online because people feel less responsible."
- Expert on social media use (Ei04, App A4)*

*"I can shut it out and let it go a little, I have my own life too. I've learned that over the years."
- Youth, creative session at Leiden (CS2.3)*

9 The mismatch between youth development and socials

Adolescents grow up in a digital environment designed for constant engagement, while their capacity for critical reflection and self-regulation is still developing. **This creates a fundamental mismatch: young people are emotionally open, curious, and highly responsive to social feedback, yet they lack the fully developed cognitive tools to consistently step back and question what they consume.**

Neuroscientifically, the adolescent brain is especially sensitive to reward, emotion, and social cues (Crone & Dahl, 2012). Young people learn through feeling, experience, and interaction. As the teacher social studies mentioned (Ei03, Appendix A3): "It [Lived experience] makes students lean in, especially when the topic is emotional." Therefore, curiosity and emotion are powerful drivers in how they explore the world and shape their identity. Social media taps directly into this. Platforms offer endless streams of emotionally charged content, social validation, and opportunities for self-expression, making them highly attractive spaces for exploration and connection (Flanagin & Metzger, 2020).

At the same time, the prefrontal cortex, responsible for self-reflection, impulse control, and critical evaluation, is still developing (Uhls et al., 2017). This makes it harder for adolescents to consistently question where opinions come from, how content is selected, or how algorithms shape their worldview. As noted by an expert on social media: "Even when adolescents understand how algorithms work, they tend to follow familiar routines on social media, passively consuming content and taking the path of least mental effort instead of engaging in critical reflection." Infinite scrolling, simplified narratives, and emotionally polarising content leave little room for pause or reflection, while fact-checking feels like extra work (Ma, Healthy Start Conference, 2025).

Many adolescents underestimate the influence of algorithms on their worldview, while also rejecting the idea of being controlled by large systems such as the media or government as they do not like to be influenced. Interestingly,

adolescents do not experience themselves as vulnerable. In creative sessions (CS2.1), several young people emphasised that they personally use social media 'just fine': "Other people might struggle with it, but I think I handle social media pretty well." While adolescents experience themselves as autonomous users, algorithms continuously shape their attention, emotions, and perspectives in the background.

This creates a vulnerability. Adolescents' emotional openness and curiosity, which are central to learning and identity formation, become points of entry for online systems designed to maximise engagement. In an environment of infinite scroll, simplified narratives and emotional amplification, reflection is not encouraged. **The result is a structural imbalance between adolescents' developing critical and reflective capacities and the dynamics of social media platforms.**

"Even when adolescents understand how algorithms work, they tend to follow familiar routines on social media, passively consuming content and taking the path of least mental effort instead of engaging in critical reflection."

- Expert on social media use (Ei04, App A4)

10 Safe in the bubble

Adolescents are sensitive to stay within their 'safe social bubble' as it offers them a sense of belonging, but it can also limit openness towards difference, slowly turning comfort into quiet intolerance towards others.

Young people have a strong need to belong, which makes them particularly sensitive to group norms and social approval (Telzer et al., 2017). To protect their sense of acceptance, adolescents often stay within familiar social circles where shared opinions provide comfort and validation. Stepping outside of these circles can feel risky, as it means questioning both their peers and their own sense of belonging (Lieberman, 2014). In the creative sessions (CS2.2), young people emphasised that this sense of risk strongly depends on the context: "It really depends on the situation whether you feel safe enough to speak your minds."

Online environments reinforce this dynamic. Algorithms curate content that aligns with existing views, while likes, comments, and recommendations confirm what adolescents already believe (Uhls et al., 2017). These echo chambers strengthen the same group boundaries that shape offline life, making alternative perspectives feel distant or unsafe. This perceived distance and lack of safety can lead to social withdrawal, which was reflected in the creative session (CS2.2) where a participant described: "Right now, there's no real sense of connection or belonging, society just feels really individualistic." This weakening of collective connection makes differences feel more threatening.

In this way, both social and digital structures contribute to a climate in which young people retreat into familiar bubbles, out of a need for safety, recognition, and belonging, limiting openness towards others.

"It really depends on the situation whether you feel safe enough to speak your minds."

- Youth, creative session at Rotterdam (CS2.2)

"Right now, there's no real sense of connection or belonging, society just feels really individualistic."

- Youth, creative session at Rotterdam (CS2.2)

11 Drowning in (mis)information

For many adolescents, social media is the primary source of news and political information. However, this information is often unverified, emotionally charged, or taken out of context. **As a result, young people are continuously exposed to mis- and disinformation that demands instant reactions but leaves little room for thoughtful understanding.** The constant stream of posts, videos, and opinions makes it difficult to distinguish truth from manipulation or to pause and reflect before responding (Ma, Transformative Research Meeting Healthy Start, 2025).

Social media platforms are designed around speed, visibility, and instant reward. Short, attention-grabbing content provides small dopamine boosts but discourages deeper engagement with complex or nuanced topics (Flanagin & Metzger, 2020). This creates a cycle of rapid scrolling and surface-level understanding, where there is little space for critical thinking or context. Recognising misinformation requires time, attention and reflection, qualities that the structure of social media does not support.

During the creative sessions (CS2.1), an adolescent described: *"Being able to constantly share your opinion online without any supervision can easily turn into chaos and hate."* This sense of chaos, negativity, and extreme reactions was described as emotionally affecting adolescents' mood and online experience. Another participant pointed to the importance of context, noting: *"Posting about emotional topics like protests during something like a Sinterklaas parade with kids around just feels like not the right time or place."*

As a response to this overwhelming and emotionally intense environment, adolescents also expressed a need for balance. One participant (CS2.1) emphasised the importance of having space for lightness and positivity online: *"It's also important to leave room for lighter, more easygoing moments online."* Not everything should be heavy, political, or confrontational. Instead, they expressed a need for moments to relax, laugh, and step away from constant intensity. This highlights a tension between the emotionally loaded information they encounter and their need for mental space and emotional safety.

Adolescents are operating in an information environment that is fast, emotionally intense, and poorly suited to reflection. Instead of feeling informed, adolescent often feel overwhelmed and emotionally affected.

"Being able to constantly share your opinion online without any supervision can easily turn into chaos and hate."

- Youth, creative session Hilversum (CS2.1)

"It's also important to leave room for lighter, more easygoing moments online."

- Youth, creative session Hilversum (CS2.1)

12 Becoming heard online

Social media offers adolescents a platform to express their opinions and take part in societal discussions (Van den Bos, Transformative Research Meeting Healthy Start, 2025). As active participants, they are not just consumers of content, they are also drivers of it. Through posts, comments, and interactions they influence what circulates and what gains attention. These spaces allow them to explore diverse viewpoints and strengthen their sense of voice and belonging.

For many young people, being active online creates the feeling that they are being heard. Through interaction, discussion, and sharing, they learn how to express themselves and engage with others in respectful ways. As most participants in the creative sessions (CS2.2) agreed on the statement: *"I feel like as an individual I can influence societal problems."* They highlighted that *"All change starts on a micro level,"* showing how individual voices and small actions can contribute to larger movements.

Social media give adolescents opportunities that previous generations did not have: to speak up, participate in public debate, and connect with others who care about similar issues. This visibility can be empowering, offering a sense of agency and belonging (Nederlands Jeugdinstuut, 2021). Freedom of expression is a fundamental right, and online platforms make it easier for young people to share who they are, what they value, and how they see the world.

At the same time, this sense of being heard remains limited to their own social circles. Many adults, such as parents, teachers, and policymakers, still struggle to fully understand the dynamics and language of the online world (Nederlands Jeugdinstuut, 2021). Yet, as one adolescent in the creative sessions (CS2.2) pointed out: *"Our strength lies in doing things together"* and that real change requires collective action, highlighting the importance that youth become heard beyond their social (online) circles.

Social media thus offers adolescents a powerful space to develop and express their voice, while revealing the difficulty of ensuring that this voice is heard beyond their own social environment.

"All change starts on a micro level."

- Youth, creative session Rotterdam (CS2.2)

"Our strength lies in doing things together."

- Youth, creative session at Rotterdam (CS2.2)

6.3 From clusters, to tension, to a dilemma

How do the different clusters influence each other within the broader system of polarisation among youth?

To move from clusters to underlying tensions and, ultimately, to an observed dilemma, additional mapping activities were carried out (MA2 & MA3). During these activities, relationships between clusters were explored by identifying where values, needs, or behaviours conflicted, reinforced, or contradicted one another (MA2, see Appendix B2). These points of friction were analysed and mapped, allowing recurring patterns of tension to emerge (see figure 6.3).

This process resulted in the identification of four key tensions, which form a meaningful starting point for innovation. These tensions are further elaborated in Appendix B3. Tensions are valuable as they stimulate creative exploration through what Ryan (2014) describes as integrative thinking: the ability to hold opposing ideas and generate new possibilities from their interaction. The four identified tensions are shown in figure 6.4.

From the four identified tensions, two were selected for further exploration in the design process. The first tension, 'between the illusion of division and reality', refers to the widespread perception that polarisation is rapidly increasing in society, while empirical research suggests that ideological differences between citizens have not grown to the same extent. This difference can partly be explained by the high level of freedom of expression and the media dynamics surrounding it, where extreme opinions tend to receive disproportionate attention and visibility. The second tension, 'between online exploration and exploitation', reflects the idea that social media can provide adolescents with opportunities to explore diverse perspectives, while platform algorithms simultaneously tend to promote extreme and emotionally charged content.

These tensions were selected as they strongly overlapped with the research from Judith van de Wetering and resonated most with participants during the first creative session (CS1). In Judith's research, three key questions emerged such as: "How can we rediscover how similar we actually are?", "How can we better deal with differences of opinion?", and "How can social media become

a positive space for exploring different perspectives?". These questions reflect a shared concern with navigating difference, finding common ground, and critically engaging with online environments, which directly aligns with the tension 1, 2 and 4 (see figure 6.4). During the creative session, these tensions were explored further with adolescents. Two of them, however, triggered the most discussion, questions, and reflection, revealing the greatest sense of friction. Based on these insights, these two tensions were selected for further exploration in the design process. The process of the creative sessions, through which these tensions were further explored, will be described in detail in Chapter 7.



Figure 6.3: Analysis of relationships between clusters resulting in four tensions (MA2)

Through further analysis of the two selected tensions, it became clear that they are connected by the same underlying conflict. Rather than representing separate dilemmas, both tensions reflect different manifestations of a shared dynamic. **Both tensions revolve around the balance between protecting individuals from harm and allowing space for open expression and exploration. This recurring trade-off revealed a common underlying dilemma that runs across both tensions: safety versus freedom.**

While Tension 1 highlights this conflict at a societal level, where unrestricted freedom of expression can undermine feelings of safety within public discourse, Tension 2 reflects the same conflict within the context of social media. Here, the freedom of adolescents is shaped and sometimes constrained by algorithmic systems designed by large technology companies (see figure 6.5).

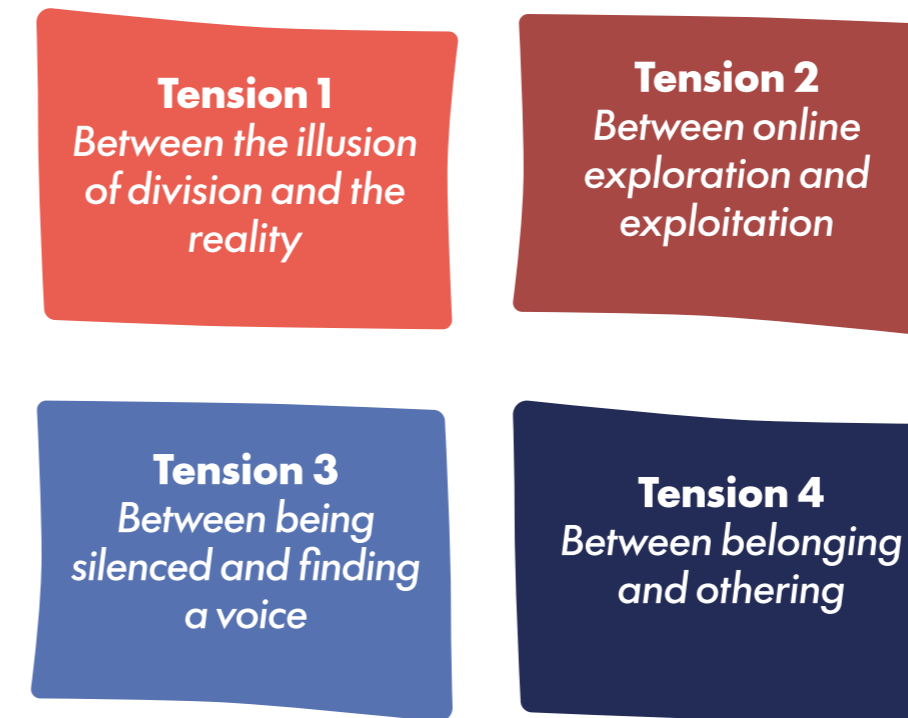
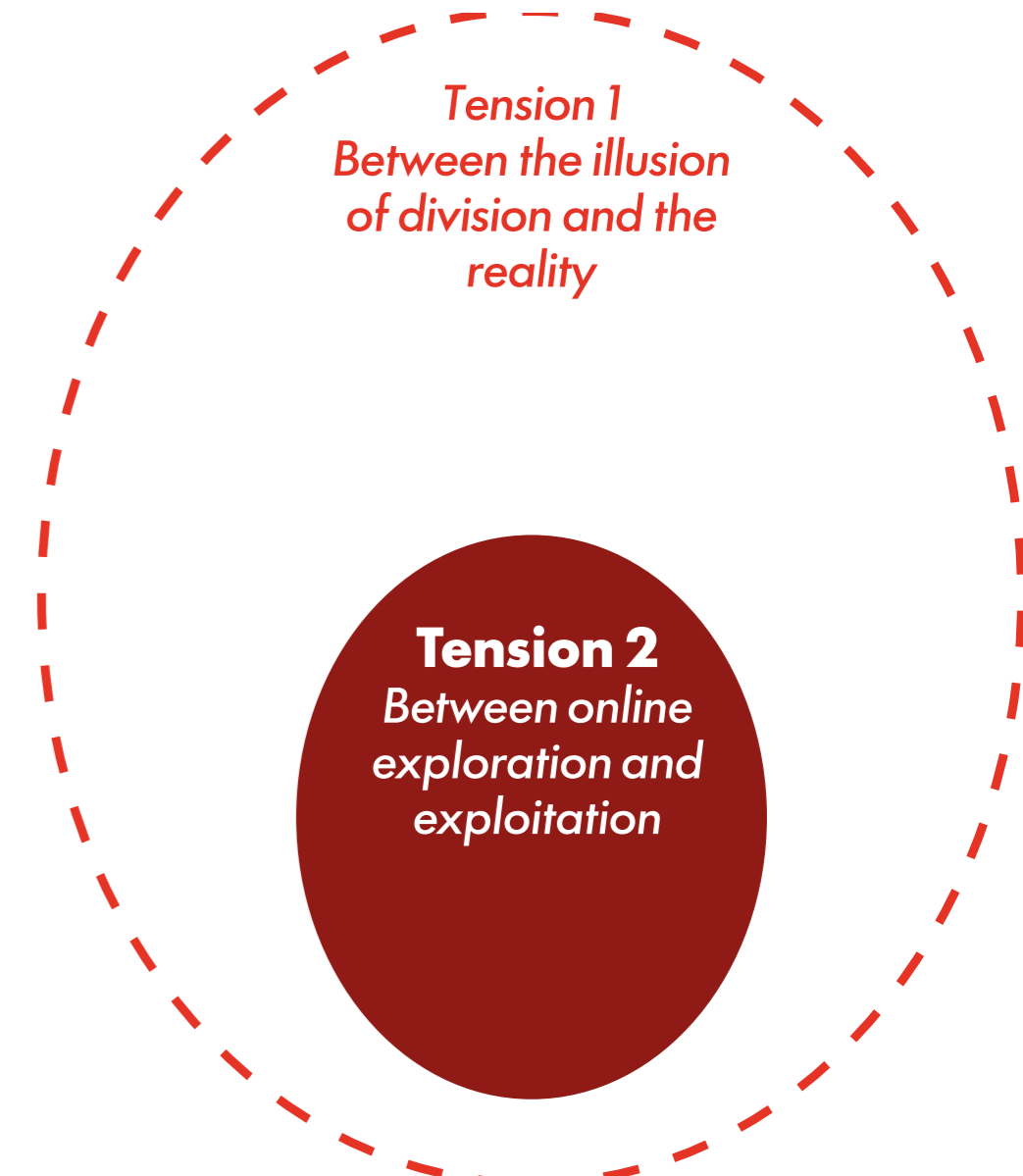


Figure 6.4: Four tensions derived from the mapping activities



Picture 6.5: From tension 1 & 2 an overlapping dilemma arived

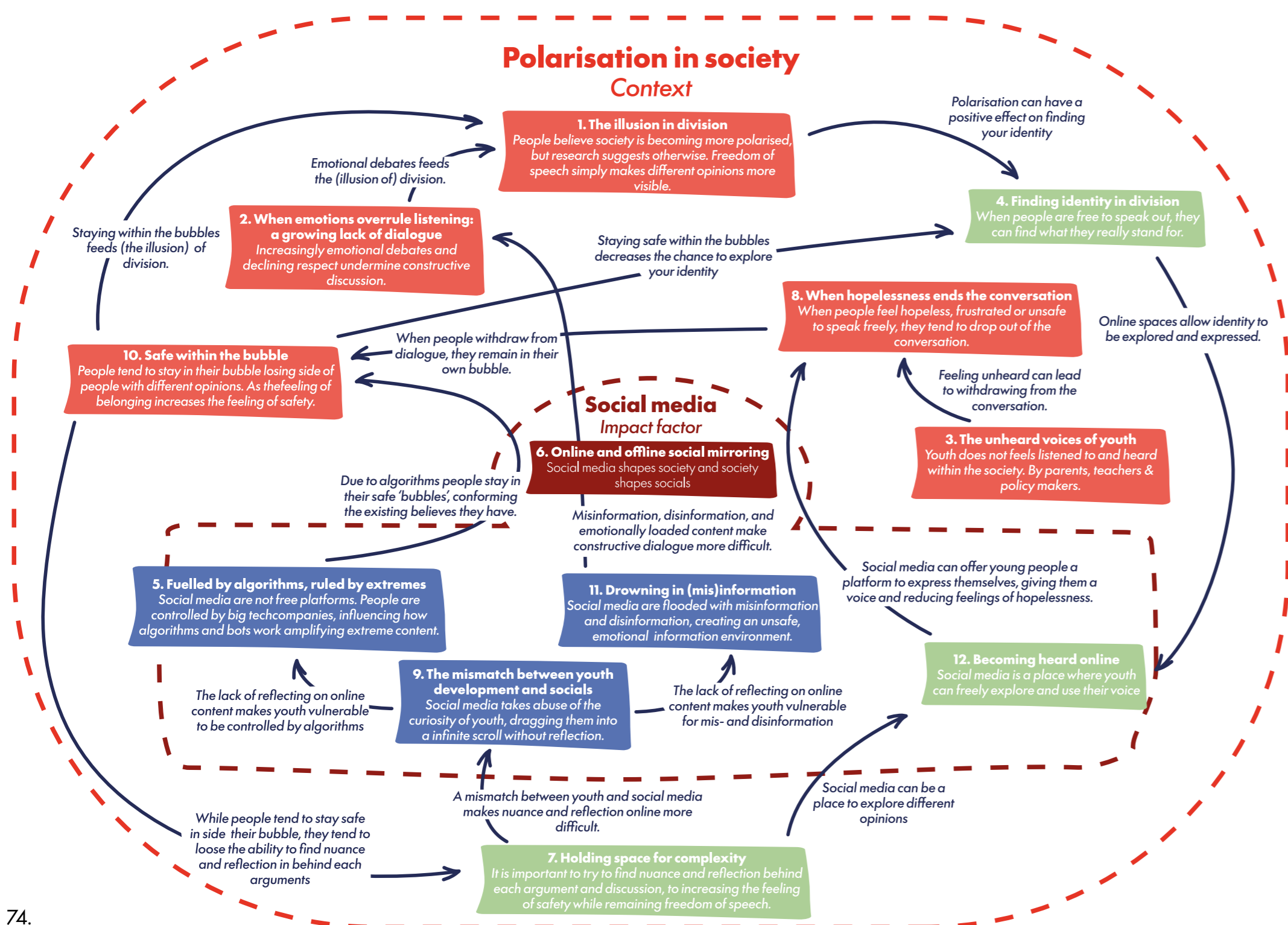


Figure 6.6: The clusters outlined in the chapter are interrelated within the dilemma of safety vs. freedom

To better understand how this dilemma manifests across the system, an additional mapping activity was conducted in collaboration with a fellow master's student in Industrial Design (MA3). This resulted in the system map shown in figure 6.6, which visualises the relationships between the previously identified clusters and illustrates how the dilemma of 'safety versus freedom' plays out across different levels of the system. The system map forms the basis of a conceptual framework that approaches polarisation as a dynamic and multi-layered system. It operates on two interconnected levels, reflecting the previously identified tensions.

The first level illustrates how polarisation manifests in society: through emotional reactions overriding dialogue (2), withdrawal from conversations (3, 8), and a tendency to remain within like-minded bubbles (10). At the same time, it shows that polarisation can contribute to identity formation (4).

The second level addresses the role of social media within this societal dynamic. Social media do not operate separately from offline society (6), but actively shape and amplify existing frictions. Algorithm-driven content (5), misinformation, and the visibility of extreme voices intensify division (11), while online environments simultaneously provide space for previously unheard voices to be expressed (7, 12).

Rather than presenting a linear cause-and-effect relationship, the system map depicts a dynamic interplay in which elements continuously influence and reinforce one another. Online interactions shape offline attitudes and behaviours, which in turn feed back into digital environments. **Social media therefore functions not as an isolated platform, but as a structural driver that actively shapes and reinforces the broader process of polarisation.**

6.4 The dilemma of safety vs. freedom

How can the dilemma of safety vs. freedom be understood and used to reframe the problem of polarisation?

Dilemmas can be understood as situations in which competing values are both legitimate and cannot simply be resolved by choosing one over the other. In design practice, such dilemmas can serve as productive starting points for reframing the problem and exploring new solution spaces.

Building on the identified dilemma of 'safety versus freedom', the following section further elaborates on how this dilemma can be understood and how the problem of polarisation can be reframed. Drawing on insights from the system map, the dilemma is explored through three interconnected perspectives: 'Safety within, division without', 'When freedom threatens safety', and 'The paradox of digital freedom'. These perspectives are further elaborated in the following paragraphs.

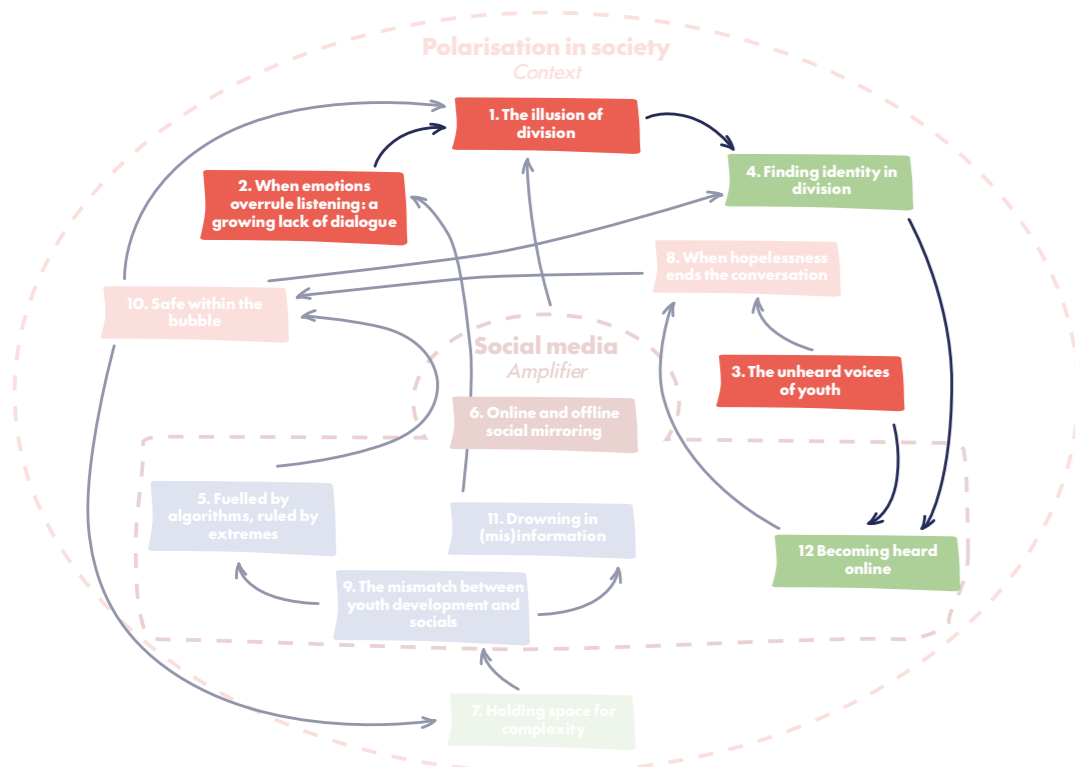


Figure 6.7: 'When freedom threatens safety' relates to clusters from the system map

When freedom threatens safety

Freedom of speech and expression plays an important role in identity formation. Being able to speak freely allows individuals to explore who they are and what they stand for, both online and offline.

However, when this freedom is not accompanied by listening, reflection, or real engagement, discussions can become emotionally charged and hostile. In these situations, unlimited freedom of expression can undermine the feeling of safety, turning spaces that promise openness into unsafe environments.

The tension therefore lies in the balance between freedom and safety. **When freedom is expressed without responsibility or respectful dialogue, it can unintentionally create environments that feel unsafe for others.**

An overview of how 'When freedom threatens safety' relates to the system map is shown in figure 6.7. Figure 6.8 illustrates the framework of 'When freedom threatens safety'.



76. Figure 6.8: 'When freedom threatens safety' illustrated in a framework

Safety within, division without

When people feel unsafe, they often seek protection in like-minded groups. Within these communities, they experience recognition and a sense of belonging. This dynamic occurs both offline and online, where algorithms and automated systems further reinforce ideological bubbles.

However, the safety found inside the group does not extend beyond it. Perspectives from outside the bubble are increasingly perceived as threatening, which fosters intolerance and deepens societal divisions. In this way, the pursuit of safety can unintentionally restrict exposure to difference and reduce the freedom to engage with plural perspectives.

Safety within the group can therefore produce unsafety between groups.

An overview of how 'Safety within, division without' relates to the system map is shown in figure 6.9. Figure 6.10 illustrates the framework of 'Safety within, division without'.

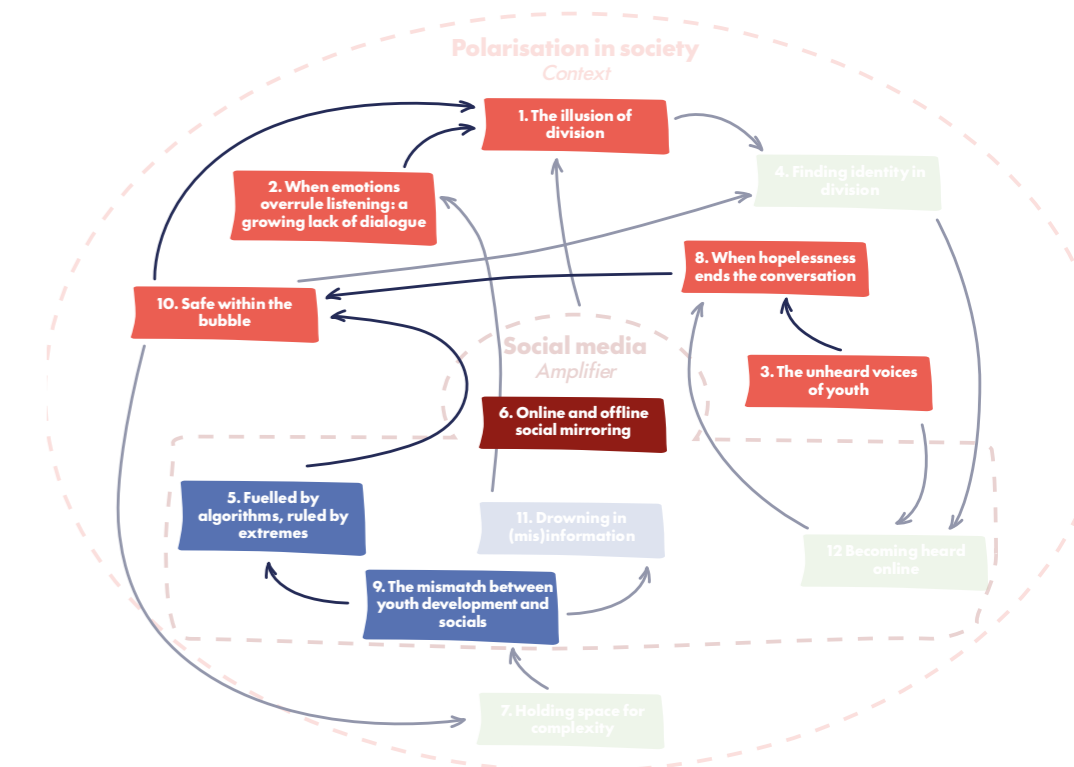


Figure 6.9: 'Safety within, division without' related to clusters from the system map

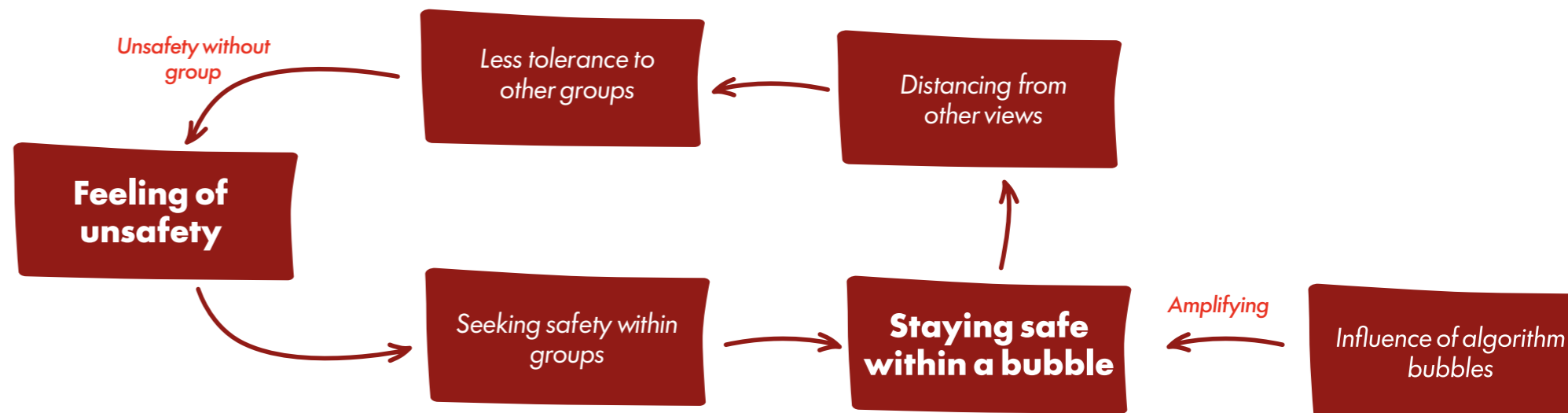


Figure 6.10: 'Safety within, division without' illustrated in a framework

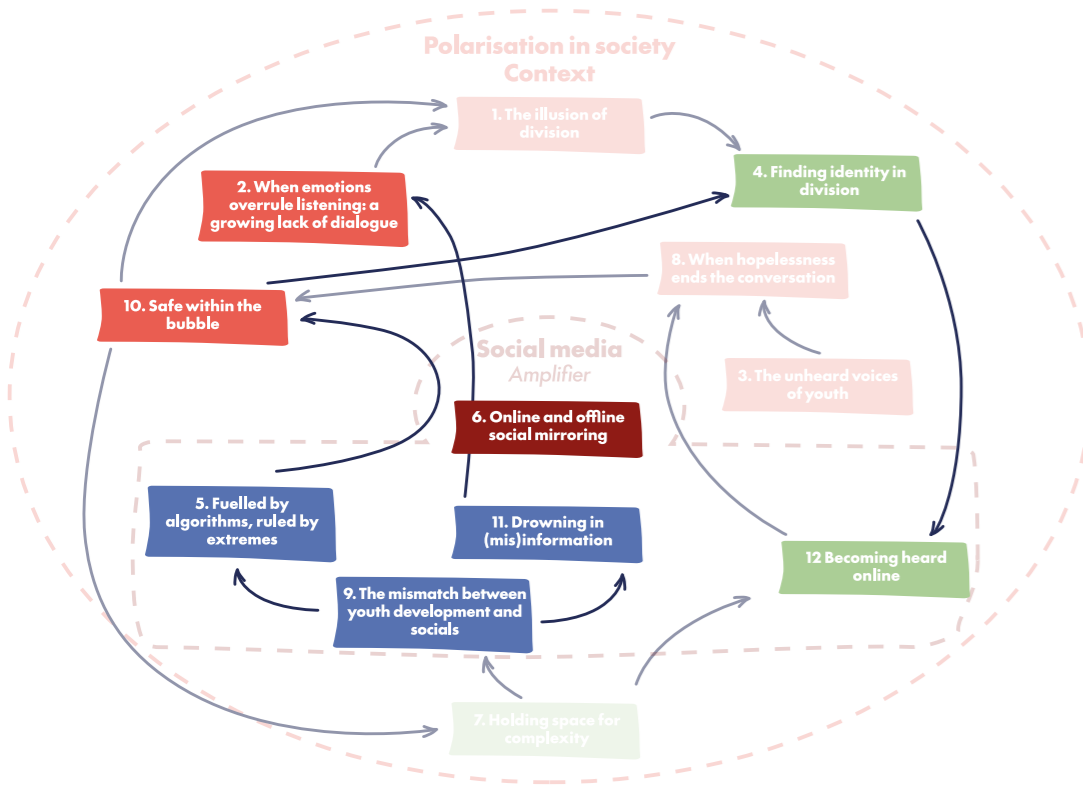


Figure 6.11: 'The paradox of digital freedom' related to clusters from the system map

The paradox of digital freedom

Although social media platforms present themselves as spaces of freedom and self-expression, this freedom is often illusory. Users can speak and share openly, yet algorithms and automated systems actively shape what they see, amplifying extremes and exploiting the curiosity and vulnerability of young people.

Adolescents may feel free while scrolling and engaging online, but their attention and perspectives are subtly guided by addictive information flows and opaque systems of power, creating unsafe online environments. **This creates a paradox in which perceived freedom coexists with structural control, resulting in an environment that can feel increasingly unsafe.**

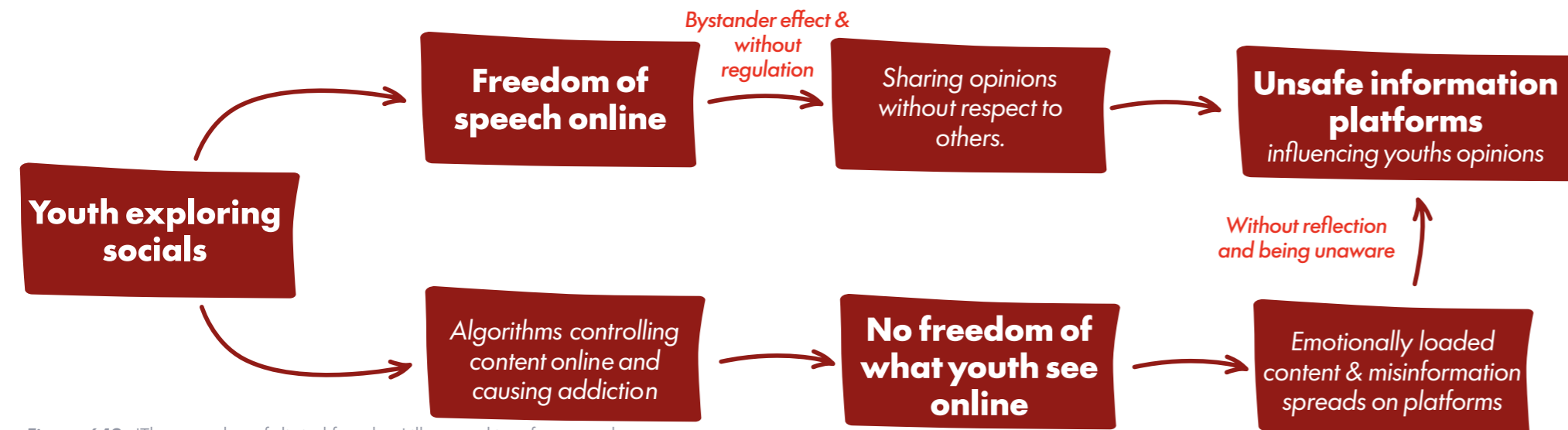
An overview of how 'The paradox of digital freedom' relates to the system map is shown in figure 6.11. Figure 6.12 illustrates the framework of 'The paradox of digital freedom'.

Concluding: safety and freedom

Together, these dynamics show that safety and freedom are not opposing forces that need to be balanced against each other. Instead, they are closely connected. Efforts to increase safety can limit openness and pluralism, while unlimited freedom can create feelings of insecurity and make meaningful participation more difficult. Polarisation tends to emerge when environments fail to support both at the same time. **The challenge, therefore, is not to choose between freedom or safety, but to create spaces where freedom of expression and a sense of safety can exist alongside each other.**

Key take-aways

- Polarisation is not a linear process but a dynamic system shaped by social, political, and technological forces. Online and offline environments continuously influence each other, reinforcing behaviours, perceptions, and social dynamics.
- The perception of a deeply divided society is often stronger than the actual ideological differences between people. Media dynamics and algorithm-driven visibility amplify extreme voices, making societal conflict appear more widespread than it is.
- Young people simultaneously experience both empowerment and powerlessness online. While social media offers them platforms to express their voice, many adolescents still feel unheard by institutions and broader society.
- Across these dynamics, a central dilemma emerges between safety and freedom. While freedom of expression enables participation, identity exploration, and debate, it can also undermine feelings of safety when dialogue and responsibility are absent.
- The need for safety and belonging can lead adolescents to remain within like-minded social bubbles. Although these spaces provide comfort and recognition, they can reduce exposure to different perspectives and deepen perceived divisions.
- Social media presents itself as a space of freedom, yet adolescents' experiences online are strongly shaped by invisible technological systems. Algorithms influence what young people see, discuss, and believe, creating a paradox between perceived autonomy and structural control.



7. Understanding the dilemma through the eyes of youth

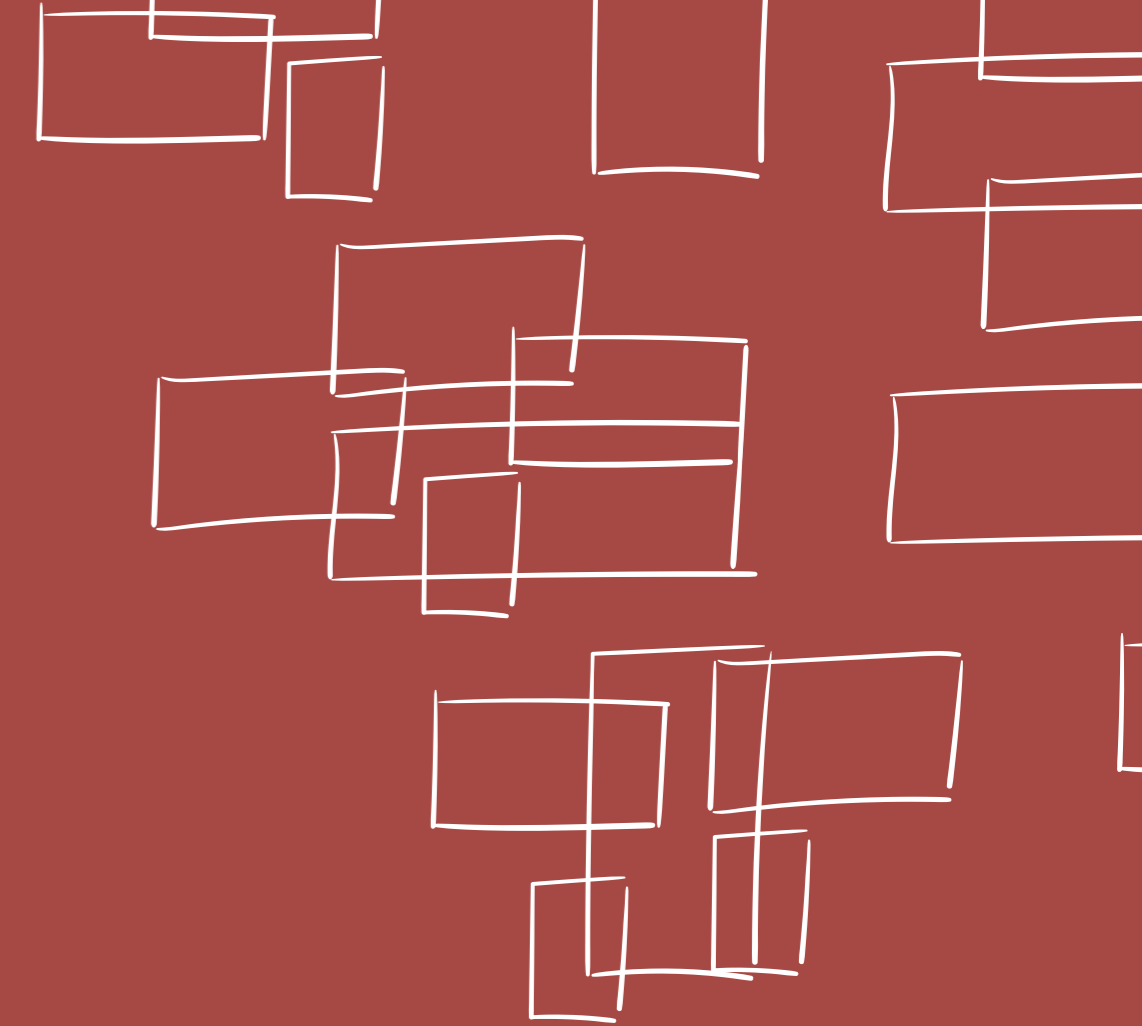
After exploring the dilemma of *safety versus freedom* within the system in the previous chapter, this chapter shifts the focus to the perspectives of young people themselves. Since adolescents are the central group within this project, understanding how they experience and interpret polarisation is essential. Rather than looking at the issue only from a societal or theoretical perspective, this chapter examines how young people make sense of the dilemma in their own words and experiences. This chapter builds on the approach introduced in Chapter 1.4, which emphasises the importance of designing with youth. Accordingly, this chapter is informed by creative sessions with adolescents, facilitated by Judith and myself (CS0–CS4). Two types of sessions were conducted. The first session focused on exploring the tensions identified in Chapter 6.3, aiming to understand what kinds of solutions adolescents consider important. The second session was conducted three times, each centred around a specific theme that emerged from the first session and the dilemma outlined in Chapter 6.4, allowing for a deeper exploration of these directions.

The central question guiding this chapter is:

“How do adolescents experience polarisation, and what solutions do they envision for the future?”

The chapter starts by explaining how the generative sessions were prepared (7.1) and how the creative session format was designed (7.2). It then reflects on how these sessions unfolded in practice (7.3). Next, the approach used to analyse the collected insights is described (7.4), followed by the key insights that emerged from this analysis (7.5). Finally, the chapter reflects on how these insights helped translate the dilemma into opportunities for design (7.6).

- **Chapter 7.1:** Preparing the creative sessions
- **Chapter 7.2:** The creative sessions design
- **Chapter 7.3:** Reflecting on the generative sessions
- **Chapter 7.4:** The analysis approach
- **Chapter 7.5:** Insights from the analysis
- **Chapter 7.6:** From problem to solution



7.1 Preparing the creative sessions

How are the creative sessions prepared to explore adolescents' experiences?

To better understand how adolescents aged 16 and 25 in the Netherlands experience polarisation both online and offline, and to explore their visions for a more desirable future, including the ideas they have for achieving it, young people were actively involved in the research through creative sessions using generative techniques. The aim of this chapter is to explain why and how this approach was implemented.

Generative methods from design research were chosen because they help participants express experiences, emotions, and perspectives that are often difficult to articulate through conventional methods such as surveys or structured interviews (Sanders & Stappers, 2008). Through creative exercises, participants can reflect on complex and sensitive topics in a more open and exploratory way. This approach is particularly relevant when studying polarisation, as it allows nuance and personal meaning-making to emerge. By involving adolescents as active contributors rather than passive respondents, the sessions aimed to capture how young people themselves understand the dilemma of polarisation and what they believe should change in the future.

Together with Judith van de Wetering, two different creative sessions were designed. Session 1 was conducted once, while Session 2 was conducted three times, each session focusing on a slightly different research question. An overview of these sessions and the participants can be found in table 7.1. The sessions were held at different locations in the Netherlands, primarily within the central-west region (see figure 7.1). These locations consisted mainly of educational environments or organisations closely connected to them, including MBO, HBO, and universities. As the sessions were hosted in familiar settings, this likely contributed to a sense of safety for participants. However, since all locations were situated in urban areas, the findings may not fully represent perspectives of youth from non-urban contexts.

This chapter discusses the collaboration with youth, the process of designing the creative sessions, the final design of the sessions, the analysis of the sessions, and concludes with a brief reflection on the sessions.

	Place	Participants	Age	Date
Session 1	Stad Delft	13 women, 6 men, 1 other, 1 missing	15 - 25	12 Novembre 2025
Session 2.1	Beroepshavo Hilversum	5 women, 9 men, 3 missing	17 - 19	24 Novembre 2025
Session 2.2	Hoge School Rotterdam	2 women, 3 men, 1 missing	17 - 29	26 Novembre 2025
Session 2.3	Lieve Mark Leiden	2 women, 5 men	18 - 21	28 Novembre 2025

Table 7.1: Overview of the facilitated creative sessions



Figure 7.1: The creative sessions were hosted at different locations in the Netherlands

Collaborating with Youth

As mentioned earlier, many young people experience a lack of being heard in societal and political discussions. Healthy Start aims to address this by actively involving youth in their research processes. In this design project, this ambition was taken seriously. Since the project focuses on addressing societal polarisation among youth, it was essential to engage young people directly in conversations about how they experience polarisation and how they believe it could be overcome.

Participants and context

Together with Judith, four generative sessions were organised at different locations in the Netherlands. The groups consisted of young people from diverse educational backgrounds, including MBO, HBO, and university level. Hosting sessions across these educational contexts allowed for a broader range of perspectives. Within the creative sessions, this became visible in how participants spoke about different educational levels. While participants across groups described similar struggles and experiences, they also referred to existing stigmas about one another. For example, participants in higher education contexts mentioned assumptions about the capabilities or understanding of those in lower educational tracks, whereas participants from other groups reflected on the impact of such stigmas. This shows that, despite shared experiences, participants held different assumptions and stigmas about other educational levels.

Most groups were already familiar with one another, or at least partially acquainted. This familiarity contributed to creating a safer and more open environment, which is particularly important when discussing a potentially sensitive topic such as polarisation. The sessions were primarily held at the participants' schools or workplaces. Conducting the sessions in a familiar environment helped participants feel more at ease and supported a sense of trust.

Prior to sessions 1 and 2.1, a short preparatory conversation was held with the youth worker involved, during which Judith and I were introduced to the group. As the youth workers collaborate closely with the participants, they were able to provide insight into group dynamics, the emotional climate, and practical

considerations. This preparation contributed to a more responsive and context-sensitive session design.

Limitations

Although the sessions were conducted with different groups from diverse educational backgrounds, the participants still represent a selective sample within the Netherlands. All sessions took place in cities in the central-west region of the country. Additionally, each group participated in only one session. While the variation in groups generated a substantial amount of qualitative data, the one-time interaction may have limited the depth of reflection and trust that can develop through longer-term engagement. Furthermore, as facilitators, it is important to acknowledge that this was our first encounter with each group; building mutual trust and rapport requires time and sustained interaction (Smits, 2025). This may have influenced the extent to which participants felt comfortable sharing more vulnerable or nuanced experiences.

Designing the sessions

Designing the sessions was an iterative process. Together with Judith, the goals of the sessions were defined before developing the specific activities and structure.

The sessions aimed to understand how young people experience polarisation and to explore their visions for a more desirable future, including how they believe this could be achieved. Inspiration was drawn from existing generative research methods and toolkits, which informed the design of creative exercises aimed at eliciting future-oriented thinking and reflective dialogue. Books that inspired these sessions were for example, *The Convivial Toolbox* (Sanders & Stappers, 2008) and *Road Map for Creative Problem Solving Techniques* (Heijne & Van Der Meer, 2019). The sessions incorporated generative tools that encouraged participants to imagine possible futures and explore their role in addressing polarisation. These tools were selected to move beyond immediate opinions and stimulate deeper reflection on societal dynamics.

To validate and refine the session design, feedback was sought from colleagues at Healthy Start. Both have experience in participatory practices and co-creation with youth. Their input supported the development of sessions that aligned with the lifestyle, interests, and attention span of young participants, ensuring that the format was both engaging and accessible.

7.2 The creative sessions design

How are the creative sessions designed to elicit adolescents' perspectives and solutions on polarisation?

As mentioned earlier, the goal of the sessions was not only to understand how young people perceive polarisation, but also to explore their visions of a desired future and the ideas they have for achieving it. To address this, two types of generative sessions were designed.

The first session focused on the broader context, aiming to gain an initial understanding of how participants perceive polarisation and potential directions for change. Based on insights from this session, a second session was conducted three times. Each iteration focused on a specific theme that emerged as particularly relevant in the first creative session, allowing for a more in-depth exploration of participants' perspectives on polarisation and their visions for the future. Figure 7.2 provides an overview of the process followed during the creative session.

The first session took approximately 45 minutes, while the follow-up sessions took around 1.5 hours. This duration was based on our estimation of the maximum time participants would be able to stay focused. In practice, however, the exact length varied slightly per session. Judith and I remained attentive to the participants' concentration levels and adjusted the pace or structure when needed. For example, we noticed that participants were less focused during the Friday afternoon session, so that session was shortened accordingly. All sessions were co-hosted by Judith and me. Although we divided our roles beforehand, they shifted naturally throughout the sessions to maintain energy and dynamism. While one of us facilitated and presented, the other took notes. Participants received €10 as a token of appreciation for their time. In the next paragraphs the two sessions will be explained more in detail.

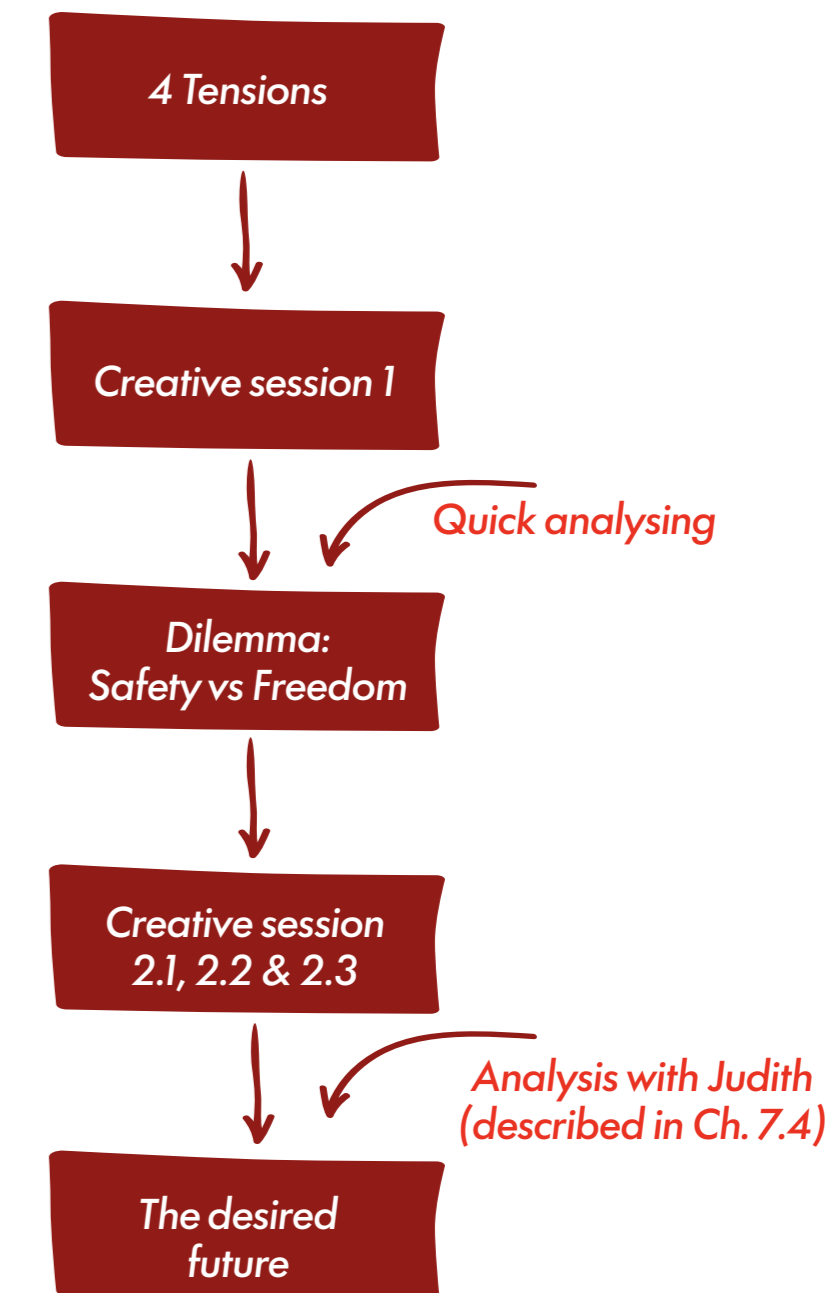


Figure 7.2: An overview of the process followed during the creative sessions

Session 1

The first session, hosted in collaboration with STAD Delft, involved a group of adolescents who had already spent a month working on the topic of polarisation in society and possible ways to address it. Given their prior engagement with the theme, Judith and I saw this session as an opportunity to not only focus on the problem of polarisation, but to also build on their existing knowledge and focus specifically on generating ideas for overcoming polarisation. Therefore, the session generated a range of ideas that informed the later ideation phase (as discussed in Chapter 8). It also revealed where participants struggled to formulate solutions. These moments provided valuable insight into the complexities young people experience when addressing polarisation and highlighted areas where additional support or guidance may be needed.

The tensions 1, 2, and 4 that emerged from the exploratory phase (briefly introduced in Chapter 6 and elaborated in Appendix B5) showed significant overlap with Judith's research. By combining our insights and integrating the tensions, three overarching research questions were formulated to guide the session:

1. How can we rediscover how similar we actually are?

Although people seem to differ more and more in their opinions, there is little evidence that these differences are truly increasing.

2. How can we better deal with differences of opinion?

Differences themselves are not necessarily the problem; rather, the challenge lies in the unwillingness to listen to or understand one another. Next to this, opinions can easily hurt or provoke others.

3. How can social media become a positive space for exploring different perspectives?

Young people increasingly encounter extreme viewpoints on social media, yet these platforms also offer opportunities to discover new ideas and perspectives.

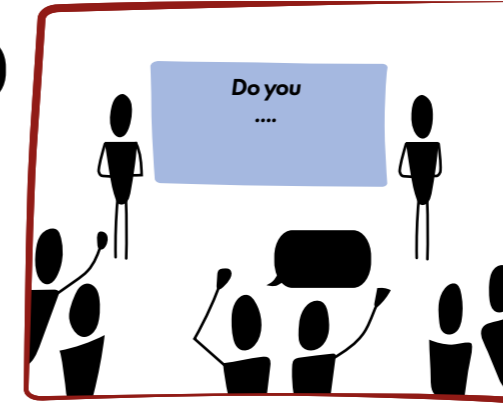
To explore these research questions, the session was designed according to the structure shown in figure 7.3. The materials are shown in figure 7.4 and figure 7.5 shows the sessions setting. The completed materials can be found in Appendix C1.



Introduction - 10 minutes

Goal: Introduce ourselves, clarify the purpose of the session, and explain its structure.

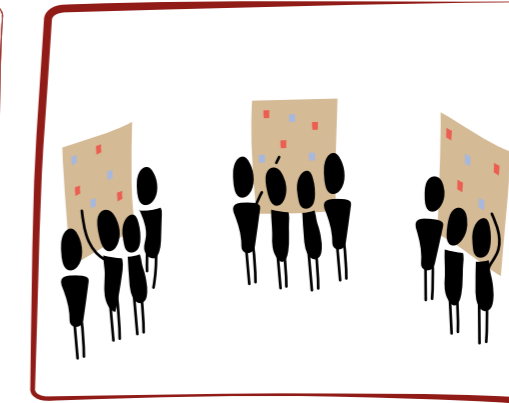
How: A short presentation supported by slides, including brief insights from the research to provide context of the session.



Ice breaker - 2 minutes

Goal: Create a comfortable, open and energetic atmosphere.

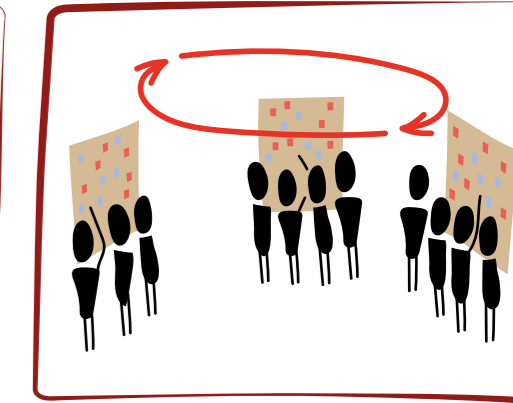
How: A quick round of statements to which participants responded by standing if they agreed and sitting if not. This allowed them to share perspectives within the group.



Round 1 of ideating - 5 minutes

Goal: Generate ideas addressing the three research questions.

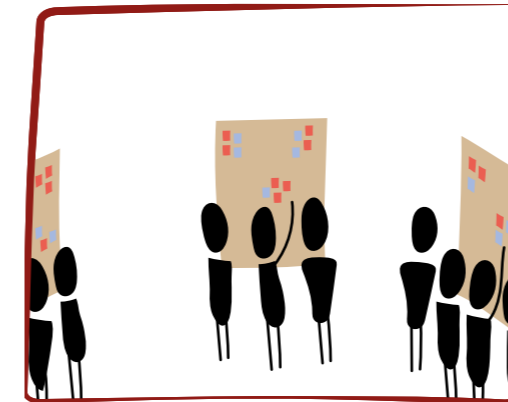
How: Participants were divided into three groups. Each group stood in front of a large sheet of paper displaying one of the research questions. They first wrote down individual ideas for one minute, followed by a short group brainstorm to expand on these ideas.



Round 2 of ideating - 5 minutes

Goal: Build upon and diversify previously generated ideas.

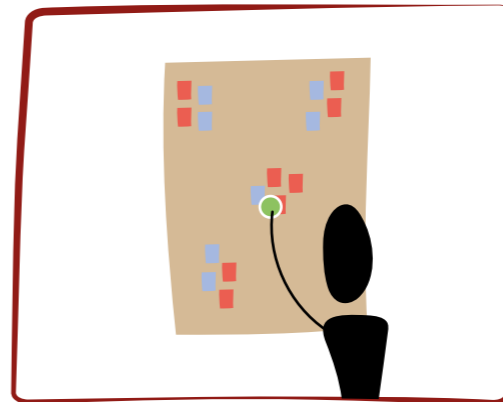
How: Groups rotated to the next research question. They reviewed the ideas of the previous group and then added new ideas or expanded on existing ones.



Clustering - 5 minutes

Goal: Identify patterns and synthesise ideas into broader themes.

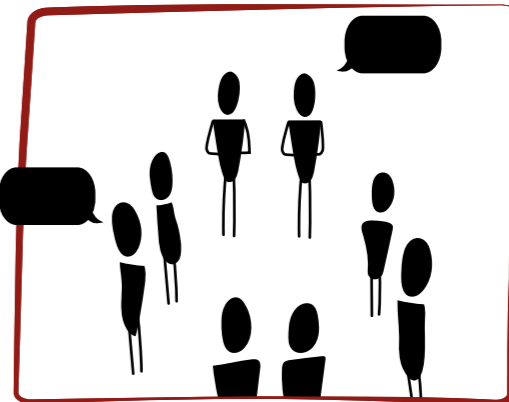
How: Groups rotated once more, briefly added any remaining ideas, and clustered overlapping or related ideas into larger concepts.



Hits and dots - 2 minutes

Goal: Identify which ideas or directions resonated most strongly with participants.

How: Participants reviewed the clustered ideas and placed a thumbs-up sticker on the ideas they found most appealing or promising.



Wrapping up - 2 minutes

Goal: Reflect on the session and gather feedback.

How: A guided group conversation facilitated by Judith and me, discussing what participants found most interesting, which questions were challenging, and where differences of opinion emerged. The session concluded with participants receiving a small thank-you gift.

Figure 7.3: Overview of the structure of creative session 1

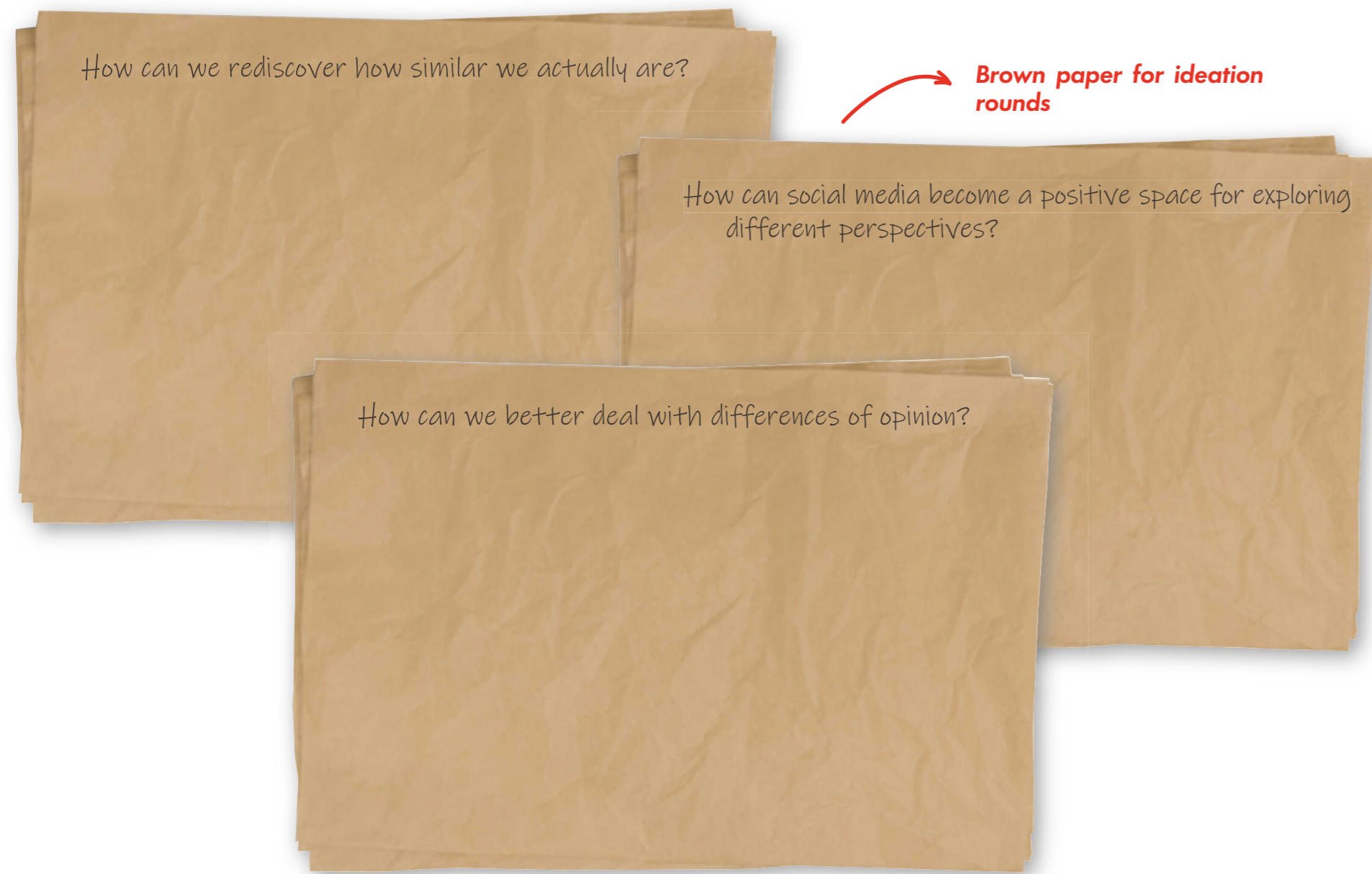


Figure 7.4: Materials used during creative session 1



Figure 7.5 Adolescent during Hits & Dots

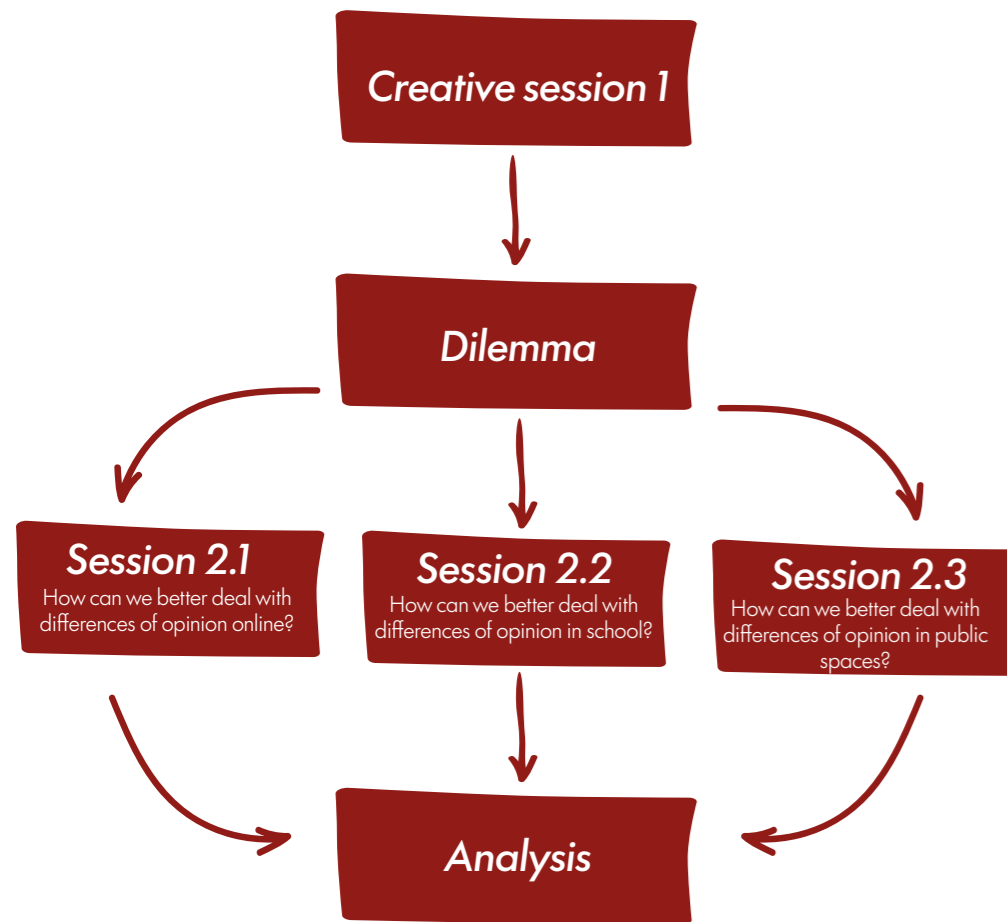


Figure 7.6: Overview of the structure of the process of the creative sessions

Session 2

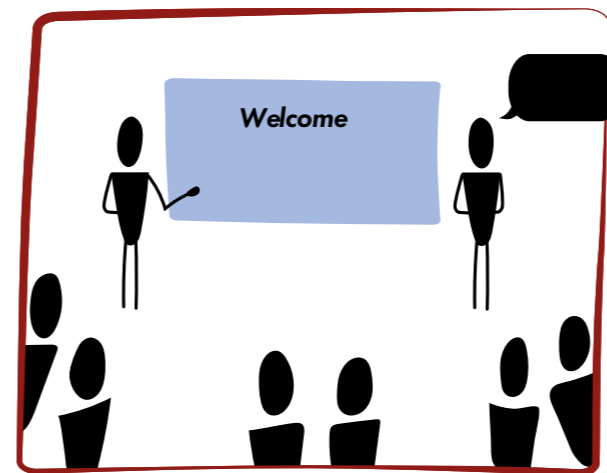
The second session was hosted three times, each focusing on a specific research question (see figure 7.6). In contrast to Session 1, this session involved adolescents who were not familiar with the topic of polarisation. Judith and I used this session to explore their views on polarisation and how they envision the future. To do so, we worked with future scenarios to evoke their perspectives and stimulate reflection on how things should be. Afterwards, participants were asked to ideate about their desired future and possible steps to achieve it.

Based on the input from Session 1, Judith and I decided to focus on tensions 1 and 2, which are reinterpreted as the dilemma of safety versus freedom (as explained in Chapter 6.3). This resulted in the following research question, which guided Session 2: “How can we better deal with differences of opinion?”

This overarching question was divided into three domains, reflecting the contexts mentioned by participants in Session 1: public space, schools, and online environments. Each session focused on one domain:

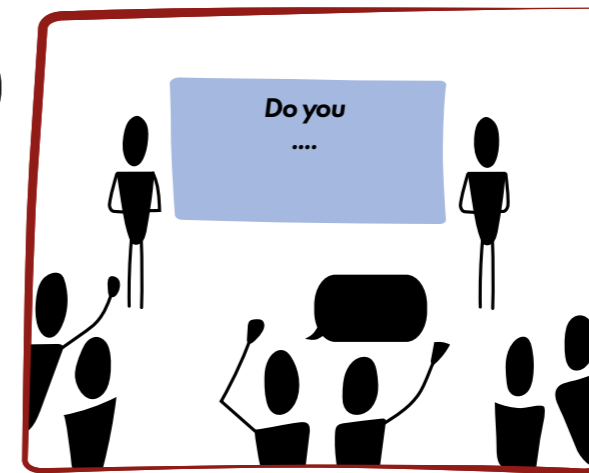
1. How can we better deal with differences of opinion online? (Session 2.1)
2. How can we better deal with differences of opinion in school? (Session 2.2)
3. How can we better deal with differences of opinion in public spaces? (Session 2.3)

To explore these research questions, the session was designed according to the structure shown in figure 7.7. The materials are shown in figure 7.8 and figure 7.9 shows the sessions setting. Filled in materials can be found in appendix C2.



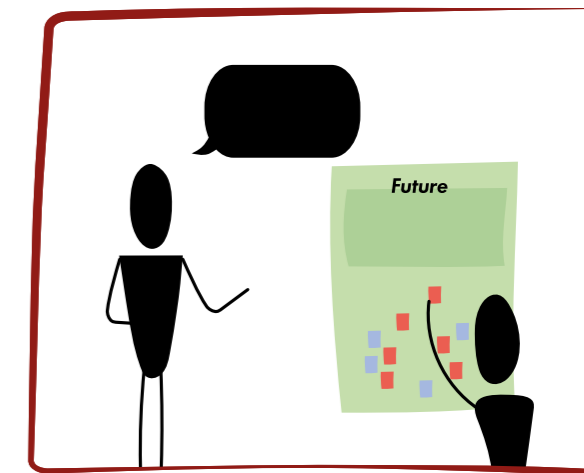
Introduction - 10 minutes

Goal: Introduce ourselves, clarify the purpose of the session, and explain its structure.
How: A short presentation supported by slides, including brief insights from the research to provide context of the session.



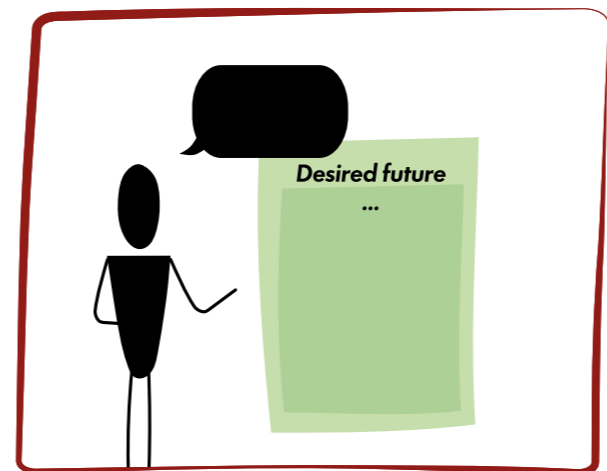
Ice breaker - 2 minutes

Goal: Create a comfortable, open and energetic atmosphere.
How: A quick round of statements to which participants responded by standing if they agreed and sitting if not. This allowed them to share perspectives within the group.



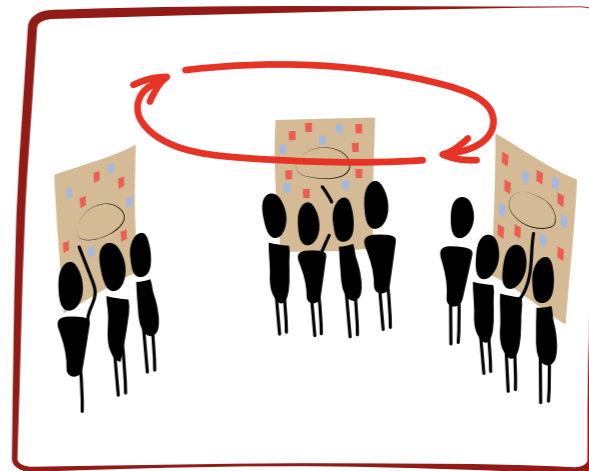
Exploring futures - 20 minutes

Goal: Explore how adolescents envision a desired future.
How: Two contrasting and deliberately “extreme” future scenarios were read aloud and visually presented on posters. After hearing the scenarios, participants wrote down what they perceived as positive and negative aspects of each future. This exercise encouraged critical reflection and comparison.



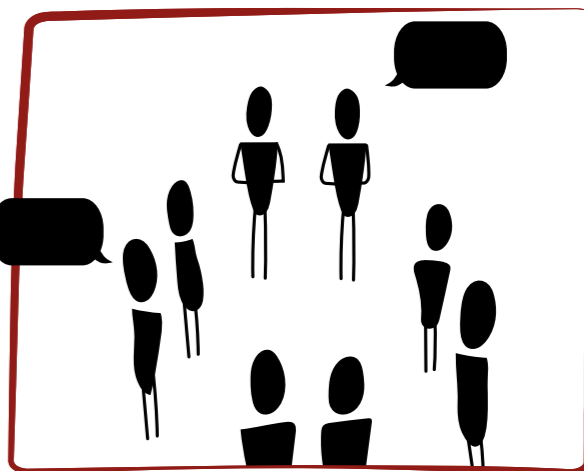
Wrap up the futures - 5 minutes

Goal: Reflect on the explored futures and move towards articulating a collectively desired future.
How: A summarised version, concluded by Judith and me, with the key elements that emerged is shown and participants are invited to respond, refine, or challenge this synthesis to shape a shared vision.



Ideating - 15 minutes

Goal: Generate ideas addressing one of the research questions.
How: Three large sheets of paper were prepared, each focusing on a different stakeholder group: government/companies, adults (e.g., teachers and parents), and youth. Participants were divided into three groups, each starting with one stakeholder perspective. After five minutes, the groups rotated to build upon the ideas generated by the previous group.



Wrapping up - 10 minutes

Goal: Reflect on the session and gather feedback.
How: A guided group conversation facilitated by Judith and me, discussing what participants found most interesting, which questions were challenging, and where differences of opinion emerged. The session concluded with participants receiving a small thank-you gift.

Figure 7.7: Overview of the structure of creative session 2



Figure 7.8: Materials used during creative session 2.1, 2.2 & 2.3



Figure 7.9: Adolescent during creative session 2.3

7.3 Reflecting on the generative sessions

What reflections emerged from conducting the generative sessions with adolescents?

In reflecting on the sessions, alone as well as together with Judith, several important insights emerged. During and between the sessions, we made small adjustments in response to group dynamics and energy levels, we kept iterating on things that worked well or things that needed improvement. This required us to continuously balance structure with flexibility. While the session design was carefully prepared, we adapted the pace and guidance when participants struggled or when energy shifted.

One recurring challenge was supporting participants in moving from abstract ideas to larger and concrete ideas. Many adolescents found it difficult to move beyond reality. For example, ideas often remained at a general level, such as “people should communicate more respectfully.” Some participants also struggled to think of solutions as they were focusing on limitations. As one participant noted (CS2.3): “When it comes to young adults, I’m afraid it might already be too late, but for younger people it’s difficult to think of what is actually feasible, as they are still strongly influenced by their parents.” Breaking out of what felt “realistic” and thinking more expansively required active facilitation and encouragement to unpack what their thoughts and ideas could look like in practice. Through follow-up questions, participants were encouraged to specify behaviours or contexts, which helped to deepen their ideas. This highlighted how strongly young people can be anchored in existing systems and how much guidance is sometimes needed to stimulate speculative or future-oriented thinking.

The role of facilitator

On a personal level, the sessions strengthened my awareness of the role of the facilitator. Facilitating different groups, with varying educational backgrounds and dynamics, required sensitivity and adaptability. I noticed that briefly connecting with participants on topics beyond the immediate scope of the session contributed to establishing trust and openness. I learned the importance of remaining flexible within a well-prepared structure. I became more aware of how my own energy level directly influenced group engagement. Maintaining an enthusiastic and interactive facilitation style, for example by moving through the space and posing questions throughout explanations, helped sustain a dynamic atmosphere.

The experience of participants

The feedback from participants was largely positive. Several indicated that they enjoyed the session and appreciated being asked for their opinions. At the same time, some mentioned that they found it difficult to come up with ideas. This reinforces the importance of providing clear structure and energising facilitation when working with generative methods.

7.4 The analysis approach

How are the results from the generative sessions analysed to identify meaningful patterns and insights?

This paragraph outlines how the results from the generative sessions were processed. The analysis unfolded in three interconnected phases (see figure 7.9), moving from data to information and knowledge, as explained in the Convivial Toolbox (Sanders & Stappers, 2008).

Immersion. The first phase focused on immersing myself in the data collected from all four sessions. This was done per session, allowing for a focused understanding of each session’s dynamics and outputs. I reviewed the notes taken during the sessions and revisited the materials created by participants. In addition, I reflected on my own observations as a facilitator. During this phase, the data was organised into three thematic lenses: expressions of the problem, future imaginaries, and proposed actions. This helped structure the material and revealed early distinctions in how participants framed polarisation.

Collaborative clustering. After this individual immersion, the analysis shifted to a collaborative phase with Judith. All materials from the four sessions were brought together on a Figma board, enabling comparison across sessions. Together, we systematically reviewed the data to identify recurring patterns and relationships. Through discussion and interpretation, these patterns were clustered into preliminary insights.

Synthesis and translation into insight cards. In the final phase, the insights were further synthesised. An additional round of clustering resulted in four key themes. Each theme is illustrated through multiple insight cards (16 in total), which are further elaborated in Chapter 7.5. These insight cards were connected to the system map and dilemma discussed in Chapter 6, contributing to a clearer articulation of both the problem of polarisation and the solution space envisioned by participants (Chapter 7.6). In addition, some findings informed the refinement of the clusters presented in Chapter 6.2, while others served as input for the ideation phase (Chapter 8).

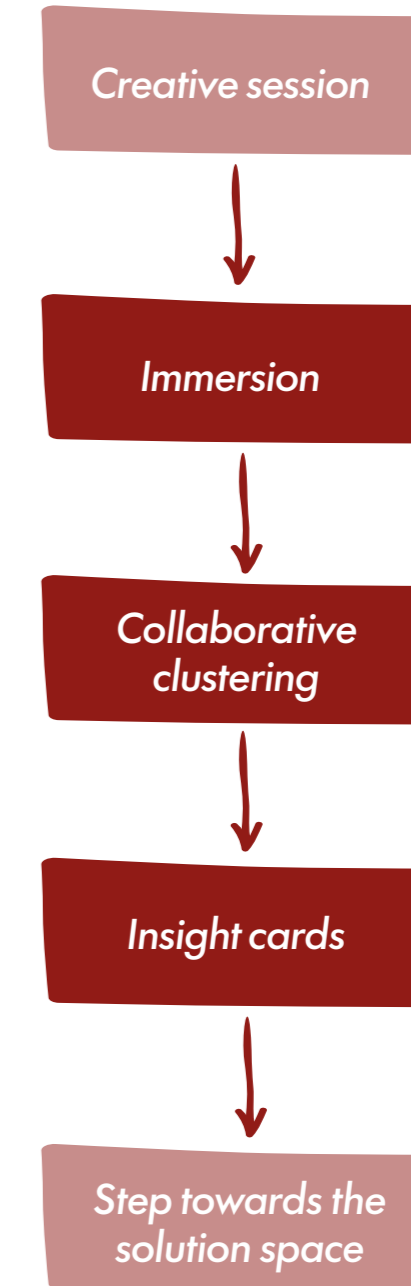


Figure 7.9: An overview of the process of the analysis

7.5 Insights from the analysis

What key insights about polarisation emerged from the generative sessions with adolescents?

As mentioned, the analysis resulted in 16 insight cards, each belonging to one of four themes. These themes are as follows:

- 1. Expressing and dealing with opinions:** insights into how people express their own opinions and how they respond to those of others.
- 2. Engaging with youth:** insights into how adolescents want to be approached, encountered, and treated.
- 3. Perception of others:** insights into how people view others and how they might break out of fixed patterns or assumptions.
- 4. Youth on social media:** insights into how adolescents behave online and their awareness of the impact of social media platforms.

The insights are described on the following pages. Insights 6, 10, 14 and 15 informed in the design criteria in Chapter 8.2.

Expressing and dealing with opinions

2

Expressing an opinion is seen as a right, but it only works when it is done thoughtfully and with respect for others.

"If you have an opinion, you should be able to speak up." Always? "Yes." In any way? "No, it has to be respectful."

- Young person, session at Leiden

"Respect each other's opinions and don't be unnecessarily negative about different views."

- Young person, session at Rotterdam

"If your opinion doesn't add anything, you don't have to share it. Especially if it's not based on anything."

- Young person, session at Leiden

Expressing and dealing with opinions

3

Conversations should not be about proving you're right, but about listening, understanding and engaging with others.

"Let each other speak more without immediately attacking."

- Young person, Session at Delft

"Discussions in my class often get intense very quickly, but you can also just listen to each other."

- Young person, session at Rotterdam

"It's important not to enter a conversation just to prove you're right."

- Young person, session at Leiden

Expressing and dealing with opinions

1

People need to understand that it is okay to disagree, and that this doesn't have to be negative.

"We have to accept that not fully agreeing is also okay."

- Young person, session at Delft

"We have to be careful not to openly judge someone's opinion too harshly."

- Young person, session at Leiden

"We have to stay open to different opinions, because an opinion isn't a fact."

- Young person, session at Delft

"We have to respect each other's opinions and not be unnecessarily negative about other people's views."

- Young person, session Rotterdam

Engaging with youth

5

Obligation and prohibition trigger resistance and can feel suffocating.

"Now that they're older, they find it easy to suddenly set rules for younger kids."

- Young person, session at Hilversum

A young person wonders whether banning things really aligns with other laws, like freedom of speech: "If certain words are banned on platforms, isn't that in conflict with it?"

- Young person, session at Hilversum

Engaging with youth

6

There needs to be room for fun in a low-threshold way.

"You need to bring the concept to young people and keep the threshold low, do not expect them to come to you and pay for it."

- Young person, session at Delft

"You should make it (the concept) playfull, don't put the focus on politics."

- Young person, session at Delft

"You should make it (the concept) playfull, don't put the focus on politics."

- Young person, session at Rotterdam

Engaging with youth

7

Adolescents should be treated as equals and taken seriously.

"Older people shouldn't look down on young people."

- Young person, session at Rotterdam

"Older people should just talk about socials with young people, how doesn't really matter"

- Young person, session at Hilversum

"People (policy makers) should involve young people, like you are doing now, and just listen"

- Young person, session at Delft

Expressing and dealing with opinions

4

Good discussion includes moments of intensity, friction and heated exchanges are often necessary to move the conversation forward.

"Sometimes discussions just get heated, and in those moments you want to react fast. Maybe that's something we should learn to accept."

- Young person, session at Leiden

"You can't expect everyone to fully agree anyway. Complete agreement is unrealistic."

- Young person, session at Leiden

Engaging with youth

8

Lack of transparency around decisions makes young people feel excluded.

"I think a lot of interaction with young people leads to a stronger sense of being heard." (Context: school)

- Young person, session at Rotterdam

"The government should explain its decisions better." Why? "So people understand what choices were made and why, this will lead to more informed discussions."

- Young person, session at Rotterdam

Perception of others

9

There is a growing desire for a less individualistic society, yet this does not always align with where they place responsibility.

"We need to move away from individualism and look out for each other more, for example with neighbours, and feel a stronger sense of togetherness."

- Young person, session at Rotterdam

"We were just talking about individualism, and I think that nowadays you're more on your own."

- Young person, session at Rotterdam

Many participants believe that responsible social media use is ultimately an individual responsibility.

- Observation, session at Hilversum

Perception of others

10

It is important for people to step outside their own bubble more often.

"You should not only thinking about yourself or the group you belong to."

- Young person, session at Delft

"We should try to put ourselves in someone else's shoes"

- Young person, session at Delft

Perception of others.

11

Breaking negative stigmas is essential to move from judging people by labels to valuing their strengths.

"We really need to break stigmas. Polarisation happens around topics that are seen as sensitive, like educational level or gender equality, even though they shouldn't be."
- Young person, session at Rotterdam

"There should be more attention to the idea that you don't need to reach the highest level in education, and to how people talk about other levels and the stigmas around them, such as: 'HBO-students are cursists.'
- Young person, session at Delft

"We should focus on what everyone is good at, instead of what everyone lacks."
- Young person, session at Delft

Socials

12

The freedom to express yourself on social media is important, but this should be done thoughtfully and with consideration for others.

"You should be mindful about what you post, it's not good if you express your opinions without any filter."
- Young person, session at Hilversum

"It's good that you're free to say what you think and share a different opinion."
- Young person, session at Hilversum

"You should be free to express yourself on social media, while keeping others in mind."
- Young person, session at Hilversum

Socials

13

There is awareness of the negative impact of social media, but this awareness rarely leads to lasting change.

"There's way too much social media. It is destroying people."
- Young person, session at Rotterdam

"We should spend less time on social media, like by setting time limits."
- Young person, session at Hilversum

You can spot polarization on social media — like posts about protests at the Sinterklaas parade with crying kids. Not the time and place.
- Young person, session at Hilversum

Socials

14

Adolescents tend to see problematic social media use as something that affects others, while neglecting the impact it has on their own lives.

Many participants believe that responsible social media use is ultimately an individual responsibility.
- Observation, session at Hilversum

"Other people might struggle with it, but I think I handle social media pretty well."
- Young person, session at Hilversum

"Yeah, sometimes I see negative stuff, but as soon as I'm off the app, I forget it."
- Young person, session at Hilversum

Socials

15

Although adolescents are aware of algorithms and bots, they don't fully understand how their influence online world.

An question about social media sparked many discussions, concerns about AI online, and a wide range of differing opinions about algorithms.
- Observation, session at Delft

A question about algorithms highlights that not all young know how algorithms are influenced by big tech companies and bots on social media.
- Observation, session at Hilversum

Socials

16

Online content is too negative, while there is a need for more diverse and positive content

"Politics and media shouldn't focus on one issue like everything is about that, yet also pay attention to other topics."
- Young person, session at Delft

"People shouldn't react to ragebait or content that is meant to divide people online."
- Young person, session at Delft

"No hate online doesn't mean it is boring. Positive things can be fun too."
- Young person, session at Hilversum

7.6 From problem to solution

How do these insights relate to the safety vs. freedom dilemma, and what opportunities do they reveal?

To understand how the findings connect to the dilemma of safety vs freedom, all 16 insights were mapped against the system map (see figure 7.9). Each insight was analysed in terms of what it reveals about the existing dilemma (explained in Chapter 6.4) and dynamics described in the system map (explained in Chapter 6.3).

As shown in figure 7.9, insights 5 and 6 do not directly relate to the system map, yet they still provide valuable perspectives and were therefore included in the analysis. Similarly, some clusters were not explicitly covered during the sessions. This does not indicate that these clusters are less relevant, but rather as a reflection of how the sessions were structured and where the focus was placed.

Through this process, three different orientations for the desired future emerged. These orientations reflect how adolescents position themselves within the framework and how they envision navigating the dilemma between safety and freedom moving forward. These three orientations are explained in the next paragraphs.

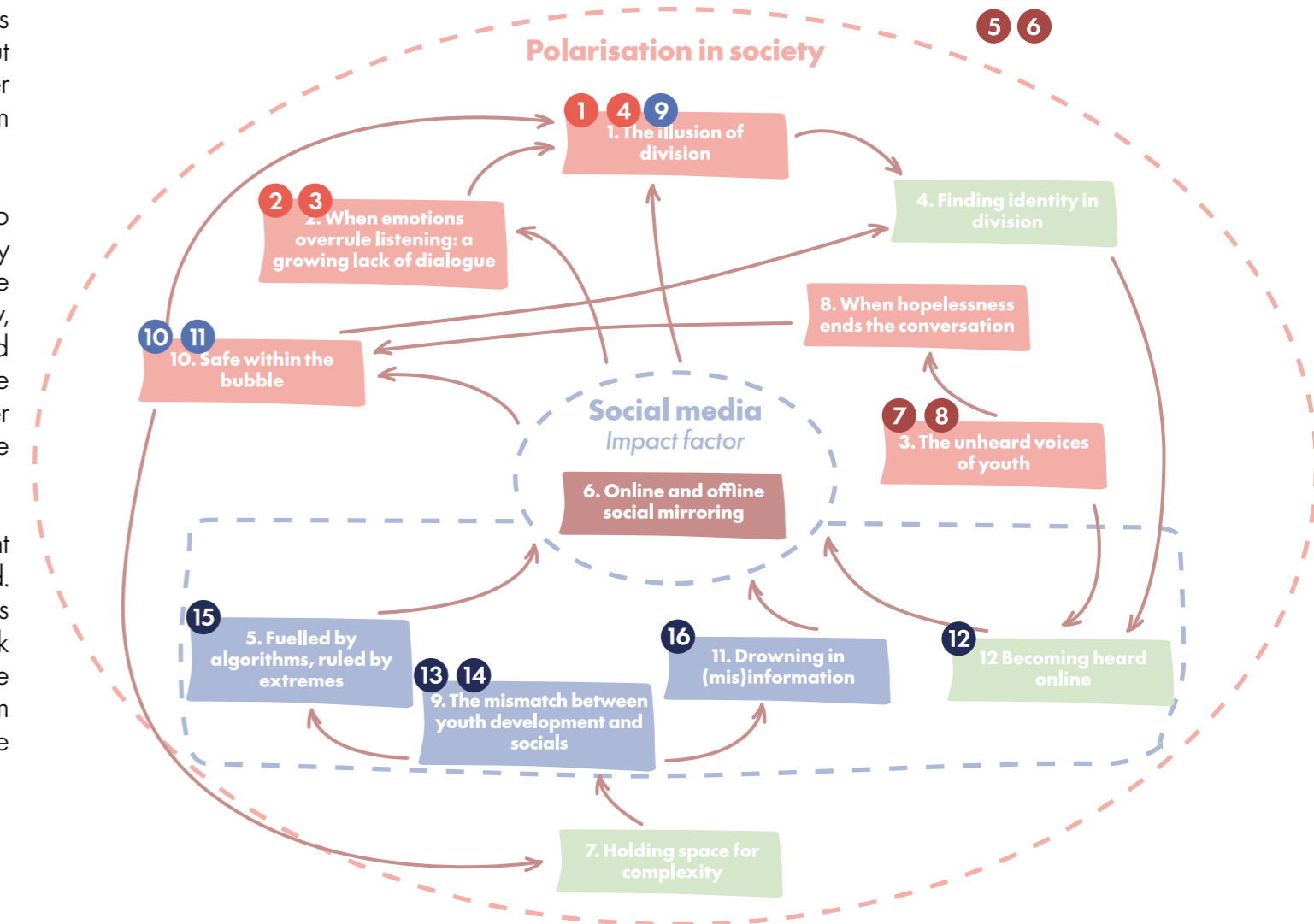


Figure 7.9: Insights related to the system map

Youths' perspective on: 'When freedom threatens safety'

Both online and offline, young people consider freedom of expression to be essential, as long as it is exercised with respect (2, 3, 12). This reflects the ongoing tension between safety and freedom where too much freedom leads to disrespectful behaviour. This tension aligns with earlier literature discussed, which shows an increase of emotional intensity (Sociaal Plan Bureau, 2022). Although these insights validate the findings from Chapter 6, at the same time, adolescents acknowledge that disagreement and heated debates are inevitable and should be accepted as part of open dialogue (1, 4). In this case, it adds nuance, **rather than seeking full consensus or harmony, young people recognise conflict as a natural and even necessary aspect of free expression.**

Figure 7.10 illustrates how these insights relate to the framework presented in Chapter 6.4, 'When freedom threatens safety'.

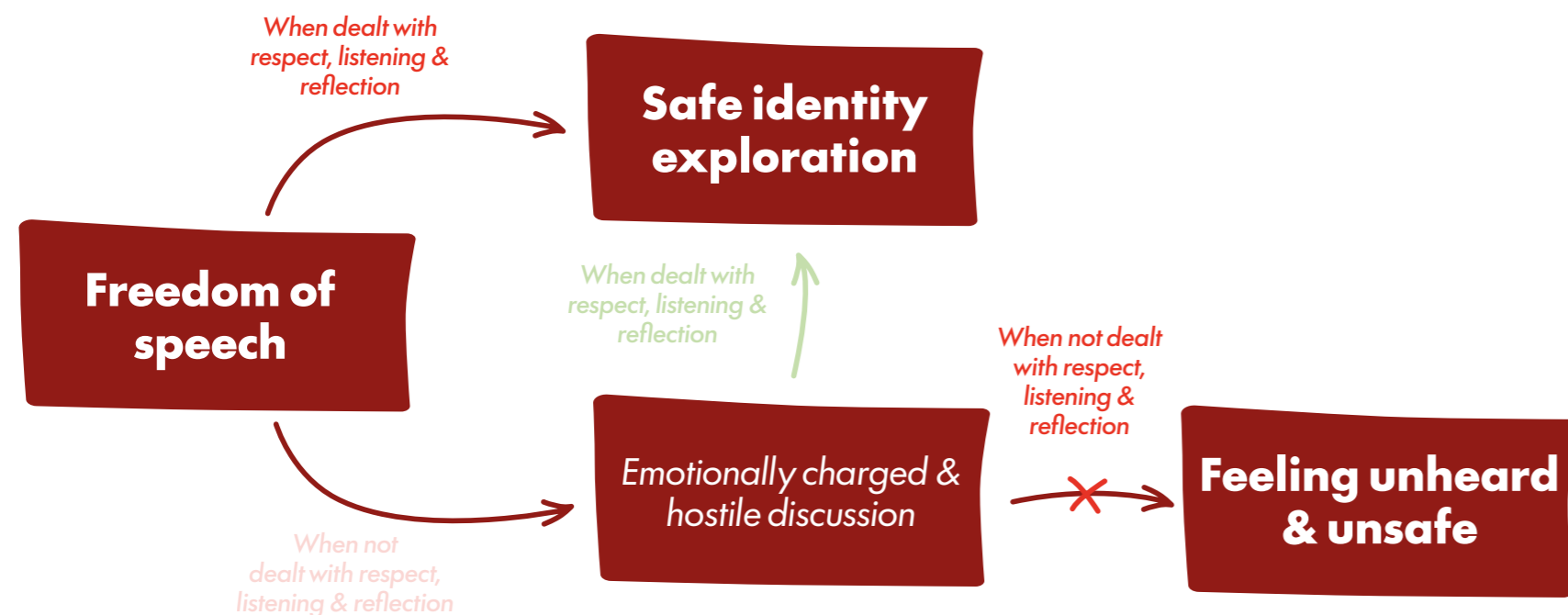


Figure 7.10: Youths perspective related to the framework 'When freedom threatens safety'

Youths' perspective on: 'Safety within, division without'

In addition, young people express a strong need for more positivity in both online and offline spaces, as a response to the prevailing negativity (16). **They believe this can be achieved by stepping outside one's own bubble more often and by actively challenging negative stigmas** (10, 11). This reflects another aspect of the freedom vs. safety dilemma discussed in Chapter 6.4, where it was concluded that withdrawing into a 'safe' bubble may feel protective, but it can also increase negativity between groups. This observation aligns with Sunstein (2017), who describes how individuals tend to remain within like-minded environments. According to youth, encouraging broader perspectives and more constructive interaction can help reduce this divide.

Figure 7.11 visualises how these youth perspectives connect to the framework presented in Chapter 6.4, 'Safety within, division without'.

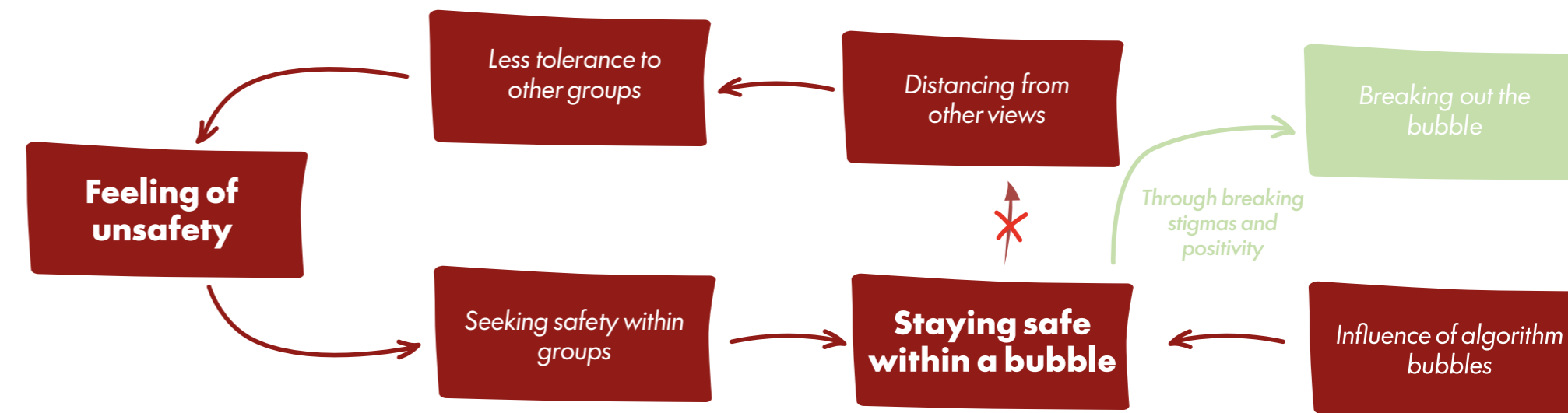


Figure 7.11: Youths perspective related to the framework 'Safety within, division without'

Youths' perspective on 'The paradox of digital freedom'

As discussed in Chapter 2.2, Dutch society has become increasingly individualised (Kockelmans, 2015). This trend is also reflected in the creative sessions, where young people recognise this development, while simultaneously arguing that society should move away from its strong focus on individualism (9). However, the participants involved in this study tend to place responsibility primarily on the individual user and their personal behaviour (14). **This reveals a contradiction between what they say and what they do: while they advocate moving away from an individualistic perspective, they themselves still approach the online environment in this way.** This raises the question of how the online environment can be understood as a collective, rather than purely individual, problem. Furthermore, online addiction plays a significant role in shaping young people's awareness of their own behaviour (5, 13, 14, 15). Many do not recognise their online behaviour as potentially harmful or influenced, while research shows algorithms can influence users as it can reduce openness to opposing views (Uhls, 2025). A limited understanding of how algorithms operate makes it difficult for them to recognise the extent to which their behaviour and attention are being steered.

Although young people often express discomfort with being controlled by algorithms, this remains a blind spot: responsibility is frequently attributed to others rather than to themselves.

Figure 7.12 visualises how these insights connect to the framework presented in Chapter 6, 'the paradox of digital freedom'.

Finally, these insights highlight several important principles for the final design. Young people want to be taken seriously, value transparency around underlying mechanisms, and strongly oppose being forced into certain behaviours or choices. Instead, **they emphasise the importance of incorporating elements of fun, accessibility, and social connection into any intervention or design solution** (6, 7, 8).

Concluding: youths' perspective on safety vs. freedom

Taken together, these insights reveal that young people navigate the dilemma between freedom and safety in nuanced ways. While they strongly value freedom of expression and open dialogue, they also recognise the risks of negativity and division between groups. At the same time, their reflections reveal a blind spot regarding the influence of social media environments, particularly the role of algorithms and addictive platform dynamics in shaping their behaviour and attention. While young people tend to perceive themselves as independent users, earlier research shows that algorithmic systems strongly shape their perspectives while limiting awareness of this influence.

Finally, young people emphasise that any attempt to address polarisation should not rely on restriction or control, but instead incorporate elements of positivity, transparency, fun, and social connection. These perspectives form the foundation for the design direction explored in the following chapter.

Key take-aways

- Young people value freedom of expression but emphasise that it should be exercised with respect, highlighting the tension between open dialogue and the need for safety.
- Rather than striving for full agreement, adolescents recognise disagreement and debate as a natural and even necessary part of democratic dialogue.
- Many young people express a desire for more positivity in both online and offline environments and believe this can be encouraged by stepping outside one's own bubble.
- Although young people criticise individualism in society, they often still place responsibility for online behaviour primarily on individual users.
- Adolescents show a limited awareness of how algorithms and platform dynamics influence their behaviour, revealing a blind spot in how digital environments shape polarisation.
- Young people emphasise that solutions to polarisation should not rely on restriction or control, but instead focus on transparency, fun, accessibility, and social connection.



Part 3: Creation

8. From the problem to a response

Part 3, consisting of Chapter 8, builds on the insights and underlying dilemmas identified in the previous chapters and translates them into directions for design, representing the third phase of the double diamond, the creation phase. While earlier chapters focused on understanding the complex system surrounding polarisation, this chapter shifts towards exploring how design might help improve these dynamics. To move from the problem towards a design direction, several design activities were conducted during Part 2. Ideation sessions were organised to generate a wide range of ideas (IS1–2, EV1), which were subsequently refined through three test moments (TM1–3). These iterative cycles of ideation, testing, and reflection helped shape the final concept.

The research question guiding this chapter is:

“How can the identified dilemmas within the system of polarisation be translated into a meaningful design direction?”

This chapter begins by identifying potential places to intervene within the system (8.1). Based on these insights, the design goal and design criteria are defined (8.2), followed by the approach taken to guide the design process (8.3). The chapter then describes the ideation phase (8.4), in which a broad range of ideas was explored. These ideas are subsequently refined and translated into a coherent concept during the conceptualisation phase (8.5). Finally, the chapter concludes with a reflection on the resulting design direction (8.6).

- **Chapter 8.1:** Places to intervene in the system
- **Chapter 8.2:** The design goal
- **Chapter 8.3:** The approach
- **Chapter 8.4:** Exploring design directions
- **Chapter 8.5:** Developing the concept
- **Chapter 8.6:** Concluding



8.1 Places to intervene in the system

Where in the system could a design intervention contribute to reducing polarisation among adolescents?

Designs that aim to drive systemic change often build on the concept of leverage points (Van der Bijl-Brouwer, 2023). Leverage points, as described by Donella Meadows (1999), are places within a complex system where relatively small interventions can generate significant shifts in system behaviour. Identifying such points requires acknowledging the nature of complex adaptive systems. Social systems are constantly evolving, non-linear, and unpredictable, meaning no individual can fully understand the system as a whole. As a result, interventions unfold under conditions of uncertainty, and their effects are never definitive or permanent (McKenzie, 2025). Among the most powerful leverage points identified by Meadows operate at the level of mindsets and paradigms. These involve shifting the beliefs and assumptions that guide behaviour within a system or increasing the system's capacity to transcend existing paradigms (Ehrlichman, 2018).

Research on safe online behaviour suggests that resilience in online environments is influenced by knowledge, abilities, and motivation, as illustrated in the Digital Media Empowerment framework (Rozendaal, 2022). When individuals understand how online systems operate, are able to recognise different perspectives, and are motivated to reflect on their own behaviour, they are better equipped to navigate complex and potentially polarising online environments (see figure 8.1). This process often begins with awareness of how digital environments influence one's own perceptions, emotions, and behaviour (Van Aalderen & Rozendaal, 2023).

With this understanding, this project explores a leverage point within the social media environment of adolescents that contributes to polarisation. Insights from Chapters 6 and 7 reveal that although many young people express a desire to move away from an increasingly individualised society, the social media platforms they use daily are structured as highly individualised environments. These platforms rely on algorithmic filtering systems that curate personalised feeds based on users' interactions, interests, and behaviour. Although adolescents may be aware of the influence of large technology companies online, they often overlook how strongly their own algorithmically curated feeds shape their experiences. **In other words, adolescents are often unaware of how strongly algorithms shape their online environment and beliefs.**

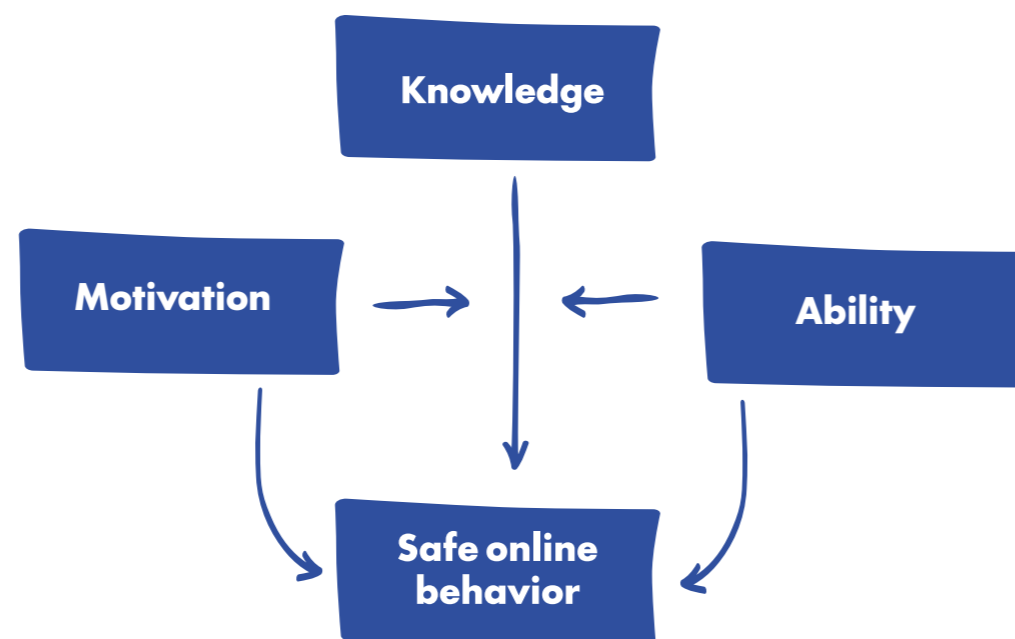


Figure 8.1: The Digital Media Empowerment Framework. Knowledge, motivation, and ability are needed to help adolescents become resilient online. (Rozendaal, 2022)

While social media is frequently experienced as a space of freedom and self-expression, this freedom is largely perceived rather than actual. What users see, share, and engage with is continuously filtered and steered. As a result, individualised algorithmic bubbles emerge that reinforce existing beliefs, limit encounters with different perspectives, and contribute to polarisation. **This reveals the leverage point addressed in this project: the visibility of algorithmically curated bubbles. Rather than attempting to change or remove these algorithms, something beyond the scope of this project and beyond my control as an individual designer, the intervention focuses on making their influence visible and experienceable.**

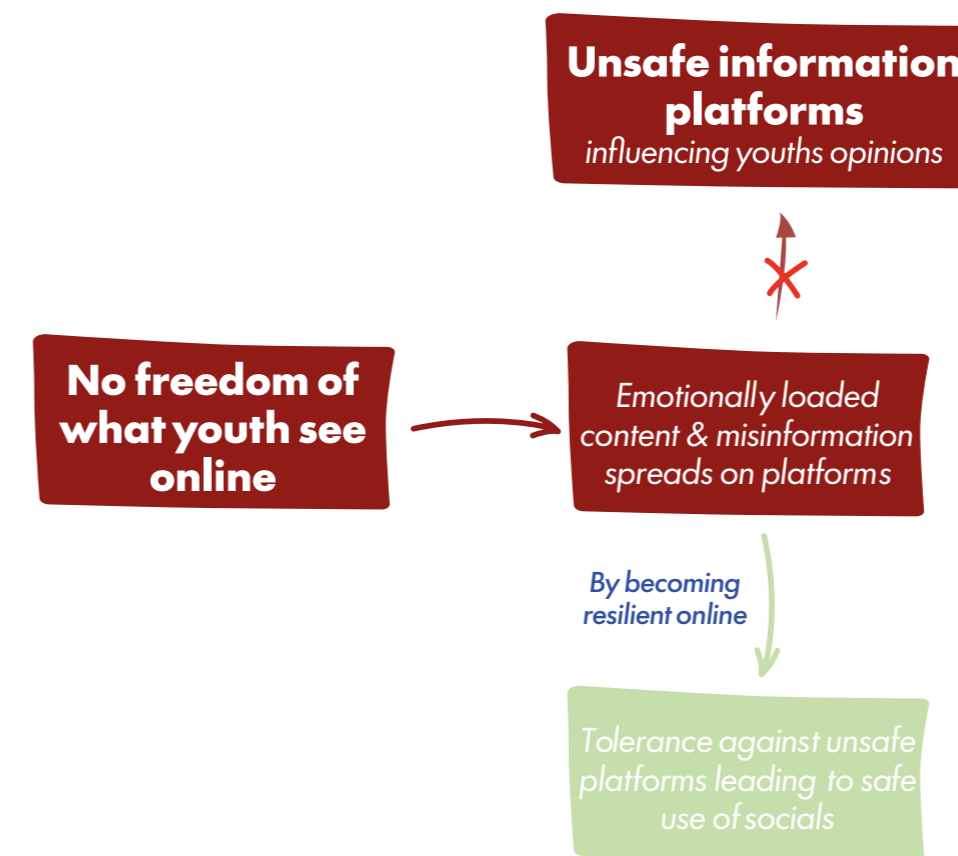


Figure 8.2: Becoming resilient online can help to navigate through unsafe social media places in a safe way.

By shifting algorithmic bubbles from a private experience to something that can be observed, compared, and discussed collectively, the influence of algorithms becomes more tangible. When personalised feeds are no longer experienced in isolation but shared with others, space is created for reflection and awareness. Adolescents can begin to recognise how their online environment is shaped by unseen systems and how different online realities can exist side by side. Through this increased awareness, the intervention aims to strengthen adolescents' digital resilience. It strengthens their motivation by helping them recognise why these dynamics matter for their own online experiences and behaviour, while also increasing their knowledge of algorithmic systems and how online environments shape opinions and polarising dynamics (see figure 8.1, 8.2 & 8.3).

In this way, the project engages with a leverage point that does not attempt to remove the system itself, but instead transforms how it is perceived and understood.

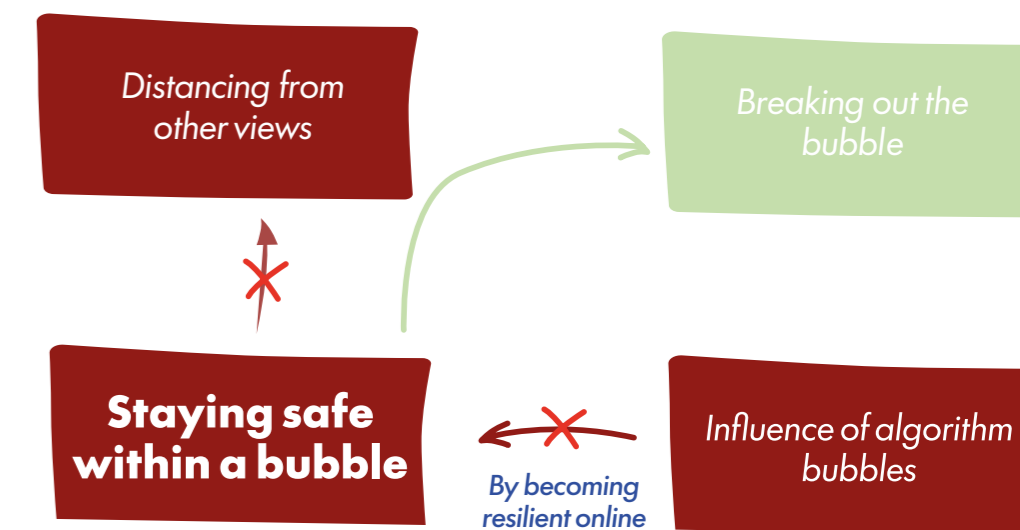


Figure 8.3: Becoming resilient online can help to break out of the online bubbles.

8.2 The design goal

How can the identified leverage point be translated into a concrete design goal for an intervention?

Based on the insights from the creative sessions, the chosen leverage point to focus on and the concept development, the following design goal was formulated to guide the ideation:

To design a **playful and accessible intervention** that helps youth (16–25) **become aware** of how algorithmically curated social media bubbles shape their perspectives and contribute to polarisation **by allowing them to experience different anonymous online bubbles.**

Design criteria

Based on insights from the research phase (Part 1), the reframing phase (Part 2) and concept development (Chapter 8.4 and 8.5), several design criteria were formulated to guide the development of the intervention.

Playful and accessible (Insight card 6 of Chapter 7.5)

The intervention should be playful and accessible in order to lower the threshold for discussing complex societal topics such as algorithms and polarisation. By using interactive and accessible elements, the design should trigger curiosity and encourage youth to participate in the experience without feeling overwhelmed by the subject matter.

Suitable for youth (Chapter 3.2, Chapter 8.4)

The design should connect to the everyday social media experiences of youth aged 16–25. The tone, format, and interaction style should reflect the platforms and content formats they encounter daily, making the topics of polarisation within social media environments relatable and meaningful.

Make algorithms visible and experienceable (Chapter 4.5, Insight card 15 of Chapter 7.5)

The intervention should make algorithms visible and experienceable, revealing how they shape the content people encounter on social media. By translating algorithmic processes into a tangible experience, participants should become aware that their feeds are curated rather than neutral. This can help youth recognise that what often feels like a space of personal choice and freedom is in reality partly shaped by algorithmic systems that influence which societal issues and perspectives become visible to them.

Emotional awareness (Chapter 4.5, Chapter 8.5)

The intervention should highlight the emotional dynamics of social media use. Young people often move through an 'emotional rollercoaster' of content, opinions, and reactions while scrolling through their feeds. Making these emotional dynamics visible can help participants reflect on how emotions play a role in engagement with online content and discussions.

Experiencing diverse perspectives on social media bubbles (Chapter 4.5, Insight card 10 of Chapter 7.5, Chapter 8.5)

The intervention should enable participants to experience diverse perspectives within different social media bubbles. Personalised feeds create highly individualised online environments, limiting encounters with alternative viewpoints and reinforcing existing beliefs. By stepping into different 'bubbles,' participants are exposed to opinions, values, and worldviews that differ from their own. This helps them recognise how different online environments can be and how they shape people's perspectives, contributing to misunderstanding and polarisation.

Anonymous representation of algorithmic bubbles (Insight card 14 of Chapter 7.5, Chapter 8.4)

As social media feeds and algorithmic bubbles often reflect personal interests and beliefs, the intervention should represent these bubbles anonymously. This protects the identity of the individuals behind the feeds while still allowing participants to explore different online worlds and perspectives.

Maintain nuance and complexity (Chapter 4.4, Chapter 6.2)

The design should preserve the nuance and diversity within online environments, showing that multiple perspectives can exist within the same topic and that polarisation often involves complex value tensions. In addition, the design should acknowledge both the positive and negative aspects of social media use.

Enable youth to discuss and reflect together with respect (Chapter 3.5, Insight card 3 of Chapter 7.5)

Participants should have the opportunity to express their own perspectives and reflect on what they experience. The design should give youth a voice rather than positioning them as passive receivers, while encouraging respectful dialogue and exchange between participants. Disagreement or confrontation may occur, but it should be approached in a respectful and constructive manner.

8.3 The approach

How can the ideation and conceptualisation process be structured to explore design solutions addressing the design goal?

This chapter describes the process of ideating and conceptualising around the design goal introduced in Chapter 8.2. Building on the research through design approach, as described in Chapter 1.4, this phase did not follow a linear process. Instead, it consisted of multiple iterative cycles of ideation (IS1-IS2) and prototyping and testing (TM1-TM3), in which ideas were continuously explored, tested, and refined based on how adolescents responded to them. Through these iterations, new insights emerged into how adolescents experience and interpret their social media environments. This process involved several moments of divergence and convergence, allowing different directions to emerge, be tested, and evolve over time. These iterations eventually led to the final concept explained in Chapter 9. Figure 8.4 provides an overview of the main activities and how they contributed to the development of the concept.

To provide some structure, this chapter is divided into two parts: first the ideation phase is discussed, followed by the conceptualisation phase.

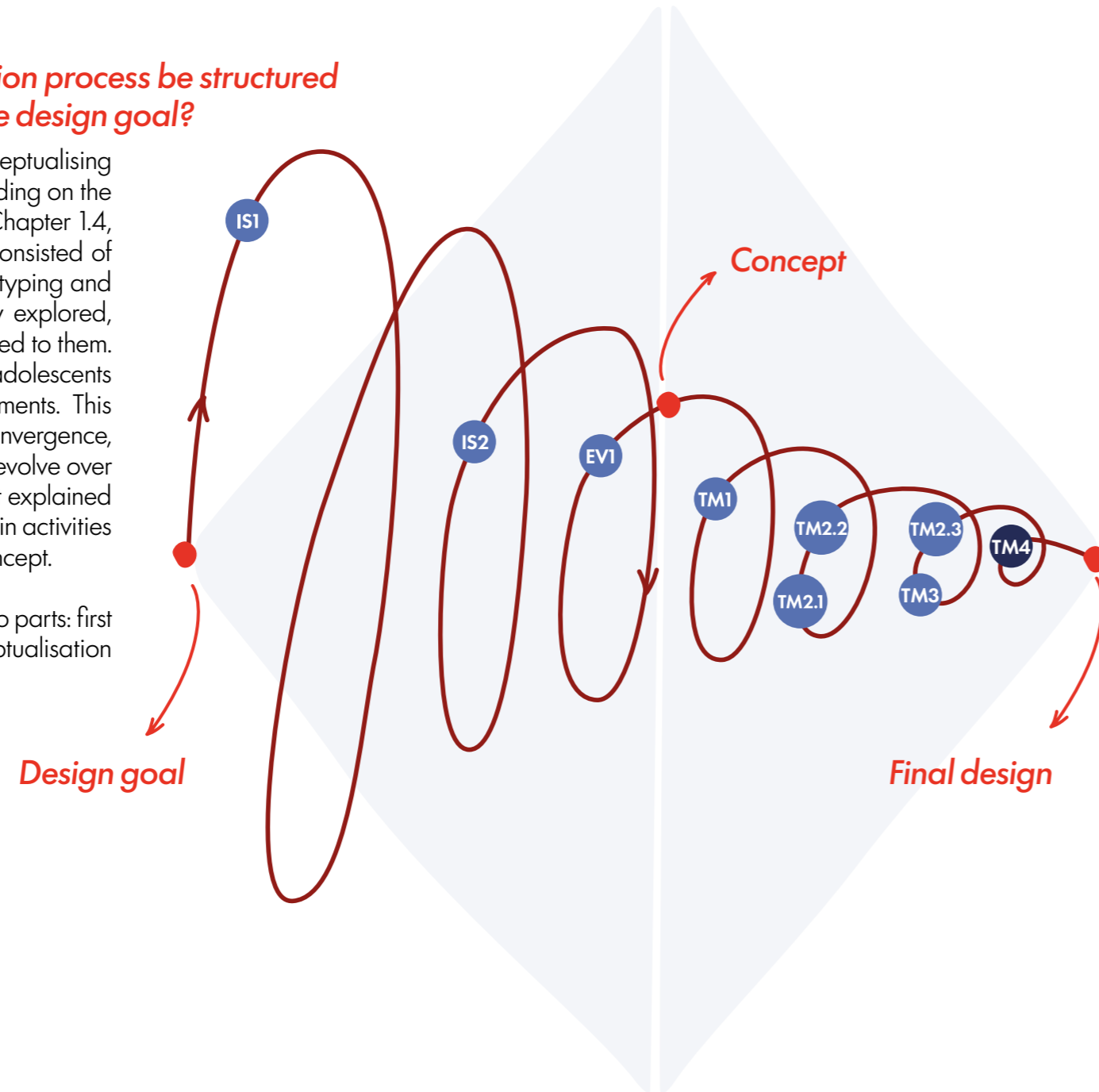


Figure 8.4: The process of ideation and conceptualisation consisted of multiple iterations of diverging and converging

8.4 Exploring design directions

What design directions could raise adolescents' awareness of algorithmic social media bubbles?

This section focuses on the ideation phase of the design process. In the schematic overview, the activities that shaped this phase and their outcomes are presented (see figure 8.5). Additional details about these activities can be found in table 8.1. These activities are informed by the Road Map for Creative Problem Solving Techniques (Heijne & Van Der Meer, 2019).

Within the ideation phase, it is important to recognise that each small iteration consists of a diverging, reverging, and converging stage, in which different methods can be applied. The mindset of both the designer and the participants shifts throughout these stages. During the diverging stage it is important to postpone judgement and maintain fluency in idea generation. In the reverging stage, the focus shifts to moving iteratively between ideas and listening responsively to different perspectives. Finally, during the converging stage, it becomes important to be positively judgemental and to trust intuition when making decisions. Therefore, decisions within the ideation phase were based on a combination of insights from participants, the design criteria derived from the research phase, and my own design intuition.

The key activities and their outcomes are briefly explained in the following paragraphs.

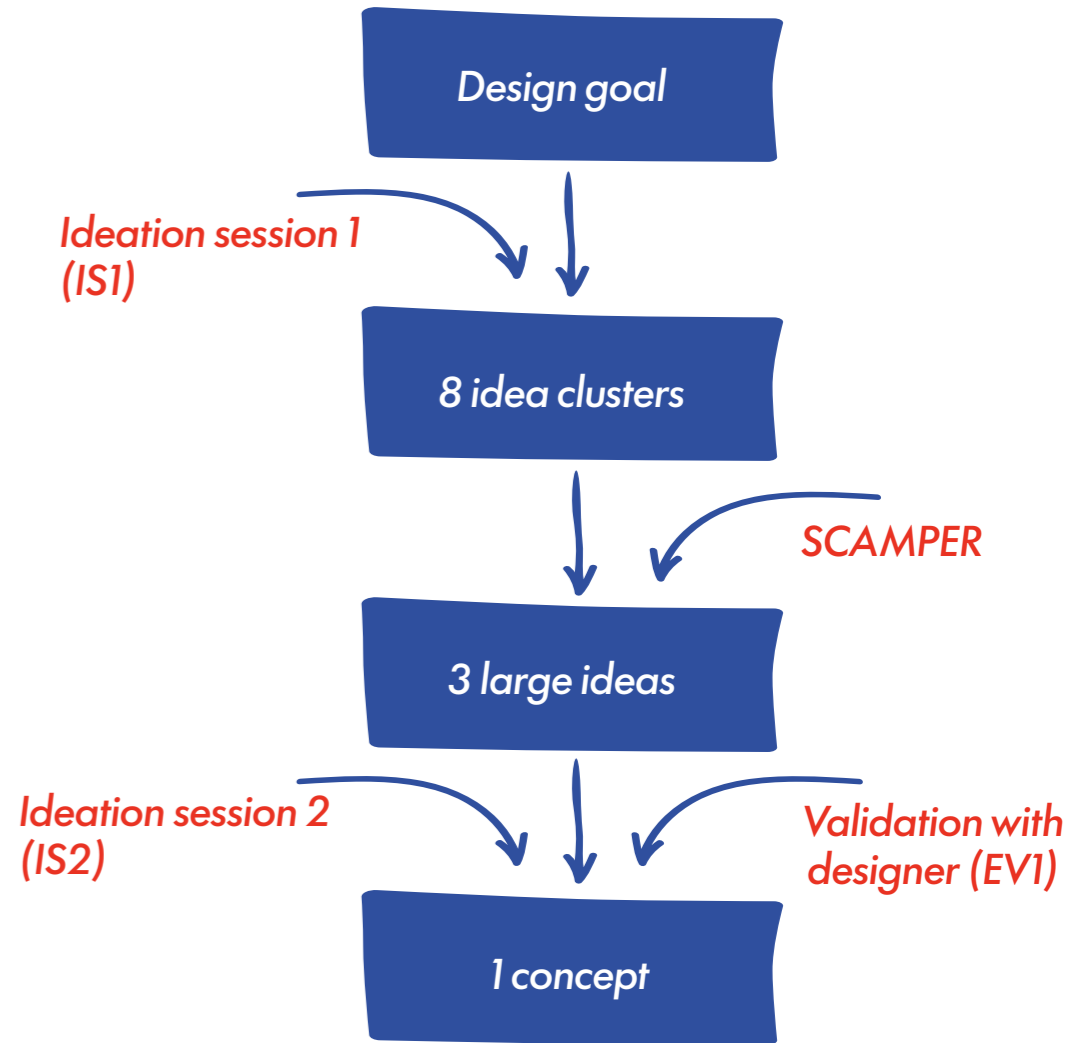


Figure 8.5: Overview of the activities and outcomes of the process

	Place	Participants	Age	Date
Ideation Session 1 (IS1)	TU Delft Industrial Design	3 Master Industrial Design students	24-26	19 Decembre 2025
Ideation Session 2 (IS2)	TU Delft Industrial Design	1 Bachelor Student Industrial Design	22	28 January 2026
Validation with designer (EV1)	Design Studio The Youth Rotterdam	1 Social Designer	-	3 February 2026

Table 8.1: The collaborative design activities guiding the ideation process

Ideation session 1

The creative sessions described in Chapter 7 resulted in a large diversity of initial ideas generated by youth. Although this diversity formed a solid starting point, many of the ideas remained relatively superficial and lacked further elaboration. Therefore, an ideation session (IS1) was organised with three fellow design students. As design students are experienced in idea generation and thinking outside the box, while still being part of the target group, they formed a suitable focus group for this session.

The goal of the session was to build on the initial ideas generated with youth and develop them into more elaborated ideas. Two research questions, which emerged from analysing the generative sessions and were further refined during the ideation session, guided the process:

- **How can we support young people who use social media in becoming more aware of misinformation and not taking everything for granted?**
- **How can adults be involved in the social media use of young people?**

During the ideation session, the methods used were brainwriting, iterative clustering, and hits and dots, inspired by the book Roadmap for Creative Problem Solving Techniques (Heijne & Van Der Meer, 2019). It was important to ensure that participants felt confident engaging with the problem, to postpone judgement, and to maintain fluency in idea generation. A more detailed description of the setup, materials, and outcomes can be found in Appendix D1, figure 8.6 & 8.7 shows the setting of the ideation session.

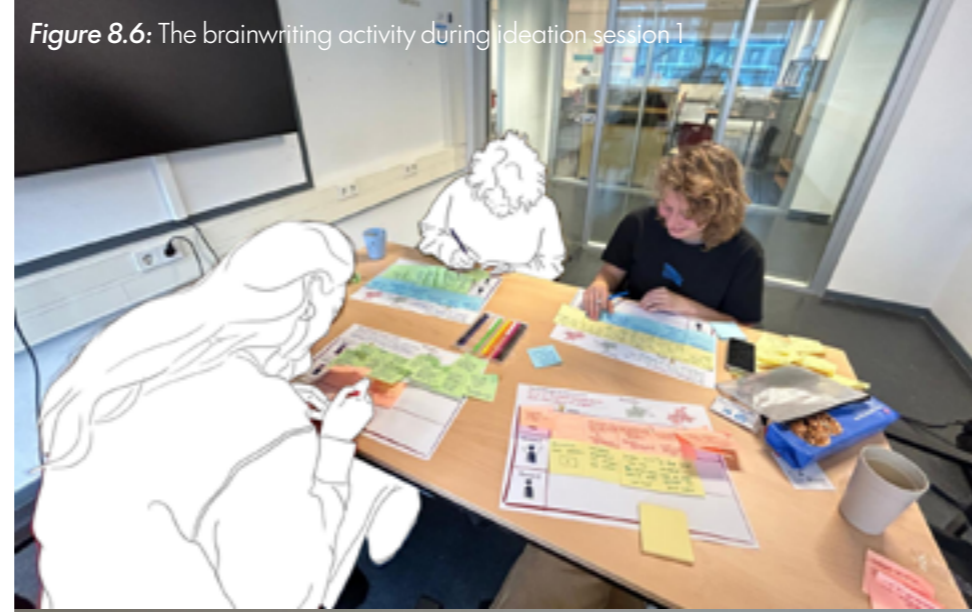


Figure 8.6: The brainwriting activity during ideation session 1



Idea directions

The ideas generated during ideation session 1 were analysed together with the ideas from the creative sessions described in Chapter 7. Through clustering during and after the session, eight different idea directions were identified (see figure 8.6). In this overview, the red Post-its represent ideas from the generative sessions with youth, while the blue Post-its represent ideas generated during the ideation session.

Reflecting on the design criteria described earlier, the results of the Hits and Dots voting during the ideation session (indicated in the figure with green and red stickers), and personal design intuition and inspiration, one idea direction was selected for further exploration: **'Swap the Algorithm'**. This direction focuses on allowing adolescents to learn about different algorithmic worlds by experiencing them. It showed the strongest potential to address the design goal and was therefore chosen for further development.

Some idea directions were not explored further. For example, **'Pop it Up'** was considered too superficial, while **'Forbidding socials'** approached the topic in a restrictive way that did not align with the playful and exploratory nature of the project.

Nevertheless, elements from other directions informed the next ideation steps. For instance, the **'Gamify'** direction inspired the use of game-like or immersive elements to stimulate learning, while **'Real Positivity Online'** highlighted the importance of acknowledging both positive and negative aspects of social media. Ideas from **'Learning to Discuss'**, mainly originating from the generative sessions with youth, were considered too broad to explore directly as a concept direction. However, they emphasised the value of informative moments and space for respectful dialogue. More traditional formats such as workshops also served as inspiration for designing playful learning experiences.

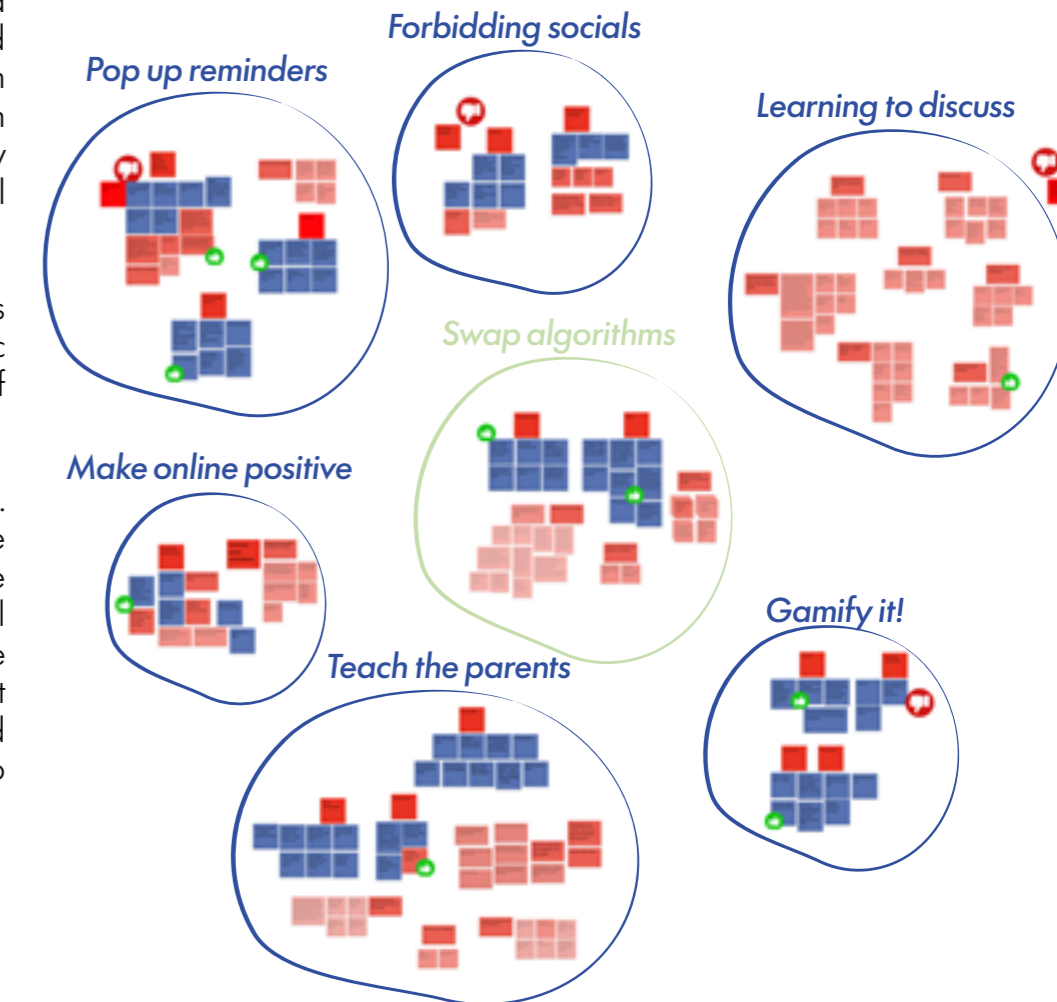


Figure 8.8: Eight idea clusters that emerged from the creative sessions and ideation session 1 113.

From idea directions to ideas

Building on the idea direction 'Swap the Algorithm,' elements from other idea clusters were combined to explore how educational approaches could be translated into a more playful and engaging experience. Rather than relying on traditional informational formats, the aim was to explore interactive ways in which adolescents could experience different algorithmic worlds.

This exploration resulted in three broader concept directions. To further develop these directions, the SCAMPER method was used (see Appendix D2), helping to expand and refine the ideas into five early concept proposals. Across all directions, the focus remained on enabling youth to explore different algorithmic bubbles.

During this exploration, several early ideas were developed that experimented with representing and experiencing different algorithms. Two examples are illustrated in figure 8.9 & 8.10. One concept proposed a door installation where participants open different doors to enter and experience distinct algorithmic worlds. Another concept explored a table-based activity in which participants generate and compare algorithmic archetypes together.

Although these early concepts were not developed into final solutions, they played an important role in shaping the design direction. They highlighted the potential of making algorithmic systems experiential rather than purely informational. For instance, the door installation introduced a more immersive and abstract way of exploring different algorithmic worlds, resembling an artistic experience. In contrast, the table-based activity made the concept more tangible and emphasised social interaction, as participants engaged with and discussed algorithmic perspectives together. **These explorations revealed the importance of combining experiential elements with opportunities for collective reflection. As a result, the final concept direction focused on creating a shared, engaging experience in which participants can explore and discuss algorithmic realities in a playful way.**

These ideas were further explored during Ideation Session 2. Additional concepts developed during this phase can be found in Appendix D3.

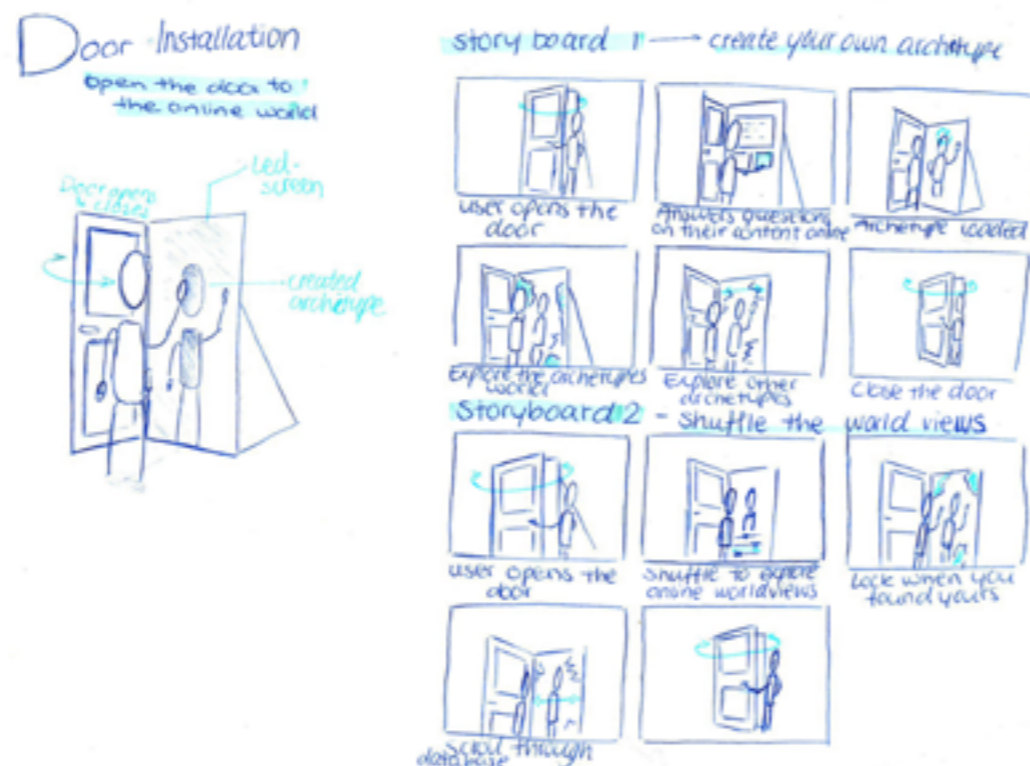


Figure 8.9: Early idea of a door installation exploring multiple algorithms

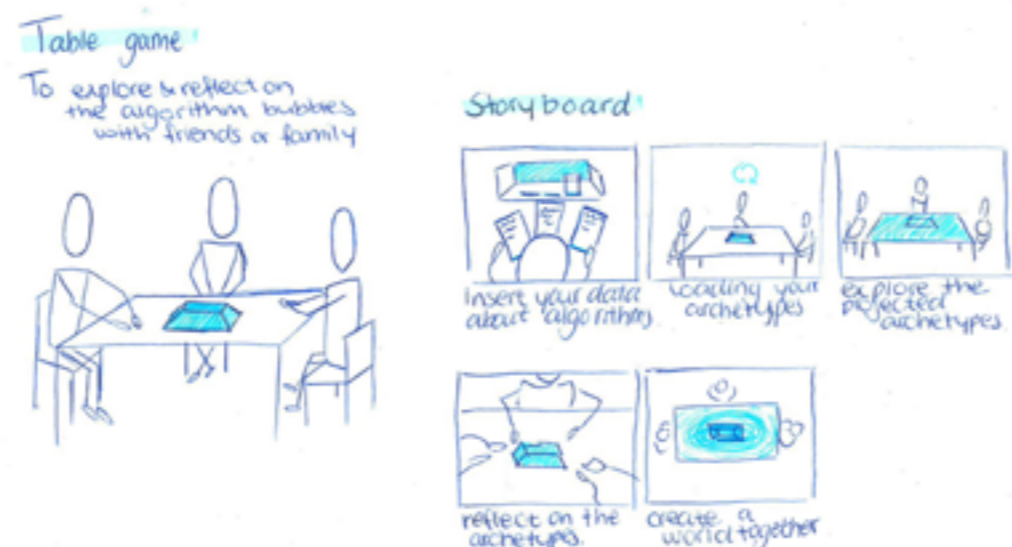


Figure 8.10: Early idea of a table game exploring multiple algorithms

Ideation session 2

To further develop the two early concept directions described earlier into a more concrete proposal, a final ideation session (IS2) was organised with another design student. As only one participant could take part in the session, the outcomes should be interpreted as exploratory rather than representative. To strengthen the reflection on the results, the generated ideas were later discussed with several additional design students to support the final concept selection.

Throughout the project, informal conversations with adolescents and peers revealed that algorithmic feeds are often perceived as highly personal. Young people do not easily share what appears in their feeds, as it can expose personal interests, beliefs, or behaviours. At the same time, the generative sessions with adolescents revealed that many users are only partly aware of how algorithms shape their recommendations. This raised the question of how algorithmic bubbles could be explored collectively without requiring participants to reveal personal data.

Therefore, the ideation session was guided by the following research question:

- **How can we make online worlds and algorithmic bubbles experienceable and explorable with others in an anonymous way?**

To support idea generation, the session started with a short icebreaker in which the participant reflected on their own social media feed and the factors that might shape the content they see. This helped the participant articulate how algorithms influence their online experience and served as a starting point for the ideation activities. Building on this reflection, ideas were generated through Brainsketching and later evaluated using Hits and Dots. A more detailed description of the setup, materials, and outcomes can be found in Appendix D4. Figure 8.11 shows the setting of the ideation session and figure 8.12 shows a part of the brainsketching activity.

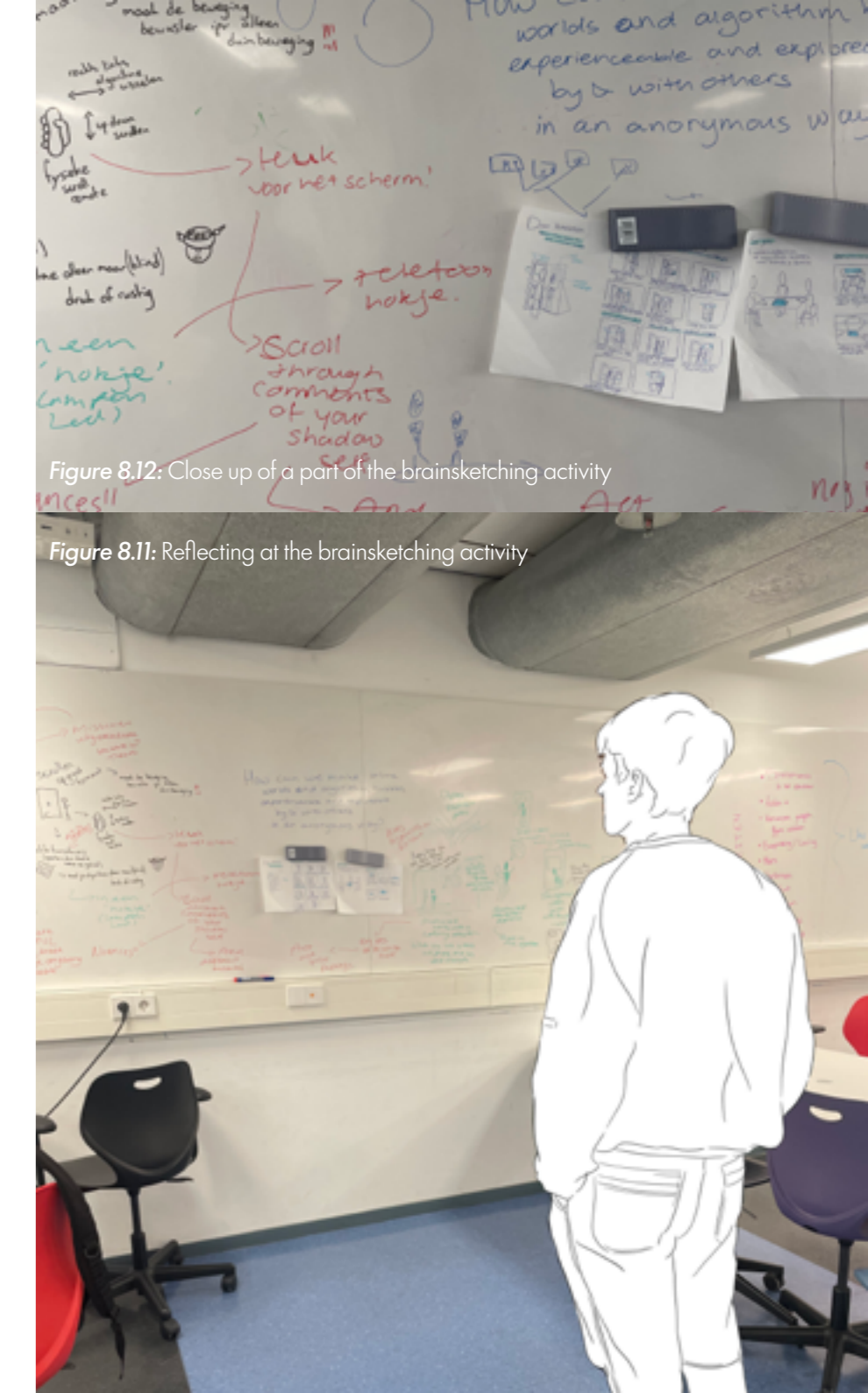


Figure 8.12: Close up of a part of the brainsketching activity

Figure 8.11: Reflecting at the brainsketching activity

The concept: exploring algorithms

After the second ideation session, several rounds of further ideation and convergence were conducted to combine the most promising ideas into one coherent concept (see figure 8.13, 8.14 & 8.15). The concept builds on the idea direction 'Swap the algorithm' and aims to make algorithmic bubbles tangible and explorable in a playful way.

The concept allows young people to experience and compare different algorithmic worlds without revealing their own personal feeds. Instead, participants interact with 'donated' algorithmic feeds, enabling them to explore how social media environments shape what people see, think, and feel online. By scrolling through these different feeds, participants can observe how the content varies between algorithmic environments. During the interaction, they can also see and respond to emotional reactions connected to the content, highlighting the emotional dynamics that social media algorithms can trigger. In this way, the concept addresses the research question: *How can we make online worlds and algorithmic bubbles experienceable and explorable with others in an anonymous way?* **By interacting with donated feeds rather than their own, participants can compare algorithmic environments while maintaining anonymity.**

When reflecting on the design criteria (described in Chapter 8.2), the concept meets several key requirements. It makes algorithmic systems visible and tangible by allowing participants to explore different algorithmic bubbles through donated feeds. In doing so, it provides an accessible and anonymous way to engage with algorithmic content without exposing personal data.

At the same time, the concept reveals some limitations in relation to the criteria. While participants can observe and compare different algorithmic environments, the design does not yet explicitly facilitate deeper emotional awareness of how these systems influence their thoughts and feelings. Additionally, although the experience can be shared with others, the concept does not actively guide or structure moments of discussion and reflection between participants.

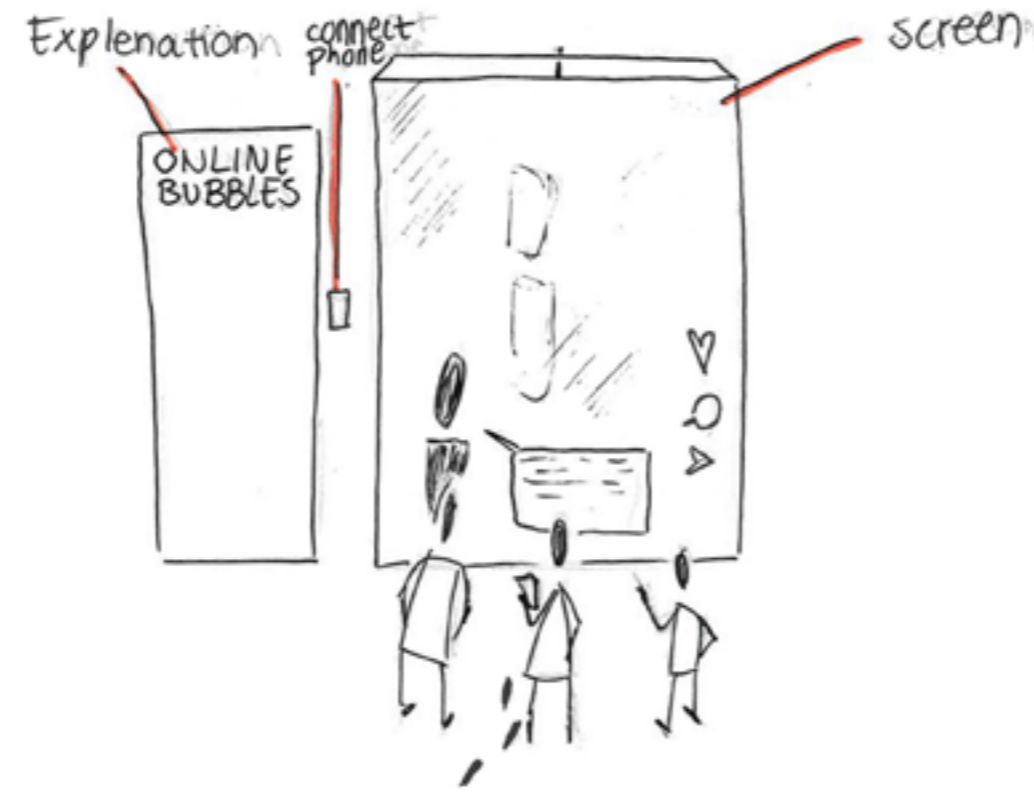


Figure 8.13: Early concept of an installation exploring donated algorithmic feeds

These observations highlight opportunities for further development, particularly in strengthening the achieved awareness and reflective dimensions of the experience.

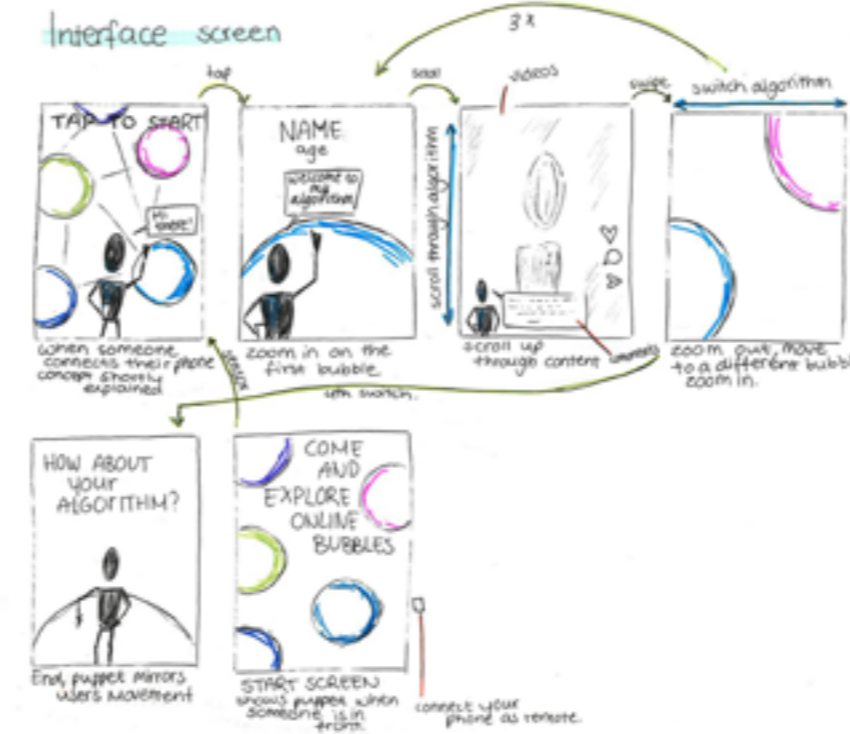


Figure 8.14: Early concept of the interface of the installation screen



Figure 8.15: Early concept of how to donate your algorithmic feed

To reflect on the concept and explore directions for further development, the concept was discussed with a designer from The Youth (EV1), a design agency focusing on social design projects related to social media and adolescents. During a semi-structured conversation, the concept was presented and discussed with a focus on potential next steps for development and prototyping.

The conversation provided several insights that informed the next stage of the design process. First, the designer recognised the relevance of the concept, noting that, based on his experience, there is interest from institutions and organisations in finding ways to make algorithmic systems more experienceable, not only for adolescents but also for broader audiences. **This reinforced the potential of the concept, even for future development to address the concept to a broader audience, yet for this project it is out of scope.**

Furthermore, practical considerations were raised regarding the use of 'donated' algorithmic feeds. **While this approach was seen as a strong and authentic aspect of the concept, it also requires careful handling, as the content originates from real users and cannot be reused without considering ownership and proper attribution.** Ensuring that original sources are visible was identified as an important condition for further development.

In addition, the conversation highlighted several assumptions within the concept that require further testing. In particular, it pointed towards the need to explore how adolescents experience different algorithmic bubbles, how such experiences can be facilitated or guided, and how young people emotionally respond to encountering unfamiliar algorithmic environments. These insights formed the basis for the next phase of the design process, in which iterative prototyping and testing were used to further explore and refine the concept.

8.5 Developing the concept

How can the most promising concept be developed into a final design?

To further develop the concept described in the previous section, a rapid prototyping approach was used to iteratively create and test different versions of the prototype (see figure 8.15). Prototypes are early artefacts or models that simulate aspects of a design in order to explore and refine its functionality (The Interaction Design Foundation, 2025).

Following a reflective conversation with a designer at The Youth (EVI), it was decided to develop several iterations of the prototype and focus the testing on how participants experience different algorithmic feeds. In particular, the prototypes aimed to explore whether encountering different algorithmic environments helps adolescents become more aware of how algorithms shape their daily social media experience and whether the interaction stimulates reflection on this influence. Throughout the iterative prototyping process, the concept evolved as elements were added, adjusted, or refined in each iteration (see figure 8.16).

An overview of the different prototypes and tests moments is shown in table 8.2. Each iteration round is explained in the following sections. More detailed descriptions of the prototypes and testing setup can be found in appendix E.

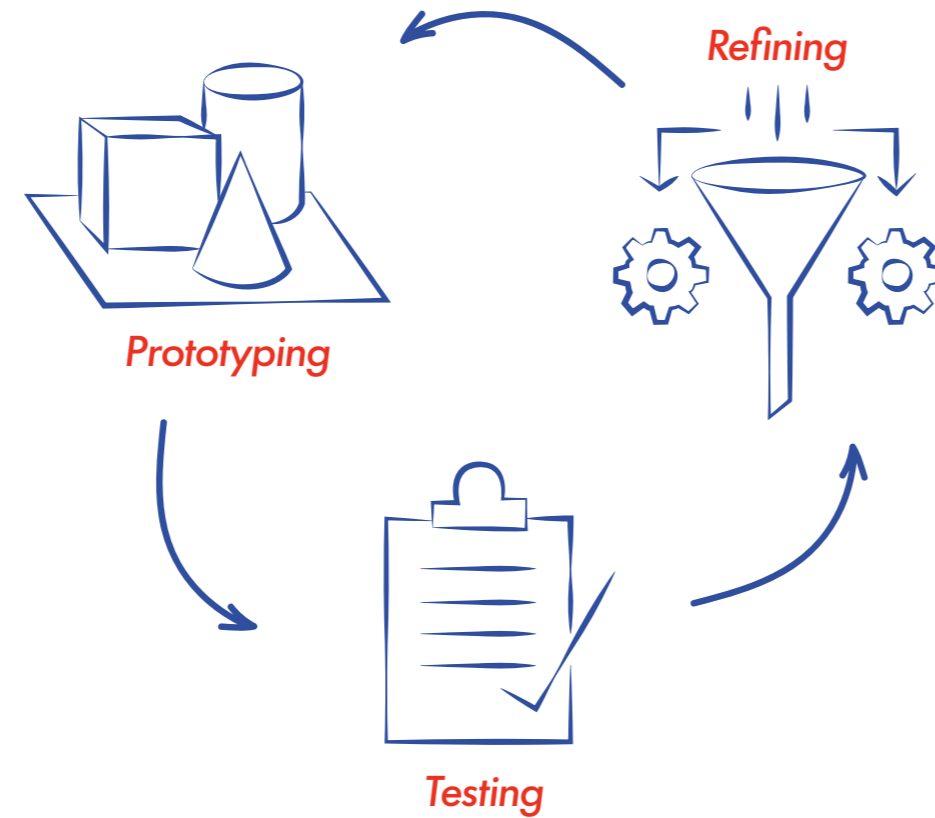


Figure 8.15: Overview of rapid prototyping process guiding the conceptualising phase

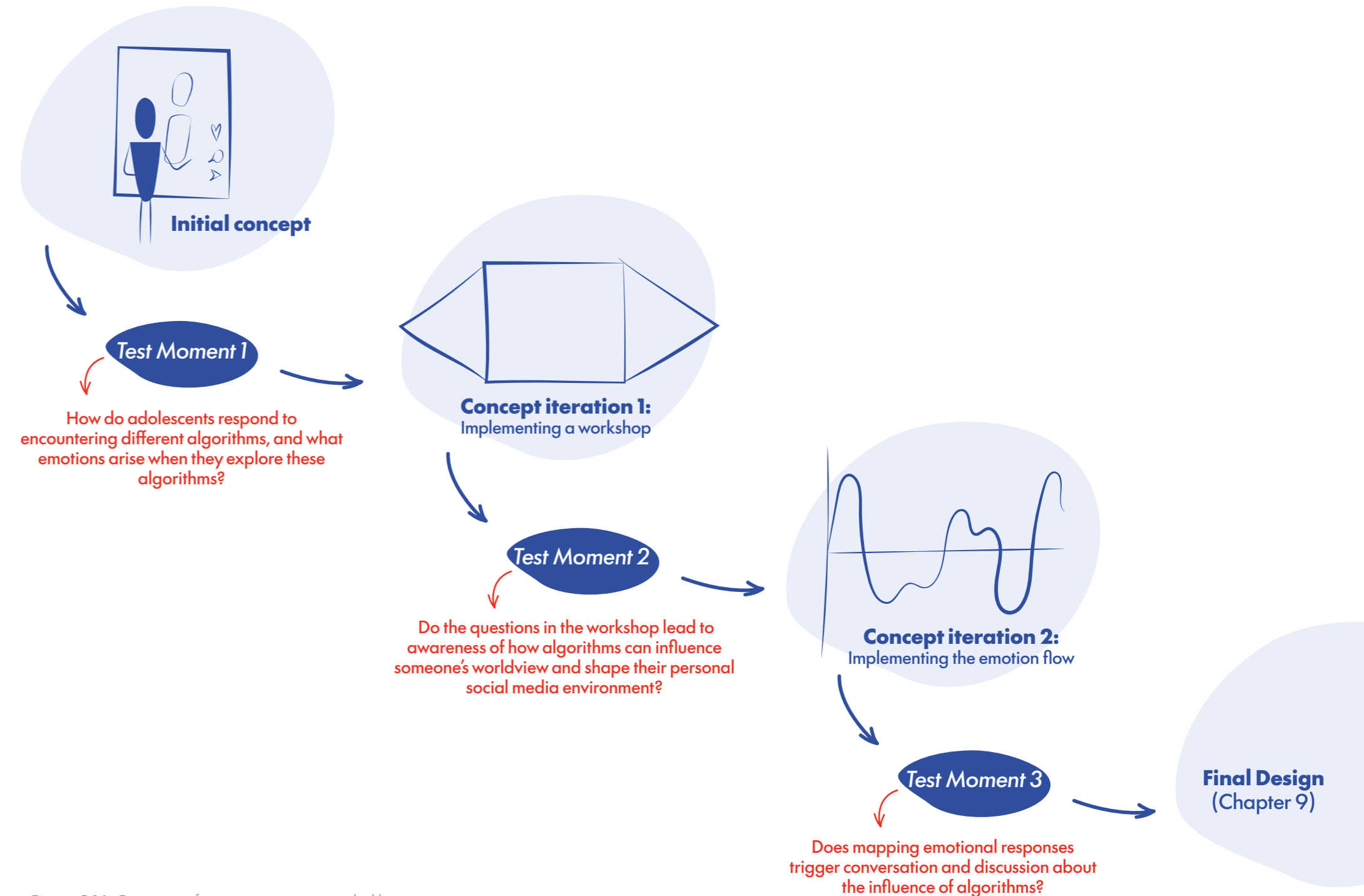


Figure 8.16: Overview of concept iterations guided by test moments

	Place	Participants	Age	Date
Test Moment 1 (TM1)	TU Delft Industrial Design	4 TU Delft students	23-26	4 February 2026
Test Moment 2 (TM2.1 - 2.3)	Online	3 Experts on youth education and social Media	-	8 -10 February 2026
Test Moment 3 (TM3)	TU Delft Industrial Design	2 Master students Industrial Design	25-26	17 February 2026

Test moment 1

The first prototype is a digital lo-fi prototype that allows the user to scroll through three different algorithms. The aim of this prototype is to explore how adolescents interact with different algorithmic feeds and how this interaction makes them feel. To do so this the prototype was tested among 4 students (TM1).

This led to the following research question:

- **How do adolescents respond to encountering different algorithms, and what emotions arise when they explore these algorithms?**

During the testing, the following sub-questions were explored:

- What type and amount of content do adolescents prefer to see within an algorithm?
- What do adolescents want to know about the person behind an algorithm, and do they value additional information such as fun facts?
- How do adolescents experience scrolling through algorithms when displayed on a large screen?

Setup

A lo-fi digital prototype was created in Figma, presenting three different algorithmic feeds, which consisted of 10 to 15 screen recorded videos from Instagram. One of these algorithms was based on my own feed, while the other two were fictional and constructed around personas.

These personas were loosely based on stereotypes: a right-conservative man and a left-queer person. These stereotypes were intentionally used to explore whether they would evoke stronger reactions from participants or whether they would feel unrealistic.

Participants explored the algorithms by scrolling through them on a large screen (see figure 8.17). After interacting with the prototype, they were asked a series of questions reflecting on their experience and feelings. To support this reflection, the PREMO emotion set developed by Pieter Desmet was used. It was included as a tangible tool to help participants reflect on their emotions and provide a starting point for discussion. A detailed description of the setup on the analysis can be found in appendix E1.



Figure 8.17: Participant testing the first prototype

Insights and design iterations

The test revealed the following insights leading to several adjustments to further develop the concept.

During the test, participants showed curiosity when exploring different algorithmic feeds and often wondered about the person behind the algorithm they were experiencing. **Encountering unfamiliar algorithmic perspectives also triggered emotional reactions such as surprise or discomfort, making participants more aware of how algorithms can shape their online experience.**

At the same time, the interaction still felt too similar to regular social media use, which suggested that additional structure was needed to stimulate deeper reflection. **For the next iteration, the concept was therefore developed into a structured workshop format, inspired by gamestorming** (Gray et al., 2010). The experience was organised into three phases: an opening phase, an exploration phase in which participants scroll through different algorithmic feeds, and a closing phase focused on reflection and discussion (see figure 8.18). As suggested during the testing, these phases are supported by fun facts and reflective questions, encouraging participants to reflect on their own algorithm and discuss the differences between algorithmic environments.

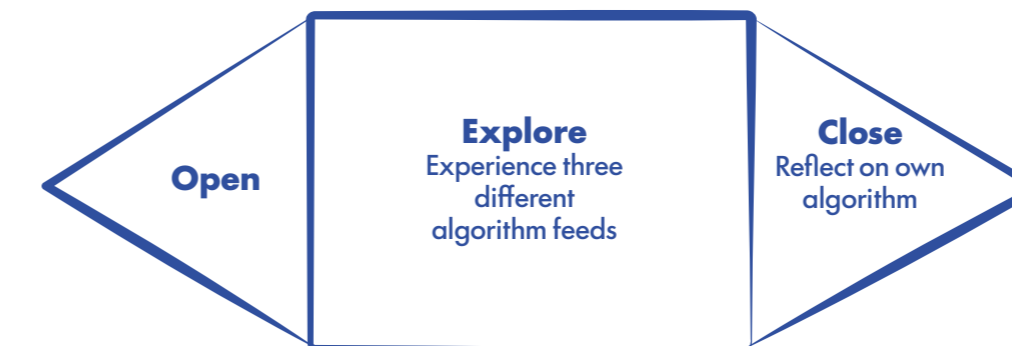


Figure 8.18: Three phases guiding the structure of the workshop

The test also indicated that adolescents respond differently to different types of algorithmic content. While some participants were drawn to serious or informative videos, others preferred humorous or meme-based content. Encountering algorithmic perspectives that differed from their own worldview often triggered awareness about emotional responses, such as surprise or discomfort. **These emotional contrasts can be valuable in sparking discussion between participants during the workshop.** To emphasise these differences, the three algorithmic feeds in the final design were designed to be distinct from one another, highlighting the diversity of algorithmic bubbles online.

In addition, **the test showed that the algorithms need to feel realistic and diverse in order for the experience to feel believable.** Within each feed, the content therefore should include a mix of political, serious, humorous, and seemingly random videos. To support this realism, the feeds used in the final design are based on donated algorithms from real users, captured through screen recordings.

"It became clear how loaded the content was when I saw posts that didn't match my own views."
- Participant test 1

Finally, several aspects of the interaction were confirmed to work well and were therefore retained. Around ten posts per feed provided enough material to explore differences while keeping the experience manageable. In addition, **displaying the feeds on a large shared screen was maintained, as this made the normally private act of scrolling visible to others and highlighted the boundary between everyday online behaviour and the physical offline environment.**

"This boundary between the online world and the real world becomes visible when the feed is shown at life size. When it's as big as a person, it suddenly feels different, and you become aware that others are watching along with you."

- Participant test 1

Test moment 2

Based on the design iterations described in the previous section, a second prototype was developed to explore the workshop format. The ideation and development of this iteration can be found in Appendix E2. The prototype consisted of a digital workshop in which users scroll through different algorithmic feeds while being guided through the experience with fun facts, quotes, and reflective questions. The goal of this prototype and evaluation was to explore whether a workshop format could be an effective way to educate adolescents about social media algorithms, and whether this format fits the target group while stimulating awareness and reflection. To evaluate this, the prototype was reviewed by Judith and three experts with experience in youth, education, and social media (TM2).

The research question guiding this evaluation was:

- **Do the questions in the workshop lead to awareness of how algorithms can influence someone's worldview and shape their personal social media environment?**

During the testing, the following sub-questions were explored:

- Are the facts and quotes interesting, relevant, and clearly formulated?
- Do the reflective questions sufficiently challenge participants to engage in meaningful discussion?
- Is the narrative of the workshop logically structured and easy to follow for the target group?

Setup

To conduct the evaluation, the workshop was prototyped in a digital format and shared with the experts as a PDF, accompanied by an explanation of the concept and the research questions. See figure 8.19 for two screen examples. Although this format does not allow experts to experience the full interaction, it was considered suitable for this stage of the design process, as the main goal was to receive feedback on the content, structure, and clarity of the workshop.

Experts were contacted via email and invited to review the prototype and provide feedback based on the research questions. The feedback was collected through email responses and through online calls, subsequently analysed to inform further iterations of the concept (see Appendix E3).

"The facts and quotes are relevant and interesting, but the real value, as is often the case, lies in the experience and activating."

- Participant Test Moment 1

"Reading this, I caught myself thinking: wait a minute, does the audience actually know what 'polarisation' means?"

- Expert Test Moment 2



Figure 8.19: Two of the screens evaluated by experts.

Insights and design iterations

The evaluation with experts provided several insights that informed the further development of the workshop.

Experts indicated that the overall structure of the workshop is clear and easy to follow for the target group, and that the progression from exploring other algorithmic feeds to reflecting on their own social media experience works well. The final reflective questions, such as 'What will you take with you the next time you start scrolling?' were considered essential for guiding participants towards awareness. One expert suggested that it might also be valuable to start the workshop by immediately triggering participants to reflect on their own experiences. **Based on this feedback, the workshop now begins with a short reflective prompt that encourages participants to think about their own social media use before exploring the algorithms.**

In addition, experts indicated that the facts and quotes are relevant and interesting, but that **the main learning happens through experiencing different algorithmic feeds and reflecting on how the content affects participants personally.** The quality of the discussion currently depends strongly on the presence of a teacher or facilitator. They suggested that reflection should emerge naturally from the experience rather than from randomly appearing questions. To support this, **an emotion flow is introduced in which participants briefly map their emotional responses to different posts while scrolling through the feeds.** This helps participants recognise how different types of content influence their feelings and reactions. Comparing the emotion flows of participants can then serve as a starting point for reflection and discussion. At the same time, maintaining the natural flow of the algorithmic feed was considered important. Therefore, the emotion mapping is designed to be quick and lightweight, ensuring that the scrolling experience remains uninterrupted and immersive. Reflective questions and fun facts are mainly positioned between or after the different algorithmic feeds, guiding participants to reflect on their experience without interrupting it.

Third, several adjustments were made to improve the accessibility of the workshop for adolescents. Experts noted that certain terms and sentences could be too complex for the target group. As a result, key concepts such as polarisation were briefly explained and longer or more abstract sentences were simplified to ensure that the content remains understandable for a broad group of participants.

Fourth, the expert feedback also informed decisions about the content used within the algorithmic feeds. In order to clearly illustrate differences between algorithmic bubbles, the content should be carefully balanced to include a diverse mix of political, serious, humorous, and seemingly random videos. **Selecting slightly polarising content can help demonstrate how algorithms shape perspectives, while remaining subtle enough to keep the topic approachable and open for discussion without making participants feel unsafe.**

Finally, an expert highlighted that **the composition of participant groups may influence how openly adolescents share their perspectives.** While groups of unfamiliar participants may sometimes stimulate more open discussion, it was also noted that adolescents who already know each other may feel more comfortable expressing their opinions. This insight informs considerations for how the workshop may be facilitated in practice.

"I think the reflective questions at the end are essential: 'How do you think your own feed looks? What will you take with you the next time you start scrolling?' That feels like the point the whole piece is working towards."

- Expert Test Moment 2

Test moment 3

Building on the previous design iterations, a new prototype was developed to explore the role of emotional responses during the workshop. In this iteration, an emotion flow was added that asks participants to map their emotions while scrolling through different algorithmic feeds. The goal of this addition was to explore how algorithms not only shape the information people see, but also influence their emotional responses, and whether making these responses visible could spark conversation and reflection among participants. To evaluate on the prototype was tested with 2 students (TM3).

This led to the following research question:

- **Does mapping emotional responses trigger discussions and reflection about the influence of algorithms on adolescents?**

During the testing, the following sub-questions were explored:

- Does the workshop maintain a clear flow while participants map their emotions during the experience?
- Does comparing emotional patterns between participants stimulate discussion and reflection?
- What is the most intuitive way for participants to map their emotions (e.g., on paper or digitally, with a slider or another format)?

Setup

The prototype was tested in a studio setting. A laptop displaying the workshop prototype was connected to a large screen so participants could collectively view the algorithmic feeds.

The session started with a short introduction explaining the project and how the prototype works. Participants briefly introduced themselves, after which they were invited to interact with the prototype. While exploring the different feeds, participants were asked to map their emotional responses on paper (see figure 8.20). During the session, participants were encouraged to compare their emotional patterns and discuss the differences they observed. After the exploration, several follow-up questions were asked to gather reflections on the experience, as well as looking at the different ways to map the emotion flow (see Appendix E4).

"If the content were much more extreme, I think I would keep my emotional reactions more to myself."

- Expert Test Moment 3

"It's kind of shocking to see how your emotions swing back and forth, and then realise you forget about it just as quickly."

- Participant Test Moment 3

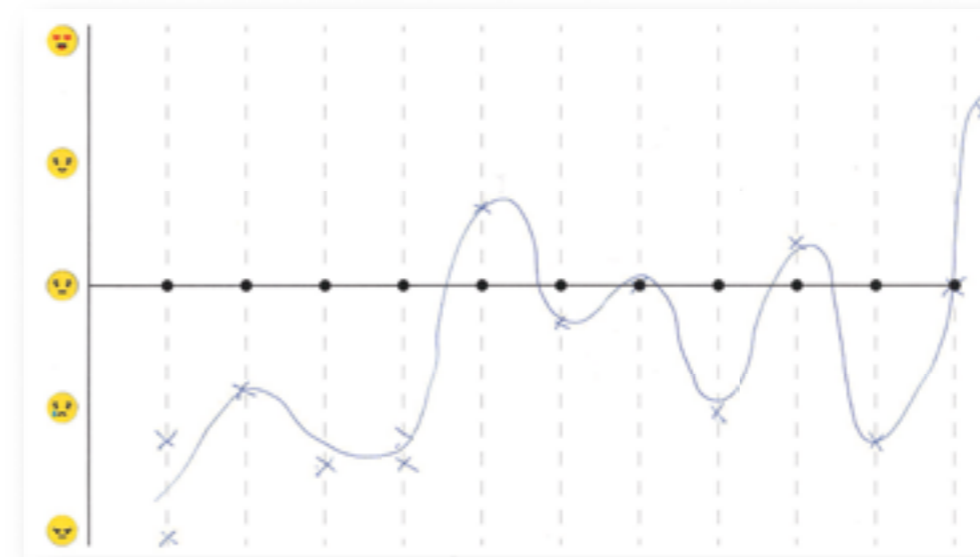


Figure 8.19: Emotional map filled in by one of the participants

Insights and design iterations

The test revealed several insights that informed the further development of the workshop concept.

First, the evaluation showed that the topic strongly resonates with participants and quickly leads to deeper discussions about algorithms and polarisation. Asking participants whether they personally experience polarisation on social media proved to be an effective way to start the conversation. However, the beginning of the workshop initially felt more like a presentation before becoming interactive. To address this, **the workshop was redesigned to begin immediately with a reflective question that invites participants to reflect on their own experiences and encourages early engagement.** An in-depth explanation of the topic now follows after this initial discussion.

Second, **the emotion flow proved effective in triggering discussion without interrupting the natural scrolling experience.** Comparing emotion curves between participants helped visualise differences in how people respond to the same content and often led to reflections on implicit biases and blind spots. However, mapping emotions on paper could feel intense for some participants due to the lack of privacy, while using their own phones was not recommended because it could lead to distractions. **To improve this interaction, the emotion mapping activity was further developed into a digital tool in which participants map their emotional responses on a tablet while scrolling through algorithmic feeds.** The resulting emotion flows are displayed on a shared screen, allowing participants to compare their responses and discuss differences. From this overview, participants can also navigate back to specific videos, enabling more concrete reflection on the posts that triggered particular emotions, as during testing that participants experienced strong emotional reactions while scrolling, yet often quickly forgot the content itself.

Third, the test highlighted the importance of clarity and usability in the emotion mapping activity. Participants were unsure whether they should indicate their emotional response or whether they liked or skipped the content, and some emotions on the scale were perceived as unclear. **To address this, the emotion interface was simplified, and participants are now explicitly instructed to capture their first intuitive reaction to each post.**

In addition, several practical aspects of the workshop format were refined. Participants noted that the workshop could feel relatively long, suggesting that the experience could benefit from more physical energy. In the next iteration, the workshop is therefore designed as a standing experience, encouraging participants to move and engage more actively with the algorithm screens. Finally, the test highlighted that smooth technical performance is crucial, as loading times or technical friction quickly reduce engagement and make the concept feel less professional.

These design adjustments were further explored through an additional ideation round and concept development. The resulting iteration is explained in the next chapter, where the final design is presented.

"Until the first reflective question, it felt more like a presentation than an interactive experience."

- Participant Test Moment 3

8.6 Conclusion

This chapter explored how the identified leverage point, adolescents' limited awareness of how individualised algorithmic personalisation shapes their social media environment and contributes to polarising view, could be addressed through design. Rather than attempting to change the algorithmic systems themselves, the project focused on influencing how these systems are perceived and understood by young people.

Through iterative ideation sessions, concept development, and prototype testing, different ways of translating this leverage point into a tangible experience were explored. Over the course of these iterations, the concept evolved from initial idea directions into a workshop-based intervention that allows adolescents to explore and compare different algorithmic feeds.

The design process revealed that enabling participants to experience different algorithmic environments, reflect on their emotional responses, and discuss these experiences collectively can stimulate awareness of how social media platforms shape perspectives and interactions. These insights informed the structure and interaction of the final intervention.

The following chapter presents the final design and explains how these insights were translated into the developed concept.

Key take-aways

- Awareness of algorithmic influence is often limited. Although adolescents know that algorithms exist, they often underestimate how strongly personalised feeds shape what they see and how they interpret online content.
- Encountering different algorithmic environments reveals the existence of multiple online realities. Exploring feeds that differ from one's own helps participants recognise that social media can present very different perspectives to different users.
- Social media feeds are experienced as highly personal spaces. Because feeds reflect personal interests and beliefs, adolescents are reluctant to share their own feeds with other.
- Anonymous representations enable collective exploration. Using donated or anonymised feeds allows participants to explore algorithmic environments together without exposing someone.
- Direct experience creates stronger awareness than explanation alone. Greater understanding of algorithmic influence can be reached through interacting with feeds rather than through informational explanations.
- Emotional responses play a key role in how users engage with online content. Encountering unfamiliar algorithmic content often triggers emotions such as surprise, curiosity, or discomfort.
- Visualising emotional responses can stimulate discussion. Comparing emotional reactions between participants helps make differences in perception visible and opens space for dialogue.
- Collective reflection helps translate experience into awareness. Discussing differences between algorithmic environments helps participants reflect on how online systems shape perspectives and interactions.

Part 4: Delivering

Building on the concept developed in Part 3, this section moves from exploration and prototyping towards the final design and its evaluation. While the previous chapters focused on identifying a leverage point and developing a concept that makes algorithmically curated social media bubbles visible and experienceable, Part 4 focuses on translating these insights into a concrete intervention and assessing its potential impact.

This part addresses the aim set in Chapter 1.1: **to design an intervention that reduces the reinforcing effects of polarisation in online environments.** Through iterative prototyping and testing (TM1–TM3, as explained in Chapter 8.4), the concept evolved into a workshop-based intervention that allows adolescents to explore and compare different algorithmic feeds. By interacting with these feeds, mapping their emotional responses, and discussing their experiences with others, participants are encouraged to reflect on how algorithmic systems shape their online environment and perspectives. This phase represents the final stage of the design process, delivering and evaluating the intervention.

Part 4 consists of two chapters. Chapter 9 presents the final design of the workshop, explaining its structure, interactions, and the elements that guide participants through the experience. Chapter 10 evaluates the design and reflects on its outcomes, discussing the insights gained during testing. Based on these reflections, recommendations are provided for further development and future research. Chapter 11 discusses the project in a broader context, reflecting on its contributions in relation to the initial aims explained in Chapter 1.1. It addresses the limitations of the project and evaluates how the outcomes contribute to understanding and designing for polarisation among youth in social media contexts, concluding with a personal reflection.

- **Chapter 9:** The final design: a workshop
- **Chapter 10:** Evaluating the workshop
- **Chapter 11:** Discussing the project



9. *The final design: a workshop*

This chapter presents the final workshop developed as part of this project. The workshop translates research insights on algorithmic bubbles and their contribution to polarisation among young people into an interactive experience that allows participants to explore, compare, and reflect on different social media feeds. Based on findings from the previous phases, the workshop was designed as an intervention aimed at making the influence of social media algorithms tangible for young people. Rather than explaining algorithmic systems theoretically, the workshop enables participants to experience how different algorithmic perspectives can shape their perception of the online world.

The aim of this chapter is to describe how research insights and design iterations were translated into a concrete intervention.

The central question guiding this chapter is:

“How can the insights from the design process be translated into a workshop that enables adolescents to explore and reflect on algorithmic social media bubbles contributing to polarisation?”

The chapter begins by explaining how the research insights were translated into the concept of the workshop (9.1). It then describes the context and practical setup of the workshop (9.2), followed by a step-by-step explanation of the workshop process (9.3). Next, the chapter discusses how the workshop is facilitated leading to a safe environment for discussion and reflection (9.4). Finally, the chapter reflects on potential steps and considerations after the workshop experience (9.5).

- **Chapter 9.1:** From research to an intervention: introducing the workshop
- **Chapter 9.2:** The workshop context and setup
- **Chapter 9.3:** The workshop process
- **Chapter 9.4:** The role of the facilitator
- **Chapter 9.5:** Steps after the workshop



9.1 From research to an intervention: introducing the workshop

This project initially focuses on polarisation among youth, particularly in relation to social media. **As outlined in Chapter 1.1, the aim of this project is twofold: to understand what polarisation means in the specific context of adolescents and social media, and to design an intervention that reduces the reinforcing effects of polarisation in online environments.**

Addressing the first aim, the research discussed in Part 1 and 2, shows that while adolescents are generally aware that algorithms shape the content they see, they tend to underestimate how strongly these systems influence their own perceptions and behaviours. Algorithmic systems can contribute to emotionally loaded and polarising environments, drawing users into so-called 'algorithmic bubbles'. However, adolescents often perceive these dynamics as affecting others rather than themselves as mentioned in Chapter 7.6.

In addition, mechanisms such as algorithmic curation or infinite scrolling are often abstract and difficult to fully understand. As a result, adolescents may engage with the persuasive dynamics of social media without critically reflecting on how these systems influence their online experiences.

Addressing the second aim, this project proposes a workshop in which algorithmic bubbles are not only explained but also experienced by making it playful and accessible for youth, building on the design goal defined in Chapter 8.2. **It is grounded in the idea that reflection and behavioural awareness are more likely to emerge when adolescents actively experience the influence of algorithmic systems**, rather than through traditional top-down educational approaches. As discussed earlier in Chapter 8.1, becoming digitally resilient often begins with awareness of how digital environments influence one's perceptions, emotions, and behaviour (Van Aalderen & Rozendaal, 2023).

During the workshop, participants explore different algorithmically curated social media feeds and reflect on the emotional dynamics and perspectives they encounter. By comparing these experiences with others, participants are encouraged to consider how algorithmic systems can shape different online realities. Importantly, the workshop does not impose predefined problems or viewpoints. Instead, through discussion and collective reflection, participants are given space to examine their own perspectives and consider how algorithms may influence them.

To design a workshop that is well structured and appropriate for the target group, literature on workshop design methods was consulted. The workshop structure is based on the 7Ps framework described in Gamestorming (Gray et al., 2010), which emphasises the importance of a clear plan when designing collaborative sessions.

Following this framework, the workshop design is described through several components. First, the purpose of the workshop is defined. Next, the people involved are described, including the target group and group size. The practical concerns address the context of the workshop, including the spatial setup and materials required (Chapter 9.2). The process section then outlines the different steps of the workshop, including the preparation, introduction, and the main activities such as the emotional mapping exercise (Chapter 9.3). Finally, potential pitfalls are discussed, focusing on how a safe environment for discussion and reflection can be facilitated (Chapter 9.4).

9.2 The workshop context and setup

Why is the workshop important and what is the goal of the workshop?

Purpose

Research shows that social media algorithms actively shape what content adolescents see. This can limit exposure to diverse perspectives and contribute to the formation of more homogeneous information environments, also referred to as echo chambers (Sunstein, 2017). These environments can strengthen group identity and reduce openness to opposing views, reinforcing polarising dynamics. However, as discussed in Chapter 7.6 this influence is often neglected by youth. At the same time, online environments can also function as spaces where polarisation becomes visible and observable (Nederlands Jeugdinstituut, 2021).

Therefore, **the purpose of the workshop is to raise awareness among adolescents about how social media algorithms influence the content they encounter online and how this shapes their perception of the online environment, potentially drawing them into algorithmic bubbles.**

Rather than explaining algorithmic systems in a purely theoretical way, the workshop makes these influences tangible through experiential learning. By exploring and discussing different algorithmically curated feeds, participants reflect on how platforms shape the emotions, perspectives, and information they encounter. A workshop format was chosen because it allows participants to actively explore and discuss these dynamics together.

A key principle of the workshop is that participants initially engage with social media feeds that are not their own. This creates critical distance, making it easier for adolescents to reflect on algorithmic influence before relating these insights to their own social media use (Pronin et al., 2002).

Through exploration, comparison, and discussion, the workshop stimulates

curiosity, critical reflection, and awareness of how algorithmic systems shape online experiences. Participants analyse different social media feeds and use an emotion mapping exercise to map observed emotional dynamics. These insights are then compared with others, forming a starting point for discussion and reflection.

Who needs to be there, and what role will they play?

People

The workshop is designed for small groups of three to six adolescents between the ages of 16 and 25. A relatively small group size allows participants to actively engage in the activities and facilitates open discussion. The workshop is particularly suited for adolescents who are curious about how social media platforms shape the content they encounter online. Participants are not required to have prior knowledge about algorithms or digital systems. Instead, the workshop benefits from participants who are willing to explore different perspectives, reflect on their own online experiences, and engage in open discussion with others.

The workshop can be conducted with both groups of participants who are already familiar with each other and groups of participants who do not know each other beforehand. Each situation presents different dynamics. As discussed during the expert validation sessions (TM2, Chapter 8.4), groups of unfamiliar participants may require more time to feel comfortable speaking openly, but they are often less influenced by existing social dynamics. In contrast, groups of friends may feel more relaxed from the beginning, yet their responses can sometimes be shaped by each other's opinions.

In addition to the participants, the presence of a facilitator is essential. The facilitator guides the workshop, introduces the activities, and ensures that discussions remain respectful and constructive. The facilitator provides guidance throughout the activities while participants determine the pace of the conversation. This approach allows participants to take ownership of the discussion. When relevant, the facilitator may ask follow-up questions to deepen reflection. The facilitator booklet described in Chapter 9.4 supports the facilitator in guiding the workshop.

In which context is the workshop organised? What does the space look like, and what materials are required?

Practical concerns: context and space

The workshop is designed to be flexible in terms of location and can be organised in a variety of educational and public learning environments. However, this project focuses particularly on public libraries as a suitable setting. Libraries increasingly host initiatives related to digital literacy and media awareness, yet many of these activities primarily target either older adults or younger children. As a result, there is currently a gap in programming for adolescents and young adults. This workshop aims to contribute to this space by offering an activity specifically designed for participants between the age of 16 and 25.

Public libraries are also accessible and familiar spaces, which can lower the threshold for participation. For adolescents, such environments may feel more neutral and approachable than formal institutional settings, helping create a comfortable atmosphere for discussion and reflection.

In addition to libraries, the workshop can also be organised in other educational and civic contexts such as schools, universities, youth programs, or public events and exhibitions. Organizations that focus on citizenship education or media literacy, such as ProDemos or cultural institutions like Netherlands Institute for Sound and Vision, may provide suitable contexts for hosting the workshop.

Accessibility for the target group remains an important consideration. Since the workshop requires time and facilitation, adolescents are unlikely to independently seek out or pay for such an activity. Insights from the creative sessions (Insight card 6, explained in Chapter 7.5) also indicated that initiatives aimed at adolescents should reach them in environments they already frequent. Organizing or promoting the workshop through schools, universities, or educational programs therefore increases accessibility and helps reach the intended audience.

Workshop space

Although the workshop can take place in different environments, there are several requirements for the physical space. As discussed during Test Moment 3 (TM3, Chapter 8.5), The setup should allow participants to move around and stand during parts of the workshop. Standing and interacting with the materials encourages active participation and discussion, rather than positioning participants as passive listeners in a traditional classroom setting (see figure 9.1).

Additionally, the space should provide a relatively quiet and enclosed environment in which participants feel comfortable engaging in discussion and reflection. Such a setting supports open dialogue and helps create a safe atmosphere for sharing perspectives.

Finally, the room should have access to a digital screen or projector, which is used to introduce the workshop and guide participants through the activities. The specific materials used in the workshop are discussed in the following section on materialization.



Figure 9.1: The final design in context

What materials are required?

Practical concerns: materials

Three main components structure the workshop: a shared digital interface, donated algorithmic feeds presented within the digital interface, individual control panels and a reflection brochure (see table 9.1). Together, these elements allow participants to collectively explore algorithmic content while reflecting on their own emotional responses. These elements will be discussed in the next paragraphs.

Component	Function
Digital interface	Guides the workshop and display the algorithmic feeds
Donated algorithmic feeds	Provides the content that participants explore within the interface
Personal emotion-mapping interface	Allows participants to record their emotional responses
Reflection brochure	Allows participants to document their reflections and gives possible tack-actions

Table 9.1: Overview of the materials used and their funtion

In addition, a facilitator booklet is developed to support the guidance of the workshop. This booklet is discussed in more detail in Chapter 9.4.

Digital interface

The workshop is guided through an interactive digital interface displayed on a large touchscreen (see figure 9.3). The interface presents three different algorithmic feeds that participants explore collectively by scrolling through the content. Participants can directly interact with the screen by scrolling and tapping through the posts, allowing them to navigate the feeds together.

Displaying the feeds on a large screen transforms the typically individual act of scrolling into a shared experience within the physical workshop space. By making this normally private interaction visible, participants can collectively observe and reflect on how they navigate algorithmically curated content. In this way, the workshop intentionally blurs the boundary between online and offline environments, allowing participants to collectively observe and discuss their scrolling behaviour. Insights from Test Moment 1 (TM1, Chapter 8.4) showed that displaying the feeds on a larger screen increased participants' awareness of their scrolling habits.

In addition to the feeds themselves, the interface contains reflective questions, short 'Did you know?' facts, and visualisations of the emotional mapping results. These elements guide participants through the workshop and create moments of pause that support reflection and discussion (see figure 9.2).



Figure 9.2: From left to right, the digital interface showing the feeds, fact and reflective questions



Figure 9.3: The large digital interface guiding the workshop

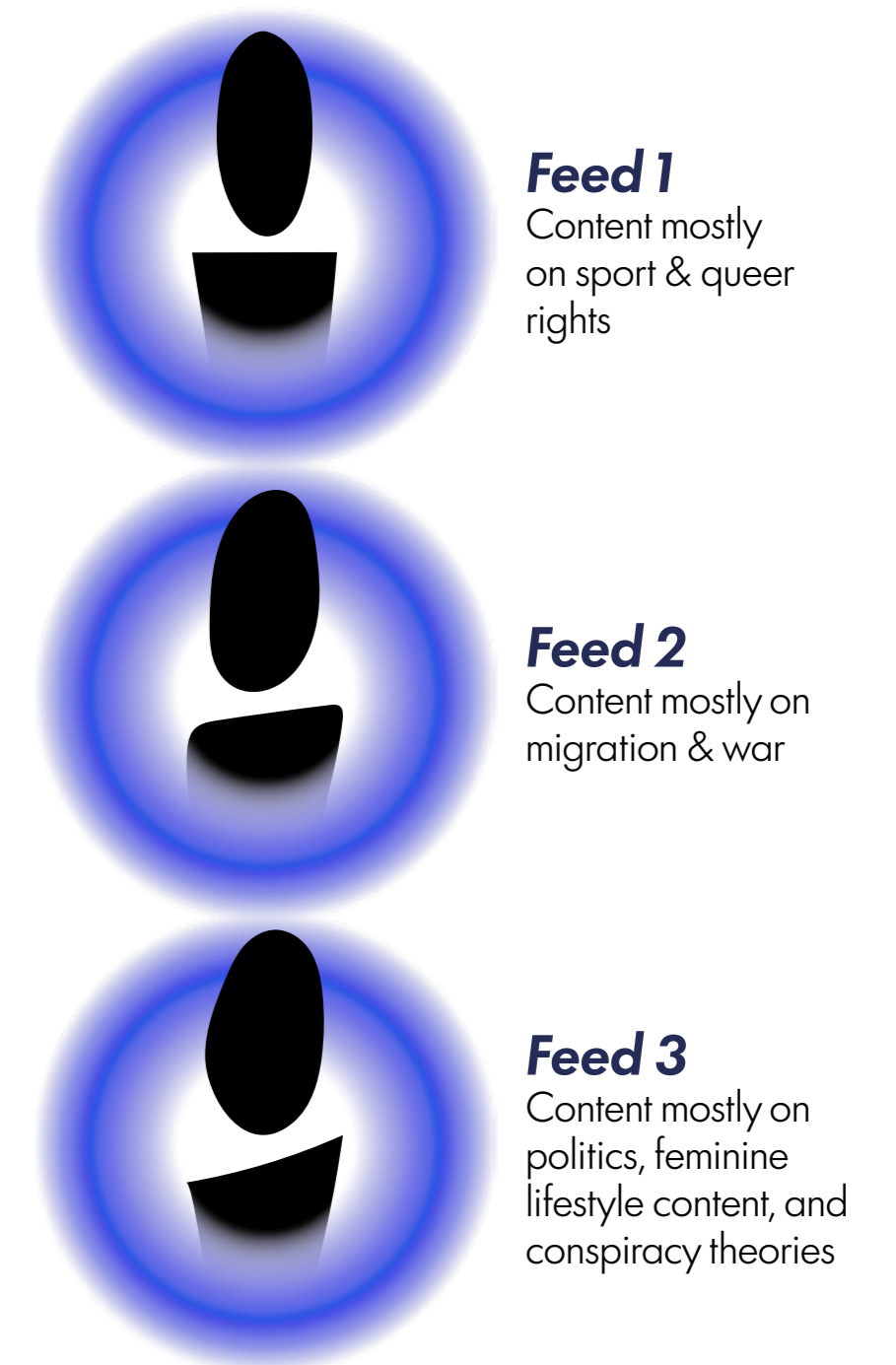
Donated Algorithmic Feeds

The workshop uses real social media feeds donated by adolescents. Using real feeds increases the authenticity of the experience and helps participants recognise the content as part of their everyday online environment. Insights from Test 1 indicated that participants preferred exploring realistic social media feeds, as these felt more representative of their everyday online experiences.

The feeds were collected through a collaborative process in which anonymous donors reviewed and screen-recorded their social media feeds while scrolling through posts. Both Instagram and TikTok were included, as these are among the most widely used platforms among adolescents and young adults, making them representative of participants' everyday online environments. To address privacy concerns, the process was designed to ensure that donors remained anonymous and in control of what content was shared. This process was designed to ensure anonymity, as mentioned in Chapter 8.4 and the final evaluation (TM4, Chapter 11) showed that social media feeds are experienced as highly personal.

A selection of posts was made to reflect the diversity typically found in social media feeds, including humorous content, political topics, sports, creative videos, and everyday posts, which was highly valued by participants in Test 1. In addition, themes such as queer identity, migration, and feminism were included. As mentioned in Chapter 3.4, they are topics on which adolescents often hold strongly differing and sometimes polarised views (Van de Wetering, 2026).

The final workshop uses three different algorithmic feeds, each selected to represent the specific themes described above (see figure 9.4). Rather than each feed covering all themes, different themes are distributed across the feeds. Each feed emphasises particular topics and presents them from a perspective shaped by the donor's interests and online behaviour. As a result, the feeds differ significantly from one another, both in content and in viewpoint. During the workshop, they expose participants to contrasting perspectives on shared societal issues, highlighting how algorithmic curation can shape different perceptions of reality.



Feed 1
Content mostly on sport & queer rights

Feed 2
Content mostly on migration & war

Feed 3
Content mostly on politics, feminine lifestyle content, and conspiracy theories

Figure 9.4: Overview of the donated algorithmic feeds used in the final workshop

Personal emotion-mapping interface

While the feeds are explored collectively on the shared screen, each participant uses an individual touchscreen interface during the emotional mapping exercise (see figure 9.5). These devices allow participants to record their emotional responses while navigating the feeds. Keeping the emotional mapping digital maintains a consistent interaction format with the shared digital interface, resulting in a more cohesive workshop experience.

Using a personal interface allows participants to record their reactions individually while the feeds are explored collectively, creating a balance between shared exploration and personal reflection. This individual input also helps safeguard participants' privacy, which was identified as important during Test Moment 3 (TM3, Chapter 8.4). The emotional mapping interface uses a simplified emotional scale that allows participants to quickly indicate their initial reaction to each post without interrupting the natural flow of scrolling through the feed. As the goal of the emotional mapping is not to precisely measure emotions but to visualise reactions and stimulate discussion, the interaction is intentionally kept simple.



Figure 9.5: Personal emotion-mapping interface

Reflection brochure

In the final step of the workshop, participants are invited to shift from analysing others' algorithmic feeds to reflecting on their own. Building on the discussions, they consider what they recognise in their own social media environments and what this means for their perspectives and behaviour. To support this reflection, participants document their insights in a personal brochure that they can take home (see figure 9.6).

During the workshop, they individually respond to prompts in the brochure that encourage them to identify potential blind spots and 'pitfalls' within their own feeds. They also reflect on how they would like their feed to evolve in the future. This is illustrated in figure 9.7.

The inside of the brochure includes practical strategies for influencing and reshaping their algorithmic feeds (see figure 9.8). This provides simple, concrete action points, encouraging participants to actively engage with their online environments after the workshop.

Altogether, the described setup best supports the goals of the workshop. Yet the materials can be adapted to different contexts or budgets. For example, the large screen does not necessarily need to be a touchscreen. During the final evaluation (TM4, Chapter 11), a projector also proved to be a suitable alternative. Navigation of the digital interface can be done using a mouse, trackpad, or clicker. Similarly, the individual interfaces could be replaced by participants' smartphones if necessary, although personal devices may introduce distractions.



Figure 9.6: Reflection brochures



Figure 9.8: Suggested action points to reshape your algorithm and questions in the brochure for individual reflection

9.3 The workshop process

How is the workshop structured, and why are these steps important for achieving the intended learning outcome?

Process

During the workshop, adolescents explore and engage with different algorithmic bubbles. Through discussion and reflection, participants examine how these bubbles can influence the information users encounter online. By first exploring the experiences of others, participants are gradually encouraged to reflect on their own algorithmic environments. Based on insights from the creative sessions explained in Chapter 7.5, young people often do not perceive their own algorithms as problematic and tend to view their social media environments as personal and private. However, people are more willing to critically examine the algorithms of others (Pronin et al., 2002). For this reason, the workshop uses anonymous algorithmic feeds as a starting point for exploration. **This approach allows participants to critically engage with algorithmic influence without feeling personally targeted.**

The workshop takes approximately 1.5 to 2 hours, depending on the time required for introductions and for participants to become familiar with one another. The overall structure of the workshop is inspired by the game design model described in Gamestorming (Gray et al., 2010), which frames collaborative sessions as a process of moving from an initial state (A) to a desired outcome (B). In the context of this workshop, the initial state (A) refers to a situation in which adolescents tend to underestimate the influence that algorithmic systems may have on their own social media environments. The desired state (B) is one in which participants become more aware of how algorithmic feeds may shape their perception of the online world and recognise potential blind spots in their own algorithmic bubbles.

Following the structure proposed in Gamestorming, the workshop unfolds in three phases: open, explore, and close. During the opening phase, the workshop sets the stage by introducing the topic, the participants, and the activities. The goal of this phase is to create an open mindset, trigger curiosity, and prepare participants for exploration.

The exploration phase forms the core of the workshop. In this stage, participants actively explore different algorithmic feeds, discuss their observations, and experiment with interpreting the content they encounter. Through this process, participants begin to recognise patterns and consider how different algorithmic perspectives may shape online realities.

Finally, the closing phase focuses on reflection and synthesis. Participants reflect on their observations, analyse patterns that emerged during the exploration phase, and consider how these insights relate to their own social media environments. These reflections can be documented in an individual brochure. This final step encourages participants to critically examine their own algorithmic bubbles and the role these play in shaping their online experiences, while also encouraging them to consider possible actions to navigate these influences more consciously.

Based on this structure, the workshop consists of the following steps, which are further explained in figure 9.9 and described in detail in the following section.

Opening

1. Introduction
2. Icebreaker

Exploration

3. Exploring algorithmic feeds
4. Comparing the emotional maps

Closing

5. Reflection on personal algorithms
6. Call to action

Figure 9.7: Questions in the brochure for individual reflection



Introduction - 10 minutes

The aim of the introduction is to help participants feel comfortable within the workshop setting. The facilitator welcomes the participants, initiates a short round of introductions, and explains the purpose and structure of the workshop. The activities and the way participants will navigate through the workshop are briefly introduced. If participants do not know each other, a short introductory activity can be included to create a relaxed and open atmosphere.



Icebreaker - 10 minutes

The aim of the icebreaker is to trigger curiosity and prepare participants for the exploration phase of the workshop. Participants are introduced to the topic through a short prompt related to the influence of social media algorithms. They briefly reflect on a personal experience related to the topic, helping them connect the workshop theme to their everyday social media use. Reflecting on personal experiences can help participants relate abstract topics to lived experiences.



Comparing the emotional maps - 3 x 10 minutes

The aim of this step is to reflect on the experiences from exploring the different feeds. By comparing their emotional maps, participants discuss which types of content they perceive as polarising or emotionally charged and how different posts triggered different reactions. As the emotional mapping makes the often implicit emotional impact of algorithmic feeds visible, it supports participants in reflecting more easily on how different types of content may influence their perceptions and feelings.



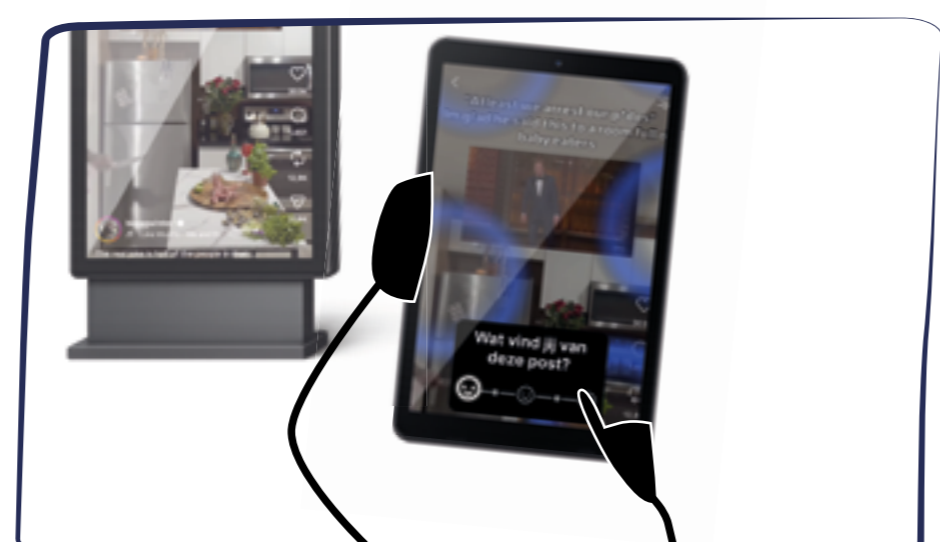
Reflection on personal algorithm - 10 minutes

The aim of this step is to identify patterns that emerged from the emotional maps created during the exploration phase. By discussing these patterns, participants gain insight into how different types of content can evoke emotional responses and shape online experiences. Participants are then encouraged to relate these observations to their own social media environments and reflect on potential blind spots within their personal algorithmic feeds in the brochure.



Exploring the algorithmic feeds - 10 minutes

The aim of this step is to allow participants to step outside their own algorithmic bubbles and explore anonymously donated social media feeds. By observing the feeds of others, participants can engage with algorithmic content without feeling personally confronted.



While exploring the feeds, participants record their intuitive emotional responses to each post using the personal emotion-mapping interface. This emotional mapping makes the often implicit emotional impact of algorithmic feeds visible.



Call to action - 5 minutes

The aim of the final step is to reflect on the insights gained during the workshop and consider what participants take away from the experience. Supported by the brochure, participants are encouraged to think about how they might approach their social media use more consciously in the future. Rather than prescribing specific behaviours, this step invites participants to consider small actions or strategies that could help them navigate algorithmic influences more critically, such as reflecting on the content they engage with or seeking out diverse perspectives online.

Step by step

In this section the workshop will be explained step by step.

Introduction - 10 minutes

The goal of the introduction is to help participants feel at ease within the workshop setting. The facilitator welcomes the participants, initiates a short round of introductions, and briefly explains the goal and structure of the workshop. If participants are already familiar with one another, this step can remain brief. When participants do not know each other, a short introductory activity can help create a relaxed atmosphere, for example through short statements.

During this phase, the facilitator clarifies their role as a moderator of the discussion and emphasises that there are no right or wrong answers within the workshop. Rather than leading the conversation or providing answers, the facilitator guides the process while participants remain in control of the exploration and discussion. At the same time, the facilitator supports the dialogue and ensures that the conversation remains respectful and inclusive.

The facilitator also explains how participants will move through the workshop, including the use of the digital interface and the emotion-mapping interfaces. This introduction provides space for participants to ask questions before the workshop begins. Creating a comfortable and open environment at this stage is essential, as the success of the workshop depends on participants feeling safe to share their observations and reflections.

Icebreaker - 10 minutes

The aim of the icebreaker is to trigger curiosity and prepare participants for the exploration phase of the workshop. Participants are introduced to the interactive workshop interface and begin familiarising themselves with how the system works, while the facilitator provides guidance during these first interactions.

To spark discussion, the activity begins with a short 'Did you know?' fact based on research by Judith van de Wetering (2026): '8 out of 10 young people feel that opinions on social media are becoming increasingly harsh and

extreme' (see figure 9.10). Participants are then asked whether they recognise this phenomenon in their own online experiences. Reflecting on personal experiences helps participants connect the topic to their own lives and supports emotional engagement.

After this initial reflection, the influence of algorithms on social media feeds is briefly introduced, including the idea that social media platforms can have both positive and negative effects, a nuance participants themselves emphasised during the co-creation sessions.

Starting the activity with reflection rather than explanation was a deliberate design decision informed by Test Moment 3 (TM3, Chapter 8.4). Inviting participants to first reflect on their own experiences helps establish a participatory atmosphere and encourages active engagement in the discussion from the beginning.



Figure 9.10: Fun fact and reflective question guiding the icebreaker

Exploring algorithmic feeds - 10 minutes

The aim of this step is to allow participants to step outside their own algorithmic bubbles by exploring anonymously donated social media feeds. By observing the feeds of others, participants can critically engage with algorithmic content without feeling personally confronted. Insights from Test Moment 1 (TM1, Chapter 8.4) showed that participants were curious to see what kind of content appeared in another person's feed and how it differed from their own experiences. This curiosity forms an important entry point for the workshop, motivating participants to explore different algorithmic environments.

These feeds were selected to highlight clear differences between algorithmic environments and to illustrate how algorithms may shape online experiences. Each feed contains ten posts representing a mix of content types such as political posts, memes, informational content, 'brain rot' videos, inspirational posts, and sports-related content (e.g. short-form videos, opinionated posts, or humorous clips). This composition was tested during Test Moment 1 (TM1, Chapter 8.4), where participants were asked to reflect on the realism of the feeds. Participants indicated that a varied mix of content made the feeds feel more representative of their everyday online experiences. Therefore, maintaining this diversity of content was important, as social media feeds rarely consist of a single type of content. Instead, users move rapidly between different posts, often creating an experience that can feel like an emotional rollercoaster. This dynamic is made visible through the emotional mapping activity.

While exploring the feeds, participants record their immediate emotional response to each post using the emotion-mapping interface (see figure 9.8). Each participant maps their first reaction to every post, resulting in ten responses per each feed. The emotion-mapping interfaces are connected to the shared screen. As participants scroll through the posts on the large display, the individual interfaces automatically synchronise with the post being shown. This allows participants to record their responses while collectively exploring the feed. The emotional scale is intentionally kept simple so participants can respond quickly without interrupting the natural scrolling flow, as observed during Test Moment 3 (TM3, Chapter 8.4). Rather than serving as a precise measurement tool, the emotional mapping functions primarily as a starting point for later discussion. As this interaction may initially be unfamiliar, the facilitator provides guidance when participants first use the interface.



Personal emotion mapping interface is connected to the large screen

Figure 9.8: Large digital interface and personal emotional mapping interface during exploring the donated feeds

Comparing the emotional maps - 10 minutes

The aim of this step is to encourage participants to reflect on their experiences while exploring the different algorithmic feeds. After exploring an algorithm, an emotional map appears showing how participants experienced each post (see figure 9.12). Each line visualises the emotional flow of one participant. These visualisations remain anonymous, allowing participants to stay in control of what they choose to share.

Guided by the reflective question 'What do you notice when comparing the emotional flows?', participants compare their emotional responses and discuss which types of content they perceive as polarising or emotionally loaded. Participants may also return to specific posts on the screen to better understand why certain content triggered particular reactions. This is important, as insights from test moment 3 (TM3, Chapter 8.4) and the final evaluation (TM4, Chapter 10) showed that participants tend to quickly forget what they have seen while scrolling through the feeds.

Insights from the final evaluation (TM4, discussed in Chapter 10) showed that both participants and facilitators needed more guidance during this analysis. To support this, the interface highlights specific moments within the emotional maps that stand out. These include points where emotional responses diverge strongly between participants, as well as moments where responses show a clear peak or drop. Depending on the type of pattern, the interface provides guiding questions. For example, peaks prompt participants to reflect on what they experience as positive or engaging in the feed, while drops encourage reflection on what feels less positive. In cases where responses differ significantly, participants are asked what might explain these differences in interpretation.

The emotional maps make the often implicit emotional impact of algorithmic feeds visible, helping participants reflect on how different types of content may influence perceptions and feelings. Building on this discussion, participants are asked the question "What effect could this algorithm have on how someone thinks or feels?", encouraging them to move from describing emotional reactions to reflecting on the broader influence of algorithmic environments.

This moment forms an important stage in the workshop, where participants begin translating their individual experiences into shared insights. Because participants may interpret the content in different ways, discussions can sometimes become intense or emotionally charged. For some participants, this stage may also feel confronting, which makes careful facilitation essential. Insights from the creative sessions showed that participants value the opportunity to share their perspectives while maintaining mutual respect in the conversation (Insight card 2, Chapter 7.5). The facilitator therefore plays an important role in guiding the dialogue and ensuring that different viewpoints can be expressed while the discussion remains respectful, inclusive, and constructive.

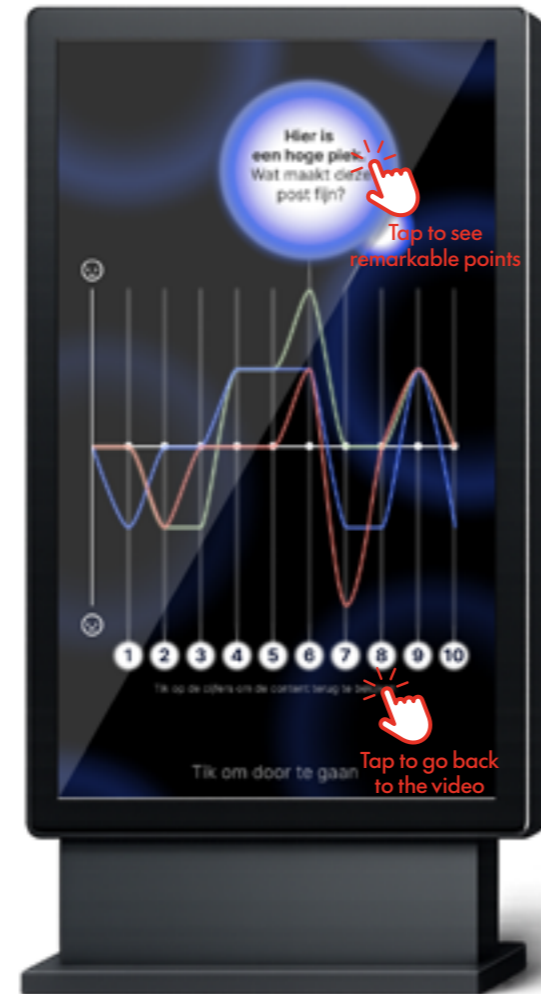


Figure 9.12: Large digital interface to compare the emotional maps together and reflect

Reflection on personal algorithms - 10 minutes

The aim of this step is to reflect on the donated algorithmic feeds, identify patterns that emerged from the emotional mappings created in the previous activities, and relate these insights to their own algorithmic environments. By discussing these patterns, participants gain insight into how different types of content can evoke particular emotional responses and shape online experiences. Rather than introducing a new activity, this stage intentionally creates space for guided reflection. After the intensive exploration phase, this moment allows participants to slow down, process their observations, and translate these insights to their own social media environments.

Participants first reflect on the emotional flows by discussing the question: 'What recurring patterns do you notice in the emotional flows?' This encourages them to identify similarities and differences between the explored algorithmic environments while referring back to the emotion flows (see figure 9.13).

To further support this comparison, participants are asked to position the three explored algorithmic feeds in relation to one another, for example by considering how diverse or one-sided they are, and how positive or negative they feel. This helps participants to more clearly distinguish between the different feeds and reflect on how these environments shape experiences in different ways. Insights from the final evaluation (TM4, Chapter 10) showed that this step provides participants with a clearer starting point for comparison and reflection.

Participants are then asked: 'What influence could your own algorithm have on how someone thinks or feels?' Building on the previous comparison, they are encouraged to position their own algorithm in relation to the explored feeds and reflect on potential blind spots in their own online environment.

To support this reflection, participants document their insights in a personal brochure that they can take home. During this process, they individually respond to questions that encourage them to identify patterns, potential blind spots, and 'pitfalls' within their own feeds, while also reflecting on how they would like their feed to evolve in the future. The brochure helps make these reflections tangible, ensuring that insights are not only discussed but also captured and revisited beyond the workshop.

This step forms an important bridge between exploring other algorithmic environments and reflecting on one's own social media practices. Expert feedback from test moment 2 (TM2, Chapter 8.4) highlighted that this translation is crucial for helping participants connect the workshop experience to their personal algorithmic environment. The facilitator may support this process by asking follow-up questions that encourage deeper reflection.



Figure 9.13: Comparing the feeds and reflecting in the brochure



Figure 9.14: Call to action on interface and in the brochure

Call to action - 5 minutes

The aim of this final step is to briefly reflect on the insights gained during the workshop and consider what participants take away from the experience. Participants are encouraged to think about how they might approach their social media use more consciously when encountering algorithmic feeds. Rather than telling participants what they should do, this step invites them to consider small actions or strategies that could help them navigate algorithmic influences more critically.

The discussion is guided by the reflective question: *'What will you take from today the next time you start scrolling?'* This question helps participants connect the workshop insights to their everyday social media use and encourages them to continue reflecting on these influences beyond the workshop. To support this process, the brochure includes a 'Take Actions' section with practical suggestions that participants can use as inspiration during the discussion and after the workshop.

The primary goal of the workshop is not to define concrete action points, but to increase awareness of potential blind spots within participants' own algorithmic environments. By reflecting on the explored algorithmic feeds and their emotional responses, participants are encouraged to reconsider how their personal feeds may influence their perceptions and experiences. Within this context, this final step is intentionally kept brief. Rather than serving as an extensive exploration phase, it functions as a starting point for continued reflection and personal action after the workshop has ended. The brochure can be taken home, allowing participants to revisit these insights and explore the suggested actions in their own time.

Overall, the workshop gradually guides participants from recalling their own online experiences to exploring the algorithmic environments of others. These explorations help participants identify patterns and emotional responses, which then serve as a basis for reflecting on their own algorithmic feeds. The workshop concludes with a call for continued awareness, encouraging participants to critically engage with algorithmic influences in their everyday social media practices.

9.4 The role of the facilitator

How can a safe and respectful discussion environment be maintained when discussing polarising content?

As the workshop invites participants to discuss potentially polarising content and share personal reactions, the role of the facilitator is essential in guiding the process. This includes supporting reflection and discussion, as well as ensuring... a safe environment for open and respectful discussion.

To support facilitators in this role, a dedicated facilitator booklet was developed (see figure 9.15). This booklet provides an overview of the workshop's goals, required materials, duration, and possible settings. In addition, it outlines each step of the workshop and includes guiding questions that facilitators can use to support discussions and encourage deeper reflection.

A key responsibility of the facilitator is to ensure a safe discussion environment. Participants may interpret content in different ways and hold diverse opinions, which can lead to differences in perspectives during the discussion. Insights from an expert interview (Ei01, Appendix A1) with an organisation experienced in facilitating discussions on societal topics highlighted the importance of establishing clear discussion guidelines at the beginning of a session. Rather than imposing rules, these guidelines are developed collaboratively with participants so that everyone feels responsible for maintaining a respectful conversation.

Following this approach, the facilitator briefly establishes discussion guidelines with the group before the workshop begins. These agreements focus on listening to one another, respecting different perspectives, and allowing space for disagreement without personal attacks. By making these expectations explicit, the facilitator helps create an environment in which participants feel safe to share their thoughts while maintaining mutual respect.

Throughout the workshop, the facilitator remains responsible for monitoring the discussion and intervening when necessary to ensure that the conversation remains respectful and constructive.



Figure 9.15: The booklet to guide the facilitator

9.5 Steps after the workshop

How can awareness created during the workshop translate into lasting impact?

The workshop primarily aims to increase awareness of how algorithmic systems shape participants' online environments. However, awareness alone does not necessarily lead to behavioural change.

As discussed in Chapter 8.1, this project builds on a leverage point by focusing on making adolescents aware of how algorithmically curated environments influence their perceptions and experiences. Increasing this awareness is considered a crucial first step in enabling more critical engagement with social media.

Yet, as discussed in Chapter 8.1, research on safe online behaviour suggests that resilience in digital environments is shaped by a combination of knowledge, abilities, and motivation (Rozendaal, 2022). When individuals understand how online systems operate, are able to recognise different perspectives, and are motivated to reflect on their own behaviour, they are better equipped to navigate complex and potentially polarising online environments. This process often begins with awareness of how digital environments influence one's own perceptions, emotions, and behaviour (Van Aalderen & Rozendaal, 2023).

While the workshop contributes to participants' awareness and understanding of algorithmic influences, it only partially addresses the development of skills and sustained motivation needed for long-term behavioural change. The final reflection moment encourages participants to relate these insights to their own social media use, but maintaining this reflection over time remains challenging.

This highlights that increasing awareness is an important first step, but that fostering lasting digital resilience requires continued engagement beyond the workshop. The workshop's long-term influence on behaviour therefore depends on how this engagement is supported over time. Supporting participants beyond the workshop, for example through follow-up activities, integration into educational contexts, or ongoing discussion, could strengthen its lasting impact. Developing and testing such follow-up mechanisms, however, falls beyond the scope of this project and remains an opportunity for future work.

Key take-aways

- The final intervention takes the form of a workshop that makes algorithmic social media systems tangible through experience, rather than explanation.
- The workshop enables adolescents to explore and compare different algorithmic feeds, revealing how content can differ per user.
- Experiencing different feeds helps participants recognise how their own online environment is shaped and not neutral.
- Participants reflect on their experiences through a structured process of mapping their emotions, and discussing them with others.
- The workshop uses group discussion as a key mechanism to expose participants to different perspectives and interpretations, and lets participants reflect on those perspectives.
- The design primarily focuses on raising awareness of algorithmic influence, while the final step encourages participants to relate insights to their own behaviour and possible actions.
- The facilitator plays an important role in guiding dialogue, ensuring a safe environment, and maintaining nuance in discussions.
- A safe setting is essential to allow participants to share opinions, reflect openly, and engage with potentially sensitive topics.
- The workshop primarily focuses on creating awareness of how algorithms influence users, while supporting continued reflection, motivation, or action beyond the session remains important for building digital resilience.

10. Evaluating the workshop

This chapter presents the evaluation of the final workshop developed as part of this project. The aim of this evaluation is to assess how the workshop performs in practice and how it relates to the design goal and defined design criteria. The evaluation is based on a final test session (TM4), conducted with three participants and one facilitator, as well as analysis with two experts (EV2–3). These methods provided insight into both the user experience and the broader relevance of the intervention and future research for further development of the workshop.

The central question guiding this chapter is:

“To what extent does the workshop achieve its design goal and meet the defined design criteria?”

The chapter begins by describing the evaluation approach (10.1), followed by an overview of how the workshop functioned in practice (10.2). It then evaluates the workshop in relation to the design goal and criteria (10.3), before reflecting on the workshop as a whole (10.4). Finally, the chapter presents recommendations for further development and implementation (10.5).

- **Chapter 10.1:** Evaluation approach
- **Chapter 10.2:** The workshop in practice
- **Chapter 10.3:** Evaluating the workshop in practice
- **Chapter 10.4:** Evaluating the workshop as a whole
- **Chapter 10.5:** Recommendations



10.1 The evaluation approach

How is the workshop evaluated in terms of its practical use, design goal and potential impact?

This chapter presents the evaluation of the workshop. The workshop is evaluated based on its application in practice, its ability to achieve the intended design goal, and its alignment with the design criteria described in Chapter 8.2. In addition, the workshop is reflected upon in relation to its possible contribution to the broader issue of polarisation.

The evaluation was conducted in two parts.

- **A test session with three young participants from Rotterdam/Amsterdam aged 19–22, facilitated by a 25-year-old design student with experience in guiding workshops.** (TM4, Appendix E4)

This session aimed to assess the usability of the workshop in practice, including its feasibility, viability, and desirability for participants, as well as how transferable and easy it is to facilitate using the booklet. The session was observed by Judith and me. After the session, a short survey and interview were conducted with the participants to reflect on the broader goals of the workshop. A more detailed description of the evaluation plan and outcomes can be found in Appendix X, the setup of the test is shown in figure 10.1.

- **Conversations with Judith and two experts.** (EV2 - 3)

These conversations were primarily used to validate and reflect on the analysis, rather than to generate entirely new insights. They aimed to assess the extent to which the workshop addresses the intended design goals and design criteria, and to explore how the intervention relates to the broader issue of polarisation.

The following paragraphs are informed by insights gathered from both the test session and the expert analysis session. This chapter is structured as follows: first, the workshop is analysed in practice (10.2), focusing on its usability, feasibility, viability, and desirability in a real-world setting. Next, it is assessed in relation

to its intended design goal and design criteria (10.3). This is followed by a reflection on the workshop's potential relevance within the broader context of polarisation (10.4). It is important to note that these reflections on the workshop's potential contribution to reducing polarisation are based on a limited number of evaluations and should therefore be interpreted as exploratory rather than conclusive. These reflections provide an initial indication of how the intervention may relate to the broader system, rather than definitive claims about its impact. Finally, the evaluation outcomes are translated into recommendations for further development (10.5).



Figure 10.1: Set up of the final evaluation

10.2 Evaluating the workshop in practice

How is the workshop evaluated in terms of its practical use, design goal and potential impact?

This section evaluates how the workshop functions in practice. Key insights from the test session are discussed per activity, reflecting on how each step was experienced and what it contributed. These insights are based on observations by Judith and me, the facilitator, and participants' responses, including quotes and feedback gathered during the session. In addition, insights are drawn from a post-workshop survey and group interview, which provided more in-depth reflections on participants' experiences throughout the different steps of the workshop.

The introduction and the icebreaker

The aim of the first two steps was to help participants become familiar with each other and to introduce the central topic of the workshop.

First, participants got to know each other through statements initiated by the facilitator. The statements used were as follows:

- *I had to travel far to get here*
- *I spend too much time on my phone*
- *I have control over my screen use*
- *I can scroll for more than an hour*

In the booklet, the introduction is left open to the facilitator in terms of which activity to use. In this case, the statements functioned as an effective supporting tool to initiate discussion and help participants position themselves in relation to others. Participants quickly engaged with the topic, sharing reflections such as: *"I've already seen enough Trump on my For You page"* and *"I'm kind of ashamed of my YouTube Shorts."* These responses show how openly participants spoke about their social media use from the start, sharing not only positive aspects but also things they disliked or even felt ashamed of. During this conversation, both similarities and differences in participants' media use became visible.

This suggests participants quickly felt at ease, which contributed to an open and relaxed atmosphere. Based on these positive outcomes, the statements will be included as an example in the booklet, which the facilitator can choose to follow.

"I've already seen enough Trump on my For You page"
- Participant during the final evaluation (TM4, App. E4)

"I'm kind of ashamed of my YouTube Shorts."
- Participant during the final evaluation (TM4, App. E4)

This step also introduced participants to the interface and the central problem addressed in the workshop. The use of the fact '8 out of 10 young people feel that there are increasingly harsh and extreme opinions on social media,' followed by the question 'Have you recently seen an extreme or emotional post? How did you experience it?' effectively connected the topic to participants' everyday experiences. With guidance from the facilitator, participants were encouraged to reflect further on the influence of extreme content online, which opened up a more in-depth discussion on how such content shapes both personal perspectives and interactions with others. This is reflected in participants' responses, such as: "I sometimes see people liking stuff that's pretty disrespectful to women," "People who are far right probably talk less to people who are far left because of extreme content online," and "I don't think my opinion has changed because of social media, but it has become more defined." **These statements illustrate how participants not only recognised the presence of extreme content, but also began to reflect on its broader social and personal implications.**

Although the interface itself was easy to understand, the on-screen instructions were not always aligned with the facilitator's guidance. In some cases, information was repeated: for example, the facilitator had already explained certain elements of the workshop, which were then shown again on the screen. This caused confusion for both participants and the facilitator, and disrupted the flow of the workshop. **To improve this, the facilitator should better align their instructions with the interface to avoid repetition.** Ideally, the facilitator would be able to adjust how information is presented, for example by choosing whether explanations are given on screen or verbally. In this way, the interface can continue to provide structure, while giving the facilitator flexibility

"I don't think my opinion has changed because of social media, but it has become more defined."

- Participant during the final evaluation (TM4, App. E4)



Figure 10.2: Facilitator guiding the first steps

Exploring the algorithms

The aim of this step was to allow participants to step outside their own algorithmic feeds and explore anonymously donated social media feeds (see figure 10.3).

Participants responded very positively to this part of the workshop. **The different algorithms triggered curiosity, strong engagement, and recognition.** Participants valued being able to actively react to the content, often relating it to their own experiences or those of friends. This was reflected during the interview afterwards in comments such as: "What I liked about the workshop is seeing different kinds of feeds and how different they can be. Being able to constantly talk about it made it interesting to see differences in opinions."

The interaction with the interface felt intuitive. Scrolling through the feeds and mapping emotions worked smoothly for participants. As one participant noted: "The screen worked really well, especially the scrolling." A small point for improvement is that the feeds could be introduced more clearly within the interface, for example with a prompt such as: 'Take a look at someone else's feed.' This has been addressed in the final design by adding clearer prompts within the interface. Mapping on the phone was experienced as clear and not distracting. However, participants pointed out that in school contexts, phone use is often restricted, which could limit the applicability of this format. This remains a consideration for further development and will be addressed in the recommendations.

Beyond interaction, participants also began interpreting the feeds in more complex ways. Interestingly, they quickly formed assumptions about the identities behind the content. For example: "With this algorithm, I can already imagine after three videos what kind of person this is." This was not something actively prompted during the workshop, but rather emerged naturally. While this can be seen as an interesting by-product of the activity, it is not necessary to further engage with this in the workshop, as it may lead to stereotyping. Instead, the focus should remain on reflecting on the content and its effects rather than the individuals behind it.

"With this algorithm, I can already imagine after three videos what kind of person this is."

- Participant during the final evaluation (TM4, App. E4)

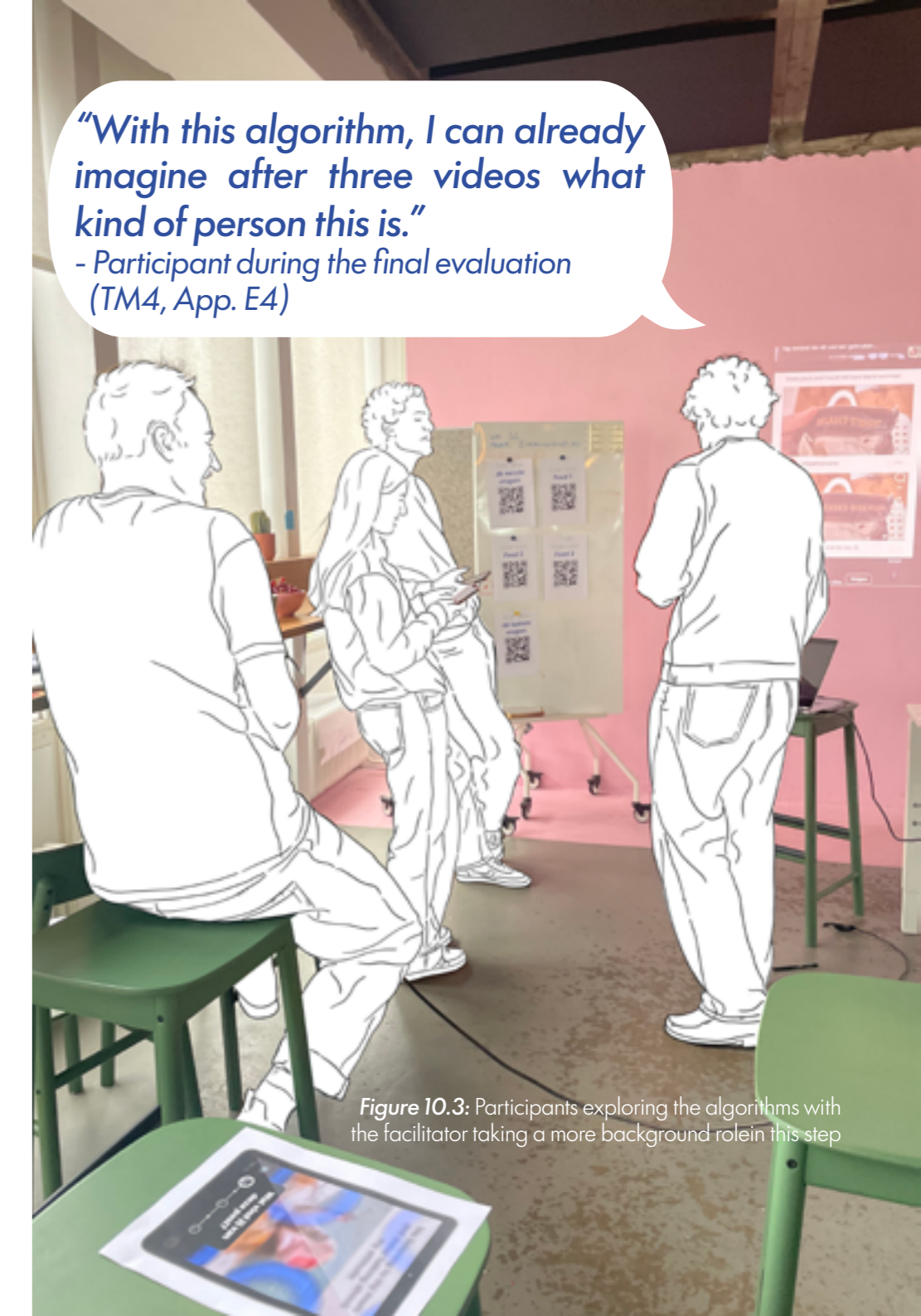


Figure 10.3: Participants exploring the algorithms with the facilitator taking a more background role in this step

"I think the algorithms were a good representation, but I also know that Instagram can be much harsher. I've gone through periods where I saw videos of people actually dying."

- Participant during the final evaluation (TM4, App. E4)

"I do think it's important to point out that it exists. An app where you can see fun and creative videos can also have a very dark side, and how quickly you can end up there is quite scary."

- Participant during the final evaluation (TM4, App. E4)

The algorithms ended with a fun fact, which effectively triggered further conversation. For example, in response to the statement that social media are one of the most important news sources for young people, a participant noted: "Oh, interesting, I did not know that." With guidance from the facilitator, this led to further discussion.

Participants also noted that the feeds felt relatively 'mild' compared to their real online experiences. Some mentioned exposure to more extreme or disturbing content: "I think the algorithms were a good representation, but I also know that Instagram can be much harsher. I've gone through periods where I saw videos of people actually dying."

Showing such content in the workshop would not be appropriate, as it could compromise participants' safety. However, participants did express the importance of acknowledging its existence. As one participant stated: "I really wouldn't want to watch those kinds of videos." The participant added: "I do think it's important to point out that it exists. An app where you can see fun and creative videos can also have a very dark side, and how quickly you can end up there is quite scary."

This highlights an important design tension: the workshop should remain safe and appropriate, while still addressing the intensity and potential harm of real algorithmic environments. This could, for example, be addressed after the second feed using the fun fact: 'Did you know that algorithms tend to promote extreme or emotional content because it generates more engagement?' The facilitator can then ask follow-up questions, for example whether participants have also encountered more extreme, violent or even illegal content online.

"At some point I saw the graph and thought: okay, what are we actually supposed to say about this?"

- Facilitator during the final evaluation (TM4, App. E4)



Figure 10.4: Digital screen for comparing the emotional maps

Comparing the emotional maps

The aim of this step was to reflect on the experiences from exploring the different feeds by comparing participants' emotional maps.

This step created a valuable moment for reflection within the workshop. It encouraged participants to think more deeply about the content and why certain posts triggered specific emotions. For example, participants noted: "This made me feel angry, because it kind of suggests that as a man you have to be extremely right-wing to be considered a real man," and "This post about Netanyahu was very vague and didn't really show what it was about. It felt like a conspiracy." These responses show how participants started to reflect on why certain content triggered specific emotions.

However, this reflective potential did not always fully develop during the session, which sometimes resulted in unfocused discussions. The step required stronger guidance from the facilitator, who indicated that it was not always clear how to guide the discussion: "At some point I saw the graph and thought: okay, what are we actually supposed to say about this?" Especially when participants responded in similar ways, it became more difficult to guide the discussion. **This highlights the need for clearer prompts to guide participants in what to focus on and what to take away from this activity.** Figure 10.4 shows the interface used during this test session. As this was a low-fidelity prototype, the visual design does not reflect the final design, but it functioned in combination with Google Forms to support the activity.

During this reflection, the facilitator sometimes asked participants to speculate about the type of person behind a feed. However this should be avoided, as it may reinforce stereotypes. Instead, the focus should remain on the effects of the content itself. For example, questions could be reframed as: 'What emotions does this feed trigger?' or 'What kind of influence could this feed have on someone?'

Additionally, the facilitator directly asked participants who had reported very negative emotions. Yet, this should be avoided, especially in groups where participants do not know each other well, as it may create discomfort. At the same time, participants did express interest in knowing which emotional map belonged to them. As mentioned by one of the participants: "Maybe I would have liked it if you knew which colour you were yourself, and then you could choose whether to share that."

An important insight that emerged during this and Test moment 3 (TM3, see Chapter 8.4) is how quickly participants forget the content they have seen. As one participant noted: *“The funny thing is, I’ve already forgotten so much.”* This highlights how social media content can strongly affect emotions in the moment, while the specific content is quickly forgotten due to the rapid pace at which new content appears. In the final evaluation session, this dynamic was not explicitly addressed by the facilitator, but it should be explicitly included in future sessions to initiate reflection, for example by drawing attention to the variation in emotions across posts and participants.

To address these challenges, the design of the workshop was adjusted to provide more guidance during this reflection phase, as shown in Chapter 9.4. The interface can highlight moments where emotions are particularly high, low, or strongly differ between participants, offering concrete entry points for discussion. In addition, the facilitator guide includes ‘must-ask’ and ‘nice-to-ask’ questions, helping to structure the conversation and support deeper reflection.

Reflecting on personal algorithms and call to action

The aim of these final steps was to help participants identify patterns across the different algorithmic feeds and reflect on their own algorithm and future social media use.

Based on observations by the researcher and Judith, **the step of identifying patterns in the different explored algorithms remained relatively passive.** It mainly focused on looking back at the emotional patterns that emerged during the feeds, with participants only observing and discussing the results rather than actively engaging with them. To strengthen this, the step could be made more interactive by allowing participants to compare and rank the different feeds based on specific prompts, such as which feed felt most enjoyable, most negative, most addictive, or most political, as shown in the final design in Chapter 9.4. This would support more active engagement with the patterns before relating them to their own algorithm.

Following this, the workshop shifts towards personal reflection, see figure 10.5. The brochure supports participants in translating these insights to their own media use. The filled-in brochures are shown in figure 10.6, 10.7, and 10.8. Participants responded positively to this format. However, it was not always easy. For example, one participant noted: *“I found it a bit difficult to reflect, because I’m already quite aware of my media use.”* At the same time, they added that it was still helpful to briefly reconsider: *“It was good to take a moment and think again about what kind of content I don’t want to keep seeing in a kind of doomscroll way.”*

Participants also reflected on possible actions, guided by the brochure. They responded enthusiastically and with some surprise. For example, one participant noted: *“I was not aware that it is possible to reset an algorithm.”* Although participants did not always intend to apply these actions themselves, they did recognise their value and mentioned that they would share them with others. **This suggests that the insights from the workshop may continue beyond the session through participants sharing them with others.**

“It was good to take a moment and think again about what kind of content I don’t want to keep seeing in a kind of doomscroll way.”

- Participant during the final evaluation (TM4, App. E4)

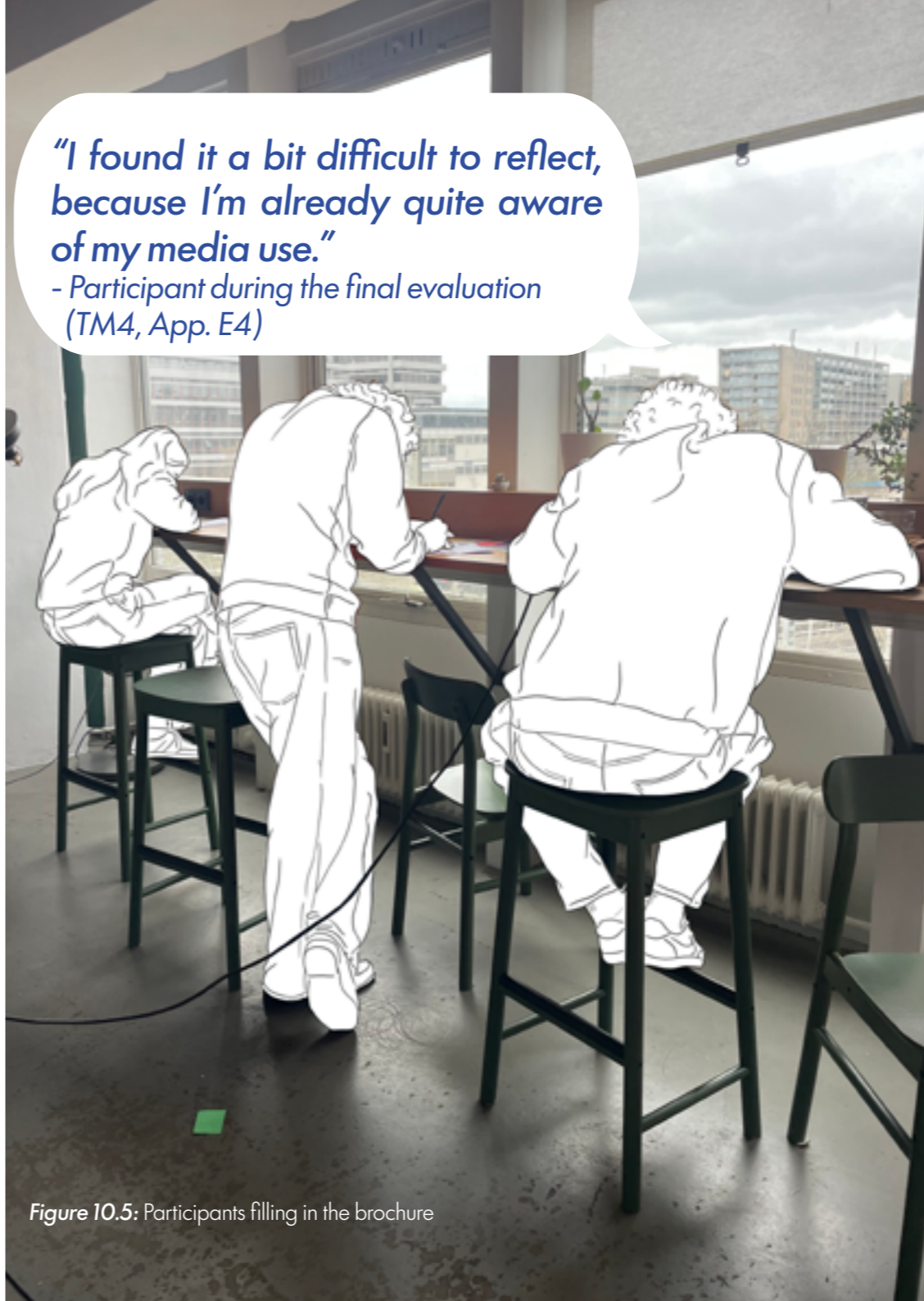


Figure 10.5: Participants filling in the brochure

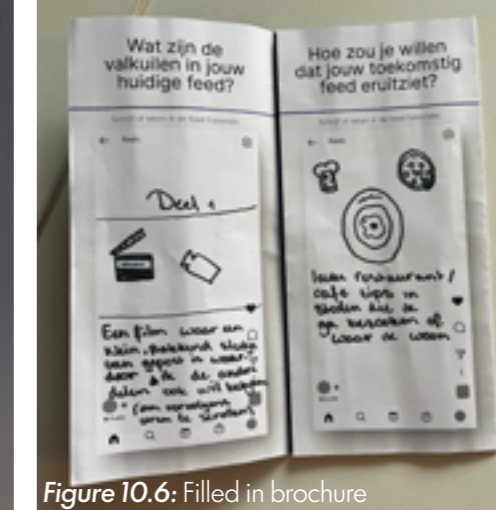


Figure 10.6: Filled in brochure

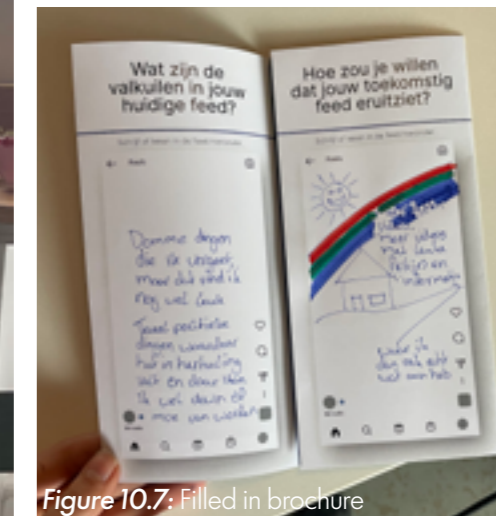


Figure 10.7: Filled in brochure

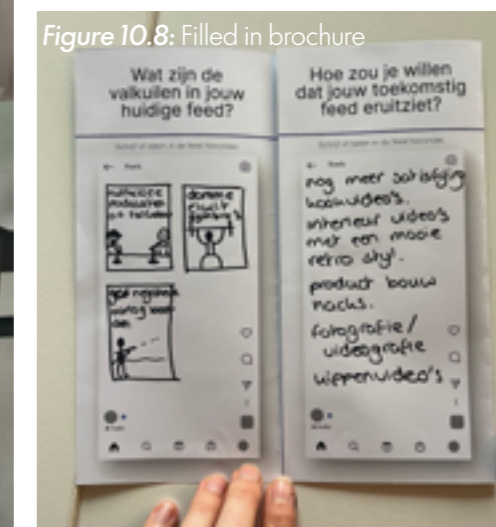


Figure 10.8: Filled in brochure

10.3 Evaluating the workshop as a whole

To what extent does the workshop achieve its design goal and design criteria?

This section reflects on the workshop as a whole, based on survey results and interviews with participants and the facilitator. The survey was completed individually by the participants, while the interview took place as a group conversation. It revisits the design goal and evaluates the workshop in relation to the design criteria.

It is important to note that the participants in this session had relatively similar political perspectives and were already somewhat aware of their social media use. Two out of three participants indicated that they had previously reflected on their social media behaviour, for example by deleting apps or consciously adjusting their usage. As a result, this evaluation reflects how the workshop performed in relation to the design goal and criteria within this specific group. To more fully assess the extent to which the workshop meets its design goal and criteria, future testing with more diverse groups and participants with lower initial awareness is recommended. In addition, the long-term impact of the workshop should be further explored.

Overall, the workshop shows strong potential in addressing the design goal of creating a playful and accessible intervention that helps young people become aware of how algorithmically curated social media bubbles shape their perspectives and contribute to polarisation by allowing them to experience different anonymous online bubbles. Participants were engaged throughout the session and responded positively to the interactive format of the workshop. The workshop was experienced as enjoyable and approachable, which helped lower the threshold for engaging with a complex topic. As one participant noted, *“I thought it was really nice to do something like this for once... I also recognised things from my own algorithm, or from friends.”*

Reflecting on exploring the feeds

The workshop's effectiveness was further supported by the extent to which the algorithms felt realistic, while still presenting clearly different perspectives. This allowed participants to experience and compare different online bubbles. Participants highlighted the value of seeing how others engage with the same content. For example, one participant mentioned, *“I liked seeing how others look at videos, and noticing similarities or differences in how someone interprets the same video.”* Another added, *“It was really interesting to take a look at someone else's feed and see how different it can be. I also really liked the constant discussion, because it showed how opinions can differ.”* **These responses show that actively exploring different algorithmically curated feeds played a key role in the workshop, as it allowed participants to step outside their own perspective and directly experience how different social media environments can shape interpretations and opinions.**

At the same time, participants indicated that the algorithms shown in the workshop felt somewhat milder than the online environments they experience in reality. As one participant noted, *“I felt like the representation was quite mild.”* **This suggests that, while the workshop should remain safe and avoid showing violent or illegal content, it is important to explicitly acknowledge that such content can also be part of algorithmically curated online environments.** In this way, the workshop can open up reflection on these dynamics without exposing participants to harmful material.

“It was really interesting to take a look at someone else's feed and see how different it can be. I also really liked the constant discussion, because it showed how opinions can differ.”

- Participant during the final evaluation (TM4, App. E4)

“I felt like the representation was quite mild.”

- Participant during the final evaluation (TM4, App. E4)

Reflecting on awareness

A key part of the design goal was to increase awareness of how algorithmically curated feeds shape both perspectives and emotions. Here, the workshop performed well. **Participants became more aware that the content they see online is curated rather than neutral.** This is supported by the survey results, in which all participants reported increased awareness of how their feed influences their perspectives, with all participants scoring 3 or higher on a scale of 1 to 4. In addition, most participants reported increased awareness of their emotional responses to content, with two out of three participants scoring a 4. This growing awareness also came forward in the interview. As one participant said, *“You automatically watch a video more consciously when you discuss it together.”* Another similarly noted, *“You automatically become more aware when you watch a video together like this.”*

Anonymity and safe discussion

Another central element of the design was the use of anonymous online bubbles to support open discussion. This proved valuable in practice. **Participants appreciated being able to explore different feeds without having to expose their own social media environments directly.** As one participant explained, *“It's much more effective, but I don't think people would want it... you're really exposing yourself.”* **The workshop enable youth to discuss and reflect with respect.** Survey results showed that all participants indicated that they felt free to express their opinions during the workshop, scoring a 4 out of 4 on this point. However, this may also be influenced by the fact that participants held relatively similar views, which could have made it easier to speak openly.

Reflecting on polarisation

The extent to which the workshop helped participants reflect on polarisation was difficult to assess based on this session alone. **Participants did engage with different perspectives and became more aware of how social media can reinforce certain views, but the group itself was relatively like-minded.** This limited disagreement and reduced the extent to which polarisation became visible within the discussion. As one participant explained, *“I feel like we're quite aligned... in a secondary school setting, opinions would probably differ more.”* This suggests that the workshop may lead to richer reflection on polarisation in groups with more diverse perspectives.

Beyond the level of disagreement between participants, the session also revealed the importance of maintaining nuance and complexity within the discussion. As observed during the workshop, participants still quickly formed assumptions about the “type of person” behind a feed, showing how easily stereotypes can emerge even within reflective conversations.

“You automatically watch a video more consciously when you discuss it together.”

- Participant during the final evaluation (TM4, App. E4)

Behavioural impact

The final part of the workshop focused on possible actions participants could take in relation to their own media use. This showed that the workshop not only increased awareness, but also introduced participants to practical possibilities they had not previously considered. For example, one participant noted, *“I didn’t know it was possible to reset an algorithm.”* Survey results show that participants did indicate some potential influence on their future behaviour, as they scored 3 out of 4. One participant who gave a lower score (2 out of 4) mentioned that they were already relatively aware of their media use and had previously taken steps to adjust their behaviour. However, it is important to note that these reflections are based on participants’ self-reported intentions immediately after the workshop and do not necessarily translate into actual behaviour in practice. **This suggests that the workshop is particularly effective in raising awareness, which aligns with its primary aim, while behavioural change requires further development and support beyond the workshop itself.** As discussed in Chapter 9.5, fostering long-term change in online behaviour depends on additional factors such as motivation and continued engagement.

Role of the facilitator

Finally, across the different steps of the workshop, the role of the facilitator emerged as a crucial factor in enabling deeper reflection. **The effectiveness of the workshop does not rely solely on the design itself, but also on how it is facilitated in practice.** While facilitating the session was experienced as manageable, the facilitator indicated that more structured guidance would strengthen the discussion. As noted, *“It might be helpful to have a set of questions per step that you should ask.”* This reflects the need for clearer support in guiding reflection, particularly in helping participants move beyond first impressions towards deeper discussion. This feedback has been incorporated into the facilitator booklet by including “must-ask” and “optional” questions per step. In addition, the session showed that the facilitator plays an important role in shaping the tone and direction of the conversation. This includes being aware of when and how to share personal experiences, for example to create openness and a sense of equality, while avoiding influencing participants’ perspectives too strongly. The facilitator also needs to be well familiar with the content shown in the digital interface in advance, in order to guide the discussion effectively and respond to what appears on screen.

Overall, this evaluation suggests that the workshop has strong potential to address the design goal, particularly in creating an engaging and accessible experience that helps young people become more aware of algorithmically curated social media environments. At the same time, the depth of reflection and its impact on polarisation depend on facilitation, group composition, and further development. Because this evaluation is based on a small and relatively aware group, these findings should be understood as a first indication rather than a definitive assessment.

“It might be helpful to have a set of questions per step that you should ask.”

- Facilitator during the final evaluation (TM4, App. E4)

“I feel like we’re quite aligned... if you would do this in a secondary school, opinions would probably differ more.”

- Participant during the final evaluation (TM4, App. E4)

10.4 The workshop in relation to polarisation

To what extent does the workshop achieve its design goal and design criteria?

As this project initially started with exploring polarisation among youth, it is important to reflect on how the workshop contributes to the broader context of polarisation.

The workshop shows clear potential in supporting participants to explore different online perspectives and reflect on them. Participants reported that the workshop made them aware that others perceive a different online world than they do, with all participants scoring this 4 out of 4. In addition, participants indicated increased awareness of their own online bubble and its potential influence, with all participants scoring this 3 out of 4. **This suggests the workshop helps participants recognise how different online perspectives can exist alongside each other, and how their own views may be shaped by their digital environments.**

An expert reflected on this during the analysis session (EV3) by stating that: *“It is very important that young people are exposed to different feeds and actually experience them. That is where the connection to polarisation already lies, in experiencing how online worldviews can differ so drastically.”* Building on this insight, **the workshop points to a crucial first step in addressing polarisation, with social media as an underlying mechanism.**

However, the extent to which the workshop supports deeper reflection on polarisation itself remains difficult to assess based on this session alone. As mentioned previously, the group was relatively like-minded, which limited disagreement and visibility of polarisation within the discussion. This suggests that the workshop may lead to more explicit discussions on polarisation in groups with more diverse perspectives.

Building on this, participants reflected on whether additional perspectives, such as responses or opinions from previous participants, should be included in the workshop. They indicated that this would not necessarily add value, as such perspectives remain abstract and lack the possibility for direct interaction. Instead, they emphasised that perspectives become meaningful when they are represented by participants within the group itself. As one participant explained, *“It’s hard to imagine why someone thinks differently, and without that interaction you quickly fall into stereotypes.”* This suggests that introducing external viewpoints without interaction may lead to assumptions rather than deeper understanding.

While diversity in perspectives among participants may enrich the discussion, this assumption can be nuanced. The expert (EV3) acknowledged that *“deeper engagement with different worldviews can indeed be created when participants with diverse perspectives are involved.”* However, she argued that this is not necessarily needed within the context of this workshop, noting that *“creating deeper engagement between participants with different worldviews could be part of an entirely new workshop.”* In that sense, she emphasised that *“what is already very strong in this workshop is how online influences have been made tangible and translatable.”* **This suggests that the presence of opposing views is not a requirement for the workshop to be meaningful. Instead, building awareness of how online perspectives are shaped already forms a valuable contribution in itself.**

Overall, this provides an initial indication of how the workshop may contribute to addressing polarisation by increasing awareness and opening up space for reflection. At the same time, further testing with more diverse groups, as well as research into its long-term impact, is needed to better understand its contribution within the broader system of polarisation.

10.5 Recommendations

How is the workshop evaluated in terms of its practical use, design goal and potential impact?

This section provides an overview of the recommendations for the implementation of the workshop, the iterations made based on the evaluation, and directions for further development. These recommendations are based on insights from the final evaluation as well as recommendations that emerged during the project.

Recommendations for implementation

The following recommendations focus on how the workshop can be implemented in practice to effectively reach and engage its intended audience.

Promoting the workshop through educational organisations

It is recommended to promote the workshop through educational organisations in order to reach its intended audience. As mentioned in Chapters 7 and 9, it cannot be expected that adolescents will actively seek out a workshop like this themselves. Instead, the workshop needs to be brought to them, for example through existing structures such as schools or youth organisations. Embedding the workshop within these contexts would make it more accessible and increase its potential impact.

Making the workshop available for adults

In addition to targeting youth, the workshop could also be developed as a separate format for adults, such as parents or youth workers. As identified in the research phase (Chapter 4.6), these groups often struggle to support adolescents in navigating social media, as they lack insight into online environments. Making these dynamics experiential for adults could help build understanding and improve how they engage with young people on this topic. This direction was also supported by participants during the evaluation, who expressed curiosity about how adults would respond to the workshop. As one participant noted, *“I’m curious how my mother would react to this, since she has never really engaged with social media. I think she would be quite shocked.”*

Rather than combining adults and adolescents in the same session, it may be preferable to organise separate settings. Creating mixed groups could influence how freely young participants express themselves, potentially limiting the openness that is essential for the workshop’s effectiveness. This assumption could be explored further in future testing.

Exploring alternative formats beyond the workshop

In addition to its use as a facilitated workshop, it is recommended to explore how elements of the intervention can be applied in other contexts, such as exhibitions or public installations. The interactive interface that allows users to explore different algorithmically curated feeds could function as a standalone experience, enabling a wider audience to engage with the topic. While such formats may not support the same level of reflection as a facilitated workshop, they could still contribute to raising awareness in a more accessible and scalable way. The workshop format provides depth through discussion and reflection, whereas alternative formats could focus more on exposure and initial awareness. Exploring how these formats can complement each other could increase the overall reach and impact of the intervention.

Further exploration of follow-up actions

In addition to the implementation of the workshop, it is recommended to further explore how follow-up actions could support its long-term impact. While the workshop successfully creates awareness, behavioural change cannot be expected to result from a single encounter such as this workshop alone. Instead, it should be seen as a starting point within a broader process. As discussed in Chapter 9.5, additional steps are needed to translate this awareness into sustained motivation and behavioural change. Future work could therefore focus on how the workshop connects to a wider set of actions or interventions.

Recommendations for further development

The evaluation revealed several opportunities for further development of the workshop. At the same time, a number of these insights have already been incorporated into the current design. These iterations are reflected in the final workshop design presented in Chapter 9, particularly in the improved emotional map analysis and the development of the facilitator booklet. This section focuses on the aspects that require further development.

One area for further development is the interaction between viewing and rating the feeds.

Currently, participants view the feeds on a shared screen while rating their emotional responses on their own device. Although participants experienced this as working well, it did feel somewhat detached and raised concerns about distraction. As mentioned in Chapter 9.2, using a personal phone may be distracting for some participants, particularly in younger groups or in cases where engagement is lower. In addition, in school contexts where phone use is often restricted, this setup may not be feasible. At the same time, this part of the workshop was developed in a low-fidelity manner, using Google Forms to facilitate the rating. For the purpose of testing the concept, this did not form a significant barrier. However, for further development, it is important to move beyond this setup and design a more integrated interaction that aligns with the overall workshop. This could help reduce distraction, improve the flow of the activity, while maintaining anonymity and creating a more cohesive experience.

In addition, the workshop relies on up-to-date and relevant social media feeds to remain meaningful over time. During the evaluation, the feeds were relatively current and included topics that were present in the news at the time, which contributed to participants’ engagement and recognition. This highlights the importance of keeping the content current in order for the workshop to remain effective. **As a next step, it would be valuable to further develop how these feeds can be maintained and updated over time.** This includes exploring how the process of collecting, curating, and renewing content can be made sustainable and easy to implement, so that the workshop can continue to reflect evolving online environments.

Furthermore, the role of the facilitator remains an important area for further

testing and development. The facilitator booklet has been strengthened after the final evaluation by adding clearer and more structured questions. However, it is important to explore how different facilitators engage with the workshop in practice, they have a strong influence on how it unfolds. In addition, the relationship between the facilitator and the digital interface requires further development. During the evaluation, it became clear that these did not always fully align, which sometimes disrupted the flow of the workshop. This was partly due to the facilitator still becoming familiar with the interface, but also points to a need for better integration between facilitation and the digital structure.

It would be valuable to explore how facilitators can be given more flexibility in working with the interface,

for example by allowing them to adapt or skip certain elements depending on the group. At the same time, it remains important to define which parts of the workshop are essential for achieving meaningful reflection, and which can be adapted without losing its core value.

In addition to testing the workshop in relation to facilitation, as discussed in Chapter 10.4, it is important to test the workshop across a wider range of participant groups. This includes different age groups, diverse locations within the Netherlands (such as urban and rural contexts), and groups with more opposing perspectives. Testing the workshop in more diverse settings would provide deeper insight into how it functions under varying conditions and how it supports discussion around polarisation. Furthermore, the workshop should be evaluated in terms of its long-term impact to better understand its contribution to polarisation within a broader context.

Finally, it is relevant to further explore how the workshop functions across different contexts. As described in Chapter 9, the workshop is presented in its preferred format, designed to fit within settings such as libraries and youth or educational centres, for example as part of digital literacy programmes. At the same time, the context is not strictly defined, as the workshop is intended to remain adaptable to different environments. This flexibility raises questions about how the workshop performs in practice across these settings, particularly in terms of available materials and time. While the current format allows for open and in-depth discussion, it is important to explore how this can be adapted to more time-constrained contexts without losing depth. This could involve prioritising key questions that are essential for meaningful reflection.

Recommendations within the broader context of polarisation

Finally, it is important to situate this project within the broader system of tensions that contribute to polarisation, as identified in Chapter 6.3. While this project primarily focused on the tension between *'the illusion of division and reality'*, and between *'online exploration and exploitation'*, two additional tensions were identified that were not further developed within this project: 'the tension between being silenced and finding a voice', and 'the tension between belonging and othering'. Although these tensions were not directly addressed in the design of the workshop, they represent important areas for further exploration in addressing polarisation. These dynamics relate to how individuals experience inclusion, exclusion, and participation within both online and offline environments, and may offer valuable directions for future interventions.

This highlights that addressing polarisation requires a broader set of approaches, in which different tensions are explored and addressed through complementary interventions. Further research could therefore focus on how these additional tensions can be translated into design opportunities, and how they may contribute to fostering more inclusive and reflective online environments.

Key take-aways

- The workshop enables participants to engage with and understand how algorithmic systems shape their online environment, showing that the concept works in practice.
- The intervention contributes to increasing awareness of algorithmic influence, supporting its intended design goal.
- The workshop creates space for dialogue and exchange of perspectives, helping participants reflect on differences without reinforcing polarisation.
- The evaluation is based on a limited number of sessions, meaning that insights reflect short-term experiences rather than long-term impact.
- While the workshop raises awareness, supporting sustained reflection and behavioural change over time remains a challenge.
- To reach its intended audience, the workshop should be embedded in existing contexts such as schools or youth organisations, rather than relying on voluntary participation.
- Expanding the concept to other target groups such as parents or youth workers, could strengthen understanding of adolescents' online environments.
- The interaction between viewing and rating feeds should be redesigned into a more integrated experience, to reduce distraction and improve the flow of the workshop.
- The workshop depends on up-to-date and relevant social media feeds, making the ongoing collection, curation, and renewal of content an important area for further development.
- Addressing polarisation requires multiple complementary interventions, positioning this workshop as one part of a broader approach.

11. Discussing the project

This chapter reflects on the project as a whole, building on the limitations discussed in the previous section. It brings together the main findings and examines how they relate to the overall aim of the project.

As introduced in Chapter 1.1, the project set out to explore how adolescents experience and perceive polarisation in their online environments, and to identify opportunities to reduce the reinforcing effects of social media on these divisions. Two objectives guided this process: understanding what polarisation means in the specific context of adolescents and social media, and designing an intervention that contributes to reducing its reinforcing effects. These objectives are revisited and discussed in this chapter, in order to reflect on how the findings of the project contribute to both understanding and intervention.

The central question guiding this chapter is:

“How do the findings of this project contribute to understanding polarisation and identifying opportunities for intervention?”

The chapter first outlines the limitations of the project (11.1). It then reflects on the outcomes of the project in relation to the initial aim (11.2). Finally, it shifts towards a personal reflection on the design and research process, focusing on the approach taken and my role of the researcher and designer within the project (11.3). The chapter concludes with a brief statement on the use of AI in this project (11.4). Together, these sections provide both a critical and reflective perspective on the project and its contribution.

- **Chapter 11.1:** Limitations
- **Chapter 11.2:** Discussion
- **Chapter 11.3:** Personal reflection
- **Chapter 11.4:** Statement on AI

11.1 Limitations

What are the main limitations of this project?

Before interpreting the findings in relation to the project aim, there are several limitations that need to be acknowledged.

Designing an intervention to overcome polarisation is inherently challenging, as many different factors influence both the emergence and persistence of polarisation. Therefore, this project does not aim to resolve polarisation. Instead, through a systemic approach as mentioned in Chapter 1.4, the problem of polarisation is reframed, focusing on how a workshop can contribute to reflection and awareness of algorithmically curated online bubbles. However, it remains difficult to assess how such a contribution relates to the broader societal issue of polarisation. This is further complicated by the limited scope of the project, which was conducted over a period of seven months. As a result, only short-term effects could be observed, while the long-term impact of the workshop remains unknown and should be explored in future research.

Another limitation concerns the recruitment of adolescents for participation in the evaluation. During the ideation phase, the iterative research through design approach, as mentioned in Chapter 1.4 allowed for ongoing insights and feedback throughout the process. However, reaching this target group proved challenging, and not all initial contacts resulted in actual testing or evaluation moments. Most prototype tests were conducted with students from TU Delft. This group is not representative of adolescents in general, which should be taken into account when interpreting the findings.

Furthermore, in the final evaluation phase, the three participants, recruited through different networks, coincidentally held relatively similar political viewpoints. This limited the diversity of perspectives within the workshop and may have influenced the outcomes. As the workshop is intended to stimulate reflection across differing viewpoints, the results of this evaluation provide only a partial understanding of its potential effects. Further testing is therefore needed to assess the workshop's accessibility and relevance for youth with different backgrounds and ages.

The workshop has not yet been tested in the real-world context for which it was designed. The current evaluation was conducted in a different setting, which may have influenced how the workshop was experienced and facilitated. As a result, the findings provide limited insight into how the workshop would perform in its intended context. Testing the workshop in real-world environments may lead to different outcomes, particularly in relation to how the format is adapted, facilitated, and received.

Moreover, the social media feeds used within the workshop were based on accounts from people within my own personal network. This was a deliberate choice, as the aim was to first explore how people experience sharing their own feeds, starting within a familiar and trusted context in case the content would feel too personal. However, this also means that the feeds do not fully represent the diversity of adolescents in the Netherlands. Future testing is therefore needed to explore how this approach functions when people are less familiar with the researcher.

As discussed in Chapter 1, I reflected on my own positionality to become aware of and minimise potential biases. However, complete neutrality is not possible in practice and may have influenced the project. This became particularly evident in the selection of videos used to simulate algorithmic feeds, which was inevitably influenced by my own preferences and perspectives on the donated feeds.

Although efforts were made to include a range of viewpoints and different types of content, this selection remains inherently biased. This may have limited the diversity of content presented in the workshop and influenced how participants engaged with it. A broader and more systematically curated set of content, developed over a longer period or in collaboration with a more diverse group of contributors, might have resulted in different interactions and outcomes.

Finally, the outcomes of the workshop are dependent on both the facilitator and the willingness of participants to actively engage. The workshop was tested with a facilitator guided by the facilitator booklet, demonstrating that the format can be transferred and applied by others. However, the role of the facilitator, such as the questions they ask and the position they take, can influence the depth and direction of the discussion.

While guidance can support facilitators in this role, these dynamics cannot be fully controlled and may affect the outcomes of the workshop. Similarly, the level of engagement of participants plays a crucial role. If participants are less motivated or willing to engage, the depth of reflection may be limited. As a result, both facilitator and participant dynamics remain variables that influence the effectiveness of the workshop.

11.2 Discussion

How do the findings of this project contribute to the project's aim?

This section reflects on the outcomes of the project and connects them to the overall aim. As introduced in Chapter 1.1, the project set out to explore how adolescents experience and perceive polarisation in their online environments, and to identify opportunities to reduce the reinforcing effects of social media on these divisions.

Two objectives guided this project:

- **Understanding what polarisation means in the specific context of adolescents and social media.**
- **Designing an intervention that contributes to reducing the reinforcing effects of polarisation in online environments.**

These objectives also structure the discussion that follows.

The findings of this project show that polarisation among adolescents is not simply a matter of opposing opinions, but a complex and multi-layered phenomenon embedded in broader societal dynamics. As pointed out in Chapter 2, actual differences in opinions have barely increased, yet people feel more divided. Rather than being driven by increasing ideological differences, this project points towards a form of affective polarisation, in which emotions and group belonging play a central role, causing deepening mistrust and 'us-versus-them' thinking. This shows that polarisation is not only about what people think, but increasingly about how they feel about others. In this project, social media is understood as a magnifying glass that amplifies existing social and emotional processes, by prioritising emotionally charged and personalised content. Adolescents appear particularly vulnerable to this, as their need for belonging and identity formation makes them more sensitive to these emotionally driven processes.

So what do these findings say about how we can understand polarisation? By applying systemic and co-creative approach, a deeper understanding of polarisation arose by uncovering the underlying social and emotional

dynamics, and importantly understanding how adolescents relate to the underlying dynamics. Rather than treating polarisation as a linear problem with a single solution, it is understood as a complex system of tensions that needs to be balanced. This perspective was crucial in identifying opportunities for intervention, particularly in shifting the focus towards awareness and reflection rather than attempting to directly change behaviour. Building on this, polarisation is reframed as a dilemma between freedom and safety. Rather than being opposing forces, they both need to coexist. As one expert stated, "A little friction brings shine" (AA5), pointing to the idea that some level of conflict is essential for progress and self-reflection. At the same time, when conflict becomes moralised or personal, it undermines connection and trust. This was also reflected by adolescents as mentioned in Chapter 7.5, who recognised freedom of expression as important and saw friction as part of that, while simultaneously expressing a desire for a less individualised society and more engagement beyond their own bubbles.

However, this project also shows that these intentions are not always reflected in online behaviour. As the creative sessions pointed out, many adolescents do not recognise the influence of algorithms on their own social media use. Social media is often experienced as a space of freedom, while in reality content is curated through algorithmic systems. This creates a paradox in which perceived freedom coexists with underlying influence, increasing the likelihood of remaining within a bubble. While adolescents often express discomfort with being influenced by algorithms, they tend to locate this influence in others rather than in their own behaviour. This paradox highlights a crucial challenge in addressing polarisation online: **interventions cannot rely solely on providing information, as the influence of algorithms often remains unrecognised to users themselves. Instead, making this influence experienceable becomes a key condition for fostering meaningful reflection on participants' own algorithms.**

Building on these insights, the following design goal guided the ideation process: To design a playful and accessible intervention that helps youth (16–25) become aware of how algorithmically curated social media bubbles shape their perspectives and contribute to polarisation, by allowing them to experience different anonymous online bubbles. The resulting intervention

takes the form of a workshop that enables participants to reflect on algorithmic influence. By shifting algorithmic bubbles from a private, individual experience to something that can be collectively observed, compared, and discussed, the influence of algorithms becomes more tangible and open for reflection.

Through a research-through-design approach, an important insight emerged: adolescents experience their social media feeds as highly personal and directly reflecting on their own feeds in a group setting often leads to discomfort or reluctance to engage. This finding informed a key design decision: the use of anonymously donated feeds. As also highlighted in the evaluation (Chapter 11), this approach was positively received by participants, as it created enough distance to enable open discussion without feeling exposed or judged. In this way, the workshop creates a setting in which young people can step outside of their own fast-paced, emotionally driven online environments. Instead, it encourages slower interaction, dialogue, and perspective-taking by experiencing different algorithmically curated online feeds. Participants are invited to reflect not only on how online environments are shaped, but also on how this shaping can influence their own perceptions of others and of societal issues.

The workshop proves to be an effective reflective tool for making algorithmic bubbles visible and discussable. It supports participants in recognising how personalised content shapes not only what they see online, but also how they perceive the world around them. During the evaluation (EV3), an expert described the workshop as a valuable first step in engaging with polarisation, emphasising the importance of exposing young people to a range of perspectives and allowing them to actively experience these differences. However, the extent to which reflection translates into deeper engagement with differing perspectives appears to depend on the composition of the group. Participants in the final evaluation (TM4) expressed that it can be difficult to truly imagine another perspective, especially when those perspectives are not directly present. In these cases, there is a tendency to fall back on assumptions or stereotypes.

This suggests an important condition for addressing polarisation: the workshop functions as a valuable first step in engaging with different perspectives and

making polarisation discussable. However, deeper engagement cannot be enforced through the intervention alone. For a reflective dialogue to become truly balanced and meaningful, different perspectives need to be actively represented within the conversation.

This results in a broader insight: engaging with polarisation is not something that can simply be imposed within any group setting. Meaningful perspective-taking requires encountering real differences, in a context where participants feel safe to express and explore them. The workshop therefore functions as a starting point, making the influence of algorithms visible and opening up reflection on different perspectives online, while the potential to move towards deeper engagement and understanding depends on how and with whom these conversations are continued. When these conditions are met, the intervention has clear potential to support more nuanced understanding and dialogue across perspectives.

11.3 A personal reflection

How did the design and research process shape my approach to polarisation?

This project was one of the first times I worked on a topic that felt so present and urgent in society. Polarisation is something people actively talk about, have strong opinions on, and encounter in their daily lives. Through expert interviews, conversations, observations, and literature research, I noticed how widely discussed the topic is. In particular, the amount of recent literature on polarisation shows how current and still evolving the topic is. At the same time, I encountered many different perspectives on what polarisation is, what causes it, and how it manifests. Some argued that polarisation is not necessarily increasing, but that negative feelings between groups are becoming stronger. Others pointed to the disappearance of the political middle, while it was also noted that some level of polarisation can be healthy for society. The topic is therefore not only relevant and interesting, but also complex and at times difficult to navigate.

Polarisation is not a clearly defined problem with fixed boundaries, but rather a phenomenon shaped by many interconnected factors. Determining what should be considered in scope and what falls outside of it was challenging, as many aspects felt equally relevant. Approaching the project from a systemic design perspective helped me to navigate this complexity. By mapping the system and exploring relationships between different factors, I was able to build a broader understanding of the problem. This made it easier to identify potential focus points while still staying aware of the bigger picture. Instead of following one fixed systemic design approach, I chose to work more intuitively and flexibly, using methods such as system mapping and identifying leverage points. For me, this worked well, as it allowed me to stay open to different directions and outcomes. At the same time, I noticed that more structured methods can help to push deeper thinking and more deliberate reflection. Because I did not follow one strict approach, I had to actively push myself to keep questioning, iterating, and not settle too quickly on initial insights.

Engaging with adolescents through co-creation sessions became a central part of the project and provided valuable insights. It was one of the first times I worked with adolescents outside of my own social bubble, which made

the conversations particularly meaningful. I encountered perspectives that challenged my assumptions, for example in discussions around educational levels, where strong mutual perceptions and stereotypes between groups became visible. During these sessions, I became increasingly aware of my role as a facilitator. In participatory settings, especially with younger participants, it is easy to unintentionally position yourself as an authority figure. I noticed that this could limit how openly participants shared their experiences. I therefore consciously tried to position myself more on the same level as the participants, for example by creating informal moments of connection and relating to shared experiences. At the same time, I realised that facilitation involves many subtle and often unspoken dynamics that are not captured in methods or guidelines. These “unwritten rules” became apparent through practice, for example in how tone, timing, and small interactions influenced participation. Being relatively close in age to the participants made it easier to create a sense of equality, and I am curious how this dynamic might change as I grow older and my position shifts further away from that of the participants.

Working closely with adolescents also raised important questions about expertise. Adolescents were clearly the experts on their own experiences and online environments, and their perspectives provided valuable insights into how they interact with social media. At the same time, I noticed tensions between these lived experiences and findings from academic research. For example, while research suggests that algorithms can strongly influence what people see online, adolescents often perceive others as being influenced, rather than themselves. A challenging question emerged for me as both a researcher and a designer: when are adolescents the experts, and when am I, as researcher and designer, the expert? Determining to what extent I could question or reinterpret participants’ perspectives was not always straightforward. When adolescents indicated that they were not influenced by algorithms, while research suggests otherwise, I had to consider whether it was my role to challenge this perception. The analysis therefore became more complex and required careful reflection. To navigate this, I actively engaged with multiple perspectives, including academic sources and discussions with people both within and outside of the field of design and research. These conversations helped to validate and challenge my interpretations, and to better understand the gap between research and lived experience.

Through my collaboration with Healthy Start, I had the opportunity to engage with researchers, PhD students, and experts through talks and conferences. Conversations during the IP-PAD conference (AA5) highlighted a clear gap between academic research and society. Research often takes years to develop and is shared through academic papers that are not easily accessible to a broader audience. While this is essential for building reliable knowledge, it can also create distance from the people the research is ultimately about, especially when youth is involved. For me, this emphasised the potential role of designers as a bridge between research and society, as mentioned in Chapter 1.4. Designers are able to translate complex insights into tangible interventions that can be experienced, tested, and discussed. For example, when evaluating my workshop, I spoke with an expert whose research I had used for a ‘fun fact’ in the workshop. I shared the reflections of young participants on these insights with her, which she found very meaningful. This demonstrated how design can not only translate research to society, but also close the loop by bringing societal perspectives back to the researcher.

Working in this way also requires a willingness to experiment and to act, even when dealing with complex problems such as polarisation. Sometimes I found it challenging to move from a broad and complex research phase into designing. I was initially afraid that starting to design would reduce the depth of my research or oversimplify the problem. However, through the process I experienced that making, testing, and iterating actually deepened my understanding of the problem of polarisation and the influence of algorithmic bubbles. Early ideas did not need to capture the full complexity of the problem; instead, they functioned as a way to explore it further. Over time, this shifted my mindset towards a more research-through-design approach, as explained in Chapter 1.4, in which action and reflection continuously inform each other. I learned the value of starting to prototype, testing, and learning from what happens in practice, even if the prototype ‘fails’. This approach helped me to not become overwhelmed by the scale of the problem, but to focus on what can be done within it.

In the end, I am proud of the workshop that was developed, while at the same time maintaining a critical perspective on its limitations and impact. I am aware that the workshop does not solve polarisation as a whole, and that it is only one contribution within a much larger system. However, rather than

seeing this as a limitation, I see it as part of how change actually happens in complex challenges like this, through many different efforts that together make a difference. The project strengthened my belief that, when dealing with complex societal challenges, it is important to keep experimenting, testing, and contributing. Even if one intervention does not change everything on its own, it can still play a role in creating awareness and reflection. Rather than waiting for complete solutions, it is through these combined efforts that change can start to take shape.

11.4 AI Statement

During this project, I used various AI tools to support translation, text refinement, and the development of visualisations for the final design. These tools were primarily used to increase efficiency during the writing process and to explore ways of communicating ideas more clearly.

For text, I used ChatGPT to translate anonymised interview transcripts and quotes, and to support the refinement of written content. While all initial drafts were written by myself, ChatGPT was used to explore more concise or alternative phrasings. All analyses, interpretations, and conclusions were developed independently. AI tools were only used to support the articulation of these insights.

For images, I used ChatGPT and Photoshop AI to generate initial visualisations of the final design in context and within its setup. These outputs served as a starting point and were further refined and adjusted manually to ensure they accurately represented the design.

Throughout the project, I critically evaluated all AI-generated outputs. No text or image was used without review, interpretation, and further development.

References

Adam, M. H., & Magaji, U. Y. (2025). THE VIRALITY TRAP HOW SOCIAL MEDIA: HOW SOCIAL MEDIA ALGORITHMS PRIORITIZE ENGAGEMENT OVER TRUTH IN SHAPING PUBLIC OPINION. Research Gate.

Albayrak, F., & Tap, M. (2022, August 19). 50 jaar geleden vlogen brandbommen en stenen door de ramen van Turkse pensioeneigenaren: "Alle Turken moeten weg." Rijnmond. <https://www.rijnmond.nl/nieuws/1534117/50-jaar-geleden-vlogen-brandbommen-en-stenen-door-de-ramen-van-turkse-pensioeneigenaren-alle-turken-moeten-weg>

Anselma, M. (2020). Kids in Action: is engaging children as co-researchers key to promoting healthy physical activity and dietary behaviors? Data Archiving and Networked Services (DANS). <https://research.vu.nl/en/publications/0f282a82-e5d7-4552-adeb-d32c9d4d8e85>

Bakker, B. (2025, October 8-10). Society, politics, and psychology: Knowledge bridging roundtable. Healthy Start - Transformative Research Meeting, Delft. Rethinking - Rethinking

Bennema, T. (2023). Het valt eigenlijk wel mee met polarisatie in Nederland. Tilburg University Magazine.

Bjornsgaard, K., & Dukic, S. (2023). The media and polarisation in Europe: Strategies for Local Practitioners to address problematic reporting.

Blakemore, S. J., & Mills, K. L. (2013). Is adolescence a sensitive period for sociocultural processing? *Annu Rev Psychol*.

Boutellier, H. (2025, July 4). 'Polarisatie is van alle tijden' | Sociale stabiliteit. Sociale stabiliteit. <https://www.socialestabiliteit.nl/praktijkverhalen/polarisatie-is-van-alle-tijden>

Bronfenbrenner, U., 1994. Het bio-ecologische model

Crone, E. A., & Dahl, R. E. (2012). Understanding adolescence as a period of social-affective engagement and goal flexibility. *Nature Reviews Neuroscience*.

Crone, E., Kleinsman, M., Jaddoe, V., Kockx, J., Convergence, Hermans, K., Bovenkamp, P. V. D., & Illustraties. (2022). Strategisch Plan 2022-2032 - Convergence | HealthyStart Programma - INTERN 21-03-22. https://convergence.nl/app/uploads/220321_Healthy-Start_Strategisch-Plan_2022-23_Intern.pdf

De Vries, J. (2014). The Netherlands and the Polder Model: Questioning the polder model concept. *BMGN - Low Countries Historical Review*, 129(1), 99-111. <https://doi.org/10.18352/bmgn-lchr.9449>

Dekker, P. (2022, September 27). Politieke polarisatie is in Nederland geen overheersende trend. Sociale Vraagstukken. <https://www.socialevraagstukken.nl/politieke-polarisatie-is-in-nederland-geen-overheersende-trend/>

Dixon, S. (2013). Young People, Digital Media and Risk: a problem of polarisation (pp. 167-190). <https://doi.org/10.4324/9780203113141-16>

Doorhein, K., De Jong, C., Ying Chuck, H., & Rozendaal, E. (2025). Let's movez together: Development and evaluation of a tool for meaningful child participation in understanding and supporting digital resilience.

EenVandaag. (2025, August 28). Jongeren waren altijd de meest, maar zijn inmiddels de minst gelukkige groep: dat zit zo. EenVandaag. <https://eenvandaag.avrotros.nl/artikelen/jongeren-waren-altijd-de-meest-maar-zijn-inmiddels-de-minst-gelukkige-groep-dat-zit-zo-161191>

European Parliament. (2025). Youth survey 2024. <https://europa.eu/eurobarometer/surveys/detail/3392>

Flanagin, A. J., & Metzger, M. J. (2008). Digital media and youth: Unparalleled opportunity and unprecedented responsibility. University of California. <http://mobilelearningcourse.pbworks.com/f/Digital%20Media%20and%20Youth.pdf>

Follo Agency. (2023, November 12). Video-content domineert: De opkomst van korte video's in social media marketing. <https://folloagency.com/nl/insights/nieuws/video-content-domineert-de-opkomst-van-korte-videos-social-media-marketing>

Gray, D., Brown, S., & Macanuso, J. (2010). Gamestorming: A Playbook for Innovators, Rulebreakers, and Changemakers. "O'Reilly Media, Inc."

Heijne, K., & Van Der Meer, H. (2019). Road map for creative problem solving techniques: organizing and facilitating group sessions.

Hekkert, P., & Van Dijk, M. (2010). VIP Vision in Design: A Guidebook for innovators. <https://repository.tudelft.nl/view/MMP/uuid:da5e9504-ebb4-4656-a147-2c879d2dd11b/>

Hoffner, C. A., en Bond, B. J. (2022). Parasocial relationships, social media, & well-being. *Current Opinion in Psychology*, 45, 101306.

Janse, M. (2025, October 8-10). Self and others in experimental design [Commentary by M. Janse]. Healthy Start - Transformative Research Meeting, Delft. Rethinking - Rethinking

Kim, Y., Hwang, H., & Kim, Y. (2023). The "Us vs. Them" Mentality: The Role of Affective Polarization in Deepening the Partisan Divide in Media Bias Perception. *Journalism & Mass Communication Quarterly*. <https://doi.org/10.1177/10776990231211804>

Kockelmans, F. (2015). Van verzuiling tot versplintering. Donker B.V.

Koops, E. (2021, April 4). Verzuiling en ontzuiling: Ideologische verdeling van Nederland in de jaren 1880-1960. *Historiek*.

Laffineur, C., Kasper, J., Brinke, L. T., Bakker, B. N., & Schumacher, G. (2025). Political Interest, Activism, and Affective Polarization: Dutch Adolescents and Adults are not that Different. *Tijdschrift Voor Communicatiewetenschappen*, 53(2), 194-204. <https://doi.org/10.5117/tcw2025.2.006.laff>

Lieberman, M. D. (2014). Social: Why Our Brains Are Wired to Connect. In *Spirale : arts • lettres • sciences humaines* (Issue 254, pp. 56-58). <http://www.erudit.org/culture/spirale1048177/spirale02288/79879ac.pdf>

Liefting, R., & Van Loon, W. (2025, October 29). De kiezer zwalkt van partij naar partij - vooral aan de randen van het land. NRC. <https://www.nrc.nl/nieuws/2025/10/29/de-kiezer-zwalkt-van-partij-naar-partij-vooral-aan-de-randen-van-het-land-2-a4910652>

Lijphart, A. (1990). Verzuiling, pacificatie en kentering in de Nederlandse politiek. <https://doi.org/10.5117/9789053563397> 8th revised publish
Lindenaar, K. (2025). Feit of fictie?: Een verkennend onderzoek naar de aanwezigheid van polarisatie op Hogeschool van Hall Larenstein. Radboud Universiteit.

Lub, V., Groot, N., & Schaafsma, J. (2010). Polarisatie en radicalisering: De onderbouwing van sociale interventies getoetst. *Child and Adolescent Mental Health*, 22(2), 113-114. <https://doi.org/10.1111/camh.12225>

Ma, I. (2025, October 8 - 10). Opportunities of technology. Healthy Start - Transformative Research Meeting, Delft. Rethinking - Rethinking

McKenzie, F. (2025, June 12). How can we assess leverage points for systems change? *medium.com*. https://medium.com/@fiona_orangecompass/how-can-we-assess-leverage-points-for-systems-change-c5d51bfcf430

Meadows, D. (1999). Leverage points: places to intervene in a system. *The Academy for Systems Change*. <https://donellameadows.org/archives/leverage-points-places-to-intervene-in-a-system/>

Miltenburg, E., Geurkink, B., Tunderman, S., Beekers, D., & Den Ridder, J. (2022). BURGERPERSPECTIEVEN Bericht 2 2022. Sociaal En Cultureel Planbureau. <https://www.scp.nl/documenten/2022/12/29/continu-onderzoek-burgerperspectieven---bericht-2-2022>

Molleman, L., Ciranka, S., & Van Den Bos, W. (2022). Social influence in adolescence as a double-edged sword. *Proceedings of the Royal Society B Biological Sciences*, 289(1977), 20220045. <https://doi.org/10.1098/rspb.2022.0045>

Muis, Q. (2024). Who are those people?: Causes and consequences of polarization in the schooled society.

Nederlands Jeugdinstuut. (n.d.). Hoe gepolariseerd is Nederland? <https://www.nji.nl/polarisatie/hoe-gepolariseerd-is-nederland>

Nederlands Jeugdinstuut. (2021a). Polarisatie onder jongeren door de ogen van jeugdprofessionals. In *Nederlands Jeugdinstuut [Report]*. <https://www.nji.nl/sites/default/files/2023-08/Rapport-Polarisatie-onder-jongeren.pdf>

Nederlands Jeugdinstuut. (2021b). Polarisatie onder jongeren door de ogen van jeugdprofessionals. In Nederlands Jeugdinstuut [Report]. <https://www.nji.nl/sites/default/files/2023-08/Rapport-Polarisatie-onder-jongeren.pdf>

NOS nieuws. (2025, October 12). 29 aanhoudingen bij anti-immigratieprotest Amsterdam. NOS Nieuws. <https://nos.nl/artikel/2586185-29-aanhoudingen-bij-anti-immigratieprotest-amsterdam>

NOS Nieuws. (2025, October 19). RTL-debat over wonen, migratie en zorg • Felle botsing GL-PvdA en D66 over “bevrozen” basispakket. NOS. <https://nos.nl/collectie/14002/liveblog/2586286-rtl-debat-over-wonen-migratie-en-zorg-felle-botsing-gl-pvda-en-d66-over-bevrozen-basispakket>

Prins, C. (2024). Nederland in een fragmenterende wereldorde.

Pronin, E., Lin, D. Y., & Ross, L. (2002). The Bias Blind Spot: perceptions of bias in self versus others. *Personality and Social Psychology Bulletin*, 28(3), 369–381. <https://doi.org/10.1177/0146167202286008>

Romano, A., Balliet, D., & Wu, J. (2017). Unbounded indirect reciprocity: Is reputation-based cooperation bounded by group membership? *Journal of Experimental Social Psychology*, 71, 59–67. <https://doi.org/10.1016/j.jesp.2017.02.008>

Romer, D., Reyna, V. F., & Satterthwaite, T. D. (2017, October). Beyond stereotypes of adolescent risk taking: Placing the adolescent brain in developmental context. In *Developmental Cognitive Neuroscience* (Vol. 27, pp. 19–34). Elsevier Ltd.

Rozendaal, E. (2022). EMPOWERING CHILDREN TO BEHAVE SAFELY ONLINE. In AN INTEGRATED DEVELOPMENTAL-BEHAVIORAL APPROACH TO DIGITAL MEDIA LITERACY. <https://www.eur.nl/essb/media/2022-11-empowering-children-behave-safely-online-vidi-research-project0>

Ryan, A. (2014). A framework for systemic design. *FormAkademisk - Forskningstidsskrift for Design Og Designdidaktikk*, 7(4). <https://doi.org/10.7577/formakademisk.787>

Sanders, E., & Stappers, P. (2013). Convivial Toolbox: generative research for the front end of design.

Sawyer, S. M., Azzopardi, P. S., Wickremarathne, D., & Patton, G. C. (2018). The age of adolescence. *The Lancet Child & Adolescent Health*, 2(3), 223–228. [https://doi.org/10.1016/s2352-4642\(18\)30022-1](https://doi.org/10.1016/s2352-4642(18)30022-1)

Silva, M. (2024, July 30). Digital Markets Act: Big tech’s pushback faces up to a bold EU. Somo.

Smits, R (2025, April). Street exploration: Youth perspectives on street harassment.

Sociaal en Cultureel Planbureau. (2022, December 29). Driekwart van de Nederlanders denkt dat polarisatie toeneemt | Sociaal en Cultureel Planbureau. <https://www.scp.nl/actueel/nieuws/2022/12/29/ergernis-over-harde-toon-en-extreme-uitingen-in-politieke-en-publieke-debat>

Stappers, P., & Giaccardi, E. (2014, January). Research through Design. The Interaction Design Foundation. <https://www.interaction-design.org/literature/book/the-encyclopedia-of-human-computer-interaction-2nd-ed/research-through-design>

Sunstein, C. (2017). #Republic: Divided democracy in the age of social media. In *The European Legacy* (Issues 7–8, pp. 866–867). <https://doi.org/10.1080/10848770.2018.1449394>

Telzer, E. H., Van Hoorn, J., Rogers, C. R., & Do, K. T. (2017). Social Influence on Positive Youth Development: A Developmental Neuroscience Perspective. *Adv Child Dev Behav*.

The Interaction Design Foundation. (2024, November 26). What are Wicked Problems? <https://www.interaction-design.org/literature/topics/wicked-problems?srltid=AfmBOorkIFNIqWAGUTF6A5dGcx1mzG0fXC3RXL-6RTp5NDk-m3cFpzFk>

Uhls, Y. T., Ellison, N. B., & Subrahmanyam, K. (2017a). Benefits and costs of social media in adolescence. *Pediatrics*.

Uhls, Y. T., Ellison, N. B., & Subrahmanyam, K. (2017b). Benefits and costs of social media in adolescence. *PEDIATRICS*, 140(Supplement_2), S67–S70. <https://doi.org/10.1542/peds.2016-1758e>

UNICEF. (2024, December 18). UNICEF. <https://www.unicef.nl/wat-we-doen/nieuws/2024-12-18-unicef-jongerenpeiling-polarisatie-neemt-toe-uitsluiting-maakt-jongeren-verdrietig-en-boos>

Van Aalderen, L., & Rozendaal, E. (2023, June 23). Media-empowerment. Myndr Media-empowerment. <https://www.myndr.nl/nl/blog/media-empowerment/>
Van de Wetering, J., Bakker, B. van den Bos, W., te Brinke, L., Green, K., van de Groep, S., Kasper, J., Ma, I., Nabben, F., Schumacher, G., Sweijen, S., Toenders, Y. J., & Crone, E. (2026). Van verdeeldheid naar verbinding: Jongerenperspectief op polarisatie. Zenodo. <https://doi.org/10.5281/zenodo.18846416>

Van Den Berg, G. (2022). Wat kun je doen aan polarisatie en radicalisering? In Nederlands Jeugd Instituut.

Van den Bos, W. (2025, October 8-10). Opportunities of technology [Commentary by W. van den Bos]. Healthy Start - Transformative Research Meeting, Delft. Rethinking - Rethinking

Van den Dool, P. (2025, October 30). Grote overwinning van D66 markeert de comeback van het politieke midden. NRC. <https://www.nrc.nl/nieuws/2025/10/29/grote-overwinning-d66-markeert-de-comeback-van-het-politieke-midden-a4911016>

Van Der Bijl-Brouwer, M. (2023, August 21). Systems thinking + design = ? - Mieke van der Bijl-Brouwer - Medium. Medium. <https://medium.com/@miekevanderbijl/systems-thinking-design-72209d534c4>

Van Driel, J. (2025). Beyond street harassment: Cultivating agency over the public space for young people in Rotterdam. TU Delft Repository.

Van Loon, W. (2025, October 29). Nog nooit was de grootste partij zo klein. NRC. <https://www.nrc.nl/nieuws/2025/10/29/nog-nooit-was-de-grootste-partij-zo-klein-a4911269>

Van Wijnen, L., & Schumacher, G. (2025, October 29). De Nacht van... - 29 oktober 2025 - NPO Radio 1 gemist | NPO Radio 1. <https://www.nporadio1.nl/uitzendingen/de-nacht-van/019a06d3-2971-716d-bdea-8bbb07b5a99f/2025-10-29-de-nacht-van>

Wang, Y. (2025). The Impact of Online Socializing on Teenagers Real-Life Social Fear: Evidence from Post-00s Generation. *Lecture Notes in Education Psychology and Public Media*, 106(1), 185–191. <https://doi.org/10.54254/2753-7048/2025.cb25779>

Zonneveld, M. (2024, April 3). De online wereld van jongeren: social media - Youngworks. Youngworks. <https://youngworks.nl/blog/de-online-wereld-van-jongeren-social-media/>

Appendices

Appendix O: Project brief

Appendix A: Expert Interviews

A1: Expert on Politics & Youth (Ei01)

A2: Expert on Politics & Youth (Ei02)

A3: Teacher of social studies (Ei03)

A4: Expert on social media & youth (Ei04)

Appendix B: Clustering and framing

B1: Clustering context factors

B2: Mapping on different system levels

B3: Mapping activity: from factors to clusters (MA1)

B4: The final clusters

B5: Mapping tension (MA2)

B6: System mapping the dilemma Safety vs. Freedom

Appendix C: Preparing & analysing the creative sessions

C1: Material used during creative session 1 (CS1)

C2: Material used during creative session 2 (CS2.1 -2.3)

Appendix D: Preparing & analysing the ideation activities

D1: Preparation & Material used during ideation session 1 (IS1)

D2: SCAMPER on the first ideas

D3: Concepts derived from SCAMPER method

D4: Preparation & Material used during ideation session 2 (IS2)

Appendix E: Preparing & analysing the test moments

E1: Test Moment 1 (TM1)

E2: Test Moment 1 (TM2)

E2: Test Moment 1 (TM3)

E4: Final Evaluation (TM4)