

# Between Fact and Fiction: Media Effects on Misperceptions Over Time

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Für Ingrid Pfeiffer

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## List of Studies

Study 1: Broda, E., & Strömbäck, J. (2024). Misinformation, disinformation, and fake news: lessons from an interdisciplinary, systematic literature review. *Annals of International Communication Association*, 48(2). <https://doi.org/10.1080/23808985.2024.2323736>.<sup>1</sup>

Study 2: Broda, E. (2025). Media effects, selection effects or no effects? A longitudinal analysis of the relationship between media use and misperceptions. (under review).

Study 3: Broda, E. (2025). Increasingly misinformed in the post-truth era? The role of media use and ideology in longitudinal change in misperceptions. (under review).

Study 4: Broda, E. (2025). Is seeing believing? The role of media trust in differential susceptibility to media effects on misperceptions? (under review).

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<sup>1</sup> Reproduced in this dissertation with the consent from the publisher. The online appendix is not included in this dissertation but can be accessed via <https://www.tandfonline.com/doi/suppl/10.1080/23808985.2024.2323736?scroll=top>.

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## Swedish Summary

Denna avhandling undersöker sambandet mellan medieanvändning och utvecklingen av felaktiga föreställningar (misperceptions) över tid. Mot bakgrund av den växande oron för desinformation, missinformation och så kallade ”fake news” behandlar avhandlingen grundläggande frågor om huruvida, hur och under vilka omständigheter medier påverkar falska uppfattningar om politik och samhälle.

Avhandlingen inleds med att placera felaktiga föreställningar i den bredare debatten om medborgarkompetens och demokratins funktionssätt. Historiskt har forskningen fokuserat på om medborgare är tillräckligt informerade, ofta med en uppdelning mellan de ”informerade” och de ”oinformerade.” Här lyfts en tredje avgörande kategori fram: de ”felinformerade” – personer som med stor säkerhet håller fast vid felaktiga föreställningar. Dessa är särskilt betydelsefulla eftersom de formar attityder och politiskt beteende, och därigenom bidrar till fenomen som klimatförnekelse, vaccinnmotstånd eller misstro mot valprocesser.

Avhandlingen definierar felaktiga föreställningar som genuint hållna övertygelser som strider mot den bästa tillgängliga evidensen och lyfter fram både konceptuella och metodologiska utmaningar, exempelvis svårigheter med att fastställa vad som ska räknas som auktoritativ evidens samt hur man empiriskt skiljer mellan okunskap och djupt rotade falska föreställningar. Självssäkerhet, konsekvens och motstånd mot korrigerande framhålls som viktiga empiriska kännetecken för felaktiga föreställningar.

Analysen grundas i teorier om motiverad kognition och kultivering. Motiverat tänkande förklarar varför individer accepterar information som bekräftar deras övertygelser samtidigt som de avvisar korrigerande information. Selektiv exponering och bekräftelsebias förstärker dessa dynamiker och leder individer till ideologiskt anpassade medier. I

medielandskap präglade av stora valmöjligheter har detta väckt oro för att inte bara nya felaktiga föreställningar uppstår, utan också att tidigare sådana förstärks.

Mot denna bakgrund används även kultiveringsteorin för att argumentera för att upprepad exponering för särskilda narrativ – vare sig de är sanna eller falska – kan forma långvariga uppfattningar om verkligheten. Teoretiskt fokus riktas också mot samspelet mellan möjligheter, motivation och förmåga i medieanvändning, samt mot villkorade effekter präglade av ideologi och tillit.

Den första studien, samförfattad med Jesper Strömbäck, är en systematisk litteraturoversikt av 1 261 vetenskapliga artiklar om desinformation, missinformation och fake news publicerade mellan 2010 och 2021. Översikten visar att forskningen har ökat explosionsartat i volym men förblivit fragmenterad mellan discipliner som medie- och kommunikationsvetenskap, datavetenskap, psykologi och statsvetenskap. Mycket arbete har fokuserat på detektion, spridning och omfattning, medan mindre är känt om långsiktiga effekter på föreställningar eller tvärvetenskaplig syntes. Översikten identifierar forskningsluckor såsom bristen på longitudinella studier, svag integration av psykologiska mekanismer och outredda medlande faktorer som tillit.

Den andra studien bygger på en fyrvågs panelundersökning i Sverige (N = 3 530) för att testa kausala dynamiker mellan medieanvändning och felaktiga föreställningar. Den skiljer mellan medieeffekter (medier påverkar övertygelser), selektionseffekter (övertygelser påverkar medieanvändning) och förstärkande spiraler (ömsesidig påverkan). Resultaten visar att även om olika typer av medier (mainstream, sociala, alternativa) förklarar skillnader mellan individer i nivåer av felaktiga föreställningar, driver de inte förändring inom individer över tid. Detta tyder på att felaktiga föreställningar är relativt stabila och inte lätt påverkas av medieexponering. Studien varnar därför för alarmistiska påståenden om ökande

felinformeradhet, samtidigt som den understryker att när falska föreställningar väl har etablerats är de svåra att korrigera.

Den tredje studien undersöker ideologins roll som moderator i sambandet mellan medieanvändning och felaktiga föreställningar. Med samma paneldata används latent tillväxtmodellering för att analysera om felaktiga föreställningar ökar eller minskar samt om de polariseras eller konvergerar över tid. Resultaten visar att den övergripande nivån av felaktiga föreställningar minskar något, utan belägg för polarisering. Skillnader mellan individer kvarstår främst baserat på grundnivåer snarare än meningsfull förändring. Personer med högerorientering uppvisar genomgående högre nivåer av felaktiga föreställningar, men ideologi påverkar inte i någon större utsträckning förändringsbanan. Alternativa medier – särskilt högerorienterade – bromsar något nedgången av felaktiga föreställningar, men effekterna är begränsade.

Den fjärde studien introducerar medieförtroende som en medlande mekanism. Med hjälp av parallellprocess-modeller för latent tillväxt visas att tilliten till mainstream-medier minskar över tid samtidigt som felaktiga föreställningar minskar. Viktigt är att högre tillit till mainstream-medier förutsäger en snabbare minskning av felaktiga föreställningar, medan lägre tillit bromsar eller till och med vänder utvecklingen. Högerorienterad alternativ medieanvändning påskyndar minskningen av förtroendet för mainstream-medier och upprätthåller därigenom felaktiga föreställningar indirekt. Effekterna är dock små, vilket tyder på att medieförtroende är en viktig men inte ensam förklaring.

Avhandlingen drar slutsatsen att felaktiga föreställningar är relativt stabila och motståndskraftiga mot förändring. Medieanvändning förklarar skillnader mellan grupper – alternativa medieanvändare tenderar att ha fler felaktiga föreställningar än mainstream-användare – men medieanvändning förändrar inte i någon större utsträckning övertygelser

över tid. Resultaten manar till försiktighet mot alarmistiska berättelser om ständigt ökande felinformeradhet, men framhäver samtidigt den potentiella skadan som (högerorienterad) alternativ medieanvändning och misstro mot medier kan ha för att upprätthålla felaktiga föreställningar i samhället.

Avhandlingen erbjuder ett nyanserat perspektiv på mediernas roll i att forma allmänhetens uppfattningar. Även om farhågor om mediedrivna felaktiga föreställningar kan vara överdrivna, utgör beständigheten av falska övertygelser ett allvarligt demokratiskt problem. Insatser för att motverka missinformation måste därför hantera djupt rotade kognitiva och ideologiska hinder. Som en väg framåt föreslås att framtida forskning integrerar perspektiv som kombinerar information och identitet för att mer effektivt motverka felinformeradhet. Avhandlingen betonar också värdet av longitudinella forskningsdesigner för att förstå den tidsmässiga dynamiken i hur föreställningar formas och förändras.

Sammanfattningsvis erbjuder ”Between Fact and Fiction” en omfattande, empiriskt grundad och teoretiskt välförankrad analys av hur medieanvändning, ideologi och tillit formar felaktiga föreställningar över tid. Den nyanserar alarmistiska påståenden genom att visa på stabilitet i övertygelser, samtidigt som den understryker de demokratiska risker som djupt rotade falska föreställningar medför. Avhandlingen bidrar både till den vetenskapliga förståelsen och till den offentliga debatten om en av informationssamhällets mest centrala utmaningar.

## Introduction

Do we live in a world where facts don't matter? Climate change isn't real. Vaccines cause autism. COVID-19 is an engineered bio-weapon. Former US president Obama is from Kenya. Ukraine's president Zelensky is an 'unelected dictator'. The list goes on. Increasingly, it seems we are witnessing an 'opinionisation' of facts across issues and geographical contexts. This has even led to the proclamation of a 'post-truth' era (Lewandowsky et al., 2017) and wide-spread concern over knowledge resistance (Strömbäck et al., 2022), factual belief polarisation (Rekker, 2021; 2022; 2024), or distrust in science (Krause et al., 2019). Consequently, scholars, politicians and journalists alike have been raising the alarm – are we becoming more and more misinformed as a society? And if so, how did we get there and what does that mean? Questions such as these have been looming large ever since Brexit and the 2016 US election put misinformation, disinformation and fake news on the map, challenging preconceived notions about citizen competence. Based on its importance for the democratic process, scholars have long lamented moderate levels of political and public knowledge (Althaus, 2012; Delli Carpini & Keeter, 1996; Druckman, 2012), demonstrating that many people are woefully ignorant of some of the most important issues in the public domain.

But what if people are not *uninformed* but rather *misinformed*? One does not have to search long for examples of how widespread misperceptions have affected attitudes and behaviours towards some of the most consequential issues in politics and science of our time (Flynn et al., 2017). For instance, misperceptions about the existence of climate change have historically prevented an adequate recognition of the fundamental threat it poses (McCright & Dunlap, 2011). Similarly, misperceptions about weapons of mass destruction in Iraq have influenced attitudes towards the war (Kull et al., 2003). And more recently misperceptions about the COVID-19 vaccine have led to vaccine hesitancy (Pierri et al., 2022), while misperceptions about the integrity of the 2020 US Presidential election culminated in a

violent insurrection (Bond & Shephard, 2023). Increasingly, there is evidence that these are not isolated incidents; in fact, misperceptions appear to be widespread across a variety of topic areas (Flynn et al., 2017; Kavanagh & Rich, 2018; McIntyre, 2018; O'Connor & Weatherall, 2019).

In response to this shift in perspective towards misperceptions as a consequential issue, research on misinformation and misperceptions as a subsequent belief outcome have virtually exploded in the last decade (Broda & Strömbäck, 2024). While our understanding of these dynamics has improved substantially as a result, the sheer volume and speed with which this body of work continues to develop has also created a lack of overview and fragmentation across academic disciplines.

Nonetheless, “the media” are often cited as a major gateway to misperceptions from a communication point of view (Nyhan, 2020) in this growing literature. And understandably so. What Walter Lippman (1922) said over 100 years ago about media being our “window to the world” substantively remains true today. Politics and public issues are not usually amenable to personal experience, thus what we know about them, we learn from the media (Lippman, 1922). Our information environment may have changed substantially since then, not least with the emergence of the internet and later social media. But arguably we still rely on it in the same way for what we believe. And if we can learn from the media, as an extensive body of work has gone on to show (e.g. Aalberg & Curran, 2012; Boukes, 2019; Dimitrova et al., 2014; Groshek & Dimitrova, 2011; Shehata & Strömbäck, 2021), surely, we can also become misinformed. It is precisely this media-belief nexus this thesis is concerned with.

As misperceptions emerged as a serious public concern, so did research into their development and nature. This also extends to the relation between media and misperceptions: Many studies have since demonstrated that media use and content may influence

misinformedness, Social and political alternative media use in particular have been revealed as potential drivers of both misinformation and misperceptions (e.g. Allcott & Gentzkow, 2017; Garrett, 2019; Meppelink et al., 2022; Shaughnessy et al., 2024; Weeks, 2024), facilitated by partisanship and affect, and heightened among those with strong ideological priors (e.g. Ahler, 2014; Borah, 2022; Borah et al., 2022; Cacciatore et al., 2014; Garrett & Bond, 2021; Weeks, 2024). At the same time, some studies have, however, conveyed a lack of influence of the media (e.g. Vliegenthart et al., 2024; Weeks et al., 2023), reasserting the relative stability of beliefs and suggesting different pathways to misperceptions.

The question of where this ambivalence leaves us is at the core of this dissertation. Does the media influence misperceptions or not, and if so how and under what circumstances? Since most extant work is either cross-sectional or based on two-wave panel surveys, crucial information to answer questions regarding (mutual) causality, within versus between-change, and mechanisms is lacking.

I argue that one key solution to this lies in the temporal trajectory with which we approach research on misperceptions. The relative lack in longitudinal data (but see Hutchens et al., 2021; Garrett et al., 2016; Weeks et al., 2024) has meant that we have not actually been able to map the development of misperceptions and the role of the media therein over time. For instance, alternative media users might hold misperceptions more frequently than mainstream media users. But this finding alone does not tell us much about the *trajectory* of those beliefs, and whether media use can *change* them. Nor do we know if misperceptions can also affect media use in return, or if moderators and mediators investigated in extant work have a similar impact from a longitudinal point of view. Put differently: the scarcity of longitudinal perspectives on the relation between media use and misperceptions has left fundamental questions unanswered. Therefore, the purpose of this dissertation is to

investigate the longitudinal dynamics between media and misperceptions and its causal direction as well as the potential conditionalities and mechanisms underpinning it.

## **Misperceptions from a Conceptual Point of View**

### *Misperceptions and propositional knowledge*

I have used the term ‘misperceptions’ in the introduction almost as if it should be clear to everyone what that means. And there is certainly a common-sense notion of what misperceptions are: false beliefs. In fact, that is not far from scientific consensus: Opposed to ignorance (or a lack of knowledge), *misperceptions* are conceptualized as genuinely held beliefs in claims that have been proven false and/or are not systematically substantiated by the best available evidence (Nyhan, 2020; Flynn et al., 2017; Kuklinski et al., 2000; Vraga & Bode, 2020). And yet, once we move beyond this rather straight-forward definition, it quickly becomes evident that it is (unfortunately) not all that simple. Actually, I would go so far as to say that the concept of misperceptions itself turned out to be one of the more challenging aspects of this dissertation. The following is thus an attempt to interrogate the assumptions that lie behind the idea of ‘misperceptions as false but genuine beliefs’, as well as the implications that follow for their study.

To that end, let us take a step back and briefly discuss the concept of knowledge behind this distinction. The term knowledge is here understood in essence as correct beliefs. Such a conceptualization is in line with the idea of propositional knowledge, knowing that something is the case (Wikforss & Glüer, 2022). The interest lies with the relation between multiple propositions as a means to delineate inferential support from the first to the second (Wikforss & Glüer, 2022). Knowledge about issues of public concern conceptualized in this fashion builds primarily on testimonial instead of experiential evidence – that is evidence provided by third parties – since we often don’t have any first-hand experience with these

issues. For instance, the fact that we know a fair amount about climate change is mostly due to research in that area that is being communicated to us. When somebody holds the misperception that climate change is not real, they resist the support, the evidence, for a specific proven claim, thereby drawing wrong conclusions. Such a definition of knowledge as the possession of correct beliefs, although perhaps narrow in comparison to approaches in the humanities, is typical for media effects research. More importantly perhaps, it is necessary to definitively distinguish correct and incorrect claims for the purposes of operationalization. Though, as I will show, operationalization remains challenging even when relying on a relatively straight-forward conceptualization of knowledge.

### *Operationalizing misperceptions*

Building on the distinction first introduced by Kuklinski and colleagues (2000), other authors have further specified exactly how wrongheaded a belief must be on an operational level, to be labeled a misperception. As was explained, there appears to be a broad consensus that misperceptions can both be rooted in beliefs that are demonstrably false as well as unsubstantiated by, or in contradiction of systematic evidence (e.g., Vraga & Bode, 2020; Flynn et al., 2017; Nyhan, 2020; Lindgren et al., 2022). Like the underlying concept of knowledge itself, however, what exactly ‘the best available evidence’ is, remains somewhat obscure in the literature. It generally relates to testimonial evidence but beyond this, the notion of evidence is not usually explained further.

In terms of public issues such as climate change, violent crime or immigration, conventional wisdom would suggest that this evidence is provided by experts on the respective topic. This is also what previous research has relied on, despite not stating so explicitly. In measuring misperceptions about climate change, for instance, researchers rely on the expertise of climate scientists and their research results. Specialized knowledge is

inherent in every occupation; teachers, scientists and doctors are experts, but so are carpenters or gardeners (Nichols, 2017). These are all people that possess a high degree of sophistication in a subject area and are thus sought out by laypeople for advice (Nichols, 2017).<sup>2</sup> When using the criterion of the ‘best available evidence’ to distinguish misperceptions, this is consequently taken to mean topical expert knowledge.

However, classifying a belief as a misperception remains a difficult task, since the evidence on which misperceptions are based may be more definitive and/or credible in some cases (e.g. vaccines do not cause autism) than in others (e.g. supposed health benefits of ‘super-foods’) (see also Nyhan, 2020). Wikforss & Glüer (2022) therefore suggest focusing on factual statements with a high degree of consensus, whose facticity can scientifically be investigated. Obviously, there are instances where experts, and even expert consensus, can be wrong in hindsight. Such uncertainties can never fully be avoided as knowledge keeps evolving. Yet, expert knowledge is still the best approximation to the facts on any given subject; it is the *best available evidence*.

Considering the ambiguity of the concept of misperceptions, scholars have further proposed empirical indicators for distinction, particularly concerning the uninformed and the misinformed. Studies have demonstrated that misinformed people possess a great deal of confidence regarding the belief in question (Kuklinski et al., 2000; Pasek et al., 2015). They also see themselves as well-informed considering the respective topic (Nyhan, 2010). Relatedly, misperceptions are not easily corrected, especially when the issue in question is highly salient (e.g. Cobb et al., 2013; Lewandowsky et al., 2012; but see Berinsky, 2017). In

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<sup>2</sup> Elaborating when an expert truly is an expert is beyond the scope of this chapter, however there is a range of indicators such as credentials, aptitude, experience and acceptance as well as evaluation by other experts in the respective field (Nichols 2017) that can be utilized to that end.

fact, misperceptions can continue to affect attitudes even when corrections are successful (Thorson, 2016). Ironically, it would appear that those that require correction the most are least responsive to it and simultaneously also very certain about what they believe. Recently, Lindgren et al. (2022) have additionally argued that consistency is a valuable indicator since the likelihood of providing a false answer in a survey setting over and over again decreases with repetition, in return implying the respective participant is not just guessing but believes in what they claim. Open-ended instead of closed survey questions as well as the inclusion of ‘don’t know’ answering options and the provision of incentives have also been employed (e.g. Bullock et al., 2015; Luskin & Bullock, 2011; Prior et al., 2015). As Lindgren et al. (2022) note, none of these strategies are necessarily definitive or mutually exclusive.

Ultimately, misperceptions remain difficult to capture, not just because there are as-of-yet no standard procedures. Relying on expert consensus can present problems beyond the issue of what expertise is. When information is not available to individuals (e.g. due to censorship), or when they are systematically and forcibly exposed to wrong narratives in non-democratic contexts, can we truly label them as misinformed? And if we can, is there some kind of qualitative difference between types of misinformedness? Are there different types of misinformedness at all? Even if we presume a democratic political environment, in some cases, people can still be equally wrong about the same statement – but in opposite directions. For example, in measuring misperceptions about immigration, researchers have shown that people often do not know the percentage of immigrants in the respective country (e.g. Rekker, 2021). But in so doing, they also tend to lump together those who under- as well as overestimate the share. Granted, more people likely overestimate it than the other way around. Yet we do not know if both kinds of misinformedness are driven by the same factors, and whether they are substantially the same.

Upon more careful deliberation, then, it becomes evident that we may only be able to study misperceptions as they have been understood in the literature in relatively narrow contextual circumstances and that a lot of theoretical work remains to be done; that beyond the surface of the definition of misperceptions as incorrect beliefs, the concept tends to be illusive which is also highlighted in the methods chapter from an operational perspective.

### *Misperceptions as schemata*

Before moving on to the question of why and how misperceptions emerge, and how media ties into this dynamic, I finally believe it to be useful to extend the existing conceptualization of misperceptions as genuine but unsubstantiated/inaccurate beliefs with a more detailed explication of beliefs as cognitive schemata. Not least, in an attempt to make the concept a little more tangible and add to the current definition.

According to schema theory, beliefs, and subsequently also misperceptions, form part of mental models that structure our understanding of public issues (Johnston Conover & Feldmann, 1984; Fiske & Taylor, 2017). These schemata organize thoughts about objects into different categories, ascribing certain attributes to them as well as describing relations between such attributes (Cottam et al., 2016; Fiske & Taylor, 2017). Because people are cognitive misers, they tend to rely on heuristics for schematic processing to avoid effortful cognition (Bartlett, 1995; Rydgren, 2011). Thus, beliefs depend on a priori knowledge structures (heuristics) which help sort new information into pre-existing categories. This allows one to draw conclusions about missing or non-evidential information. Consequently, schematic processing serves as a mechanism for inference: By categorizing object X as an instance of category A, we generalize to a wider, more abstract class (Rydgren, 2011). For instance, the word ‘mansion’ (object X) can be classified as an instance of ‘house’ (category A). Because there are certain associated attributes of ‘house’ such as ‘walls’, or ‘door’, we

assume that object X shares these characteristics. Schemata are thus generally hierarchical and vary in their differentiation (Fiske & Taylor, 2017; Roskos-Ewoldson et al., 2004). They are also typically rather resistant to change as information is interpreted in a way that fits existing categories to avoid dissonance. Though, under certain conditions, schemata may also be revised (Crocker et al., 1984; Scheufele, 2004; Shehata et al., 2021), as discussed in more detail in the following chapter.

Schemata are, however, not always as simplistic as the ‘house-mansion’ example would suggest, especially not in the social world. More often than not, objects can fit into different categories, and which category they end up in depends strongly on contextualization and interpretation. Climate change, for instance, could be perceived as an environmental issue, a social issue, a class issue, an economic issue, or all of the above. On the other hand, a climate change denier might rather sort ‘climate change’ in a category along the lines of ‘hoax’ or ‘conspiracy’. Of course, some of these classifications may be more salient than others or possess a higher degree of legitimacy based on facticity as well as who and how many propagate them (Rydgren, 2011). The point is that public issues are not diagnostic in the sense that they can easily be categorized in a definitive way (Rydgren, 2011). And this ambiguity makes them particularly prone to misperceptions as in the case of climate change.

## **Theoretical Framework for Media Effects on Misperceptions**

### *Motivated cognition*

Having taken an in-depth look into misperceptions on a theoretical level, the natural next question is of course: How and why do they develop? As with anything in the social sciences, the short answer is: Well, it depends. The long answer, though perhaps a more laborious read, starts with the human mind.

Motivated cognition has emerged as perhaps ‘the’ explanatory construct for misperceptions from a psychological point of view in recent years (Flynn et al., 2017; Nyhan, 2020; Young, 2023). People are consistency seekers (Festinger 1957), the assumption being that people prefer, and in some instances seek out information that is congruent with existing schemata (confirmation bias, selective exposure) as well as counterargue or avoid information that contradicts those schemata (disconfirmation bias, selective avoidance) (Taber & Lodge, 2006). Motivated reasoning assumes that people often pursue directional goals over accuracy goals when processing information (Kunda, 1990). While in the case of accuracy goals, individuals process information as neutrally as possible, directional goals require the existence of and desire to reach a specific conclusion.

If accuracy goals are salient for an individual, they will (subconsciously) engage their skills to that end; if directional goals are salient, however, the individual will employ their analytical skills in the opposite direction: They will interpret information in an attitudinally congruent way and disregard uncongenial information even if it is correct (e.g. Kuru et al., 2017; Nir, 2011; Strickland et al., 2011; Young, 2023). Put differently: People tend to believe what they want to believe. For instance, Kuru and colleagues (2017) show in a US study that people with prior issue positions on gun control and abortion find polls that contradict their positions less credible. That is not to say that this is an intentional process. Cognition, regardless of which type, is subconscious (e.g. Kunda, 1990). Thus, even when individuals do exercise cognitive scrutiny, they are not necessarily aware of this.

Motivated cognition is generally triggered by identity threat (usually based on long-standing identities such as partisanship or ideology) and strong prior attitudes on the respective topic (Bolsen et al., 2014; Knobloch-Westerwick, 2014; Taber & Lodge, 2006; Young, 2023). Young (2023) describes this threat as relating to people’s inherent need for comprehension (understanding the world around you), control (having agency over what

happens to you), and community (belonging in that world) – three points I pick up again in more detail in the final discussion.

On a more practical level, it should be noted though, that people’s subconscious motivations are neither black nor white; motivational and accuracy goals can be present at the same time, competing with one another, making an ultimate attribution difficult. However, motivated reasoning and identity more broadly does appear to be the driving force for misperceptions, especially in the context of public issues which are not just difficult to categorize but often also controversial and affect-laden. It is thus not surprising that many popular misperceptions concern ‘hot- button’ issues such as immigration, crime, or politics generally.

Motivated reasoning also influences how we consume information. When directional goals are salient, individuals may engage in both selective exposure and avoidance, potentially leading to a lack of exposure to counter-attitudinal views that might correct misperceptions, or even reinforcement of prior beliefs (e.g., Iyengar et al, 2008; Iyengar & Hahn, 2009; Stroud, 2011). So, people tend to engage with information that reaffirms what they believe. This is only enabled further in our high-choice media environment where personal preferences and skills in relation to media use become increasingly crucial (Arceneaux & Johnson, 2013; Luskin, 1990; Prior, 2007).

Motivated cognition thus provides important underpinnings when theorizing the possible impact of media use on misperceptions. First, it implicitly sets out a framework of boundary conditions for media effects on misperceptions. If we assume that misperceptions depend on motivated cognition, and motivated cognition in return depends on identity triggers, then identity-central individual level factors such as ideology likely condition and perhaps facilitate media effects on misperceptions. Second, it provides a rationale for reversed causality. Both interdependencies will be discussed in more detail in the following

sections, though we will first take a step back to investigate media effects on misperceptions on a broader level.

*Towards a ‘cultivation’ of misperceptions? A case for longitudinal media effects*

To that end, Potter (2011) has provided a comprehensive definition, claiming a (mass) media effect generally refers to “(...) a change in an outcome within a person or social entity that is due to mass media influence following exposure to a mass media message or series of messages” (p. 903).

Typically, media effects studies are thus concerned with the question whether media messages can shape our perception of reality, our opinions and attitudes, and even our behaviour; and if so, how and why. In fact, classic media effects theories such as agenda setting, framing, and cultivation are all geared towards investigating whether media has an *enduring* impact on its consumers (Shehata et al., 2021; Tewksbury & Scheufele, 2009). Thus, there is often an inherent theoretical interest in longitudinal dynamics of change. The study of misperceptions inherits this core focus but asks a more pointed question: Under what conditions (if at all) does media use produce not attitudes or knowledge, but specifically *false beliefs*? Yet – and misperception research inherits this as well – most of the media effects literature has neither clarified what this change caused by media influence might look like in more detail, nor have studies typically been designed in a way that would allow scholars to explore it (Perse & Lambe, 2017; Shehata et al., 2021).

To address these short-comings, I discuss extant literature on misperceptions against the backdrop of media effects research in general and subsequently theorize longitudinal media effects on misperceptions using a schema-theoretic approach of cultivation. This approach is then developed further in the subsequent section, by integrating identity-based conditioning and explanatory factors based on motivated cognition. The resulting theoretical

framework illuminates the pathways through which media may not only inform but sometimes misinform, integrating information and cognition perspectives.

With that goal in mind, I want to circle back to two aspects of Potter's (2011) definition of media effects which are of particular importance to this dissertation: *influence* and *change*. The influence of media use can be direct and indirect, long or short term as well as conscious or unconscious (Potter, 2011). Influence is further conditioned by a range of other factors including social context, personal motivations and skills. Influence is thus never universal (Valkenburg & Peter, 2013), but more on that later. Most evidence in research on misperceptions revolves around direct effects in the short-term through experimental studies (e.g. Amazeen et al., 2018; Vraga & Bode, 2018) and survey studies with up to two waves (e.g. Cacciatore et al., 2014; Lee et al., 2023).

As such, we have learned a lot about short-term dynamics and associations between media and misperceptions in recent years. Accordingly, alternative media use – and especially right-wing alternative media use – has been shown to be a driver of misperceptions across various issues (e.g. Garret et al., 2016; Garrett et al., 2019; Weeks et al., 2024). Political alternative media are here defined as outlets that carry significant political bias in their reporting, either through story selection or framing (Baum & Groeling, 2008; Jamieson & Cappella, 2008; Strömbäck, 2023). At the same time, they tend to position themselves as 'correctives' to mainstream media whom they perceive as biased (e.g. Holt et al., 2019; Weeks, 2024). As such, they typically do not follow journalistic norms and standards (e.g. objectivity), relying heavily on opinionated commentary and offering counternarratives – regardless of accuracy (Holt et al., 2019; Levendusky, 2013). Although perhaps championed in the US, alternative media are on the rise in Sweden and Europe more broadly as well (e.g. Figenschou & Nygaard, 2021), not least because of easy proliferation via the internet and

social media. Because reporting is often either misleading or outright false and geared towards evoking affect and rendering salient social identities, alternative media create a fertile breeding ground for misperceptions from a communication perspective – as is evidenced by emerging empirical research that I discuss throughout this dissertation. At the same time, their audiences may be particularly susceptible to these identity cues because they are likely made up of individuals who share the same political values based on people’s preference for information that reinforces prior attitudes (Stroud, 2011). In that sense, the body of work on alternative media and misperceptions draws heavily from media effects research investigating selective exposure as well as confirmation bias (e.g. Stroud, 2011). And even though the share of people who actively and consistently seeks out alternative media for news consumption is relatively small (Nelson & Taneja, 2018; Weeks, 2024), their content may reach many more individuals through incidental exposure, algorithmic curation, or interpersonal networks (Druckman et al., 2018; Weeks, 2024). It should be noted that most research has focused on the right-wing media ecology and its impact as it is more developed than its left-wing counterpart. As such, most research results pertain to right-wing alternative media use and ‘right issues’ (e.g. immigration, crime).

Social media, too, has proven to be conducive to misperceptions (e.g. Meppelink et al., 2022; Su, 2021), though not always or across all platforms. There are several reasons as to why social media is often argued to increase rather than decrease misperceptions. A first set of arguments relates to structural and technological affordances of social media. For instance, a lot of social media content is user-generated or from non-official sources. Misinformation online has further been found to be particularly engaging and can be spread to large audiences through self-selection or algorithms (Klinger & Svensson, 2015; Weeks, 2024). Yet the most decisive factor may be the ‘social’ component of social media, not its structure. As is the case for alternative media, one of the stronger arguments for a positive

predictive relation between social media and misperceptions is thus tied to identity (see also Young, 2023). In hindsight, this is an aspect that I would have liked to highlight more in the individual studies, and thus I want to take this thesis frame as an opportunity to emphasize the potential for interpersonal connection and communication on social media and its relation to misperceptions. One factor that has largely been overlooked in extant research – and I do come back to this in the final discussion – is the fact that a lot of the influence social media seem to have over our beliefs and attitudes stems from personal networks (Druckman et al., 2018). The ways in which we can theorize effects of social media on misperceptions thus largely rely on extant media effects research on two-step flows of communication (e.g. Katz & Lazarsfeld, 1955), though I believe this potential remains mostly untapped. Especially in a time where we become increasingly (physically) separated, with much of daily life transpiring online, social media provides an opportunity structure to retain close contact and engage in meaningful, nuanced, interpersonal communication (Turcotte et al., 2015). With an endless and increasingly overwhelming news flow streaming people's way, individuals tend to rely on their social circles more to decide what to pay attention to – and ultimately what to believe (Mutz & Young, 2011). We even find information online more credible if friends and/or family endorse it, especially if we view them as opinion leaders (Turcotte et al., 2015). This is not only due to 'information fatigue', however. In homogenous groups in particular, there is high social conformity pressure. Thus, belonging often entails sharing similar views and beliefs. In conjunction with structural and technological affordances which are conducive to the circulation of misinformation, the 'social' component of social media may therefore create favourable conditions for misperceptions to flourish.

Most recently, scholars have also begun to investigate mainstream media use as a potential resiliency factor (e.g. Altay et al., 2024; Lebernegg et al., 2024; Meppelink et al., 2022), conveying that traditional media (such as public broadcasting, or newspapers) may

indeed reduce misperceptions. This inverse relation in comparison with political alternative and social media is rooted in mainstream media's adherence to norms of professional journalism and news production which include accurate reporting, editing and oversight (e.g. Hanitzsch, 2007). The large body of work on media effects and (political) knowledge/learning has further argued that mainstream media typically provide information on broad arrays of relevant public issues that is conducive to learning (e.g. Aalberg & Curran, 2012; Prior, 2007). Especially public service TV, radio and broadsheets offer informative content, positively predicting knowledge gains (e.g. Shehata et al., 2015; Strömbäck, 2017). Building on this classic strand of media effects literature, mainstream media are therefore much less likely to disseminate misinformation, though as I discuss in the subsequent section on opportunities, motivations, and abilities, there are significant changes underway. Apart from these structural, content-centric aspects, one might also argue that mainstream media do not have the same identity-based appeal as alternative and social media. They neither lean into social identities for persuasion, nor do they offer opportunities for connection with others around those identities. This may impede a central mechanism for the development and maintenance of misperceptions: motivated cognition. Of course, mainstream media are increasingly politicized and themselves perceived through the lens of social identity, especially from the political right (e.g. Domke et al., 1999; Schulz et al., 2020). For those individuals, mainstream media use may therefore not necessarily confer resiliency towards misperceptions. Nonetheless, structural affordances and lack of identity appeal for most people should create conditions conducive to knowledge, rather than misperceptions.

As I noted, most of what we know about the relation between differential media use and misperceptions applies to a short-term trajectory. Much less is known about the effects of media on misperceptions (and vice versa) *over time*. To be sure, there are several longitudinal studies (Garrett et al., 2016; Garrett et al., 2019, Lebernegg et al., 2024; Weeks, 2024).

Except for Weeks' (2024) study of mutual causality between alternative media use and political misperceptions in the US, these studies are typically either election or COVID studies and generally employ short lags between survey waves. Thus, findings do not necessarily apply across (non-exceptional) contexts, nor do they capture truly long-term trajectories (i.e. years as opposed to weeks or months).

Yet, we know that much of the media's impact happens gradually over time through individuals' everyday exposure to media messages (Potter, 2014). This is perhaps especially true for misperceptions (and beliefs overall) if we conceptualize them as cognitive schemata, which are difficult to change. Hence, a better understanding of longitudinal media effects on misperceptions is simply required for a better understanding of the relation between the two in general. This applies to both challenging and reaffirming previous research findings and perhaps discovering novel (purely longitudinal) effects dynamics altogether.

Referring to the study of the relation of time spent consuming media and the beliefs individuals hold (Shrum, 2017), cultivation (and specifically cultivation analysis) provides a useful backdrop to theorize longitudinal media effects on misperceptions. Cultivation investigates how media exposure correlates with people's perceptions of reality (e.g. Shanahan & Morgan, 1999), essentially suggesting that mediated realities affect individual beliefs. Perhaps most prominently in this strand of research, the 'mean-world-syndrome' hypothesis has received empirical support. Accordingly, consistent exposure to TV messaging about violent crime influences perceptions of crime rates among heavy TV users (Morgan & Shanahan, 2010; Perse & Lambe, 2017). There is also research specifically pertaining to beliefs: Djerf-Pierre et al. (2024)<sup>3</sup> show that news media attention impacts belief strength for issues with a high degree of public controversy. While most cultivation research

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<sup>3</sup> The authors do not explicitly rely on cultivation. Yet they're theorization in terms of agenda setting, attitude stability and attitude strength aligns with the perspective outlined here.

has focused on TV, operating under the assumption of content homogeneity, scholars have shifted towards content differentiation, audience selectivity, and a broader set of media in recent years (Shehata, 2021). It is within this newer set of assumptions that cultivation is relevant to the study of longitudinal media effects on misperceptions, essentially providing a rationale for how differential media use might impact misperceptions long-term while at the same time recognizing differential susceptibility and reciprocity (discussed in the next chapter).

Before delving into conditionalities and specificities, cultivation essentially suggests that long-term exposure to mainstream, social and alternative media content, respectively, likely shapes our perceptions of reality. Heavy right-wing alternative media users, for instance, might therefore not just be more likely to align with genre-specific misperceptions over time, they might *increasingly* do so.

This last sentence points towards the other important aspect of Potter's definition. In addition to short-term versus long-term influence, the notion of *change* is of particular importance in this dissertation. Longitudinal change is here understood firstly as a matter of effect dynamic (see also Shehata et al., 2021), and secondly in terms of level of analysis (intra- versus inter-individual). To reiterate, based on both cultivation and beliefs as relatively stable mental schemata, change in misperceptions in relation to media is generally expected to be gradual rather than instantaneous and dramatic.<sup>4</sup>

Beginning with effects dynamics, perhaps the most straight-forward change in misperceptions would be a change in direction. This is exemplified by Figure 1 which conveys *belief adaptation* (for a similar approach see Shehata et al., 2021), meaning there is a gradual change either from knowledge to misperceptions or vice versa due to belief

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<sup>4</sup> It should be noted that this relies on the assumption that there is no critical external event (e.g. societal or political crises related to the issue at hand) that might trigger a more abrupt response. In such a case, belief change may very well be more immediate and pronounced.

incongruent media exposure. So, someone that previously was a climate change denier may, over time, either move towards believing in man-made climate change (or the other way around).<sup>5</sup> Figure 2 is not dissimilar, only that here direction does not change. In the case of *gradual belief reinforcement* (Slater, 2007; 2015) individuals rather intensify their previously held position because of belief congruent media exposure.

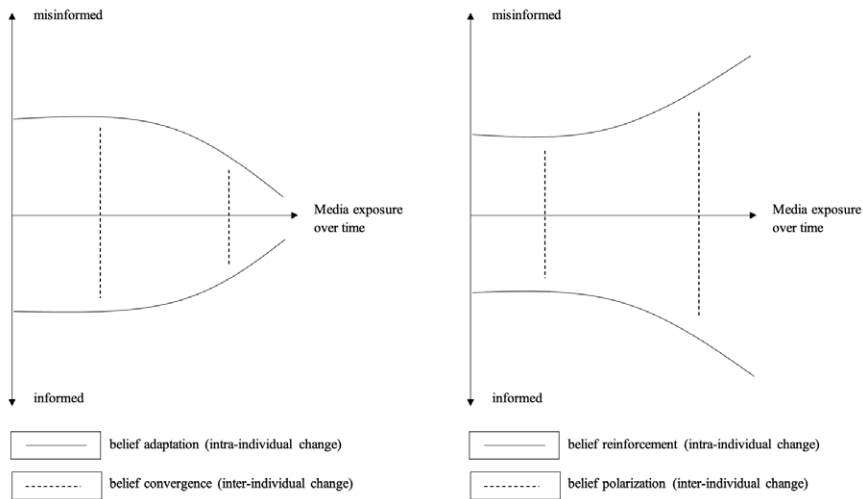
Both dynamics, adaptation and reinforcement, refer to intra-individual change; that is, an individual changes in comparison to themselves at an earlier point in time. Do people become more extreme in their attitudes, beliefs, or even behaviours or not, and how do various predictors factor into this? On the other hand, there is inter-individual change; that is, how do people change in relation to each other?

In media effects research, intra-individual change is most often the type of change we are interested in. At least, this is often how research in the social sciences is framed. It is however noteworthy that most research on media use and misperceptions does not (or cannot) differentiate between these two kinds of change based on the data available, as separating within and between variation requires experimental or panel survey data. Therefore, most insights into media and misperceptions are not just focused on short-term influence, it also remains unclear what level of analysis we are looking for change on. Again, Weeks' (2024) study on mutual causality is a notable exception, separating within and between change. Most extant research, however, does not differentiate and that is a problem when we want to understand the relation between media and misperceptions beyond general associations, and provide a more nuanced account of how media might shape beliefs.

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<sup>5</sup> If we think this all the way through, this may of course also lead to belief conversion (either temporary or lasting) in the long run, though such change often relies on external shock (Shehata et al. 2021).

**Figures 1 and 2.** Intra- and inter-individual longitudinal media effects on misperceptions



Circling back to Figures 1 and 2, in addition to intra-individual change in terms of adaptation and reinforcement, they also visualize how these effect-dynamics play out on the between-person level. More specifically, belief adaptation may lead to *gradual belief convergence*, while reinforcement can lead to *gradual belief polarisation*.

How longitudinal change as theorized here relates to specific types of media use and what that means for misperceptions is explained and investigated in detail in the individual studies, so we leave behind broader media effects dynamics for now and move on towards refining this framework by introducing opportunities, motivations and abilities as conditioning factors.

*Opportunities, motivations, abilities*

High-choice media environments

While cultivation provides a solid foundation to theorize about the broader impact of different kinds of media use over time, this impact is unlikely to be universal. Effects also

depend on conditions of the information environment as such as well as people's, motivations and skills to engage with news (Elenbaas et al., 2014; Luskin, 1990; Prior, 2007; Shehata & Strömbäck, 2021). The OMA framework (opportunities, motivations, abilities) (Luskin, 1990; Prior, 2007) thus provides a theoretical umbrella to further delineate and comprehend media effects on beliefs in general, and misperceptions in particular. The OMA model posits that the extent to which media can affect individuals, particularly in domains like political knowledge or opinion formation, depends on three interrelated factors (Prior, 2007): Opportunities refer to external conditions within which media exposure takes place (e.g. internet access). Motivation captures internal drive to engage with media content (e.g. political interest). Finally, abilities comprise the skills necessary to process, interpret, and retain media content. This ranges from basic reading comprehension to advanced skills like critical source evaluation. The OMA framework thus explains why even individuals that are exposed to the same media content via media use can end up with vastly different levels of knowledge (Prior 2007) – or misperceptions by extension.

In relation to the opportunities for longitudinal media effects, I want to emphasize the structural affordances of today's high-choice media environment. Accordingly, information environments have turned more and more high choice due to an increased media supply, which in return elevates the importance of personal preferences and abilities in relation to media use (Arceneaux & Johnson, 2013; Luskin, 1990; Prior, 2007) and subsequently also outcomes such as beliefs. This is also where motivated cognition comes back into the picture. Because we have a tendency towards motivated reasoning (Kunda 1990), changes in the information environment conducive to such cognitive biases may enable individuals to increasingly interpret information according to directional rather than accuracy goals (Taber & Lodge, 2006). Relatedly, there is extensive potential for selective exposure (e.g., Stroud, 2011) which may lead to stronger variation in news use in conjunction with people's

predilection for seeking out attitude congruent information (Bennett & Iyengar, 2008; Blekesaune et al., 2012; Hopmann et al., 2016; Prior, 2007). The argument then is that increased selectivity decreases exposure to quality information on public issues (e.g., Hopman et al., 2016; Prior, 2007), while at the same time enabling attitude-congruent news consumption (and interpretation) – both of which in return creates favourable conditions for misperceptions.

To be sure, some scholars have argued that people are still inadvertently exposed to (quality) information about public issues even if they do not seek them out because of incidental exposure (Gil de Zuñiga et al., 2017; Fletcher & Nielsen, 2018; Weeks et al., 2017). However, studies have repeatedly shown that such exposure does not necessarily translate into knowledge gains (Boukes, 2019; Dimitrova et al., 2014; Lee & Xenos, 2019; Shehata & Strömbäck, 2021), and thus likely does not mitigate misperceptions.

Lastly, it should be pointed out that opportunity structures for media effects on misperceptions will also depend on country context. Castro et al. (2021) have, in the first large-scale comparative study of its kind on beliefs, pointed out the importance of country differences in relation to knowledge gains. Accordingly, both media use patterns and their respective influence on belief outcomes vary across countries. Hence, media systems as such matter as a macro factor.

It should therefore be emphasized that the proposed relation between media use and misperceptions that I have laid out in this framework is based on a set of assumptions specific to developed democracies which do not necessarily extend to other socio-political contexts. The structural determinants of mainstream media (e.g., adherence to journalistic norms) that are in large part responsible for the negative predictive relation between mainstream media use and misperceptions are not a given in non-democratic contexts, for instance. In fact, mainstream media may not operate independently of the government (or other actors),

impeding the objectivity and neutrality so characteristic of mainstream media in democracies. In addition to the supply side, the demand for certain types of media or content also varies. As such, media effects on misperceptions may differ greatly between countries with varying opportunity structures for information consumption, and varying demand.

This may even be the case within the democratic context as political and media systems still possess a high degree of heterogeneity (e.g., Brüggemann et al., 2014; Hallin & Mancini, 2004). Castro et al. (2021), for instance, reveal differences in the extent to which online news users learn about politics between Northern European media systems and the more polarised pluralistic systems of Southern Europe. Similarly, Humprecht et al. (2021) convey differences between three clusters of countries in their analysis of resilience towards disinformation, with Western European countries (including Northern Europe and Canada) conveying high resilience, whilst Southern European countries show low resilience. The US as a unique cluster of its own is similarly vulnerable.

In addition to that, we have been witnessing worrying developments in relation to mainstream media most recently that deserve some reflection. In the US (but also elsewhere), politicians seem to increasingly and habitually spread false information through mainstream media (as well as social and political alternative media of course), which in return do not always contextualize or explain these falsehoods. Given the sheer amount of misinformation propagated by the current US administration, this is perhaps a Sisyphean challenge that may well turn out unfeasible. The point I want to make is that the role of mainstream media use as a mitigator of misperceptions may be changing, at least in certain contexts. Therefore, a re-evaluation that more formally includes the role of elites in conjunction with these outlets is perhaps in order.

## Conditional, indirect and transactional media effects

Beyond opportunity structures of the information environment that constitute the contextual frame within which this dissertation is written, I want to finally reflect on differential susceptibility based on individual level factors as key components of the media effects framework (Hayes, 2018; Igartua & Hayes, 2021; Preacher et al., 2007; Valkenburg & Peter, 2013). Falling under the ‘motivations and abilities’ category of the OMA model, differential susceptibility posits that media effects are never universal, and that individuals are affected differently based on a range of variables such as age, education, ideology, political interest, or sophistication (Valkenburg & Peter, 2013). These ideas are implicitly or explicitly articulated in several approaches towards media effects; however, in the context of this dissertation, I take this to refer to conditioning (moderating) and facilitating (mediating) factors, as well as the potential transactional nature of the relationship between media use and misperceptions (reciprocity). Extending the theoretical umbrella to conditional, indirect and transactional effects thus adds in nuance by allowing for variation in trajectories of change as well as reversed causality.

### Transactional effects

Beginning with the question of (mutual) causality, one important research gap concerning the relation between media use and misperceptions is whether it is unidirectional. As I discussed in the section on cultivation, there is a good case to be made for the presence of media effects on misperceptions. But do we have theoretical reason to assume misperceptions might impact media use in return? While this is precisely not the case for knowledge (e.g. Just & Crigler, 1989; Chaffee et al., 1970; Eveland et al., 2005)<sup>6</sup>, I argue that this is a possibility for

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<sup>6</sup> Although it should be noted that these studies typically rely on modelling strategies that don’t differentiate within and between variation. Future research should probe whether this finding holds with more novel modelling techniques.

misperceptions based on its link with motivated cognition. To reiterate, motivated cognition postulates that individuals selectively interpret and consume information in attitude congruent ways (Kunda, 1990; Taber & Lodge, 2006) when directional goals are salient. Consequently, individuals may seek out information that confirms prior beliefs and avoid that which challenges them, especially in a high-choice media environment where such consumption patterns are incentivized (Arceneaux & Johnson, 2013; Luskin, 1990; Prior, 2007; Stroud, 2011). In the context of this dissertation that essentially means that misperceptions could lead to specific patterns of media use, in return further strengthening the respective held belief.

This mutual causality is best explained by Slater's reinforcing spirals model (RSM) (Slater, 2007; 2015), investigating media use and outcome variables such as attitudes or behaviours over time through integrating media and selection effects. The theory thus links these two kinds of effects within one dynamic process, a "spiral of ongoing influence" (Slater, 2007, p. 285). This mutual influence is largely rooted in identity (Slater, 2007; 2015), and as such it should be emphasized that even though ideology (as a central aspect of identity in relation to public issues) is not explicitly modelled in the respective article (study 2), it still plays a central role as a driver behind selection effects. It should be clarified that the idea is not that any belief has the capacity to lead to selective exposure. Rather, the fact that misperceptions are often tied to ideology and social identity more broadly is the decisive factor.

While most research has focused on reinforcing dynamics between media use and polarisation or (political) attitudes more generally (e.g., Beam et al., 2018; Hutchens et al., 2019), there are studies that investigate perceptions and beliefs directly (Feldman et al., 2014; Zhao, 2009), generally lending support to the idea. With respect to misperceptions specifically, a reinforcing dynamic has been proposed particularly for alternative media use and misperceptions (Weeks, 2018) given that affordances of alternative media mixed with its

likely strongly partisan audiences could create somewhat of a ‘perfect storm’ for reinforcing spirals. This proposition remains largely untested with the notable exception of Weeks’ (2024) study on political misperceptions in the US context, demonstrating reciprocal effects between right-wing alternative media use, anger and misperceptions appealing to Republicans (pp. 61-65)<sup>7</sup>. While this certainly lends further credibility to the argument, it remains essential to test these assumptions outside of the highly polarised US context and across not explicitly ‘political’ issues.

### Conditional effects

In addition to the potential for transactional effects, conditioning (or moderating) factors of the relation between media use and misperceptions require investigation to establish a more nuanced longitudinal perspective on the issue. Paying attention to the conditionality of media effects means recognizing that there are social, dispositional and developmental context variables that can either inhibit or enhance these effects (Valkenburg & Peter, 2013). Naturally, one can theorize a great many such moderators. For instance, scholars have revealed that we are most susceptible to media effects during adolescence on the developmental level (Valkenburg & Peter, 2013), and on a social level our interpersonal networks present another powerful boundary condition for media effects (McDonald, 2009). Acknowledging the diversity of moderators, I have nonetheless chosen to focus on the dispositional motivational level in this dissertation, as it appears most relevant from a political communication perspective. More specifically, I argue that ideology is a key concept to be taken into account when addressing media effects on misperceptions, being a predictor of media use, attitudes and beliefs (e.g. Berinsky, 2018; Bullock et al., 2015; Gerber et al.,

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<sup>7</sup> These reinforcing dynamics did not apply to left-wing alternative media, anger and ‘democratic’ misperceptions, conveying a clear ideological asymmetry.

2010; Homola et al., 2023; Jerit & Barabas, 2012), and misperceptions specifically (e.g. Ahler, 2014; Borah, 2022; Borah et al., 2022; Cacciatore et al., 2014; Chambers et al., 2006; Garrett & Bond, 2021; Reedy et al., 2014).

Ideology here is understood as an underlying cognitive framework that gives individuals a sense of identity and guides their perception of politics and public issues (Jost et al., 2009; Rutjens & Brand, 2019; Zaller, 1992). In that sense, it is much broader and more fundamental than any specific political position or even partisanship and essentially serves as a filter for how people perceive reality. Consequently, misperceptions are thought of as a function of identity, whereby peoples' attitudes and beliefs on a given issue (for instance climate change or vaccines) are polarised along ideological lines (Kahan et al., 2017; Young, 2023).

Because ideology impacts both how we process information and what kinds of media we consume, there potentially are interaction effects: Someone who is situated on the right of the political spectrum may be more likely to accept congenial information from a right-wing alternative media source stating that climate change is not real, than someone on the left or in the centre. Hence, media effects could be exacerbated for this group and diminished for others in this specific case. The point is that misperception trajectories likely differ for varying ideological sub-groups in society because even if they have the same media diet, they will process information differently along ideological lines. This may not just impact individual belief trajectories but also create gaps in levels of misperceptions between different groups.

In addition to providing a causal account of the impact of ideology in relation to beliefs, assessing ideological predispositions in the context of media use and misperceptions from a longitudinal perspective (and outside of the US), may further also serve to explicate some asymmetrical findings of earlier work. Repeatedly, it has been found that conservatives

are somewhat more prone to misperceptions, or that conservative (right-wing) media use has an effect while liberal (left-wing) media use does not (e.g., Hutchins et al., 2021; Garrett et al., 2019). We cannot at this point know whether such findings are an artifact of the issues studied or if they reflect a more fundamental difference in how individuals with different ideological orientations respond to their information environment (see also Jost, 2017).

Ultimately, we do not know how ideology as a stable trait-like factor in its moderating role functions longitudinally, and how that affects misperceptions. More specifically, we do not know whether ideology impacts belief trajectories over time; that is do people with a certain ideological outlook become more or less informed in relation to media, or do they simply have different starting points? In addition to a potentially (increasingly) higher degree of misinformedness among certain ideological groups within society, ideological asymmetry may also indicate factual belief polarisation (e.g. Rekker, 2021; 2024). Accordingly, individuals might increasingly move away from each other in terms of what they believe. This, in return, may gravely affect the quality (and indeed possibility) of meaningful public discourse. In short, ideology as a moderator merits further investigation from a longitudinal point of view.

### Indirect effects

Thus far I have discussed opportunities of the information environment, mutual causality and conditionality. But *how* do media effects on misperceptions manifest in the first place? As a final step in this dissertation, I want to shed some light on the mechanisms of these effects in the form of an explanatory (causal) link (e.g. Igartua & Hayes, 2021; Valkenburg & Peter, 2013). Compared with conditional effects, relatively few studies have investigated potential mechanisms. To provide some examples, Garrett et al. (2019) find evidence of indirect effects of partisan media use on misperceptions of the respective outgroup via affective

polarisation. Borah and colleagues (2022) on the other hand, convey a mediating relationship between incidental news exposure, general misperceptions and COVID-19 misperceptions specifically.

The pool of candidates is again seemingly infinite as long as one can provide theoretical reasoning. While I stuck to one of the ‘usual suspects’ for conditioning factors, I propose the investigation of a perhaps somewhat unexpected candidate here: media trust. In the context of this dissertation, media trust is taken to mean *mainstream news media trust*. Trust is generally understood as a relation between two parties (trustor and trustee) (Tsfati & Cappella, 2003). As individuals base their political attitudes and ultimately decision-making off the information they receive through the media, high levels of media trust signify a certain degree of confidence in the journalistic decisions and reporting, as well as perceived credibility (e.g. Kohring & Matthes, 2004). As mainstream media use is generally conducive to knowledge, as discussed previously, trust in information therein should have similar effects. Distrust on the other hand may lead to greater susceptibility to false or misleading information from other sources, which may contribute to misperceptions.

Traditionally, media trust has either been treated as a moderator of media effects, or an antecedent of media use itself. However, evidence is emerging that paints trust as dynamic, showing that media use can also influence whether we trust the media (e.g. Jakob, 2010; Tsfati et al., 2025). This is notable, as attacks on mainstream media as politically biased (mostly to the left) from elites and political alternative media seem to abound (e.g. Lichter, 2014; Schulz et al., 2020), suggesting the potential for erosion of trust through media use.

At the same time, we know that trust is an essential factor when it comes to beliefs in general and misperceptions specifically (Hutchens et al., 2021; Ladd, 2012; Tsfati 2002; Xiao, 2021). This ties back into motivated cognition: Individuals find attitude congruent

information more trustworthy (Kuru et al., 2017) – and hence believable. I argue that especially in relation to controversial and contested issues, media trust – in part shaped by our own media habits – may thus serve as an identity cue that facilitates misperceptions. In that sense, it may no longer necessarily be about which media one uses, the decisive question is whether it constitutes a *trusted* source.

In comparison to ideology as a conditioning factor, the investigation into media trust as a mechanism between media use and misperceptions is on the more exploratory side. As such, I want to refrain from hypothesizing about the potential of media trust as an explanatory factor and let the results of the individual study speak for themselves. What I want to emphasize, however, is that in addition to the longitudinal perspective on how misperceptions develop which is generally underrepresented, the goal is also broadening the range of potential mechanisms in relation to media use and misperceptions. Especially as public issues are increasingly politicized, a re-investigation of media trust as a dynamic identity-cue facilitating misperceptions is therefore timely.

## **Research Questions**

Having discussed the background of this dissertation in the previous sections, the research questions that address different aspects of the stated purpose and guide the individual studies are presented in the following.

Because research on misperceptions has gained so much attention in the last couple of years, the first research questions is geared towards essentially providing a roadmap for the rest of the dissertation. The provision of and exposure to false information in the media is perhaps “the” prerequisite for the development and maintenance of misperceptions from a media effects perspective. At the same time, this body of work is vast, using different conceptualizations for unreliable information (e.g. misinformation, fake news) with varying

implications and foci, coming from an array of academic disciplines, and using different methodologies. To provide an overview of this ever-growing literature, avoid fragmentation across disciplines, and ultimately also to gain the most comprehensive understanding of what we know about misinformation, disinformation, and fake news in current media environments I pose **RQ1** as the first step in this dissertation which I address in **study 1**:

**RQ1:** What is the current state of research on misinformation, disinformation, and fake news?

The remaining research questions are in part derived from the findings of **study 1** as well as building on the theoretical explications of the previous chapters. Beginning with the longitudinal perspective on misperceptions per se and the media effects dynamics therein, I ask **RQ2**. This research question underpins all remaining individual studies (**studies 2, 3 and 4**) in the sense that they all investigate different aspects of this relation:

**RQ2:** How does media use affect misperceptions longitudinally?

Much like the second research question, the third research question is an overarching one (**studies 2, 3 and 4**). All three remaining empirical studies take a comparative approach in terms of analyzing mainstream, political alternative, and social media. Based on the structural affordances and content of each type, as well as social dynamics on social media, there are different expectations in terms of how varying media might affect misperceptions. The investigation of these potential differences – both in direction and strength – is assessed in **RQ3**:

**RQ3:** Are there differences in media effects between different types of media use?

The fourth research question, and in fact all following RQs, are designed to address specific aspects of the longitudinal dynamics between differential media use and misperceptions according to the OMA framework. Beginning with transactional media effects and the issue of causality, **RQ4 (study 2)** explores the potential for reciprocity and reinforcing spirals between media use and misperceptions. Considering conditional media effects, **RQ5 (study 3)**, assesses the role of ideology as a moderator of both within and between change in misperceptions and its relation to media use. Finally, indirect media effects are examined in **RQ6 (study 4)** through the probing of media trust as a potential mediator of longitudinal media effects on misperceptions:

**RQ4:** Is there mutual causality between differential media use and misperceptions?

**RQ5:** To what extent does ideology condition media effects on misperceptions?

**RQ6:** To what extent does media trust explain media effects on misperceptions?

Together these research questions and the corresponding individual studies deliver a comprehensive account of media effects on misperceptions from a longitudinal perspective.

## **Setting the Scene – Cross-Issue Misperceptions in Sweden**

### The Swedish case

Before delving into the methodology behind this dissertation and the individual studies, I want to finally explore the context within which this research is situated as part of the theoretical section. Focusing on Sweden, one key contextual factor to consider is certainly geographic location and its implications in terms of socio-political systems, institutions, and

norms. After all, media effects do not occur in a vacuum. We have already established that they depend on opportunities, motivations, and abilities. But they also depend on more abstract notions such as political system, media ecology, and democratic culture. Aspects that condition opportunities, motivations, and abilities in the first place. In the following I therefore explore the Swedish case as well as the issues investigated in the individual studies in relation to this case, and their potential impact on results to situate the research overall.

In doing so, it should firstly be pointed out that this dissertation is perhaps a bit of an outlier in the wider landscape of research on misinformation and misperceptions. There has been an overwhelming focus on the US, despite the US being a fairly unique case in many respects: media system, political system, degree of polarisation (Hallin & Mancini, 2004; Humprecht et al., 2020), just to name a few. In contrast, Sweden is an example of a multi-party welfare system with a relatively stable degree of polarisation (Oscarsson et al., 2021; Syversten et al., 2014). It corresponds to the democratic corporatist model of media and politics (Hallin & Mancini, 2004; see also Brüggeman et al., 2014), indicative of northern European countries more broadly. What is more, people demonstrate comparatively high levels of knowledge (Oscarsson et al., 2021), and trust in politics and democracy overall (Nord & Grusell, 2021). Because of this, we cannot simply presume the dynamics between media use and misperceptions to be the same. If anything, even this brief description would suggest they might not be, and that perhaps Sweden is a less-likely-case when exploring media effects on misperceptions.

Beginning with the political system and its citizens, Sweden has a proportional electoral system, with elections on the national, regional and local level every four years, and European elections every fifth year. Consequently, elections are comparatively few and far between. Because all elections happen more or less simultaneously, national issues tend to dominate the agenda and election turn-out is traditionally high (Nord & Grusell, 2021).

The Swedish party system has been remarkably stable throughout time. However, fragmentation has increased in the last three decades with the emergence of new parties such as the Greens, the Christian Democrats and more recently Sweden's right-wing populist party, the Sweden Democrats (Bäck et al., 2015; Oscarsson et al., 2021). In fact, the Sweden Democrats today are the second largest party in parliament after the last general election in 2022.

These party system changes mirror evolving conflict patterns in Swedish society (Nord & Grusell, 2021). While the traditional left-right dimension of politics remains important with a high but stable degree of polarisation both among parties and citizens, a socio-cultural dimension of conflict has become increasingly defining over the last years (Oscarsson et al., 2021). This dimension typically spans non-economic issues such as civil rights and liberties, migration, or environmental concerns. It is along this dimension that scholars have found evidence of increasing polarisation, especially since 2010 (Oscarsson et al., 2021). And precisely because the socio-cultural conflict dimension has become more important for citizens, partisan sorting and affective polarisation have increased as well (Oscarsson et al., 2021).

Despite these trends, which indeed may indicate the beginning of a phase of stronger polarisation, it should be emphasized that we have been here before. Historically, none of these changes necessarily stand out, nor are they particularly dramatic. Similar developments were observed in the late 1970s, for instance (Oscarsson, 2021). While increasing polarisation in relation to the socio-cultural line of conflict should be taken seriously of course, scholars do not currently find any evidence that this polarisation has reached harmful levels (Nord & Grusell, 2021; Oscarsson et al., 2021). Nor are the preconditions the same as in the US, where arguably polarisation has become an ever-growing democratic challenge (Iyengar et al., 2019). Rather, political culture in Sweden continues to be geared towards

consensus, there is a multi-party system with proportional voting, and the media landscape by and large contributes to a well-informed citizenry. This last point I want to explore in more detail, as it is particularly relevant for this dissertation.

Sweden has traditionally been characterized by strong public service media, political parallelism, journalistic professionalism, and a pronounced role of the state (Hallin & Mancini, 2004; Nord & Grusell, 2021). And while there are important transformations (e.g. increasing market orientation), the Swedish system today remains a mixture of liberal conceptualizations of the press and emphasized state intervention considering social responsibility (Allern & Pollack, 2016).

At the same time, Swedish media has become highly digitalized which has led to increased competition and media diversity (Weibull et al., 2018), in line with the overall development towards high-choice media environments. The internet has become the most important source for information (Davidsson & Findahl, 2016), and social media use is commonplace, especially for young people (Davidsson et al., 2018).

On a different note, political alternative media also increasingly plays a role in Sweden (Figenshou & Nygaard, 2021; Holt et al., 2019). In comparison to other Nordic countries, Sweden boasts a broader array of right-wing alternative media in particular (Holt et al., 2019), indicating relative proliferation of such outlets. In fact, one survey found that up to 11% of Swedes use *Nyheter Idag*, and 10% use *Fria Tider*<sup>8</sup> on a weekly basis (Newman et al., 2019). Johansson & Strömbäck (2024) further find that alternative media do serve as an actual alternative in the sense that they provide increasingly politicized election coverage, offering individuals a different perspective. While we do not at this point understand people's reasoning for using alternative media in the Nordic context, international studies suggest this

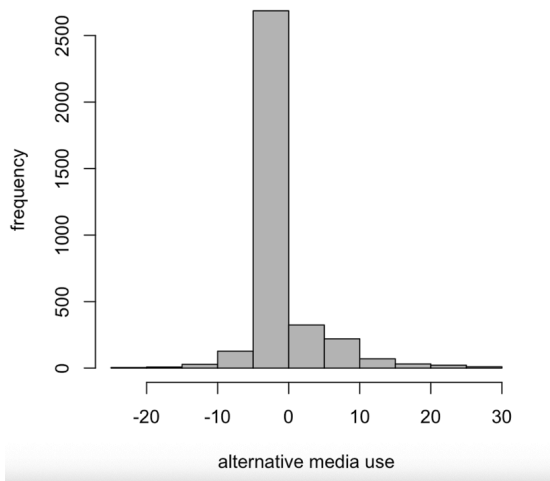
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<sup>8</sup> Both of these are politically right-wing online news outlets.

has to do with attitudes towards immigration, and political attitudes more broadly (Ihlebaek & Holter, 2021; Schulze, 2020).

While Sweden may demonstrate a more developed alternative media ecology in comparison to other Nordic countries, this ecology is still likely modest in international comparison, especially considering the US. It should also be noted that in the data used for this dissertation, alternative media usage (left and right) is considerably lower than in that of Newman et al. (2019). The following histogram displays the frequency of alternative media use in wave one of the survey used for the individual studies. The alternative media use variable is an index of both right and left media outlets. All outlet-specific items were re-coded so that higher values reflect more frequent use. Based on this, net orientation was computed so that 0 = balanced/no use, values < 0 indicate left-wing alternative media use and values > 0 right-wing alternative media use.

**Figure 3.** Distribution of alternative media use in wave one.



This histogram clearly suggests the number of active alternative media users in Sweden is low but nonetheless present. In the interest of brevity, I only present results for wave one here, but these findings are consistent in the dataset.

Finally, it should be emphasized that despite commercialization, digitalization and the surge of political alternative media, public service media (newspapers, public broadcasting and radio) remain very popular in Sweden in international comparison (Ohlsson, 2019), with TV and radio as market leaders (Nord & Grusell, 2021).

If we now put together the political system with its relatively stable degree of polarisation, the Swedish citizens who are comparatively well-informed and high-trusting, and finally a media-scape that largely remains democratic-corporatist and retains high usage of public service media, what are the implications for media effects on misperceptions? This indeed suggests that particularly in comparison to the United States, where most research on misperceptions has been conducted, this is a less likely (or perhaps less pronounced) case scenario for misperceptions generally as well as media effects conducive to them. While this does not mean that we should not hypothesize *any* effects, the reader should keep in mind that Sweden exhibits a comparatively higher degree of resiliency.

## The ‘issue’ issue

In addition to Sweden as a case, I want to provide some context on the issues that I analyze in the individual studies – something I have termed the ‘issue’ issue during my writing. I investigate a broader set of misperceptions within one index of general misinformedness across a range of topics: climate change, crime, immigration, vaccines and GMOs. Extant research has almost exclusively focused on singular issues, or several issues investigated separately (e.g. Borah et al., 2022; Hutchens et al., 2021; Shaughnessy et al., 2024; Weeks, 2018) – whether that’s a political candidate or party, or issues such as COVID. Consequently,

what we know about the relation between media and misperceptions as well as misperceptions in their own right, typically relates to *specific issues*. And while many studies tend to point in similar directions, extant research is limited in the sense that we cannot presume generalizability to political and public issues overall, nor can we simply assume general applicability of mechanisms between the two. Partisanship, for instance, may be a key mediator of media effects on misperceptions in relation to politicians (Garrett et al. 2016). But is it as relevant when we move to a higher level of abstraction, or are there perhaps other mechanisms at play? The point I want to make is that investigating misperceptions across issues is not just relevant because it is novel; it is because it represents an approximation to misperceptions in society *in general*, and thus, it serves as a means to test the broadness and transferability of extant research results beyond their immediate circumstances. While a broader approach to misperceptions is thus certainly warranted, I want to acknowledge outright that it also presents unique challenges in terms of how broad one can reasonably go. These challenges are addressed in more detail in the section on limitations.

But to begin, I want to situate the issues investigated and explain why they provide an approximation to ‘general misperceptions’. To that end, I explore them along two essential fault lines in the following: contestation and salience.

Before considering the issues in a more nuanced approach via those two dimensions, the range of the topics should briefly be discussed as well. Climate change, immigration, crime, vaccines, and GMOs represent a broad array of politicized (though not inherently political) public concerns. As such, they span a variety of interests and appeal to different groups of people within society. Generally, they represent the cultural dimension of politics and thus reflect concerns that citizens have increasingly valued and focused on in recent years. It should be noted that these were initially chosen not just because they reflect

concerns across different issue domains but also to appeal to both right and left-leaning individuals. Research on misperceptions has historically focused on ‘right’ rather than ‘left issues’<sup>9</sup>, perhaps because misperceptions about ‘right’ issues are both more prevalent in the current social climate, and easier to capture. Thus, extending the umbrella to include issues that appeal to the left represents another means of moving up on the ladder of abstraction and targeting misperception dynamics on a more general level.

In the context of this dissertation, climate change, immigration, and crime were conceptualized as appealing to the right, whereas vaccines and GMOs were conceptualized as traditionally more ‘left’ issues in the Swedish context. While left-appealing issues were thus still somewhat underrepresented, this presented a more balanced approach. I speak in past tense because as with so many expectations in research, the data decided to throw a wrench in the works. For one, the pandemic hit, which likely caused the vaccine issue to switch sides. But as is evidenced by the following extract from a correlation matrix, immigration specifically did not perform as intended either.

**Table 1.** Pearson correlations between left-right ideology and single-issue indices.

	ideology
Climate change	.451***
Immigration	-.064***
Crime	.333***
Vaccines	.139***
GMOs	.022

Notes: single-issue indices include the same items for the respective issue as the broader misperception index used in the individual studies. See Methods section for an overview of the individual items. Ideology is measured on an 11-point likert scale with (0) = far to the left, and (10) = far to the right.

<sup>9</sup> Note that concerning misperceptions about politicians and political parties in the US both beliefs about Republicans and Democrats have been targeted with relative frequency (e.g. Garrett et al., 2019; Weeks, 2024)

Generally, these correlations suggest that the issues overall capture ‘right’ rather than ‘left’ issues, especially in relation to climate change and crime. Surprisingly, immigration is correlated with left rather than right ideological leaning, however this correlation is exceedingly small. Despite this, I do argue that these issues represent a varied set of concerns that will appeal to different people. Thus, they still represent a diversified, broader approach to measuring misperceptions. This is further underlined when we consider the first faultline that I use to differentiate public issues: contestation.

To elaborate on the nuances of contestation, I depart from Hallin’s seminal work on different spheres of media coverage (1986) and its implications for contestation. His spheres occupy concentric spaces with the sphere of consensus at the centre, enclosed within the sphere of legitimate controversy, which is itself enclosed in the sphere of deviance. Accordingly, public debate takes place within a sphere of legitimate controversy if a societal topic is recognized as a public issue by the major established actors within politics (parties, the media, and the public, broadly speaking). Within this sphere there is contestation as measured through public controversy. The important point being that this is contestation *within* the mainstream (and between mainstream perspectives) rather than between the mainstream and societal outliers. The sphere of deviance on the other hand encompasses views rejected by the political mainstream as essentially illegitimate claims. The sphere of deviance is also marked by contestation – albeit along ‘illegitimate’ lines, that is outside of mainstream debate. Finally, the sphere of consensus includes all those topics not regarded as controversial and is not characterized by contestation. I want to emphasize that what matters in this context is thus not whether or not there is disagreement on the attitudinal level but truly the *belief* level. This concerns the underlying factual basis of the issue (see also Rekker, 2021), not diverging opinions about how to approach it.

Keeping with this general idea of contestation as controversy, a categorization along a rigid typology as originally proposed by Hallin (1986) does however not adequately reflect the nature of beliefs and associated issues as procedural and complex. Just like beliefs, the issues themselves are usually not diagnostic in the sense that they can easily be put into one category and one category only. For instance, the existence of climate change as such is not controversial within the mainstream in Sweden, falling within the sphere of consensus. To be sure, environmental policy may still be subject to conflict. But the existence and effects of climate change itself remain unquestioned. In comparison, this was not the case for immigration which was contested within the mainstream as well for a long time, though more recently public debate seems to have shifted towards a more or less consensual anti-immigration stance where formerly extreme views have been normalized (Krzyżanowski, 2020). But beginning with the ‘refugee crisis’ in 2015, immigration moved from a largely consensual pro-immigration stance towards a controversy where debate surrounded not just specific policies but the issue as such (e.g. Ekman & Krzyżanowski, 2021). Immigration thus falls within the sphere of legitimate controversy, although as I mentioned we are currently witnessing a shift once more.

The immigration issue already exemplifies why classification can be difficult: public issues are not static. What is more, it strongly depends on perspective: It would be severely misguided to conclude that climate change is not also a contested issue in some circles: Towards the fringes of the mainstream, climate change becomes increasingly contested, gravitating towards the sphere of deviance. For instance, right-wing populist parties sometimes (implicitly or explicitly) question whether climate change is man-made. Outside of the mainstream the issue of climate change, then, fully moves towards the sphere of deviance. Right-wing alternative media, for example, sometimes express climate change denialism (e.g. Dunlap & Brulle, 2020) rendering the issue within this realm extremely

controversial while simultaneously expressing beliefs that are not recognized as legitimate within the mainstream.

Whether or not an issue is contentious, is thus a) only ever a snapshot in time, and b) partly a matter of perspective: mainstream vs. non-mainstream. Since contestation thus varies with time and perspective, it is sensible to conceptualize contestation as a matter of degree rather than a rigid category. Acknowledging the dynamism in public issues generally, I embark from the mainstream perspective for the purposes of classification in this dissertation, meaning that any issue where there is *legitimate controversy* is considered contentious. Climate change, vaccines and GMOs in the Swedish context tend towards consensus, whereas immigration and crime are controversial even within the mainstream; even though immigration is currently gravitating back to consensus.

Yet, there are contested issues that are not typically subject to public discussion. Thus, there is another indicator that can help differentiate public issues: salience. A good example are GMOs. Some people believe that using GMOs in agriculture and food production more generally entails serious health risks for consumers, when this is not the case as conveyed by the best available evidence (Bode & Vraga, 2015), just like some people believe climate change is fake. Both issues tend to be contentious among fringe groups (not the mainstream). But we seem to hear much more about climate change denialism than we do about GMOs. So, the difference here is not one of contestation or lack thereof but rather salience. In comparison to climate change, GMOs do not rank high on the public agenda. From an agenda setting perspective, salience denotes the public relevance of an issue as transferred by the media (McCombs & Valenzuela, 2019). Public salience is thus directly impacted by media salience, which is in return influenced by professional practices (e.g. journalists predilection for negative news), other news organizations, information sources (first and foremost public officials and elite controversy among them) and public relations practitioners as well as

contextual factors such as the political system overall and real-world cues (e.g. Behr & Iyengar, 1985; Gandy, 1982; McCombs & Valenzuela, 2019; Soroka & McAdams, 2015). Decades of research have provided ample evidence that elements that are relevant on the media agenda – issues as such, attributes of these issues, and even entire networks of issues – will become relevant for the public too (Kim et al., 2017; McCombs & Valenzuela, 2019).

Though, there are of course differences between issues and individuals. Individual differences are partially a result of psychological processes, chiefly need for orientation (McCombs & Stroud, 2014), which is in return determined by personal relevance and uncertainty regarding the issue at hand (Chernov et al., 2011). Similarly, obtrusiveness, that is the extent to which an individual has personal experience with the respective issue, also matters (McCombs & Valenzuela 2021). Finally, personal salience likely also is a function of social processes such as issue-public membership (Converse 1964).

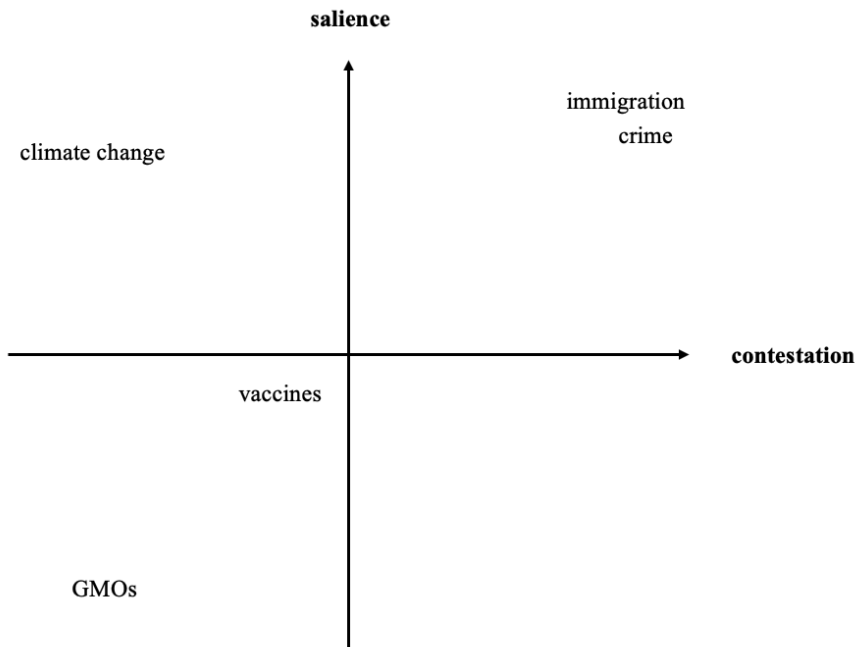
This transferal of salience is furthermore highly consequential as it does not just lead to increased attention regarding an issue and its attributes; it also impacts attitudes and behaviour (Kiousis & McCombs, 2004; Iyengar & Kinder, 1987; Soroka, 2006). Since public salience is rather volatile, depending on the media agenda which in itself changes according to external circumstances thusly creating issue attention cycles (e.g., Djerf-Pierre, 2013; Newig, 2004; Shanahan & McComas, 1997), the public salience of issues is fluent just like the degree of contestation.<sup>10</sup> Vaccines are an obvious example here, having flown under the public radar for a long time, with renewed salience as a result of the COVID pandemic. Therefore, it is again sensible to conceptualize salience as a matter of degree.

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<sup>10</sup> An important caveat in this context is that though public salience may be fleeting, personal salience is quite stable (e.g. Miller et al., 2016). Thus, for those who attach great personal (rather than public) importance to an issue (and thus potentially misperceptions about said issue), it will remain salient within this context even if public salience is low. For such individuals, attitudinal and behavioural consequences of salience such as voting (e.g. Bélanger & Meguid, 2008; Fournier et al. 2003) or selective exposure to information about the issue (e.g. Holbrook et al. 2005) – will remain despite lack of public salience.

The following figure illustrates the issues studied in this dissertation on the two dimensions of contestation and salience.<sup>11</sup>

**Figure 4.** Map of public issues according to degree of contestation and salience



Hence it is evident that the issues that make up ‘general’ misperceptions in this dissertation do not just span a range of public concerns, they also differ according to contestation and salience. Overall, these issues thus reflect a broader and diversified approach to misperceptions.

Before briefly discussing what the implications of this approach are for media effects on misperceptions, a final reflection on public issues concerns their inherently complex

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<sup>11</sup> Note that this figure is a visual aid, not an exact mapping of these issues.

nature. All of them are naturally endlessly multi-faceted. Some aspects of each issue might be more contested while others are not, and some elements more or less salient. The point is that any classification will always be a simplification. And even though this is necessary – else, how would anyone do any research? – I want to acknowledge that this excursion does not reflect all intricacies of the issues discussed.

In doing so, the important question then is naturally what this means for media effects on misperceptions. On the one hand, this approach may lead to effects among individual issues (particularly highly controversial and salient ones, where we might expect the most effects) to be less pronounced or even cancel out when analysed through the ‘general misperceptions’ lens. This is the natural trade-off between broad and narrow theoretical perspectives.

On the other hand, the ‘general misperceptions’ approach provides a more realistic picture of what the relation between media and misperceptions in society overall might look like. This is not unlike the trade-off between individual media use versus media repertoire studies. The interest is simply a different one. Here, I am not concerned with any particular misperception. The broadness and the insights that can be gained from that are very much the point. While this comes at the expense of finely grained issue-specific perspectives, we have many examples of this kind of study in the literature. This is precisely not the case for the broad perspective. In fact, as most studies have focused on rather controversial, high-salience issues (e.g. Garrett et al., 2019; Lebernegg et al., 2024; Weeks, 2024), we might currently be overstating the effects considering the bigger picture, perhaps especially the harmful effects of alternative media. The approach in this dissertation in return is an attempt to get at the broader dynamics of media and misperceptions, which although perhaps less pronounced, are equally as insightful.

## Data and Methods

To investigate these broader dynamics, I used panel survey and content data. The content data pertains to the first individual study – the systematic review of extant literature on misinformation disinformation, and fake news. To identify avenues for future research amidst an ever-increasing number of publications relevant to misperceptions, together with my co-author, I employed quantitative content analysis of 1261 journal articles published between 2010 and 2021. A coding scheme was devised and tested in a re-iterative manner, ultimately focusing on the nature of each article (theoretical, conceptual, or empirical), the themes investigated, methods and data used<sup>12</sup>, in addition to a range of formal criteria such as publication date, journal, or discipline of the lead author. One of the key takeaways of this article was the lack in longitudinal media effects studies, which led to the formation of the research questions and the focus of the dissertation.

These longitudinal dynamics were analysed using panel survey data. The data was gathered through the Knowledge Resistance (KR) project; a cross-disciplinary program geared towards investigating the causes and consequences of knowledge resistance in contemporary societies. The panel consists of four waves, fielded between 2020 and 2023 with a one-year time-lag between waves.<sup>13</sup> The data was collected in close collaboration with the Swedish Citizen Panel (SCP) at the University of Gothenburg. SCP is part of the national research infrastructure with support from the national science foundation (VR) and has extensive experience in conducting both panel surveys and survey experiments.

To minimize non-response and skew concerning alternative media use variables, a combined probability and non-probability sample was used. As is common in survey research, this combined survey is generally slightly skewed towards older, well-educated

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<sup>12</sup> Themes as well as methods and data were only coded for empirical articles.

<sup>13</sup> For specific information on retention rates and other metrics refer to the individual studies.

individuals. Otherwise, the two separate samples are largely similar, so combining them does not represent a challenge to results.

The individual studies use largely similar measures concerning the core variables of interest. Media use is measured by asking participants about their frequency of use of specific outlets or platforms (self-reported media use). For the purposes of the dissertation, it is separated into different types, in line with the theoretical argument that different media should affect misperceptions differently based on their content and structural as well as social affordances. These types include mainstream, political alternative, and social media. Mainstream media spans public service as well as commercial broadcasting and broadsheets. Both left and right-wing outlets were included for alternative media use. They were either aggregated into separate indices or into one combined one that ranges from left to right, with the centre of the scale indicating low/no use (as explained on p.37). While separate indices perhaps represent the cleaner approach, they are skewed due to the difficulty of capturing alternative media audiences. From a methodological perspective this presents a challenge for analysis. The combined variable is normally distributed, yet right/left-wing alternative media use is always measured in relation to the respective other (as opposed to non-use). Especially if participants use both kinds of alternative media, this could lead to fewer individuals towards both ends of the scale, and ultimately to smaller effects. The individual studies either use separate indices as the most straightforward option (study 3), or report models for both approaches to mitigate the shortcomings of the respective other and produce consistently reliable results (studies 2 and 4). As is noted in these studies, outcomes across both approaches are robust and point in the same direction.

For social media use, a single-platform approach (Facebook) was chosen. As consumer experiences across different platforms can vary greatly, any aggregate social media measure runs the risk of being imprecise. As such, Facebook was chosen as a proxy as it

remains the most popular social media platform in Sweden when it comes to news consumption (Davidsson et al., 2018).

At the risk redundancy in the individual studies, I want to explain the second core variable - misperceptions – in a little more detail, as its operationalization (much like its conceptualization) can be illusive. To reiterate, misperceptions were measured across issues: climate change, immigration, crime, vaccines and GMOs. For each issue, participants were asked to indicate how confident they were, a range of statements were true or false. As the following list shows, both correct and incorrect statements were included:

Thinking about climate change, to what extent do you believe that the following statements are true or false?

- The global temperature is rising (true)
- Human activity is an important contributing factor to global warming (true)
- Variations in the global temperature are mainly due to natural causes (false)

Thinking about immigration, to what extent do you believe that the following statements are true or false?

- Immigration contributes to lowering the mean age of the Swedish population (true)
- In Sweden, the costs of immigration are about as high as the costs of pensions (false)
- After five years in Sweden, unemployment among immigrants is about the same as among nativ-born (false)

Thinking about medicine and vaccines, to what extent do you believe that the following statements are true or false?

- Measles vaccines often have serious side-effects (false)
- For most infectious diseases, it is important that as many as possible of the children are vaccinated to be able to fight the disease (true)
- The vaccine given against swine flu did in some cases cause narcolepsy (true)

Thinking about GMOs, to what extent do you believe that the following statements are true or false?

- By eating genetically modified food (GMO), a person's genes could also become modified (false)

- Genetically modified food is generally more dangerous to eat than natural food (false)
- Genetically modified plants can cross-pollinate with closely related plants and produce hybrid plants (true)
- Genetic modification of food can increase its nutritional value (true)

Thinking about crime, to what extent do you believe that the following statements are true or false?

- In most cases of rape reported to the police in Sweden, the victim knows the perpetrator (true)
- In Sweden, there is a trend of increasing numbers of rapes reported to the police (true)
- There is a greater risk of fatal violence in Sweden than in almost all other EU countries (false)

Individuals could then indicate their level of certainty about their answer from (1) very certain it's false to (5) very certain it's true. The inclusion of certainty in addition to facticity is important in this context, as confidence was specifically employed as a means to differentiate between the uninformed and the truly misinformed (e.g. Lindgren et al., 2022). Items were recoded so that higher values reflect higher levels of misperceptions and aggregated into an index.

For conditional and indirect effects, measures of left-right ideology and mainstream media trust were utilized. Finally, controls include demographics (sex, age, education and ideology where it is not used as a grouping variable).

In terms of methods, the remaining studies (2, 3 and 4) rely on various panel modelling strategies based on structural equation modelling (SEM). To investigate potential mutual causality (study 2), I utilize random intercept cross-lagged panel models (RICLPM). Presenting an advancement to the classic cross-lagged panel model, the RICLPM uses latent intercepts to account for stable, time invariant inter-individual differences, allowing for the isolation of intra-individual mutual influence over time (Hamaker et al., 2015; Mulder & Hamaker, 2021). Cross-lagged paths then represent how deviations from a person's typical

value on one variable predicts changes in the other (and vice versa) (Hamaker et al., 2021; Thomas et al., 2021). Cross-lagged effects are constrained to be equal across waves in line with the long-term trajectory of cultivation theory and its emphasis on accumulation rather than wave-to-wave fluctuations. This process offers clearer insights into the direction of causality between the respective variables and is ideally suited for the investigation of mutual causality between media use and misperceptions.

For studies three and four I use latent growth modelling (LGM). In comparison to the RICLPM, LGM is particularly suited to investigating intra-individual change and the inter-individual differences therein over time (Duncan et al., 2013; Preacher et al., 2008; Preacher, 2011). Like the RICLPM, LGM thus also allows for the decomposition of variance. Unlike the RICLPM, this strategy enables the investigation of how media relates to initial status *and* growth trajectory of misperceptions, and it accommodates interindividual variability in both starting point and change. It is further an incredibly flexible modelling framework that can accommodate complex relations such as mediation or moderation, in addition to growth processes (Preacher, 2011). For the investigation of longitudinal intra- and inter-individual misperception trajectories and the role of media use and ideology therein (study 3), I compute a set of LGMs (unconditional and conditional) as well as weighted growth trajectories for different media users and perform group analysis with ideological sub-groups. Finally, to assess indirect effects between differential media use and misperceptions via media trust, I employ parallel-process latent growth modelling (PPLGM) with mediation. All modelling strategies are explained in detail in the respective studies.

## **Limitations**

Before I move onto the overview of the individual studies, I want to acknowledge several limitations in the approach outlined above.

First, it should be noted that, despite it being standard procedure in communication research, the reliance on self-reported media use measures can pose challenges. Individuals tend to over-estimate their media use based on social desirability and recall bias (Scharnow, 2019). However, alternative methods such as web tracking are often impractical and come with their own issues such as incompatibility with mobile devices. Especially because most media effects studies rely on them as well, the usage of self-reported media use measures is thus not viewed as a major challenge concerning results.

Perhaps a trickier aspect of accurately measuring media use relates to political alternative media. One pitfall is naturally a potential discrepancy concerning the conceptualization of alternative media between scholars and laypeople (Klawier et al., 2021). To increase clarity, the survey utilized provided an explicit list of outlets for both right and left-wing alternative media. Yet, social desirability that can often inflate media use (particularly in relation to traditional media such as broadsheets) (Scharnow, 2019), might have the opposite effect in this case. People might not want to be perceived as political alternative media users as this may come with preconceived ideas about their person. It could further be argued that capturing the audiences of alternative media in surveys is generally difficult, as they tend to exhibit characteristics that make them less likely to participate in research: They are typically highly partisan (Funk et al., 2023), often convey populist attitudes (Kroman Brems, 2024; Müller & Schulz, 2021) and express system scepticism (politics, media – but also science) (Frischlich et al., 2023; Schulze, 2021). It is therefore possible that usage is underestimated in this dissertation. This implies that media effect coefficients are likely conservative, and there may be media effects in the population that the individual studies fail to detect due to underestimation of alternative media users. It should however be reiterated that alternative media audiences tend to be small generally (Nelson &

Taneja, 2018), so the extent to which they truly are underrepresented and the significance of that is perhaps debatable.

One final challenge regarding the measurement of media use in this dissertation is the fact that it does not rely on actual exposure to misinformation. Rather, I argue that misinformation exposure is more or less likely for certain types of media use based on their structure, content distribution, and (strategic) goals. In that sense, media use is used as a proxy. To illustrate, alternative media and social media are often theorized to contribute to misperceptions because they are more likely to propagate false or misleading information. Empirically, we also have evidence that they *do* under certain circumstances further misperceptions. But what we often don't know in survey research is a) the extent to which the respective outlets feature misinformation on the topic(s) in question and how frequently people are exposed to it; and b), whether it is misinformation exposure specifically that leads people to become more misinformed (as opposed to, for example, partisan cheerleading). These are probably two of the larger blind spots in the literature, mainly because opening this black box requires linkage studies. But the gathering of the large quantities of media content data required, and especially classifying misinformation for specific topics within the data is time consuming and costly. While the studies presented in this dissertation rely on the same approach as other survey research on misperceptions, I want to acknowledge that the media use measurements we have collectively relied on essentially conflate media use with misinformation exposure. And even though there are theoretical arguments for doing so, this might be one of the more pressing methodological challenges to tackle in misperception research overall in the future.

Another limitation that should come as no surprise given the complexity of the concept is the operationalization of misperceptions. There is currently no standardized procedure to follow which complicates the matter. Beginning with the issues, they were

chosen based on their breadth as discussed in the previous section. However, it should also be emphasized that they are all issues with solid expert consensus about the facts (e.g. we can assess the risk of violent crime in Sweden in comparison to other EU countries). This robustness in evidence allows for the classification of these claims as true or false. And yet, some items had to be dropped over the course of the study as the issues themselves evolved.

For example, the battery on climate change initially also included an item stating there is a link between climate change and the occurrence of natural disasters. While in the beginning of the study this was labelled as false as there was no scientific consensus, this changed between wave two and three, with the publication of the newest IPCC report. At least three items per issue have been retained and thus measurement is largely consistent. But this still showcases the dynamic nature of misperceptions and the challenges that can pose.

Another aspect of the operationalization I want to reflect on, is the question format. In addition to a true-false dimension, the items also include a certainty dimension with answering options ranging between ‘very certain it’s true’ and ‘very certain its false’. The purpose of this two-dimensional format is the differentiation between the uninformed – people who simply do not know the right answer – and the misinformed. While the inclusion of certainty or confidence has been used widely in research on misperceptions (Lindgren et al. 2022), Graham (2023) has recently pointed out that even individuals with a high degree of confidence exhibit response instability over time<sup>14</sup>. This could be an indication of at least partial conflation between the uninformed and the misinformed in survey research.

A final aspect of the concept of misperceptions as utilized in the individual studies merits more reflection: the idea of ‘general misperceptions’ and the broadness in issues that this approach entails. Especially considering the importance awarded to motivated cognition and identity both in the thesis frame and the individual studies, one can and should ask the

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<sup>14</sup> More so in comparison to knowledge measurements.

question “how broad is too broad?”. Identity cues as a central mechanism between media use and misperceptions may be limited to singular issues or multiple issues that can be grouped together on the basis of, for instance, ideology, or issue characteristics. So, why not at least use ideology-based issue indices as a robustness test? Having presented correlations between issue-specific misperceptions and left/right ideology, clearly this was no option from a data point of view. And without more tangible empirical data on levels of contestation and/or salience of the individual issues in the media, issue characteristics weren’t either.

The questionnaire the panel is based on was devised in 2019. Of course, since then much has changed, not just concerning specific issues (e.g. vaccines due to the pandemic) but also considering the political landscape as such. And one of the drawbacks of working with survey panels is that researchers can’t respond to such external changes – at least not if the goal is to retain the panel component. This is precisely what happened here as well. I still argue that there is value in looking towards general misperceptions, not least also because there may be a subset of the population that is overall more predisposed to hold them – similar to the tendency towards a conspiracy mindset versus belief in specific conspiracy theories (e.g. Imhoff et al., 2022; Strömbäck et al., 2024; Sutton & Douglas, 2020). At the same time, I also acknowledge that investigating groups of issues more concretely based in identity continues to present a research gap in extant literature. If anything, the fact that this dissertation finds evidence for substantial involvement of identity (especially study 4) even at the broader level indicates perhaps even stronger effects with a more streamlined set of issues.

Finally, I want to note the comparatively long time-lags of one year between waves, as they may have impacted results as well. Because longitudinal research into misperceptions is relatively novel, scholars have yet to establish the ideal time-lags to accurately measure misperceptions and change therein. Extant work using survey data has generally timed lags

between waves so that they span a couple of weeks to a couple of months (e.g. Garrett et al., 2016; Weeks, 2024). Such a design is likely especially appropriate for the investigation of misperceptions about political candidates or parties, or newly emerging issues, to capture relatively quickly evolving beliefs. Applied to more established issues however, the differentiation of fluctuations around an otherwise stable mean and actual long-term change is trickier. Put differently: Given how long issues such as climate change or immigration have been on the agenda, how confident can we be that (small) changes detected with a couple of weeks in between measurement occasions represent a lasting, substantive change rather than a temporary (and likely inconsequential) shift?<sup>15</sup> Since I have explicitly taken a theoretical perspective of cultivation and long-term change in established issues, longer time lags between survey waves represent a more consistent theoretical and methodological approach. That is not to say that longer or shorter lags are inherently preferable. Rather, I want to point out that varying temporal dimensions (e.g. an election study versus beliefs about climate change) may not only yield different results. They necessitate different theoretical perspectives and methodological designs in the first place.

Of course, with comparatively long lags between waves, there is naturally more room for external events to influence results, in line with the dynamic nature of misperceptions per se. The COVID pandemic likely contributed to the perception of vaccines, and the Swedish 2022 national elections may have impacted both media coverage and attitudes towards all issues included. It should be noted, however, while misperceptions slightly decreased over time as I discuss in several of the individual studies, I did not observe any dramatic changes between waves. While external impact cannot be ruled out, this still suggests relatively limited influence.

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<sup>15</sup> Of course, this is in the absence of any major external event that could trigger substantial short-term change.

These limitations notwithstanding, the design and methodology employed in this dissertation represent a robust approach to the investigation of the research questions. The longitudinal outlook in terms of panel models demonstrates coherence between theory and empirical analysis as well as providing a clear empirical contribution to extant work through variance decomposition and strengthened causal inference.

## **Summary of Individual Studies**

Study 1: Misinformation, Disinformation, and fake news: lessons from an interdisciplinary, systematic literature review

The first study is a systematic literature review of journal articles on misinformation, disinformation, and fake news published in peer-reviewed journals between 2010 and 2021. The dramatic expansion of research within these areas alongside Brexit and the 2016 US Presidential election created both opportunities and challenges. On the one hand, our understanding of the implications of changing media environments in relation to unreliable information grew substantially within a short timeframe. On the other hand, the sheer output of publications also meant a potential lack of overview and fragmentation across disciplines. The purpose of this review article is thus to bring some order to the increasingly complex and convoluted literature, identify dominant themes and methods, reveal research gaps, and propose meaningful avenues for future research. Adding to extant work in the form of smaller and/or unsystematic literature reviews, this study employed quantitative content analysis of a total of  $N = 1261$  journal articles to reveal cross-disciplinary patterns, trends as well as limitations.

While the article underscores impressive strides in mapping and detecting misinformation, disinformation and fake news it also warns against siloed efforts: To move from description to solution, the field has to create shared definitions and theories, integrate

qualitative and quantitative methods, broaden geographic scope, and assess interventions (e.g. fact-checking) under real-world conditions. Most important for this dissertation is however the finding that, even though the impact of misinformation, disinformation, and fake news has garnered a comparatively large amount of attention, the output on effects is limited in several ways. Crucially, there is a clear lack in longitudinal research on misinformation that can reassert, or challenge previously identified associations between media use and misperceptions and establish causality.

## Study 2: Media effects, selection effects, or no effects? A longitudinal analysis of the relationship between media use and misperceptions<sup>16</sup>

The second study addresses the issue of causality between differential media use and misperceptions in detail. While there is growing evidence that media might affect misperceptions, I argue in this paper that our beliefs can also impact how we consume information in return, based on motivated cognition. Theoretically, the relation between differential media use and misperceptions can be characterized by media effects (media affects misperceptions), selection effects (misperceptions affect media use), or a combination of both. The purpose of this paper is thus to reassert and/or challenge previous findings concerning media effects on misperceptions from a longitudinal perspective and to formally test mutual causality using Slater's (2007, 2010) reinforcing spirals model (RSM).

To that end, this study analyzes the relation between cross-issue misperceptions and mainstream, alternative and social media use via random intercept cross-lagged panel models (RICLPM) and data from a four-wave panel survey carried out in Sweden (N = 3530).

Although cross-sectional differences show that heavier consumers of certain media tend to hold more misperceptions, within individuals over time there is no evidence that

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<sup>16</sup> Currently under review at Information, Communication & Society

media use renders someone more or less misinformed – or vice versa. Put differently, this study finds no evidence for reinforcing spirals in the context of differential media use and misperceptions. While this may suggest that findings in extant work investigating the relation between the two reflect between-person associations rather than intra-individual change, it would be premature to discard media as a driver of misperceptions altogether. Rather, the study emphasizes the nature of the issues in question (dynamic/emerging versus established), individuals' location in the belief formation process (initial formation versus long-term maintenance) as well as a more nuanced perspective that integrates media and non-media variables and segments data according to group dynamics to reveal potential fringe effects. In sum, while long-standing misperceptions seem resilient to mere exposure shifts, the story is more nuanced than that. Media influence likely varies in particular in relation to identity, motivations and audience. Therefore, more finely grained analysis of the relation between media use and misperceptions is required.

### Study 3: Increasingly misinformed in the in the post-truth era? The role of media use and ideology in longitudinal change in misperceptions<sup>17</sup>

The third study explores longitudinal change in misperceptions, its relation to media use, and inter-individual differences according to political ideology. Based on the relative lack of longitudinal studies on misperceptions, mixed results in extant work, and partially building on the second study of this dissertation, I reassert the necessity of differentiating intra- and inter-individual change. It is currently not clear whether media influence found in previous studies represents within-person change in terms of increasing or decreasing misperceptions, or whether it could suggest between-person change in terms of belief polarisation or convergence – or whether it constitutes change at all.

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<sup>17</sup> Currently under review at Mass Communication and Society.

In addition to clarifying the nature of change and to what extent that is linked to media use through a longitudinal perspective, it is equally necessary to reassess potential conditions of change. As such, this study also focuses on establishing conditionalities of change according to ideology as a factor that has been assessed widely in the context of misperceptions in general (e.g. Homola et al., 2023; Meirick, 2013; Nir, 2011; Young, 2023

To explore the presence and nature of longitudinal change in misperceptions, the role of media (mainstream, alternative, social), and ideology as a moderating factor, I use a four-wave panel study fielded in Sweden (N = 3530) and employ latent growth modelling (LGM) with group analysis and weighted growth trajectories.

Findings suggest that people become less – not more – misinformed over time, though only slightly. The study further finds evidence of an effect of right-wing alternative media use on this change, in the sense that alternative media users experience a *slower decrease*. Yet, it is questionable how substantial this small effect is: Predicted levels of misperceptions for different groups of media users convey no differences in weighted growth trajectories between people who use right-wing alternative media as part of their media diet and those who do not. Though, it should be noted that alternative media users make up only a small subset of the sample, and they also frequently used mainstream media as part of their media diet, both of which may offset harmful influences. Ultimately, this suggests that the effects of alternative media, although often described as drivers of misperceptions, might be marginal once audiences are assessed against their overall media use (see also Vliegthart et al., 2023).

The study furthermore did not find evidence of inter-individual change; that is polarisation or divergence. As also suggested in study two, extant work might primarily capture inter-individual differences in initial levels of misperceptions, not necessarily change over time.

Finally, the study finds some evidence for a moderating effect of ideology: People leaning towards the right have higher levels of misperceptions on average. However, there is no ideological asymmetry in growth trajectories; meaning no ideological sub-group is disproportionately changing (towards or out of misinformedness) in comparison to the others.

To conclude, this study paints a more positive picture than most extant work, however it also emphasizes the harmful potential of right-wing alternative media, should its audience and/or consumption grow.

#### Study 4: Is seeing believing? The role of media trust in differential susceptibility to media effects on misperceptions<sup>18</sup>

The fourth and final study in this dissertation investigates the role of mainstream media trust for misperceptions generally as well as its potential as a mediator between media use and misperceptions from a longitudinal point of view. Building on study two and especially study three, I extend the argument of a longitudinal reassessment of how and when media might affect misperceptions to media trust as an explanatory factor.

To that end, I argue that ‘seeing is not believing’, that exposure to information is not always enough for belief development. As public issues become increasingly politicized, it is possible that individuals rely on identity cues as heuristics for information evaluation as opposed to the actual content. One such heuristic is the extent to which media are perceived as trustworthy, especially as mainstream media are increasingly painted as biased by right-wing alternative media, certain politicians and the ultimately the public (Domke et al., 1999; Lichter, 2014; Schulz et al., 2020; Watts et al., 1999).

Bringing together the emerging body of work demonstrating media trust (or lack thereof) as not just an antecedent of media use, but an outcome of it (Jackob, 2010; Tsfati et al., 2025),

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<sup>18</sup> Currently under review at International Journal of Public Opinion Research

and the literature proving the importance of media trust for belief development (Hutchens et al., 2021; Ladd, 2012; Tfsati 2002; Xiao, 2021), I suggest the presence of indirect effects of differential media use on misperceptions via media trust. More specifically, I argue that mainstream media likely increases media trust which may in return decrease misperceptions, while right-wing alternative media use especially should decrease media trust, which may in return increase misperceptions. The picture for social media and left-wing alternative media, on the other hand, is ambiguous.

To explore the potential longitudinal dynamics between media use, media trust, and misperceptions, I use a four-wave panel study conducted in Sweden (N =3530) and a parallel-process latent growth modelling (PPLGM) approach with mediation.

Like study three, findings from study four suggest an overall decrease in misperceptions and in addition to that a decrease in mainstream media trust as well. When modelled as parallel processes, it becomes evident that for people with higher than average trust, misperceptions decrease significantly faster, whereas for people with lower than average trust they may actually increase. Findings further indicate that right-wing alternative use accelerates the decline in media trust, which is in return linked to a slower decline in misperceptions (indirect effect). Mainstream, left-wing alternative and social media use do not affect misperceptions through an indirect effect of trust. These results convey the potential of alternative and social media to amplify media distrust and misperceptions, and at the same time suggest mainstream media use may not shield its users from declining trust, nor from misperceptions.

It should be noted that identified media effect is small and thus perhaps more importantly, the study showcases the significance of media trust in line with previous research (e.g. Hutchens et al., 2021): Even small changes in trust can have profound effects on misperceptions. Beyond previous work, the results demonstrate that the respective *growth*

*trajectories* of trust and misperceptions are linked, pointing to the centrality of re-building media trust to address wide-spread misperceptions.

## Conclusions

Before addressing the key questions, the results of the individual studies raise; namely what does all this mean, and where do we go from here; the following is a brief discussion of the findings in relation to the research questions posed earlier.

Considering **RQ1** (What is the current state of research on misinformation, disinformation, and fake news generally, and in relation to media effects specifically?), **study 1** showed a scattered and somewhat asymmetrical landscape. While the body of work has grown considerably, providing invaluable insights, it has also remained divided along disciplinary lines, and focused on certain topical and methodological areas. Although there is much talk about the supposed negative effects of unreliable information in terms of forging misperceptions – in fact, this is perhaps one of the main normative claims why we should study misinformation – the literature on effects has remained limited in central ways. Most notably, the review revealed that due to the nature of the data in much extant work, it was neither possible to confidently judge the causal direction between media use as a means to misinformation exposure and misperceptions as an outcome, nor how the dynamic would unfold over time, or for different kinds of media use. These insights, in return, led to the formation of the remaining research questions.

Consequently, **RQ2** investigated longitudinal media effects, **RQ3** addressed differences between types of media therein, and **RQ4** explored (mutual) causality. Although **studies 2-4** focus on different aspects of these questions, they paint a coherent picture. The only type of media use that seemed to matter in terms of *driving change* in misperceptions was right-wing alternative media use. Effects were however small and only present when

looking at misperceptions over the entire course of the study (**studies 3 and 4**), as opposed to wave to wave (**study 2**). **Study 2** further revealed that there are no reinforcing causal dynamics at play, thus this dissertation makes a stronger (though perhaps still moderate) case for the presence of media effects, rather than selection effects. Overall, findings suggest that the role of media in effecting longitudinal belief change may be limited both in terms of scope and type of media involved. At the same time, the individual studies reveal that media use is a significant predictor of *between-variation in levels of misperceptions*. They all show consistently that right-wing alternative media users are more misinformed. Thus, while it may be questionable to what extent media use can drive change in beliefs, at least in this dataset, results show that certain media users are more prone to holding misperceptions in the first place.

This same point can be made about the role of ideology addressed in **RQ5 (study 3)**. Although participants with varying political predispositions do on average demonstrate different levels of misinformedness; with people towards the right being the most misinformed; they do not vary considering their trajectory of change. This trajectory, on the other hand, seems to partially depend on media trust as an explanatory factor (**RQ6, study 4**). Yet again, it is right-wing alternative media that conveys indirect effects via decreased media trust conducive to misperceptions. Perhaps more decisive is however the role of media trust (or lack thereof) itself that shows strong potential to either exacerbate or mitigate misperceptions over time.

## **Discussion**

So, what do we make of it all? What are the implications for media effects and belief change; Quo vadis, misperceptions? Considering public debate surrounding the dangers of misinformation and the proclamation of a ‘post-truth’ era, the most striking finding in this

dissertation is perhaps the media's supposed limited role in effecting belief change (for better or worse). When so many discussions revolve around the harmful effects of social and political alternative media as drivers of systematic misperceptions, have we been looking for answers in the wrong place?

Obviously, this statement is a little polemic. And I want to emphasize from the get-go that I do not subscribe to the view that there is no role for media in all of this. After all, much previous research speaks to the contrary, and that includes longitudinal studies (e.g. Weeks, 2024). I do however believe that both scientific and public debate, in response to a renewed focus on misinformation as a societal challenge, has perhaps relied too much on information-centric narratives in creating an account of how and why misperceptions develop. And that the psychological approach in terms of identity-driven cognition and the communication perspective have grown to become largely separate strands of literature when really, they're part of the same process. I want to address both of these points in the following.

The findings in this dissertation suggest that we should not be too alarmist concerning media as means to misperceptions. But at the same time, this is not echo chambers all over again: There is convincing evidence from the US of more pronounced effects of political alternative media, though perhaps less for social and mainstream media use. But the US, having always been a somewhat unique case, has increasingly developed into a political powder keg that has little resemblance to Sweden, not least also in relation to media landscape. It is currently unthinkable that large portions of the Swedish electorate tune into something along the lines of Fox News – in fact, there is no Fox News, and alternative media continue to be a fringe phenomenon. And even if there was, the underlying conditions are hardly the same. Especially if we look towards (affective) polarisation, which is a driver of both misperceptions and partisan selective exposure (Garrett et al., 2019; Stroud, 2010), the countries are barely comparable. That is not to say that there are no democratically worrying

developments in Sweden at all. The rise of right-wing populism in particular has been swift and consequential: Increasingly, ideas and narratives that were previously considered somewhat extreme have been mainstreamed (Krzyżanowski, 2020), and the climate turned increasingly hostile. Immigration is a case in point here. And still, Sweden is not there, at least not yet.

Of course, it should be kept in mind that the aggregate approach towards misperceptions taken and the difficulty capturing alternative media audiences, in addition to country-context may have led to smaller effects. As such, it should be stressed that the findings in this dissertation cannot simply be generalized to other settings. So, when I say that the impact of media use on misperceptions is perhaps more limited than anticipated, I want to emphasize that this is not a ‘one size fits all’ evaluation. Even within the Swedish context, there might be individual issues where stronger effects are present, especially considering more dynamic and/or emerging public matters (e.g. candidates during an election).

Nonetheless, what this dissertation showcases in relation to media, and alternative media in particular, is more than anything its *potential* when underlying conditions are right. Right-wing alternative media did have an effect in two of the studies – just not a very substantial one (yet). The point is, this might very well change, if external conditions grow to be more favourable to wide-spread misperceptions and the growth of alternative media ecologies. This particularly applies to right-wing alternative media, as it should be stressed that the findings in the individual studies confirm previous studies suggesting an ideological asymmetry: Right-wing alternative media do seem to have a disproportionate impact in comparison to their left-wing counterparts, even now when effects are small. And beyond change, right-wing alternative media users as well as people with right-wing ideology already are more misinformed. So, there is also an asymmetry when we look towards average levels of misperceptions in society across groups. And although changes to the underlying

conditions that might exacerbate alternative media influence and thereby expand the subset of the disproportionately misinformed seem like a big ‘if’ at the moment, I do believe we need to take these findings seriously. Especially at a time where democracy is increasingly under threat world-wide, this big ‘if’ may turn out smaller than we think.

So, media matters. And by most scientific accounts probably not in a good way. In some contexts, we can already see that, while in others (like Sweden) we haven’t reached that turning point. But I want to highlight that the potential media harbours does not necessarily only stem from the production side, it also depends on demand. As Dannagal Young so aptly puts it in her book:

“Being wrong isn’t about believing factually inaccurate pieces of information. It’s not even about believing lies people tell us. It’s about our psychological and social needs: our need to understand the world (comprehension), have agency within it (control), and feel socially connected (community).” (2023, p.225).

According to this logic, media can contribute to or mitigate misperceptions inasmuch as it fulfils at least one of these needs. Following Young (2023), comprehension is all about wanting to make sense of the world around us. We have an innate desire to understand what is going on. The problem is of course that we live in an incredibly complex world, and the easy solutions are not typically the right ones. Think of the Covid pandemic for example: Attributing the virus to the shady doings of an untransparent government of a foreign country makes sense because it provides a straightforward explanation that is comprehensible for laypeople. Especially if institutional trust is already low. In contrast, understanding the mutation and transmission cycle of zoonoses from animals to humans is exceedingly difficult. So much so, that it might appear far-fetched to some. We also want to feel like we can affect

what's happening around us. Even though taking hydroxychloroquine wasn't really an effective treatment for Covid, it gave people a *sense of safety*. The fact that that safety wasn't real is beside the point – it made people feel as though they had agency over what happened to them. Finally, we want to feel like we belong. Sharing the same beliefs as the people we surround ourselves with, makes us feel like we're part of a group. So, expressing the shared view that Covid is an engineered bioweapon may serve our need for community.

It is not hard to imagine how media can (and sometimes does) tap into any or all of these needs (on purpose or by accident) and how that might increase or decrease misperceptions. The point is that these needs are identity-based, and so media can only do so by tapping into our social identities as well. So, when Walter Lipmann says the media are 'our window to the world' (1922) that may be true in terms of the information that we receive. But while this information is a piece of the puzzle, what we believe is not just determined by what we are exposed to through the media. What we already bring to the table in terms of preconceived ideas, values, and experiences matters. And this is why it's a problem that psychological and communication accounts of the development and maintenance of misperceptions have remained disconnected.

Hence, moving forward, I argue we need to pay more attention to *how* and *why* identities are rendered salient as well as leveraged by media, political elites, or otherwise to fulfil our psychological and social needs. By considering the conditions under and mechanisms through which media effects on misperceptions might occur, explicitly from a motivated cognition point of view, I believe this dissertation contributes to this integration of perspectives.

Following in that path, I want to spend the remainder of this discussion advocating a people-centric (as opposed to information-centric) approach towards misperceptions and the role of media therein. After all, people can (and probably will) come up with an infinite

number of falsehoods others then might buy into. This does not mean that measures like fact-checks are useless, of course. But until we acknowledge how much misperceptions actually stem from *us* and our social identities, in addition to the information we consume, we are not harnessing countermeasures to their full potential. There are many recommendations one might make to try and curb systematic misinformedness in society, ranging from more transparency concerning algorithms and targeted ads online, over regulation, to media literacy interventions. I believe there is merit to all of these, and other scholars have explored such possibilities in much more detail than I can provide here. Therefore, I have chosen to focus on three factors that in my opinion deserve more attention both in future research and public discussion.

First, I want to point towards the importance of interpersonal discussion and two-step flow models of media influence. Extant work on media use and misperceptions –including my own – neglects the fact that people talk to each other about the things they see and read in the news (see Druckman et al., 2018). And that this can make a difference for the beliefs they hold (Amsalem & Nir, 2021). More than that: it might be one of the major ways in which media impacts people.

According to two-step communication flows, (mis)information in the media passes to opinion leaders first who then share it with their personal networks (Katz & Lazarsfeld, 1955; Katz, 1957). This is especially relevant in the context of alternative media, as it provides a theoretical argument for extended influence over societal (mis)perceptions despite relatively small audiences (Druckman et al., 2018; Weeks, 2024). Particularly in ideologically homogenous social communities, alternative media use may have greater impact than we currently realize, as even members who don't consume any alternative media might be exposed and swayed by 'opinion leaders'. Druckman and colleagues (2018) present experimental evidence to that effect, demonstrating that discussion with individuals that were

exposed to alternative media clearly leads to a polarisation of opinions in line with the respective claim, even if people were given different sides of the story. Not least also due to social conformity pressure, interpersonal discussion might therefore present an especially fertile breeding ground for misperceptions via social identity and social identity threat.

While it remains to be seen whether these findings hold beyond experimental circumstances, interpersonal communication is a potentially powerful means to proliferate – but importantly also challenge – wide-spread misperceptions, whose potential remains largely untapped. In an increasingly inter-connected world, where social media provides ideal conditions for the formation of homogenous groups online, this is something we need to start paying more attention to as scholars.

Secondly, and I hinted at this before, we need to more formally consider the role of (political) elites. We live in a time, where political elites are increasingly free from constraints that were in place previously. They can communicate with people directly and instantaneously which allows them to bypass traditional checks and balances. In conjunction with a shift towards more authoritative modes of governance and right-wing populism in many countries, an erosion of norms is taking place as well: Norms concerning the upholding of the rule of law for all, the separation of state and church, or norms against nepotism. In a digitized society, political elites are therefore increasingly empowered to use and abuse their direct connection to citizens through social media and media more broadly to further their own agenda. Especially considering increasing issue-politicisation and even polarisation in some circumstances, there is therefore great potential to leverage social identity in order to forge (mis)perceptions. Rather than focusing on the media solely, I argue that moving forward it will be instrumental to gain insights into the interrelation between elites and media, the usage of social identity, and how that might affect misperceptions. This, in return, will help guide re-establishment of elite constraints which I believe is a major challenge to

combatting wide-spread misperceptions. I want to emphasize that both the investigation of the role of elites and interpersonal communication – as well as the study of misperceptions more broadly – would greatly benefit from linkage studies. As part of the effort of integrating media and cognition accounts of misinformation, establishing what individuals are actually exposed to and how they interact with it, will be crucial.

The final point I want to make has to do with institutional trust. In fact, lack of trust in science, for example, may well contribute to diminishing elite constraints: If scientists are no longer viewed as credible and knowledgeable in their respective subject area, political elites cannot be held accountable in the face of scientific evidence. The same goes for the media; when media are perceived as biased, elites become the information authority. So, these aspects are certainly related. On the other hand, diminishing trust in public institutions, hand in hand with the ‘death of expertise’ (Nichols, 2017), may not just lead individuals to turn away from those same institutions. As many public issues are becoming more and more political, trust/distrust can be used as an identity-cue as suggested by one of the papers in this dissertation. Therefore, it is essential we investigate how and why institutional trust (media and otherwise) is declining in many contexts, how it can be leveraged via identity threat to forge beliefs, and how we can re-build it in the future. Alongside guarding the integrity of institutions such as journalism or science, rebuilding trust in them may serve as a major factor of resiliency to misperceptions. This is especially important considering advances made in generative AI. As technology continues to progress, our reliance on institutions will become indispensable.

Admittedly, these efforts seem like big tasks. But at the same time, understanding is the first step towards solutions. Having provided valuable insights into the how and why of misperceptions in its relation to media, I argue that this dissertation is such a step. While there clearly is a lot to do and things to be worried about, in the chaotic-at-best political

climate we currently live in, I want to end this discussion on a positive note. I want to reiterate that a) people are not getting more and more misinformed, at least not in the broader context of the studies that make up this thesis. The extent to which we truly live in a 'post truth' era is therefore questionable. And b) media currently only plays a very small part in amplifying misperceptions, despite the potential it unarguably harbours. But in the Swedish context at least, it seems we're operating from a point of view of 'this is how it could be if conditions changed' as opposed to exercising damage control when it comes to the impact of media. While it's perhaps a stretch to call that a 'positive ending', it certainly demonstrates that there is a chance to prevent potentially harmful changes in underlying conditions from a societal point of view. And as far as science goes, I hope this dissertation constitutes a small contribution to that effort

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