Balancing authorial, user, and technological agency
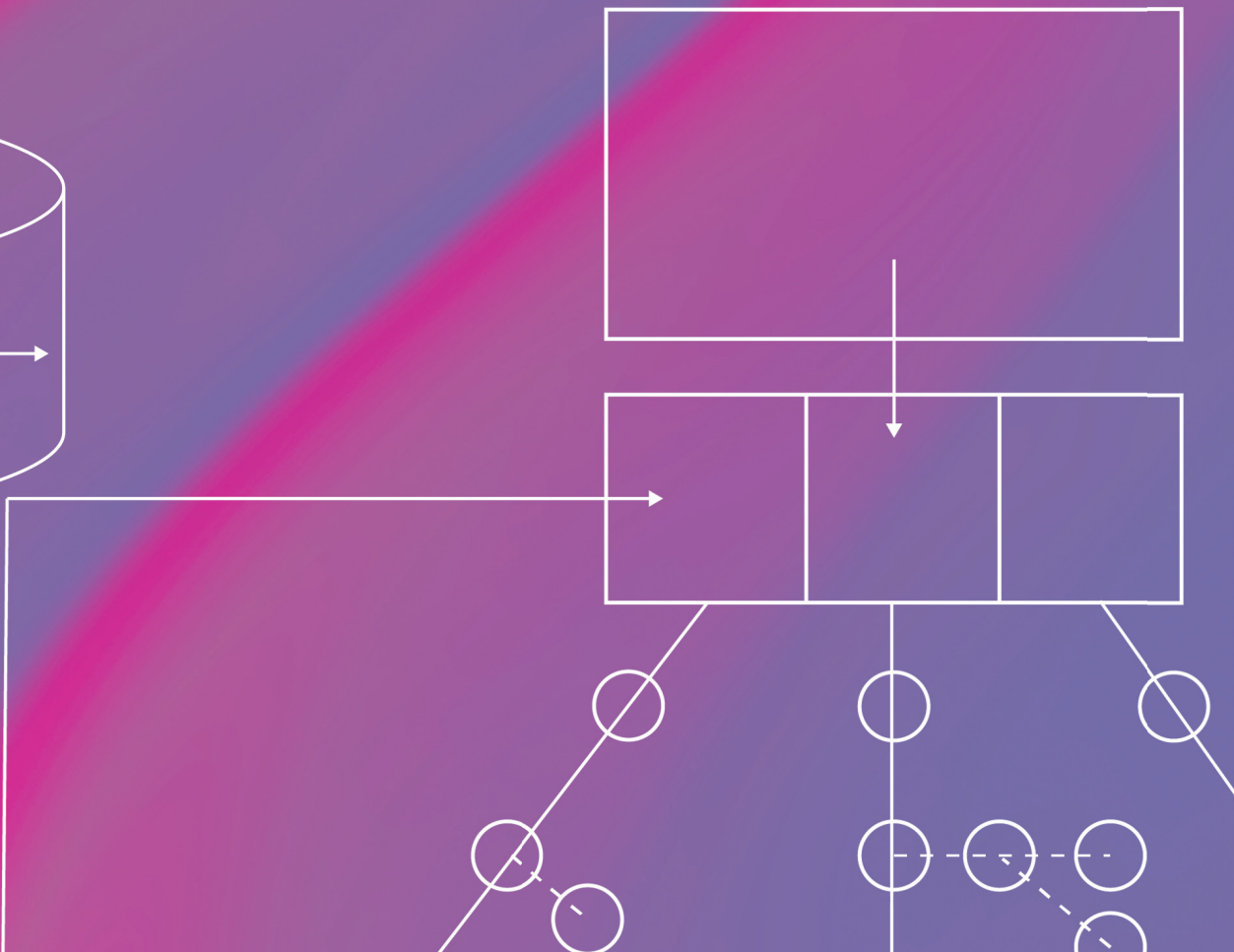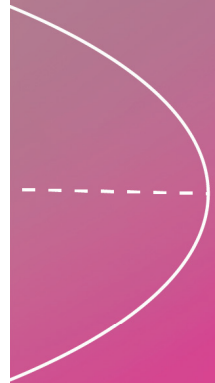
INTERACTIVE JOURNALISTIC NARRATIVES

Renée van der Nat

Interactive journalistic narratives
Balancing authorial, user, and technological agency

Interactieve journalistieke verhalen

Op zoek naar balans in de relatie tussen journalisten en hun publiek

(met een samenvatting in het Nederlands)

Proefschrift

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Acknowledgements

Seven years ago – almost to the date – I started my academic career as a junior research associate at the research group *Journalism in digital transition*. I remember one moment from my job interview vividly. I was asked what research I would like to do. Stupidly, I had not thought of that question in preparation of the interview and – thinking on my feet – I came up with some random idea about wanting to know why journalists are incapable of innovation. The answer does not reflect my interests at all, as you probably gathered based on the title of my thesis. And I am forever grateful for dr. Piet Bakker and dr. Yael de Haan, who 'failed' to see through my poorly prepared response.

Doing my PhD has been inspiring, exciting, boring, infuriating, depressing, and above all, eye-opening. I have grown both professionally and personally thanks to the consistent and honest supervision of Prof. dr. Eggo Müller and dr. Piet Bakker. I want to thank both of you profoundly. I also want to thank the doctoral committee for taking the time to read my thesis.

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The roughness of my words and ideas was polished through conversations, commentary,f and contributions. I am particularly indebted to the reviewers who took the time to read my articles and the organisers of conferences I was privileged to attend. The contributions of my fellow researchers in our research group was invaluable. They have often read first, very rough drafts, seen awkward presentations, and listened to early

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Composition of this thesis

My thesis is comprised of four articles and a general introduction to those articles. In accordance with conventions in my field the dedication of both supervisors – Prof. dr. Eggo Müller and dr. Piet Bakker – is reflected as co-authorship. I have been leading in the preparation, data collection, analysis, and writing of the articles.

All data associated with my research is stored. Password is available upon request. https://hu.data.surfsara.nl/index.php/s/V5UNN4vQlu-WEZsJ

Two articles are published:

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Two articles are under review:

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Submitted to Digital Journalism Special Edition Design + Journalism.

van der Nat, R., Bakker, P., & Müller, E. (forthcoming). Capturing audience engagement. How users respond to interactivity in journalistic narratives designed for audience engagement.
Submitted to ICA 2022.

PART I

DESIGNING FOR DEEPER AUDIENCE ENGAGEMENT

Journalistic interactive multimedia narratives

1 Introduction

Designing journalistic stories for interactivity and deeper audience engagement is an essential practice in journalism that emerged in the 2010s and it continues to be a driving force for journalistic innovation. Digitisation caused a significant shift in the journalism industry, leading news organisations to look for new ways to engage their audiences, as they were, and still are, struggling to survive. My research focuses on interactive journalistic storytelling that emerged in response to this shift.

Its most famous and quintessential example is *Snow Fall: The Avalanche at Tunnel Creek* by The New York Times. Journalist John Branch and designer Graham Roberts, together with a team of designers, photographers, researchers, and video journalists, reconstructed the experience of a group of hikers that got caught in an avalanche. This interdisciplinary team created an interactive multimedia experience by combining an in-depth article with first-person point of view video material and interactive graphics. This combination of media forms allowed users to virtually experience that fateful day and imagine what it must have been like to get caught in that avalanche. *Snow Fall* became a fundamental journalistic narrative because it showed that online journalism was going to be more than a race to the bottom.

More recent trends in online journalism, such as news games, immersive journalism, and the current popularity of podcasts, can be traced back to the realisation that online journalism had the potential to engage news audiences with innovative, in-depth journalistic storytelling (Dowling, 2019). My thesis focuses on the interactive narratives created in the wake of *Snow Fall*. What interests me is how the changing dynamics between journalists and their audiences are reflected in the social and material practices of interactive journalistic narratives.

Following its publication in December 2012, *Snow Fall* was met with critical acclaim and won important industry awards, such as the Pulitzer Prize. This success inspired other news organisations to invest in their own "*Snow Fall*". The specific format that the production team of *Snow Fall* developed requires users to scroll through the narrative to experience the story events. This format became known as *scrollytelling* (Dowling, 2017; Godulla and Wolf, 2016). Other news organisations expanded on this format. In doing so, they assembled interdisciplinary teams of journalists, documentary makers, designers, and programmers; creative workers, that together, have the skills and knowledge needed to make engaging, interactive stories (Anderson & Borges-Rey, 2019; Uricchio et al., 2016).

Due to its interdisciplinary origin, the genre has many appearances and different names. Besides scrollytelling, journalists themselves also use *longread* or *interactive*. In the Dutch context, they often connect the genre with audience engagement by calling it *belevenisjournalistiek*, which translates to *experience journalism* (Dowling, 2019; Godulla & Wolf, 2017; Uricchio et al., 2016). Adjacent to journalism, documentary makers refer to the genre as an *interactive documentary*, a term also found in the academic discourse in media studies (Aston & Gaudenzi, 2012; Uricchio et al., 2016). Journalism studies favour *digital longform* (Dowling, 2017; Hiippala, 2017; Jacobson, Marino & Gutsche et al., 2016) and narrative theory simply talks about *interactive narratives* to describe a broad range of digital

narrative forms, including non-fiction (Koenitz, 2015; Montfort, 2007; Ryan, 2014).

During my research, I have often switched between names to describe this journalistic genre. Initially, I emphasised the essential characteristics by using *interactive multimedia narratives*. As my research progressed and my focus shifted towards *interactivity* as a key concept, I abbreviated it to *interactive narratives* or *interactive non-fiction*.

For me, the most exciting aspect of this new journalistic form is its indispensable interactivity. What all the different appearances of the genre have in common is that user activity is *always* needed for the continuation of the story (Hernandez & Rue, 2015; Uricchio et al., 2016). First, because interactive narratives are digital objects, they only appear on the screen upon user interaction (Montfort, 2007). But it is more than that. Throughout these narratives, users are invited to make choices. Often, these choices are very straightforward, such as "do I watch this video?" or "do I click this link?" Sometimes, the options are more complex, and users are required to react in real-time to a segment of interactive video, as is the case for *Het Nader Gehoor* (published by Trouw in 2016), or they can choose their own path as they explore a refugee camp in *Refugee Republic* (published by the Volkskrant and Submarine Channel in 2014).

But what do these choices mean for the story that is being told? If you offer options, each user experience is potentially different. Producers can no longer be sure of the presentation of their production on the users' screens. The reading becomes a kind of performance that shapes the presentation of the plot as users interact with the narrative. This characteristic is referred to as "procedural" in interactive narratology (Bogost, 2008; Koenitz, 2015; Murray, 1997; Ryan, 2014), and it is in this notion that I found a rich concept to elucidate the consequences of interactivity for journalistic narratives, something I found lacking in the academic debate.

In this first part of my thesis, I elaborate on the research I have done for my PhD. In the first section, I explicate how the development of interactive narratives fits in significant transitions in journalism that occurred in the past three decades. Following this section, I discuss the research on interactive narratives in both journalism and documentary studies. This leads to an elucidation of fundamental concepts featured in my research and its design. Subsequently, I elaborate on my theoretical and methodological choices for the four articles that comprise Part II of this thesis. I conclude Part I by discussing the significant findings and results of my PhD.

1.1 The development of digital longform journalism

Before diving into the academic debate on interactive non-fiction, I will discuss how the emergence of interactive in-depth journalistic narratives fits in broader developments in journalism. Along with Le Masurier (2015) and Dowling (2019), I consider the emergence of in-depth interactive journalism in the 2010s to be a reaction to the breathless speed of the 24-hour online news cycle.

The first strategies for online journalism, which took shape during the 1990s and 2000s, were mainly concerned with placing their content online without "cannibalising" revenue from print and broadcasting (Scott, 2005; Diaz Noci, 2013). The journalistic content deemed most suited for the internet was free news, and during the 2000s and 2010s, as broadband internet became accessible in Western countries, the online news cycle increased in speed (Bakker, 2012; Bødker, 2016). News organisations started considering *digital-first* strategies for their news content, meaning that news stories are published online before they occur in print or on radio or television (Erdal, 2007; Tameling, 2015). The effects of this digitisation of journalism during this period are considered a "race to the bottom", as more and more free online news became available. And as Google claimed its near-monopoly on the online advertisement market, it became harder for news websites to generate enough revenue because

reader- and spectatorship of print and broadcasting was declining; after all, news users were getting the same stories for free online (Poell & van Dijk, 2019). In response, news organisations created paywalls for their online content.

Widespread was the belief that in-depth journalism was unsuited for the internet because news organisations assumed their audience would not want to consume longform journalism on a screen (Le Masurier, 2015; Dowling, 2016). However, news users were unwilling to pay for news they could get for free elsewhere, and news organisations started looking for other ways to entice their audiences. *Snow Fall* is quintessential for this development because whilst it may have been rewarded for its journalistic merits as well, the marketing department of The New York Times initiated the project to increase online subscriptions (Dowling, 2019). Since the 1980s, subscriptions to newspapers were declining, and the revenue generated by news websites continues to be insufficient to make up for these losses (Scott, 2005; Bakker, 2019). Moreover, news organisations saw their revenue evaporate further in the wake of the rise of tech giants such as Google, Apple, and Facebook, which were increasingly creating walled gardens that aggregate content from all over the internet, including news websites (Bakker, 2012; Paterson, 2012). Journalism lost the game for online advertising, and in response, the industry gradually turned to its audience during the 2010s (Costera Meijer, 2020).

The above-described development had set in motion a fundamental shift in journalism. Over the past three decades, the industry transitioned from production-centred to audience-centred (Lewis & Westlund, 2015). Part of this so-called audience turn is that news organisations are looking towards their audiences as a critical source of revenue needed for the survival of journalism (Costera Meijer, 2020; Nelson, 2021a; Loosen & Schmidt, 2012). Increased attention for in-depth and longform journalism fits this transition because news organisations became aware that journalism's unique selling point is its ability to tell true stories and as-

sumed that audiences are willing to pay for so-called slow journalism (Dowling, 2016; La Masurier, 2015). In recent years, we have seen an increase in subscription models, and practitioners expect this trend to continue in the coming years, with podcasts next in line to become paid content (Newman, 2021).

But to get the public to pay, it needs to pay attention first. Drawing people's attention in a media-rich environment means that journalism is not only competing amongst itself, but also with other forms of media entertainment. This competition becomes especially apparent on social media, where timelines fill with various content ranging from personal anecdotes and family photos to news, entertainment, and indeed, fake news. News and other journalistic stories need to stand out in this marketplace of attention if news organisations want to reach their intended audiences (Nelson, 2021b; Webster, 2014).

In this context, journalistic innovation in storytelling became relevant because in response to this transition to an audience-centred industry, producers explored new ways of presenting journalistic stories to audiences (Dowling, 2019). Contemporary editorial strategies include audience engagement as an aim because news organisations now see the audience as critical for journalism's survival (Costera Meijer, 2020; Nelson, 2021a; Nelson 2021b). Editorial strategies to increase and deepen audience engagement are accompanied by blurring boundaries between editorial, marketing, and design departments, typically resulting in interdisciplinary production teams.

1.2 Interactive non-fiction: diverging fields

I position the emergence of in-depth interactive non-fiction in this interdisciplinary setting, which I see reflected in several aspects surrounding this journalistic genre. I argue that it is impossible to understand interactive journalistic narratives without considering how these stories are the result of interdisciplinary collaboration. The way media forms are com-

bined with interactivity, converging written and audio-visual journalistic storytelling with digital media's storytelling potential, mirrors the genre's interdisciplinary creation (Dowling, 2019; Jacobson, Marino & Gutsche, 2016; Uricchio et al., 2016). New practices entered the field of journalism to produce and design these narratives. Consequently, different professional languages came together, which the terminology of the production practices of interactive journalistic narratives reflects (Uricchio et al., 2016). For example, practitioners use "prototype" typically used in design practices to talk about work in progress.

Interactive non-fiction has been a topic of debate in *journalism studies* and *documentary film studies*. The former prefers the term *digital long-form* and the latter *interactive documentary* or *i-doc* to indicate interactive non-fiction. Both fields maintain a different focus and little cross-pollination, and consequently, arrive at diverging conceptualisations of interactive non-fiction whilst analysing similar – and sometimes the same – interactive narratives. However, by maintaining their disciplinary focus on interactive non-fiction, I argue that both fields fail to fully account for the interdisciplinary nature of the genre itself. *Journalism studies* interprets the genre in terms of its formal characteristics by focusing on multimediality, multimodality, and narrative journalism as core concepts. *Documentary film studies* takes a different route and focuses on the novel potential of interactive narrative forms; particularly, the affordances for non-linear storytelling. Furthermore, their respective approaches to the genre reflect a fundamental difference in their conceptualisation of the relationship between producer and user established through the text. On the one hand, journalism studies emphasises traditional notions of authorship and considers the audience as the receiver, whilst documentary studies focuses on audience participation and the way this fundamentally affects authorship.

With my research, I want to provide an interdisciplinary alternative to conceptualisations of the genre rooted in existing paradigms in journal-

ism studies. I believe that these traditional notions of journalism are insufficient to further the conceptualisation of interactivity as part of journalistic storytelling and its consequences for the dynamics between journalists and their audiences. In the following section, I elaborate on the conceptualisations in journalism studies and documentary film studies.

1.2.1 Digital longform in journalism studies

The discourse on *digital longform journalism* places interactive non-fiction in the tradition of in-depth written journalism. In what is most likely the first study on *digital longform journalism*, Steensen (2009) explores what he calls the online version of *feature journalism*. Feature journalism is a genre of written journalism concerned with telling the story "from within", leaning heavily on sensory observations and experiences, background information, and quotes. Steensen is particularly interested in how the online version remediates the textual characteristics found in features that appear in newspapers or magazines. This early study lays the foundation for subsequent studies published in the 2010s, exploring and categorising the formal characteristics of the new genre.

    In their critical study, Dowling and Vogan (2015) show how news organisations are attempting to capitalise on the tablet market by creating *digital longform* productions. These are in-depth journalistic stories presented in an attractive and distraction-free multimedia format. They argue that *Snow Fall* serves as a model for the further development of the genre. Considering *Snow Fall* as archetypical for interactive journalistic narratives has two important implications for subsequent interpretations in *journalism studies*. Firstly, these narratives are positioned as prestige projects or flagship stories news organisations use to promote their brand to increase audience loyalty, readership, and revenue for their primary publication, typically a news website associated with a newspaper. And secondly, written journalistic traditions – most notably narrative journalism – remain key to understanding the genre, despite acknowledging cinematic and digital

techniques are needed to create these appealing stories. The roots of *digital longform journalism* are typically traced back to a narrative journalism tradition called New Journalism, popular in the 1960s and 1970s and spearheaded by journalists such as Tom Wolfe, Gay Talese, and Truman Capote (Dowling & Vogan, 2015, van Krieken, 2018).

In the years following Dowling and Vogan's publication, the academic debate on *digital longform journalism* focused on the multimodal presentation of interactive non-fiction, with multimediality and multimodality as central concepts to understanding and categorising the genre. In their various content analyses, Jacobson, Marino and Gutsche (2016), Hiippala (2017), Dowling (2017), and Giles and Hitch (2017) elaborate on the multimedia presentation and visual aesthetics of interactive non-fiction. To interpret the convergence of textual and audio-visual narrative traditions they indicate is distinguishing for the genre, these studies use concepts such as "embedded multimedia" (Giles and Hitch, 2017), "the animation of literary techniques" (Jacobson, Marino & Gutsche, 2016), and "cinematic techniques" (Hiippala, 2017). The attention to visual aesthetics is also reflected in audience studies by Marino (2016), Pincus, Wojcieszak and Boomgaarden (2017), and Greussing and Boomgaarden (2019). These studies explicate the influence of visual aesthetics on the audience by addressing attention (Marino, 2016), affect (Pincus, Wojcieszak & Boomgaarden, 2017), and knowledge retention (Greussing & Boomgaarden, 2019). Interactivity as a defining concept has been left underappreciated. A notable exception is the research of Hernandez and Rue (2015), who propose a taxonomy of supposed user experiences for *digital longform journalism* (see article 1).

The focus on the innovative narrative formats and the formal characteristics shows that researchers were initially interested in how technology changes journalistic storytelling and how these changes fit within existing journalistic traditions. Developments in journalism have commonly been understood in relation to emerging technologies, such

as the printing press, radio, and television. However, recent interest in technological innovation is much more granular. Research has focused on smaller changes that are part of digitisation, such as social media, immersive journalism, or data journalism (Steensen & Westlund, 2020; Zelizer, 2019). The interest in *digital longform journalism* fits this recent interest in technological changes. It is perhaps surprising that the discourse favoured *multimedia* as a defining characteristic, rather than interactivity, which in other fields is considered a crucial aspect of digital media (see for example Jenkins, 2006; Laurel, 1993; Manovich, 2000 and Murray, 1997). Focusing on the novel presentation form whilst mostly ignoring that these narratives *require* user activity results in a lack of understanding of how *digital longform journalism* fits with the changing dynamics between journalists and their audience that underlie *all* these digital innovations.

More recently, journalism studies have turned their gaze on this aspect of digitisation, exemplified, amongst others, by Costera Meijer's work on the audience turn (2020) and by Nelson's recent book *Imagined audiences: How journalists perceive and pursue the public* (2021a). Little is known about this aspect of *digital longform journalism* because the height of the professional and academic attention for the genre precedes "the audience turn" in journalism studies. Recent years have shown an increase in audience studies, some of which focus specifically on longform interactive non-fiction (see article 4). I maintain that by focusing on interactivity as a critical affordance of digital media, new avenues of research can be explored and clarified in the context of journalism.

1.2.2 Interactive documentary

During the same period in which *digital longform journalism* emerged in journalism practice, documentary filmmakers were likewise exploring the affordances of digital media for their storytelling. Often, journalists and documentary filmmakers would co-create interactive non-fiction (Uricchio et al., 2016). Beyond that, interactive documentaries and

digital longform journalism are usually published by journalistic media organisations. Despite these shared production practices of interactive non-fiction, the conceptualisations of *interactive documentary* typically trace the origin of the genre to documentary films, just like how journalism studies traces it to journalistic traditions. Yet both fields analyse similar – sometimes even the same – interactive narratives. In the following section, I discuss how interactivity has been a critical concept in the discourse on interactive documentary in documentary film studies.

The debate about *interactive documentary* provides a more salient interpretation of the role of interactivity in interactive non-fiction. The first research was published in the late 2000s and early 2010s, like the research of *digital longform journalism.* However, unlike the work done in journalism studies—which is focused on gathering empirical evidence in qualitative content analysis – the documentary field starts by reasoning what interactive documentary could be and how the genre could develop its interactive potential (Galloway, McAlpine & Harris, 2007; Ursu et al., 2009). This focus on the possibility of interactivity would continue to inform conceptualisations of interactive non-fiction as a narrative text in which users have agency. In their influential paper "Interactive Documentary: setting the field", Aston and Gaudenzi (2012) argue that interactive non-fiction expresses a different relationship between creator and user. They maintain that questions surrounding authorship and agency will aid in understanding the significance of interactive non-fiction. A similar point was raised in journalism studies by Bruns in his influential book *Gate watching: collaborative online news production* (2005). He argued that online gatekeeping was going to create collaborations between journalists and their audiences, effectively making the audience members "produsers" of the news, with the role of journalists shifting from gatekeeper to gatewatcher. Whilst this line of reasoning was explored in the context of participatory news production (Picone, 2016; Singer et al., 2011; Wenzel, 2020), it has been left unexamined in the context of longform

journalism. Hence, the discourse on interactive documentary allowed me to explore this aspect of interactive non-fiction.

Two traditions of research can be identified in the debate about interactive documentaries. The first is interested in placing the emerging genre in the documentary tradition and following Nichols (1991), identifies interactive modes of documentary. In documentary film studies, modes of representation determine the communicative goal of the documentary; for example, exposition, participation, or observation (Nichols, 1991). Building on Nichols, Aston and Gaudenzi (2012) identify four modes for interactive documentaries: conversational, hypertextual, participative, and experiential. Alternatively, Nash (2012) identifies three modes: narrative, collaborative, and categorical. This focus on documentary modes is similar to the initial focus of categorising *digital longform journalism,* and likewise, results in different and overlapping categorisations. The most interesting difference between the categorisations in journalism studies and those in documentary studies is the user's role. In documentary studies, the research is concerned with the effect of the documentary on the receiver, whilst journalism studies approaches the presentation of the genre from the author's perspective. Consequently, the discourse in documentary studies sets out from a more audience-centred perspective with attention to audience engagement in terms of both the user experience and participation in terms of a role for users in the narrative text (Aston, Gaudenzi & Rose, 2017; Nash, 2014). Initially, this audience-centred approach to the genre was realised primarily through textual analysis and only more recently through audience studies.

The second strand of research emphasises the narrative potential of interactive documentaries. The researchers performing these studies are typically also producers of interactive documentaries, and they aim to explore the narrative potential of interactive media. They wish to innovate interactive storytelling by creating novel interactive documentary forms, thereby pushing the technological affordances of digital and

network media to their limits (Miles, 2014; Miles, 2017 Weidle, 2016). The work on the *Korsakow System* is a notable example of this tradition (Soar, 2014; Weidle, 2019). The *Korsakow System* is an experimental program that allows creators to make non-linear documentaries. The users' choices determine the order in which the pieces of the documentary appear on the screen. As part of the studies, researchers produce and study documentaries made with this program to understand the potential of non-linear narrative forms (Weidle, 2019). Typically, the research spurs theoretical debates about future developments and the possibilities of new technologies, as, for example, in the work of Miles (2014; 2016; 2017). Much of these conceptualisations can be traced back to poetics for digital media, most notably Aarseth's *Cybertext: Perspectives on Ergodic Literature* (1997), Murray's *Hamlet on the Holodeck* (1997), and Laurel's *Computers as Theatre* (1993). They theorised user agency as a critical affordance of digital media's narrative potential, and this idea is strongly mirrored in the discourse of interactive documentary. Consequently, the conceptualisations of interactive non-fiction lean heavily on the notion that authors' control over the narrative is shared with users.

The research on interactive documentary is often based on textual analysis using frameworks and analytical models developed through thorough theoretical reviews, or *research through design*, for which creating a text is part of the study. However, there is a lack of empirical data on the reception and production of interactive documentaries in a broader context. These approaches align with the traditions of textual analysis found typically in media studies and film studies, as opposed to more empirical approaches with their roots in social science and communication science, which is the case for much of the research in journalism studies. However, the debate in documentary film studies provides thorough theoretical and conceptual analyses of the changing dynamic between producers and users of media texts, which was missing in journalism studies. For journalism studies, the conceptualisations were based too much on empirical

evidence alone and the field "missed" the broader consequences of inter-activity for the creation and reception of journalistic texts. The debate of *interactive documentary* focused too much on the documentary context alone and lacked a thorough understanding of what the emergence of inter-active non-fiction meant for the relationship between journalism and its audiences. Moreover, I found that interactive documentary studies often did not include works with more limiting forms of interactivity that were common in journalism, as Dowling's content analysis shows (2017). In other words, I was looking for a conceptualisation that would include both the narrative potential of digital media and also account for the em-pirical journalistic context in which these works are created and received.

2 From interactive journalistic narratives to an interdisciplinary approach

I started my exploration by developing a preliminary conceptual mod-el focusing on the characteristics of journalistic interactive non-fiction: multimediality, interactivity, and narration. In this section, I will discuss how these core concepts influenced my preliminary approach and how they relate to developing my research of the narrative structure and the production and reception processes of interactive journalistic narratives.

2.1 Multimediality and multimodality

In the context of journalistic interactive non-fiction, multimediality and multimodality have gained considerable academic attention. As I have discussed above, both concepts have been crucial in the development of journalism studies' core conceptualisation of digital longform journal-ism. Neither multimediality nor multimodality are new concepts in the context of journalism. Print journalism has a long history of multime-dia journalism by combining articles with photographs and infographics. Newspapers are also multimodal because information is conveyed using

different semiotic modalities: written language and still images. So, what makes interactive non-fiction different in this regard? Why are terms such as the animation of literary techniques or embedded multimedia used to describe this genre?

To answer these questions, I acknowledge it is helpful to return to a basic definition of multimedia journalism. Deuze (2004) distinguishes it as 1) the presentation of a story using two or more media forms and 2) the integration of media forms in the presentation of a story; the former is a continuation of what happens in newspapers and describes the existence of multiple media forms next to each other. The latter is more tantalising because here, Deuze gives an initial description for journalistic narrative formats that would emerge almost a decade later from the convergence of different media forms. This idea that media forms can converge to form a new genre is further developed by Dowling and Vogan (2015). They argue that digital longform journalism emerged from the convergence of "distinct and separated storytelling media and platforms" (210). Moreover, Dowling (2019) considers this convergence of different media forms in digital longform journalism "the lynchpin of its narrative function" (103).

The focus on the convergence of media forms in these conceptualisations shows that what distinguishes interactive multimedia narratives from other multimodal and multimedia genres is not the use of different media or even the combination of various semiotic modes. Instead, it is the *unique* way in which media forms are combined that differentiates interactive non-fiction from other multimedia formats. Ryan (2014) maintains that its unique use of media modalities distinguishes a media form; the modalities are text (written language), visuals (still and moving images), and sound (spoken language, ambient noise, and music). In this context, Hiippala (2017) explains that whilst two media forms may use the same modalities, the difference lies in the reaction the combination elicits from the user. For example, both documentary and animation films

use moving images and spoken language as modalities. However, their application of these modalities differs significantly, which makes the two media forms recognisable for users. In interactive multimedia narratives, different existing media forms, such as video, data visualisations, photographs, and animations – each recognisable as a separated form because media modalities are used differently – are combined to assemble one larger narrative. Interestingly, in an audience study, Marino (2016) found that users don't view the media forms as separate pieces of the narrative; instead, their experience is holistic. Marino's finding suggests interactive journalistic narratives is itself a recognisable media form whilst also containing existing media forms.

2.2 Interactivity and agency

Thus, multimediality, in the context of *digital longform journalism*, refers to the unique combination of media modalities and media forms used for journalistic interactive multimedia narratives. However, only focusing on different modalities and media forms is insufficient to grasp this journalistic genre because it is not only the result of a particular combination of media forms. I maintain that the way media forms are combined with interactive affordances is what makes this genre unique in online journalism. This aspect of *digital longform journalism* has not gained much academic attention, even though interactivity is crucial for understanding how changing dynamics between journalists and their audiences are reflected in interactive non-fiction. I would even argue that it is *more* important than multimediality because interactivity is described as a critical affordance for audience engagement (Picone, 2016; Usher, 2016), which is considered the *raison d'être* of interactive non-fiction (Dowling, 2019).

The role of interactivity for interactive non-fiction is multi-faceted. First of all, interactivity is needed to access all available content; users can click, scroll, or swipe to access all available content of the narrative. But this functional interactivity ignores the role of interactivity for meaning-mak-

ing, as Nash (2012) convincingly demonstrates by focusing on form, function, and context when interpreting interactive features of interactive documentaries. In this context, Hiippala (2017) talks about "page-flow"; media forms are displayed on a website and, by using the interface, users navigate through the various media forms. Again, like for multimediality, clicking, scrolling, or swiping is not unique to interactive non-fiction. Rather, the way interactive elements are presented to users as part of the story space is what defines the genre. Not only do they indicate to users that they can scroll or swipe, but often, interactive elements present that user activity as part of the story. But the presentation of this story isn't linear; instead, I argue that these interactive non-fiction narratives are story spaces for users to navigate (see article 2). For example, in both *Refugee Republic* and *Het Nader Gehoor*, users can click on interactive elements. However, in *Refugee Republic,* this activity is framed as "exploring and walking through a refugee camp" whilst in *Het Nader Gehoor,* the same activity is framed as "talking to an asylum applicant" (see article 2 for a detailed analysis of both examples). Of course, the specific framing and context of interactive elements differ between interactive non-fiction narratives. However, overall, producers create interactive elements because they want users to engage with a journalistic story (see article 3).

The role of interactivity in interactive story spaces not only makes the narrative accessible, but it also makes the presentation dependent on user activity. Because these story spaces contain choices, options, and pathways for users to explore, they potentially make diverging choices when interacting, which results in different story experiences. Users have the agency to choose what to include in their "reading" of the story space. This aspect reflects the poetics of digital media developed in the 1990s. In his influential book *Cybertext: Perspectives on Ergodic Literature* (1997), Aarseth approaches the digital text as a labyrinth and maintains that contrary to a non-digital text, the work is not complete without user interaction. Similarly, in *Computers as Theatre* (1993), Laurel identifies the

narrative potential of digital fiction that users can now act within the narrative through an interface. Uniting these two aspects, Murray asserts in her book *Hamlet on the Holodeck* (1997) that the narrative potential of digital media is both *procedural* and *participatory*, meaning that the text is essentially an algorithm dependent on input from a user. During the 1990s, these procedural and participatory affordances were considered novel and unique to digital media. However, as both Cover (2006) and Müller (2008) show, interactivity has long been part of the reception process and the imagination of technology and media capabilities. Thus, digital media are not unique in making audience activity possible. Instead, I argue that they enable producers to shape this activity in ways that simply were impossible in older media forms. The narrative forms that emerge from digital media make the activity visible for the producers of the texts, which compels them to reconsider their relationship with their audiences.

2.3 Narrative as a process

Interactivity has far-reaching consequences for conceptualisations of narrative and narration. These consequences can be explained by elaborating on the basic narratological distinction between story and plot – or fabula and syuzhet – a distinction that can be traced back to the Russian formalists (Abbott, 2008). *Story* describes the chronological order of events and *plot* how these events are conveyed to the receiver (Bordwell, 1985; Bordwell & Thompson, 2006).

In my research, I follow the neo-formalists, meaning that I approach narrative as a process (Branigan, 1993; Bordwell, 1985; Thompson, 1988). Interested in the analysis of film texts, and thus a pre-digital media form, Bordwell (1985) and Thompson (1988) developed a narratological approach that hinges on the idea that the text provides narrative cues that start a cognitive process through which the receiver constructs a story. For Bordwell (1985), the plot is the sequence of the narrative cues presented in the film text. Producers encode the story in the plot through

narrative cues, and the audience decodes the cues to create a construct of the story. In this process, the plot, once established in the media text, remains stable.

Ryan (2014) argues that for interactive narratives, this is not the case. The presentation of the cues that make up the media text is variable for interactive narratives; thus, the plot is dependent on user interaction and potentially appears differently to individual users. This aspect of interactive narratives is commonly described as procedural (Murray, 1997; Koenitz, 2015). The consequences of this procedural nature of interactive media texts for non-fiction narratives have gained little academic attention thus far, especially in journalism studies. Yet, the concept is exciting because it implies that producers need to approach their journalistic stories differently. After all, the text they make invites or even requires users to make choices within the story space (see article 2 and article 3).

3 Research design

My explorative research yielded interesting insights that became fundamental to my approach in this thesis (see article 1). Firstly, the practice of interactive narratives is inherently interdisciplinary, which, I felt, needed to be reflected in the research design. Seeing as previous research conceptualised the genre within the boundaries of disciplinary traditions, in my research, I wanted to include insights from different disciplines so that the conceptualisation better reflects how the genre emerged from the blurring of disciplinary boundaries in journalism practice. Secondly, the procedural nature of interactive narrative texts drew my attention to performativity as part of the narrative process. I see this reflected in the way the presentation of narrative cues is dependent on user activity. However, I was not only curious about these journalistic narratives requiring users' activity; I also wondered how producers create such a text whilst working interdisciplinarily, and how users respond to interactivity as part of

journalistic stories. Both interactive narratives and interdisciplinarity are recent developments in journalism, and I am fascinated by these developments' social and material practices. As I have argued above, I place these new practices in the context of the audience turn. In my research, I focus on how these changing dynamics between journalists and their audiences are reflected in interactive narratives, its production, and reception processes.

Preceding the questions that delve deeper into the consequences of interactivity at three different stages in the narrative process, as detailed below, I wanted to explore the Dutch field of interactive journalistic non-fiction. The existing research was mainly focused on Anglo-Saxon journalism and was rife with eye-catching high budget examples. Empirical descriptions of other national contexts were scarce. Beyond that, I wanted to know how multimediality, interactivity, and narrative were reflected in interactive non-fiction. This explorative study was instrumental in my decision to focus on interactivity and its consequences for the dynamics between journalists and their audiences.

My fascination for the consequence of interactivity in the social and material practices of interactive non-fiction drove me to design an interdisciplinary research approach that allowed me to study these consequences for (1) the text, (2) the production process, and (3) the reception process. In my preliminary approach, I already posited that the text is a plot represented as a story space created for users to interact with, potentially resulting in various individual constructions of the story. Firstly, I wanted to develop this concept further and understand (1) how the interactive architecture of the story space shapes the text's potential for user agency. New journalistic production practices accompany the creation of these procedural journalistic texts. Notably, the literature indicated a connection between the pursuit of audience engagement and the rise of interactive non-fiction. This connection propelled me to study (2) how the practice of designing for audience engagement is shaped during

the production process of interactive journalistic narratives. I argue that interactive narratives are part of a trend in journalism where news organisations and individual producers wish to elicit a different response to journalistic stories. Studying the production process makes explicit how producers design audience engagement by creating an interactive architecture for the story space. What remains to be seen is (3) how users experience engagement as they navigate the interactive architecture producers designed for these story spaces. This user experience is what producers aim for, and studying the reception process sheds light on how users respond to interactivity.

3.1 Approaches: studying processes

My research focuses on different aspects of the narrative process: the procedural text, the production process, and the reception process. This focus requires a methodological approach that can capture these processes. Because they are in motion, capturing them as part of research is rather difficult. I needed methods that could capture that motion. Barad (2003) explains as follows: "It is through specific agential intra-actions that the boundaries and properties of the 'components' of phenomena become determinate and that particular embodied concepts become meaningful." (815) She maintains that researching such phenomena requires an epistemological shift from representational approaches to performativity, which had significant implications for my research methods.

Throughout my research, I was interested in capturing the narrative process of interactive journalistic narratives. If I wanted to know how interactivity affects this process, I needed to see it in action. Thus, the overarching process featured in my research focuses on the relationality between three main agential sources involved in this narrative process: authorial agency (producers/author), user agency (users/audience), and technological agency (affordances/materiality). What at first glance may appear to be a straightforward communication process where the pro-

ducers entextualise their imagination to construct interactive story spaces to which users respond, revealed a complexity of different agencies that shape (and enact) the narrative process. What I needed were methods that enabled me to elucidate on how these agencies shape the various stages of this narrative process.

Doing interdisciplinary research led me to learn and combine theories and approaches from different academic traditions. Amongst them are journalism studies, media studies, computer science, narratology, and science and technology studies. What unites the chosen methods is that they are associated with digital materialism, as they focus on the consequences of interactivity in the social and material practice of interactive non-fiction created in the context of journalism. As this concerns processes shaped by actors involved and by the relationship between those actors, the challenge was to find ways of gathering data that would allow me to analyse processes.

The following section describes the theoretical and methodological considerations for each of the four articles featured in this thesis.

3.2 Exploring interactive narratives in the Netherlands (article 1)

My research started with exploratory analysis, alongside the conceptual development of the approach as described above. Both the theoretical and empirical exploration showed that interactivity was hard to grasp with current methods used in journalism studies. The literature review revealed that much of the academic and professional literature discusses Anglo-Saxon examples to elucidate this new form of journalism. Beyond that, it showed that in particular, interactivity was poorly understood as a defining characteristic, which spurred me to formulate a conceptualisation that considered narrative, multimediality, and interactivity. Thus, my aim for this study was twofold. Firstly, I wanted to provide an overview of the news organisations in the Netherlands that were and still are making interactive multimedia narratives. Because I also wanted to study

the production and reception process, I needed to select salient case studies. The collection I created helped me choose cases for the subsequent studies. Secondly, I wanted to explore how multimediality and interactivity were reflected in these narratives to develop my conceptual model further. To this end, I decided to start a collection of Dutch interactive narratives that would be analysed systematically, inspired by qualitative content analysis (Koetsenruijter & van Hout, 2018).

Building a sustainable collection for this study proved particularly difficult because interactive narratives are a scantily archived journalistic form. This lack of archiving is interesting because producing these narratives requires serious investments in both time and money. Furthermore, it turned out that the Dutch news organisations that spearheaded interactive narrative production also lacked consistent overviews and databases of their innovative journalistic productions. And beyond that, the production of this type of narrative is not constant like the news or other genres of journalism; monitoring the output of news organisations for a set amount of time (as is typical for content analysis) was not going to yield a representative sample either. This gap left me with the question of how to go about collecting Dutch interactive narratives. The first challenge was finding the narratives, and the second, as it turned out, was archiving them for future analysis.

Reasoning that news organisations and producers would value these productions because of the innovative character of interactive non-fiction, I decided to build my collection from the submissions of three prominent Dutch journalistic awards. The organisations of these awards – VVOJ (investigative journalism), VOJN (online journalism), and RPO (regional broadcasting) – provided me access to the submissions of 2015, 2016, 2017, and 2018, allowing me to gather 155 interactive narratives produced by Dutch news organisations between 2014 and 2017. Whilst this may not be a representative collection – at least there is no way of knowing if it is – altogether, these 155 narratives reveal how common the

production of interactive narratives was during those years. The collection showed that a great variety of news organisations were creating these narratives, ranging from the large national newsrooms of the Volkskrant and NOS to small hyperlocals, such as Vers Beton. I stopped adding to my collection after 2018 because in that year, the VOJN was abolished. Seeing as submissions to their award made up the majority (80%) of my collection, continuing with only the other two awards would not yield a comparable sample of the subsequent years.

The second hurdle presented itself as I wanted to start the analysis. As I was going through my collection to select 20 interactives for deeper analysis, I discovered that some links were dead and that part of the content was missing for some narratives. I checked all collected narratives and found that this was the case for 33%, leaving me with 103 working interactive narratives. Fascinated by this high number, I delved a bit deeper into web archiving, intending to preserve my collection. With the aid of two student-assistants who created archive files using a web archiving tool created by Rhizome, I archived the collection with the Dutch media archive Netherlands Institute for Sound & Vision.

Furthermore, I worked with Sound & Vision to organise an expert meeting for journalists to draw attention to the lack of archiving in online journalism. As it turned out, this was not only an issue for interactive narratives, but much of online journalism simply disappeared over the years. This disappearing act poses a severe problem for the ongoing study of digital journalism because 1) the object we are studying might just vanish, potentially leaving our results without accessible empirical data, and 2) it will prove challenging to study developments in digital journalism in retrospect as artefacts will have disappeared (as is, for example, the case with the first Dutch news website) or become inaccessible (as is the case for journalistic narratives made using Adobe Flash) (Dougherty & Meyer, 2009; Wijfjes, 2017). In the Netherlands, several archives, including Sound & Vision, store newspapers and public broadcasts. However,

Sound & Vision archives news websites once a year, meaning it is never more than a snapshot. The Internet Archive solves the issue partially, as it systematically archives the most significant worldwide websites regularly. However, most Dutch journalistic websites are not included.

Despite the lack of regularity in archiving, it is easy to archive standard websites automatically. However, these automatic archiving tools are not very good at capturing interactive and dynamic web content (Dougherty & Meyer, 2009; Rogers, 2017; Verbruggen, 2013). This inability to archive dynamic web content poses a problem for conserving interactive narratives, which are typically created using advanced and innovative web design techniques. The technology to archive such websites exists but requires that someone goes through the narrative manually, clicking, scrolling, or swiping through every available option (Verbruggen, 2013). Programs such as Rhizome's tool allow manual archiving, but even using this tool, it proved hard to archive the 155 interactive narratives completely, leaving holes in the collection as is. This deterioration of digital artefacts makes the study of these unique narratives more urgent.

3.2.1 Case selection

The exploratory analysis explicated that interactivity proved hard to grasp with conventional methods. I even decided to add an analytical cycle based on Nash's (2012) model to analyse interactivity in interactive documentaries. For my research in the three subsequent studies, I wanted to uncover the inner workings of interactivity at three stages in the narrative process. Moreover, I wanted cases to reoccur in each of the three studies, which would reveal how creators translate their beliefs about interactivity to the narrative text and how users respond to these designs.

Since few studies focused on interactivity in journalistic narratives, I chose to provide a rich and salient analysis of exemplary cases that together, display variation in interactive architectures and thus, potential user experiences, and composition and experience of the production

teams. To analyse interactive architectures, I selected five cases from my collection of 155 interactive multimedia narratives. Initially, I wanted the cases to be part of this collection. However, since I needed to talk to producers for the subsequent analysis of the production process, it was not possible to only use cases from my collection. Typically, these narratives are produced by interdisciplinary teams that worked together only for that specific production. Beyond that, some of the cases I selected were old, like *De Hartslag van Lehmann Brothers* (2014) by NRC Handelsblad, and producers had moved on to other projects and jobs. Eventually, I used the five initial cases as a point of departure, and I ended up selecting five narratives for analysis in my second study (see article 2) that producers of those original narratives were working on more recently. Of these five narratives, three production teams wanted to participate in my research (see article 3). In the reception study, I used the three narratives created by these production teams to unravel the user experience (see article 4).

3.3 Story spaces and interactive architectures (article 2)

The second study aimed to examine the consequences of interactivity for journalistic narratives designed for audience engagement. As described above, I approach narrative as a process. Whereas Bordwell and Thompson developed their neo-formalist narratology for the study of film, Jenkins (2004) argues that such a cognitive understanding of narrative is well suited to studying interactive narratives. In my research, I wanted to delve deeper into the consequences of technological interactivity for narratives, specifically how this interactive design shapes the potential for user activity.

In my preliminary approach, I proposed to conceptualise interactive narratives as story spaces (see article 1). In my second article, I develop this in more detail. Thinking along with Koenitz (2015) and Jenkins (2004), I elucidate how interactive narratives can be considered story spaces with an interactive architecture. Koenitz (2015) sees interactive

narratives as narrative systems that contain a proto-story. This proto-story is the total of all possible stories users can construct whilst they use the narrative system. This idea that the story space contains all possible stories fits with a neo-formalist approach to narrative because according to Jenkins (2004), it illuminates that narrative is more a body of information than a temporal structure.

This procedural aspect of interactive narratives can be explained by the way video games work. In the science-fiction roleplaying video game series *Mass Effect* (EA/Bioware), you create your own Commander Shepard to save the universe from a primal alien force that threatens to end civilisation. The story's development and ending depend heavily on the players' choices about who gets to live or die, who you decide to seduce, and whether you are good or evil. The proto-story contains all these possibilities, but how they play out – and thus the story the player constructs – depends on choices made during gameplay. The consequences for these choices are part of the narrative system. The way video games operate illustrates precisely why representation alone is not enough to understand what interactivity does to a narrative, because as this example clearly shows, it is through interaction with the narrative system that players can construct a story. The same principle applies to interactive non-fiction narratives such as *Snow Fall* and *De Industrie*, though the scope and consequences of users' choices may not be as extensive as in a game like *Mass Effect*.

Approaching interactive narratives through spatial metaphors such as *story space* and *architecture* allowed me to analyse the scope and extensiveness of the potential user interaction, thereby drawing attention to the performative nature of these journalistic texts. My study illuminates how interactive narratives can no longer be considered the result of authorial agency alone. The interactive architectures of these story spaces are specifically designed to invite users to participate in constructing their trajectory through the story space. I consider the story space a

conceptual space that allows me to analyse how the procedural nature of interactive non-fiction shapes the potential relationship between producers and users. Users can explore story spaces because navigational cues are presented on their screens. Together, these navigational cues can be analysed as interactive architecture that shapes potential user interactions within the story space. Digital technologies enable producers to create open narratives that users can interact with; these technologies come with specific affordances, meaning that a particular piece of software is inscribed with possibilities and constraints that shape the texts a producer can create (Akrich, 1992; Hight, 2017). As far as my research is concerned, one key affordance of digital technology is its potential for user activity. Producers use this potential to include user agency in their narrative design, thereby creating *story spaces*.

3.3.1 Method: Reconstruction of the interactive architecture

For the textual analysis, I wanted to focus on the interactive architecture of interactive narratives. I developed a heuristic model for the analysis. This model approached interactive narratives as story spaces users explore, as described above. Commonly, narratological analyses are done by closely reading the media text. However, the methodological practices associated with textual analyses typically do not describe how the researcher performs such a close reading (Fürsich, 2009). Additionally, since the presentation of interactive texts depends on user interaction (Koenitz, 2015; Ryan, 2014), traditional textual approaches are unsuited for studying interactive architectures. Therefore, I structured my close reading by reconstructing the interactive architecture through iterative "walkthroughs" of each narrative. Light, Burgess and Duguay (2018) suggest in their instruction for walkthrough analyses of apps to include a "step-by-step observation and documentation of an app's screens, features, and flows of activity" (882). Following this approach, I generated and accumulated different instantiations of the

five narratives in my walkthroughs by engaging with the narrative and navigational cues.

The data was gathered following the same protocol for all five interactive narratives, consecutively focusing on (1) an in-depth description of the narrative, (2) generating visualisations of the interactive structure of the narrative, (3) mapping navigational cues that guide users through the story space, including the available choices, and (4) representing these findings with a final walkthrough as wireframes. There was limited space in the article to provide details about the subsequent steps of this analysis; therefore, I offer more information here.

I started the analysis with a close reading of the text for each interactive narrative, resulting in a detailed description. My close reading was based on initial walkthroughs of the narrative, ending with a walkthrough in which I purposefully went through all the content. This step served as an exploration for a deeper analysis of the text. During this step, it proved hard to capture the analysis of interactive narratives in a linear and text-based format.

Therefore, this exploration was followed by making visualisations of the interactive narratives. I did this by going through the narratives and mapping out the interactive structure with pen and paper (figure 1[1]). I started at the opening page and depending on the narrative, mapped the different screens and layers. I ended this step by making a drawing that characterises the interaction design (figure 2). I continued my analysis by visually mapping the navigational cues because I was interested in how the narrative text displayed the potential for user activity. I started by making Post-it pathways of the navigational cues (figure 3). Orange stands for guidance/steering and blue for freedom of choice. Then, I connected these insights with the drawing from step 2 and visualised the interactive structure and the way the narrative cues guide the user through this structure (figure 4). Finally, I made a wireframe for each narrative (figure

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1   Figures are displayed in appendix 1.

5). Wireframes are schematic visualisations of the possible interactivity, a common practice in software development and web design.

By documenting the iterative instantiations, I generated rich data to reconstruct the interactive architecture of the story space and its complete navigational structure. Based on the walkthroughs and the wireframes, I focused my analysis on how various navigational structures shape potential user interaction and mainly, how user activity within the story space is shaped by its interactive architecture. The findings reveal a continuum of more open and closed story spaces. More complex story spaces alternate open sections of the story space with sections that guide users more directly.

3.4 The production processes of journalistic interactive narratives (article 3)

Following my analysis of the interactive architectures, I focused my third study on the production process of interactive narratives. What interests me is what I call the *practice of designing for audience engagement* (Ahva, 2017; Witschge & Harbers, 2018). In my article, I argue that this practice emerges from the convergence of journalistic and design practices in the interdisciplinary teams that create interactive narratives. For this study, it took me a long time to find the right angle. Initially, I explored how different agencies shape the production process. I wondered how authorial, user, and technological agency influence the process of designing for interactivity and how I could reconstruct this process. However, Witschge and Harbers' (2018) work on practice theory for journalism studies allowed me to capture the production process and consider how authorial, user, and technological agency shape the enactment of audience engagement as a design practice.

What fascinated me is how design practices aimed at deeper audience engagement emerge from the convergence of formally distinct disciplines (Anderson & Borges-Rey, 2020; Chaplin, 2016; Doherty, 2018;

Uricchio et al., 2016). Designers are not only asked to join journalistic production teams, but also, in many cases, the production of a narrative design for audience engagement originates in departments other than the newsroom (Dowling, 2019). These new journalistic practices indicate that traditional boundaries both within and outside of journalistic institutions are blurring (Carlson, 2016; Deuze & Witschge, 2020; Witschge et al., 2018). Existing conceptualisations of journalism and who gets to be a journalist no longer apply.

In this context, Witschge & Harbers (2018) propose practice theory as a bottom-up approach to examining the consequences of ongoing changes for producers working in what can roughly be considered the field of journalism. The value of practice theory, Witschge and Harber argue, is that it allows for conceptualisations of journalism practices from the perspective of actors involved, without a priori formulated, which are often normative notions of what journalism ought to be and consequently, who are considered journalists. As a socio-material approach, practice theory focuses on social phenomena by explicating how dispersed agency shapes the enactment of said phenomena (Nicolini, 2012). Practice theory is a compelling approach for studying new and emerging journalistic work because it purposefully moves away from normative and top-down conceptualisations of journalism. Instead, it draws attention to the complexity of trail-blazing journalistic work in an overall conservative and struggling industry.

For the practice of designing for audience engagement, I was particularly interested in how producers shape the role of users in their narratives. First of all, because journalists express that the audience has become more important to them in their day-to-day work (Loosen & Smith, 2012; Robinson, 2019). And secondly, because I wondered how users could be considered as actors during the production process. In my article, I clarify that users – as real-life human actors – are not part of this practice. Instead, producers negotiate an imagined user from whose per-

spective design decisions are made (Coddington et al., 2021; Litt, 2012; Nelson, 2021a; Robinson, 2019).

Thinking with practice theory and following Witschge and Harbers' approach, I argue that the imagined user emerges from the convergence and collision of disciplines (particularly, journalism and design). A practice in this context is, as Witschge and Harbers (2018) put it, "the shared set of activities and understandings" (110), as expressed by its actors. Or as Ahva (2017) phrases it: "practices are socially recognized, routinized and embodied enactments, in which bodies are moved, objects are handled, things are described, and the world is understood." (4) Although, practice theory is not considered one unified approach, but rather, a set of theories that have in common that they "foreground the importance of activity, performance, and work in the creation and perpetuation of all aspects of social life" (Nicolini, 2012 3). These definitions point towards crucial characteristics of a practice approach. Witschge and Harbers describe a practice informally as the "sayings and doings" of actors involved (100), meaning a practice entails the embodied activity of actors, as well as the knowledge, assumptions, and beliefs that shape this activity (and vice versa). Furthermore, Ahva (2017) points out the significance of materiality, the (digital) objects and things needed to perform the activity and discourse. Nicolini (2012) even maintains that for practice theorists, there is no such thing as a practice without the materiality of the bodies enacting the practice and the object needed to perform it. Or, as he phrases it: "practice is the routinized activity of the body" (4). With its focus on dynamics between actors *and* their beliefs and corresponding actions, practice theory helped me trace how the imagined user emerges from the convergence and collision of different disciplines and technological affordances.

3.4.1 Method: Reconstruction of the production processes

To illustrate the practice of designing for audience engagement, I reconstructed the production process of three interactive narratives created by Dutch news media. Reich and Barnoy (2016) recommend structured in-depth interviews with producers, focusing on recent journalistic productions because producers can then clearly recall their decisions and why. However, this proved an issue for the genre I am interested in because in-depth interactive journalism requires a lengthy production process. Consequently, news organisations do not produce in-depth interactive narratives often. Furthermore, interviewing producers close to the publication date still means the process started over a year before publication, which means recalling the early days of the production process may pose a problem. To solve this, I triangulated data gathered in three consecutive steps: (1) a document analysis, (2) in-depth interviews with producers, and (3) focus groups with each team of producers.

Furthermore, I used visualisation techniques to help producers recall the production process (Hölsgens, de Wildt & Witschge, 2020). Combining these methods generated the necessary salient data to reveal how actors involved in the production process shape the interaction design they believe is needed to achieve deeper audience engagement. As was the case for the narratological analysis, this study worked through iterations to inductively deepen the data analysis. For each reconstruction, the data was analysed in between each step in the data gathering process, coded in several cycles, and analysed in Atlas.ti.

I was aided by Maike Olij in the design of this study. She is an independent journalism researcher and consultant who specialises in design processes in journalism. Her expertise in designing creative sessions with professionals was instrumental in applying arts-based methods during the interviews and focus groups with producers. With her aid, I developed engaging creative activities for the respondents that help jog their memory and converse about the production process (see appendix 2).

Maike Olij also suggested structuring the in-depth interviews along with steps in the production process. Doing so led to the development of a matrix that was a topic list for the interviews and was also instrumental in structuring the data gathered throughout this study (see table op p.101). I combined the production process (horizontal axis) with the topics and themes I wished to explore in the matrix. Based on my literature review for this study, I focused my interviews and the focus group on 1) team composition, collaboration, and execution, 2) development of the story and narrative format of the production, and 3) the desired effect on the audience and users. During the in-depth interviews, this functioned as my topic list. For the focus group, I used the matrix to structure the session. I selected a critical event for each phase in the production process and asked producers to write down their association for each topic and theme in the matrix. And finally, during the coding and analysis of the data, I compared the data gathered with various methods. After an initial open coding cycle, I structured my codes according to the matrix, which allowed me to delve deeper into the material.

The data was gathered between July 2019 and January 2020. Interviews and focus groups took place at the producers' workplaces. The interviews and focus groups were recorded and transcribed. The data has been processed using the producers' names, although I used pseudonyms in the article. However, the producers can still be recognised because their names are in the colophons of the productions. The data is stored in a secure location, following the privacy and data management guidelines of both the University of Applied Sciences and Utrecht University, which conform to the GDPR.

The findings of this study reveal an interesting contradiction in the practice of designing for audience engagement. Producers say they approach the audience differently when designing interactive journalistic narratives. They believe interactivity contributes to audience engagement. However, the results suggest that producers reproduce traditional

notions of journalistic authorship when designing innovative narratives. And assumptions about audience behaviour and the emotional response to these narratives are not substantiated by additional audience and user research. Instead, producers rely on colleagues, friends, and family to test their designs.

3.5 The user experience of journalistic interactive narratives (article 4)

In my PhD's fourth and final study, I focus on the reception process of interactive narratives. As described above, audience studies of *digital longform journalism* focus primarily on interpretation and knowledge retention, and like the textual analysis of digital longform journalism, multimediality and visual aesthetics have gained more attention than interactivity (Greussing & Boomgaarden, 2019; Marino, 2016; Pincus, Wojcieszak & Boomgaarden, 2017). In my third study, I revealed that even though producers *say* they consider the role of users, they make their design decisions based on an imagined user whose characteristics are grounded in traditional notions of journalistic authorship. Producers do not corroborate their knowledge and assumptions about users with user testing or other practice-based audience research. Beyond that, producers persistently assume that interactivity increases audience engagement. Underlying this assumption is a core belief that media producers maintain significant control over user experiences. And indeed, producers invite users to participate by designing interactive architectures for their story spaces. Still, typically, the agency of users in the reception process – even in pre-digital media formats as Bordwell (1985) argues for film – is underestimated. Thus, I wanted to grasp the user experience of interactive journalistic narratives because I was curious how this actual experience relates to the intended experience.

Journalism studies, as described above, only recently turned towards a more bottom-up conceptualisation of journalism, moving be-

yond its normative roots. And even though audience research became more prevalent, as the audience turn gained more traction in the academic debates, research privileged the perspective and experience of producers in their new, more flexible and inclusive conceptualisations of journalism. Some recent studies aim to rectify this (Bengtsson & Johansson, 2021; Costera Meijer, 2021). In my research, I focus on the user experience of interactive narratives, and I wonder what studying the experience of interactive narratives would yield for the conceptualisations of the genre. Furthermore, focusing on the experience of audience engagement is interesting because of how audience engagement is conceptualised.

Lehmann et al. (2012) consider audience engagement as the user's "willingness to invest time, attention, and emotion" (164). Broersma (2019) points out that this engagement is "a precondition for processes of meaning-making, value creation, and connecting to public discourses" (1). He stresses that when users experience engagement, they connect cognitively and emotionally to the media content, leading them to invest in making sense of the text. Interestingly, in the context of journalism practices, this aspect of audience engagement remain invisible to producers, because as Nelson (2018) argues, audience metrics cannot accurately capture the data needed to grasp the user experience. Yet metrics are considered the most important measurement tool for audience engagement in contemporary newsrooms.

Steensen, Ferrer Conill and Peters (2020) point out that the complexity of the experience is lost as newsrooms aim to capture audience engagement in metrics. They suggest a framework for studying audience engagement that considers the behavioural, emotional, and spatiotemporal dimensions of this news experience. Audience engagement is thus expressed as activity that can partially be captured by metrics intertwined with emotions that emerge as users interact with the media texts. Beyond that, they argue that engagement is experienced in a particular space and

time, which also connects to the materiality of news use. Considering the supposed interwovenness of user activity, emotions, and materiality makes the experience of audience engagement not only interesting to study in the context of interactive narratives as I do, but it also contributes to our knowledge about the experience of journalism in a broader sense. By examining the user experience of journalism, we can provide additional insights that will help journalism practitioners to navigate the ongoing changes in their relationships with audiences.

3.4.1 Method: Think-aloud protocols to capture the user experience

To study the user experience of interactive narratives, I used the think-aloud protocol, which requires participants to verbalise their thoughts and feelings as they perform a task (Boren & Ramey, 2000; Groot Kormelink, 2020; van Someren, Barnard & Sandberg, 1994). Inspired by Groot Kormelink (2020), who has studied news use extensively, I wanted (and needed) a method that could capture the user experience. The advantage of concurrent think-aloud protocols is that the response to the narrative is recorded before the participants can cognitively process and reflect upon what they perceived (Boren & Ramey, 2000). The role of the researcher is to interfere as little as possible. However, the limitation of this method is that participants typically verbalise only their activity and intense emotions. But expressing moderate emotion or the absence of feelings may prove to be an essential aspect of the user experience. Therefore, Groot Kormelink (2020) proposes that the researcher occasionally interrupts the participants' experience to ask why they are *not* making a particular choice or how they feel as they interact with the text. Whilst this may alter the experience slightly, the advantage is that participants can still access their immediate emotions and thoughts before processing their experience. By participating in structured interviews after the think-aloud sessions, respondents could reflect on their feelings and thoughts, which allowed me to analyse their responses accurately.

For example, sometimes, it would be unclear what emotion they were expressing, but it would become apparent in their reflection.

The recordings of the think-aloud sessions were transcribed verbatim afterwards as prescribed by Boren and Ramey (2000). As the think-aloud protocol aims to capture cognitive processes before they have been processed, it is essential to capture the verbalisations as authentically as possible (Oh & Wildermuth, 2017). For each session, I recorded each participant and their activity on the screen. The video material was analysed along with the transcripts of the think-aloud sessions and subsequent structured interviews. The data has been processed using pseudonyms. It was necessary to keep a record of some personal information from the respondents, such as their contact information. This information is stored in a secure location, following the privacy and data management guidelines of both the University of Applied Sciences and Utrecht University, which conform to the GDPR.

During this study, Sophie Duvekot, student-assistant for the research group for journalism of the University of Applied Sciences, aided me in finding participants and collecting the data. To ensure we both executed the session similarly we worked with a protocol (Appendix 3). Additional details about how I applied the think-aloud method are described in article 4.

The data for this study was gathered in March 2021 during the corona pandemic, meaning I had to ensure that participants could safely participate in this study. My first concern was to limit the travel needed to participate. Therefore, I chose to select participants living in or near Utrecht. The sessions took place at the University of Applied Sciences Utrecht, located at Heidelberglaan 15. Seeing as the participants were students, they were able to use public transport for free. Furthermore, as most lived in Utrecht, they could also use their bikes. The sessions were set up in large classrooms, which provided plenty of space to keep a 1.5-meter distance between the participant and the researcher, and suf-

ficient ventilation (both the window and the door were kept open). In between sessions, all surfaces were disinfected.

4 Conclusion

For my PhD research, I unravelled the author-text-user relationship of interactive journalistic narratives. I focused on three stages in the narrative process to examine the dynamics between the producers and users of these narratives. Although the popularity of interactive narratives may have waned somewhat in journalism practices as newsrooms have developed more routines to produce in-depth interactive journalistic storytelling, my research provides a much-needed contribution to the ongoing discussion about the changing dynamics between journalists and their audiences. The innovative storytelling experiments that emerged in the heydays of journalistic interactive narratives have become commonplace in newsrooms. And as a field, journalism no longer holds on to the belief that online journalism is only suited for the immediacy of the news cycle.

As I have illustrated in my research, the changing dynamics between journalists and their audiences shape the ongoing evolution of the author-text-user relationship in journalism. With my research, I contribute a unique and salient description of how this relationship is reflected in interactive architectures, production processes, and subsequent user experiences of interactive journalistic narratives. This is a genre that remains interesting because its development laid the groundwork for following interactive and online forms of in-depth journalism, such as immersive journalism, news games, and the renewed interest in podcasts.

In this introduction to my thesis, I have repeatedly emphasised the need for an interdisciplinary approach. This approach emerged from the convergence theories and methods from a wide variety of academic disciplines. In retrospect, I consider my approach a socio-material one through which I untangle the relationships between the actors involved in

the narrative process of interactive non-fiction. In their own ways, each of the four studies reveals unique dynamics between producers and users of interactive non-fiction.

In conclusion, I will first summarise the significant findings of the four studies featured in this thesis. With my first article, I closed the knowledge gap that my preliminary research revealed. The study explicitly explores how critical genre characteristics, multimediality, interactivity, and narration are reflected in Dutch journalistic interactive narratives. In doing so, I demonstrated that interactive narratives are no longer only the domain of affluent internationally-oriented newsrooms; a wide variety of news media experimented with the genre, at least in the Dutch context. Whilst similar studies have not been done for other countries, the results indicated that experimental and innovative storytelling principles have permeated the journalistic field as a whole, including small hyperlocal news initiatives such as Vers Beton and struggling regional newspapers such as Dagblad van het Noorden.

Furthermore, this first study clarified that existing approaches are unsuitable for grasping the role of interactivity in the complex relationship between the actors involved in interactive non-fiction. In answer to this observation, I propose in my second article an alternative heuristic model rooted in narratology. By conceptualising the texts of interactive narratives as story spaces with an interactive architecture, I reconstructed the architectures of five story spaces. This analysis revealed a continuum of more closed and open story spaces. "Closed" refers to more authorial control over the potential trajectories users can take through the story space and "open" to less authorial control over the possible trajectories. Looking back on my collection of 155 interactive narratives, producers seem to favour authorial control by providing rather closed interactive story spaces. More complex story spaces provide both open and closed sections within, alternating between retaining control and giving freedom to users. These findings contribute to our understanding of the in-

herent tension between author and user present in interactive media. These results indicate that producers creating interactive narratives need to balance this tension between authorial control and user agency.

The results of my fourth study illuminate this tension. The analysis of the think-aloud sessions shows that interactivity draws awareness to the interactive form, which distracts users from the story. Participants would respond to narrative cues when experiencing a sense of involvement with the story. However, this sense of engagement wavered as attention was drawn to the interactive form. Interactive options within a narrative can undoubtedly contribute to engagement but will do the opposite if the awareness of those options elicits negative emotions, such as boredom and frustration. These occurred when the purpose of the interaction remained unclear to participants. Overall, the analysis shows that when users respond emotionally to narrative cues, they experience a sense of engagement. The instances of observed deep engagement occurred when participants were in more closed sections of the story space; these were sections where the producers retained authorial control over the order in which the information was presented to users. This suggests that retaining authorial control by limiting the possible trajectories through the story space contributes to users' sense of involvement. However, in the more open spaces, users commented that they appreciated the openness of the narrative, as this allowed them the freedom to look for engaging content. New interactive options almost always broke the users' sense of engagement, at least momentarily.

These results have interesting implications for the production process of interactive narratives. In my third study, I reveal that choices regarding the interaction design of these narratives are based on the producers' imagination of users' experience and activity. Moreover, the collective imaginings of the interdisciplinary teams stem from the disciplinary background of individual members, technological affordances, and the institutional and journalistic context in which the process occurs.

Producers have developed an imaginary user based only on second-hand knowledge about the emotions and activity of actual users of interactive narratives. Particularly, beliefs about how interactivity affects the user experience are assumptions about users' responses to the narrative. It seems that extensive interactive options only minimally affect the users' sense of engagement with the story. This effect suggests that producers need to reconsider the role of interactive elements in their narratives. Complex and open interactive architectures seemed to confuse instead of engage, whilst interactive options to personalise the narrative contributed to engagement. Clearly defining the goal of interactivity will help producers in designing new and exciting interactive journalistic narratives.

The findings and results of the four studies together reveal tensions between conceptualisations of the potential of journalistic interactive narratives and the empirical reality. These tensions become especially apparent in article 3 where the data shows a gap between producers' beliefs about interactivity and the role of users and their actual activities during the production process. For journalistic interactive narratives, the relationship between journalists and their audiences is built upon traditional journalistic authorship where journalists have a story to tell and assume there is an audience to receive that story. It seems that in their renegotiation of the changing dynamics between producers and users, producers of interactive forms of journalism only minimally involve the people for whom these interactive narratives are made. My research indicates that, so far, the practice of designing for audience engagement reproduces traditional notions of authorship. Yet, it would be too easy to disregard the audience turn in journalism practices. New perspectives on the audience have entered the field through design and programming becoming part of journalistic production processes. Designers and programmers have vital roles in the interdisciplinary teams developing these interactive narratives, not only to support journalistic production, as it has been the case in the past. The audience is no longer conceptualised

as passive recipient, but as active user. The collaboration between journalists, designers, and programmers will continue to shape the relationship between journalism and its users. The recent interest in journalism studies for audience perspectives may prove valuable to producers as they seek new ways to engage users.

One of the goals of my thesis was to provide an alternative interdisciplinary approach to the study of interactive non-fiction and to bridge the gap between journalism studies and documentary studies. With my work, I have introduced new theoretical and methodological approaches for journalism studies. I consider my most valuable contributions to journalism studies theories and innovative methods with their roots in the humanities. Such approaches are uncommon in journalism studies. Throughout my PhD, I have tried to appropriate these approaches and theories so that journalism scholars, who are often trained in academic traditions stemming from the social sciences, were convinced by the thoroughness and reliability of the chosen approaches. By exploring the potential of alternative methods, my PhD opens new avenues for researching the ongoing changes and developments of journalism; particularly, its relationship with audiences.

My focus on qualitative research methods provides a rich and salient analysis of an essential journalistic genre. By focusing on a small number of case studies that appear in different studies, I was able to explore in great detail how the dynamics between authorial, user, and technological agency are reflected at various stages of the narrative process. Collectively, my four articles show how the user of interactive narratives can be conceptualised differently at each stage: an imagined user during the production process, a constructed one entextualised in the interactive text, and an actual one who does not necessarily respond as predicted when interacting with the narrative. These diverse conceptualisations of the news user indicate the complexity practitioners face when designing for audience engagement. However, my explorative approach also has its

limitations. My third and fourth study both indicate that the production *and* consumption of in-depth interactive journalism is not a mainstream practice. In fact, most of my participants in the fourth study had never encountered the genre before. And the producers in my third study mostly did not work in news rooms but were part of other departments or freelancers. Furthermore, the results of my research are limited by my focus on a journalistic genre that is now past its prime, and the results of my research. And although my approach yielded salient data, given these limitations, it only reflects a small part of the practice and reception of journalism. Future research should take a broader approach when focusing on the user experience of different journalistic genres, especially those aimed at audience engagement.

At the start of my PhD, the technological and innovative nature of interactive narratives drew my attention, much like it did journalism practitioners at the time. In subsequent journalistic innovations in digital storytelling, such as immersive journalism and news games, I see similar trends. News organisations' attention for news technology is short-lived, and attention shifts to the next new thing, especially if it remains unclear how the new development contributes to the survival of the news organisation. Currently, news organisations invest heavily in podcasts, leading to a revival of audio journalism. However, I would advise journalism scholars to not follow journalism practices in pursuing the next shiny technological innovation as an answer to what the industry perceives as a problematic relationship with the audience. Future research should instead focus on the underlying question of how the relationship between journalists and the public is taking shape. The journalism industry continues to struggle, and seeking deeper audience engagement remains a significant commercial and editorial goal. The professional and academic debate on audience engagement suggests that "more" and "deeper" engagement with journalism will somehow benefit the relationship between journalists and the public. Even if this deeper audience engagement is

the answer – and we do not know if it is – I suggest more empirical re-search describing the experiential, emotional, and transformative social consequence of deeper audience engagement. But perhaps we should start by asking if journalism practitioners and news users even have the emotional and financial capacity for more and deeper engagement.

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PART II

Abstract

Interactive multimedia productions are a recent journalistic format. The format
has been studied in the Anglo-Saxon context as *digital longform* and *interactive doc-
umentary*. Consequently, research focused on English language productions. Our
study, presents an overview of these types of productions created in the Nether-
lands. It also proposes an analytical apparatus and conceptualisation that does
justice to the main properties of this new genre: multimediality and interactiv-
ity. The results show that mainly established national newsrooms produce this
journalistic form. Furthermore, the potential of digital media is sparsely used.
Despite complex narrative structures such as multi-linear and non-linear stories,
familiar media forms are used. Interactive features are primarily utilised to pro-
vide additional information to users.

Introduction

Since the 1990s, online journalism has developed along two lines. The most visible line is that of the fast current news. The daily deadline, bound by the restrictions of publication frequency, printing process, and delivery, has made way for a 24/7 news cycle, in which news appears online as quickly as possible. This development played out internationally and is clearly visible in the Netherlands in websites like NU.nl, NOS.nl and the online versions of daily newspapers like AD and the Telegraaf. A second - parallel - development is the search for depth and background to the news through digital forms of narration. In academic literature, this is referred to as *digital longform journalism*. The media mainly try to distinguish themselves by making unique productions based on their journalistic research.

We consider *digital longform journalism* to be a form of journalism in which multimedia and interactive elements are used to tell unique journalistic stories in an innovative - sometimes even literary or cinematic – way, also offering background and in-depth information (Dowling & Vogan, 2015; Hiippala, 2017; Jacobson et al., 2016; Uricchio et al., 2016). Media have been experimenting with interactive and multimedia possibilities since the 1990s. The Philadelphia Inquirer's *Black Hawk Down*, published in 1997, is often cited as one of the first examples of online narrative journalism (Hernandez & Rue, 2015; Jacobson et al., 2016). Steensen's (2009) research into the online variant of *feature journalism* is often mentioned as one of the first academic studies of in-depth, online variants of well-known genres such as reportage and narrative journalism. With the advent of computers with advanced multimedia capabilities and accessible software packages, this form of online journalism has developed rapidly since 2012. In particular, integrating different media forms on a single web page through HTML, CSS and JavaScript, has made it possible to produce sophisticated visual and interactive effects, especially after the advent of HTML5. In addition, faster Internet ensures that these effects

become visible to users without a hitch (Hernandez & Rue, 2015). On 20 December 2012, these developments enabled The New York Times to publish *Snow Fall: The Avalanche at Tunnel Creek*. This interactive long-read, which reconstructed the experience of mountain climbers caught in an avalanche, stood out for how producers integrated video and interactive data visualisations with text to make the experience accessible to users. Its success in both reach and appreciation in the professional field led to an increase in similar interactive productions and more academic attention paid to the genre (Dowling, 2017; Dowling & Vogan, 2015).

In the years after *Snow Fall*, we saw editors in the Netherlands experimenting with interactive storytelling forms, too. However, research into the genre focuses mainly on Anglo-Saxon stories with an international reach. Little is known about the Dutch situation. Hence our first question about the development in the Netherlands: Which news media are making such productions? As the existing literature suggests, they are mainly leading national print media (Jacobson et al., 2016; Hiippala, 2017)? By systematically mapping which newsrooms in the Netherlands are producing these stories, we can also see how this development takes shape at regional and local newsrooms.

In addition, we are interested in the specific characteristics of this form of journalism: multimediality and interactivity. Multimediality refers to the combination of different media forms such as text, video, image and audio (Deuze, 2004; Ryan, 2014). Interactivity refers to the necessity of actions by users for the continuation of the story. (Barry & Doherty, 2017; Hight, 2017; Laurel, 1993; Murray, 1997). Such action goes beyond scrolling through a web page. Users themselves determine the order of the story, for instance, or choose which parts of it they watch. In contrast to multimediality, interactivity plays a modest role in journalistic theories, although it is always present in the analysed productions. (Dowling & Vogan, 2015; Hernandez & Rue, 2015; Hiippala, 2017; Marino, 2016). To provide insight into how multimediality and interactivity

take shape, we will discuss, in addition to the research literature from *journalism studies*, literature in the 'interactive documentary' field. In this literature, interactivity and the potential role of the user are more extensively conceptualised. The interactive documentary, moreover, does not differ essentially from the *digital longform*. Both are about in-depth, interactive multimedia stories. Therefore, similar and often even identical examples are analysed within both traditions. Besides these two terms, the literature also speaks of 'longform journalism' or longreads. This term causes some confusion: interactive multimedia productions always require a certain amount of time from the user, but not all longreads are multimedia and interactive. Hence our preference for the description 'interactive multimedia stories'.

Our study used a corpus of 155 interactive multimedia journalistic stories to map out trend-setting Dutch productions. Of these 155 stories, 20 were analysed for their multimedia features and story structure. Another nine of these 20 stories were further analysed concerning form, function, and context of interactive applications to map the most distinguishing feature, interactivity, accurately.

Interactive multimedia stories in journalism

In the academic literature on interactive multimedia narratives, journalistic interactive multimedia narratives are often seen as the digital manifestation of narrative journalism, a journalistic form that makes use of literary techniques (Dowling, 2017; Dowling & Vogan, 2015; Giles & Hitch, 2017; Jacobson et al., 2016; van Krieken, 2018). These techniques include the reconstruction of scenes and dialogues and the application of literary narrative perspectives. Yet, to grasp the complexity of interactive multimedia stories, it is not enough to look only at literary stylistic features. After all, a characteristic of interactive multimedia stories is the convergence of written and audiovisual journalism with the storytelling potential of digital media. This convergence creates a multimedia nar-

rative form that includes the use of the interactive possibilities of digital media. Below, we will discuss the concepts of multimediality and interactivity in the context of this new narrative form.

Multimediality

Multimediality is a crucial feature of interactive multimedia stories. Initially, visual aesthetics and the associated innovative digital techniques played an important and sometimes even a leading role in such stories (Dowling & Vogan, 2015; Greussing & Boomgaarden, 2019; Hiippala, 2017; Jacobson et al., 2016). User studies show, therefore, that the design of interactive multimedia stories is essential. It elicits positive reactions from users (Greussing & Boomgaarden, 2019; Marino, 2016). Although there seems to be no direct link between an interactive and multimedia presentation and knowledge acquisition (Greussing & Boomgaarden, 2019; Pincus et al., 2017), Greussing and Boomgaarden conclude that a positive appreciation of the design can lead to increased involvement. They argue that a chain reaction occurs whereby an initial positive response to the visual aesthetics increases the attractiveness. The result is that users appreciate user-friendliness more, become more engrossed in the story, and feel more involved. Yet, the authors argue that the opposite effect also exists: a negative first impression leads to less engagement, even if the user is interested in the subject.

The visual aesthetics of a journalistic story's multimedia design thus starts a chain reaction that makes the user feel more involved and, indirectly, more knowledgeable. In addition, based on eye-tracking, Marino (2016) found that users of interactive multimedia stories do not see different media forms such as text, photos, audio and data visualisations as separate components. They experience them as one whole. The connection between the various media forms is functional and enhances the story.

The research into *digital longform journalism* discusses multimediality through various concepts linked to literary and cinematic narrative techniques. When Dowling and Vogan (2015) talk about the use of cinematic techniques, they refer to a story divided into several scenes that flow into each other via visual transitions, such as fade-ins and fade-outs. Also characteristic of the genre is the parallax scroll, in which text and image dynamically merge into one another (Dowling & Vogan, 2015; Hiippala, 2017). In this context, Jacobson et al. (2016) speak of the animation of literary techniques. Giles and Hitch (2017) call it embedded multimedia and interactive multimedia. The genre is thus not approached exclusively as an online continuation of written journalism but as a new genre that distinguishes itself by combining multimediality with visual effects that are only possible online. Here, multimediality is not simply the existence of different media forms next to each other; in each of the concepts discussed, the connection between various media forms is central.

The innovative visual aesthetics are designated as a distinguishing feature of this genre. Nevertheless, theory places the genre within the literary narratological tradition, thus emphasising linear narratives. This development can be traced to the selection of stories in the research on *digital longform journalism* - this mainly concerns stories created by news media rooted in print (Dowling & Vogan, 2015; Hiippala, 2016; Jacobson et al., 2016). Therefore, a preference for linear storytelling and narrative journalism is not remarkable among such media (Dowling, 2017). However, this same theory also shows that other narrative structures are used, relatively unknown to journalism: multi-linear and non-linear narratives (Hippala, 2016; Jacobson et al., 2016; Uricchio et al., 2016). The three narrative structures differ in the order of presentation in various media forms. In a linear story, there is one sequence of media forms that the user goes through in chronological order. A multi-linear story has multiple sequences from which the user can choose. A non-linear story has no predetermined sequence. The different parts are organised thematically,

and users choose their path within the story. For the last two story structures, interactivity is necessary to make all parts of the story accessible to users. Yet interactivity also plays a vital role in the linear stories analysed in the research on *digital longform journalism*.

Interactivity

Whereas multimediality receives ample attention in the literature in *journalism studies*, interactivity is only addressed in a limited number of studies. Hernandez and Rue's (2015) research is an exception and is, therefore, one of the most important studies in this field. They conceptualise interactivity as a user experience. They distinguish *continuous*, *comprehensive* and *immersive* user experiences. In a *continuous* experience, interactivity is in the service of the storyline; the user's action brings about a continuation of the story. A *comprehensive* experience is focused on understanding; users navigate through the information to get an idea of the story. In the *immersive* experience, the interaction aims to immerse the user in the story world. Whether this is how users experience the story has not been researched. The supposed experience is derived from textual features such as the arrangement of story parts and visual and interactive effects that connect these parts.

Hernandez and Rue's user experiences are related to the aforementioned story structures and the multimedia character of the genre. A linear arrangement presupposes a *continuous* experience, whereas a thematic, non-linear arrangement evokes a *comprehensive* experience. Narrative techniques, both literary and cinematic, make an *immersive* experience possible. An interactive multimedia story almost always consists of these three user experiences, although one type may prevail. The potential user experience is central to Hernandez and Rue's model and, according to the authors, is encoded by the ever-specific combination of media forms and interactive options within a production. The model is of limited use to us because the three concepts are not on the same con-

ceptual level: *continuous* and *comprehensive* refer to the sequence in which different media are presented thanks to interaction. In contrast, *immersive* refers to the effect of the interaction on the user.

To give the concept of interactivity more depth, research into interactive documentaries offers additional insights. Within this tradition, more attention is paid to the potential of interactivity for user experiences in interactive multimedia narratives (Aufderheide, 2015; Murray, 1997; Miles, 2016; Nash, 2012; Nash, 2014). Unfortunately, hardly any cross-fertilisation occurs between the two research fields in the academic debate, as they are based on entirely different traditions. *Journalism studies* originated in the social sciences, particularly communication studies, whilst research into interactive documentaries has its roots in film studies and narratology.

In the context of interactive documentaries, Aston and Gaudenzi (2012) argue that interactive media make a renewed dynamic possible between user, author, and technology. Here, how a story presents itself to a user depends on the actions of that user. Interactive possibilities include choosing between different storylines or different perspectives and composing one's personal plotline. This interactivity makes a way of storytelling possible that is impossible in non-interactive stories. Interactivity contributes to creating meaning for users (Aston & Gaudenzi, 2012; Hight, 2017; Lachman, 2016; Nash, 2014; Uricchio et al., 2016).

That users' choices and actions are part of the story enables makers to design multi-linear and non-linear story structures (Miles, 2016; Nash, 2014; Weidle, 2016) in such a way as to allow for different potential user experiences and different user positions towards the story (Nash, 2014). In its most extreme form, this produces narratives that are wholly non-sequential and only acquire meaning through the user's choices (Miles, 2016; Weidle, 2016). The technology allows makers to design a story that offers different possibilities based on previously made choices. Potentially, each user can choose their path through the story and thus compose a personal version.

For the three story structures, linear, multi-linear and non-linear, interactivity is as crucial as multimediality. Whereas multimediality manifests itself in the sequence of the media forms, interactivity is found in the navigation options within the story. With linear stories, this means that the user moves through the story in a fixed order. In a multi-linear story, the user can choose between different storylines. In non-linear stories, the user chooses the order in which the story unfolds.

To get a handle on the design of the interaction in production and on how that interaction can contribute to the meaning, regarding interactivity Nash (2012) distinguishes between form, function and context. 'Form' refers to the way users navigate within the story. Can users click, scroll or swipe, and what happens next? 'Function' is about the purpose of the users' actions. What are users asked to do, for example, gather information, learn, or make choices that affect the course of the story? The 'context' shows which role the user is given in the story and how that is made clear. How extensive are the possibilities, how clear is the interface, and how is the user addressed? Context also indicates whether the interaction is designed using a metaphor, such as a map or a conversation, and the meaning of the interaction within the story.

Nash's research provides a valuable framework for gaining insight into the design of interactivity and how it acquires meaning through form, function and context. Within the tradition of *journalism studies*, the concept of interactivity has remained underexposed indeed, whilst the necessity to act is essential to all interactive multimedia stories. Therefore, focusing on that element offers an opportunity to interpret the interactive multimedia journalistic narrative more thoroughly.

Method

In this study, we first wanted to paint a picture of trend-setting Dutch interactive stories. In addition, we investigated how multimediality and interactivity were expressed in these productions. This research has been

conducted in two phases. During the first phase, using a layered qualitative content analysis conducted inductively (Koetsenruijter & van Hout, 2018), we explored a corpus of 155 stories to get a picture of the news media that produced these stories. Based on observations supplemented with insights from theory, a codebook was drawn up for the second phase, in which we will take a closer look at the distinctive features of the genre. Because no research had been done on the combination of multimediality and interactivity, we integrated concepts from research on subtopics into our method. In doing so, we combined methodological insights from narratology (Murray, 1997; Ryan, 2014) with multimodal analysis (Hiippala, 2017) and media theory (Dena, 2004; Ryan, 2014). We carefully analysed 20 stories for narrative structure and multimodal features. It turned out that, in this way, interactivity could not be captured in detail, so we decided to add an iteration to the content analysis. Using Nash's (2012) model, as described above, we studied the form, function and context of interactive elements in nine stories.

Data collection

In the Netherlands - but also abroad - multimedia stories are not filed. Nor are there any overviews or databases of this type of stories. Moreover, their makers are not united in an organisation, as is the case for narrative and investigative journalism.

Because interactive multimedia stories require significant investments in time, money and personnel, it is assumed that the media see such productions as memorable and distinctive. Moreover, there are no overviews or databases of the genre in the Netherlands. For this reason, it was decided to compile a corpus based on the entries for three journalism awards. De Loep (investigative journalism), the VOJN Awards (online journalism) and the NL Awards (regional journalism). Each of these awards, in its unique way, provides room for interactive multimedia storytelling. The submissions involved are from 2014, 2015, 2016 and

2017. They constitute a collection of 155 stories that news media themselves consider leading for Dutch online journalism.

An entry was selected when at least three different media forms have been used, whilst each of these media forms makes a unique contribution to the story. On that basis, we selected 33 stories from the 235 submissions to De Loep (VVOJ). From the 437 submissions to the VOJN Awards, we selected 115 stories. Finally, we selected 16 stories from 70 submissions to the NL Awards (ROOS/RPO). After 2017, we stopped collecting stories because, in that year, the VOJN Awards were presented for the last time. The share of this award in the entire corpus is 70%. Given the large percentage provided by this award, collecting only entries from De Loep and the NL Awards in the following years would not result in a similar picture.

Thus, the data collection comprised 164 entries. Among them were several stories submitted for multiple awards. These doublings have been removed, leaving 155 stories.

Selection for the content analysis

A first test showed that the analysis of such productions is time-consuming. For this reason, we have chosen to analyse 20 stories qualitatively. Whilst selecting these 20 stories, it was important that the stories together reflect the entire corpus well. During this research phase, we found out that stories wholly or partly disappear from the Internet. These 52 stories were not included in the selection of the 20 stories. To reduce the remaining 103 stories to 20, we successively used the following selection criteria: (1) a maximum of three stories per news medium per year (e.g. the Volkskrant submitted twelve stories in 2017, and NOS on 3 eight stories - from each news medium the three most recent stories were selected); (2) an equal distribution between the three awards; and (3) an equal distribution between the years.

For a more in-depth study of interactivity, we selected nine stories from the collection of 20, three for each narrative structure.

Codebook

Next, we determined for 20 stories which media forms (text, photo, slideshow, illustration, data visualisation, video, animation, audio) and platforms (website, Twitter, Facebook, Snapchat, Instagram, YouTube/ Vimeo, Soundcloud, television, print) were involved (Ryan, 2014). For each story, we indicated which media forms occurred and what the dominant form was. The media form in which the core of the story is presented is the dominant one. To determine how the story is distributed across different channels, we then decided whether a story is 'intra-platform' or 'cross-platform'. A story is 'cross-platform' when unique information can be found at different digital locations (Dena, 2004). 'Intra-platform' means that all information is located at one digital site, for instance, a website. Finally, we coded the story structure: linear, multi-linear or non-linear (Hiippala, 2017; Jacobson et al., 2016; Uricchio et al., 2016). In a linear narrative, the different media forms are placed in a single sequence. In a multi-linear story, several such sequences exist side by side. A non-linear story has no predetermined sequence. In addition to these form characteristics, we also looked at the size and composition of the team whilst the coders kept track of the time it took them to read and watch all the material from one production. For the final step of our analysis, we analysed the nine stories, three from each story structure, for form, function and context of the interactive elements (Nash, 2012).

Interactive multimedia productions in the Netherlands

The analysis of the entire corpus reveals two patterns in interactive multimedia stories. First of all, it shows that the genre has been picked up by various news media. The 155 productions were made by 46 different news media. The distribution between media with a print-, broadcast- or online background is roughly equal (figure 1). Four producers fall outside these categories. These are freelance collectives such

as Lighthouse Reports or media companies specialising in interactive documentaries such as Submarine Channel.

News media with a background in print submitted most stories (67), followed by broadcasters (44) and online media (39). Among broadcasters, interactive multimedia stories are mainly made by the public broadcasters.

It also emerges that in the Netherlands, many interactive multimedia stories are made by a small number of national news media with large editorial teams. The Volkskrant, NRC and NOS op 3 annually submit many this type of stories for prizes. The Volkskrant and NOS op 3 have specific sub-editorial teams that deal with innovative journalistic narrative forms. In addition, we see that various kinds of media only occasionally try their hand at this form of journalism. These media include smaller, often local or regional news media with limited financial means.

From the total, the Volkskrant is the front runner with 31 entries, followed by NRC (17), OneWorld (12), NOS op 3 (12) and the Correspondent (11) (figure 2).

The group of news media that submitted between three and ten stories is very varied. Broadcasters are well represented (7), but regional and local media are also present. Most news media (30) submitted only one or two stories.

The second and perhaps most striking pattern is that the productions, despite considerable investments, do not have a long life online. This disappearance also became apparent during the analysis: this form of journalism is challenging to investigate because productions partially or vanish entirely. In 52 cases among the 155 stories in our collection, it turned out that the complete story or parts of it were no longer available online. Productions had not been filed elsewhere either. In response to these observations, our collection was transferred to the largest media archive in the Netherlands, that of the Dutch Institute for Sound & Vision.
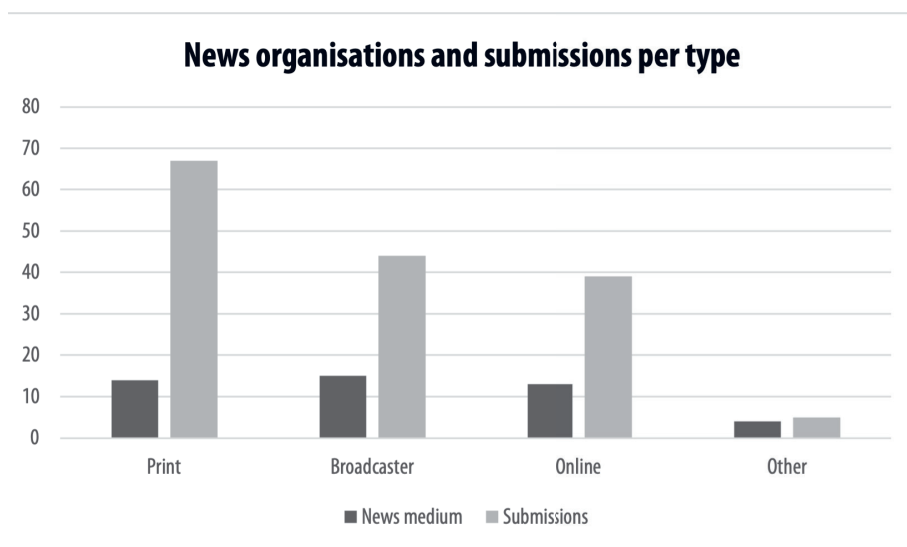
News organisations and submissions per type

Figure 1 – *News media and submission per type of news organisation.*
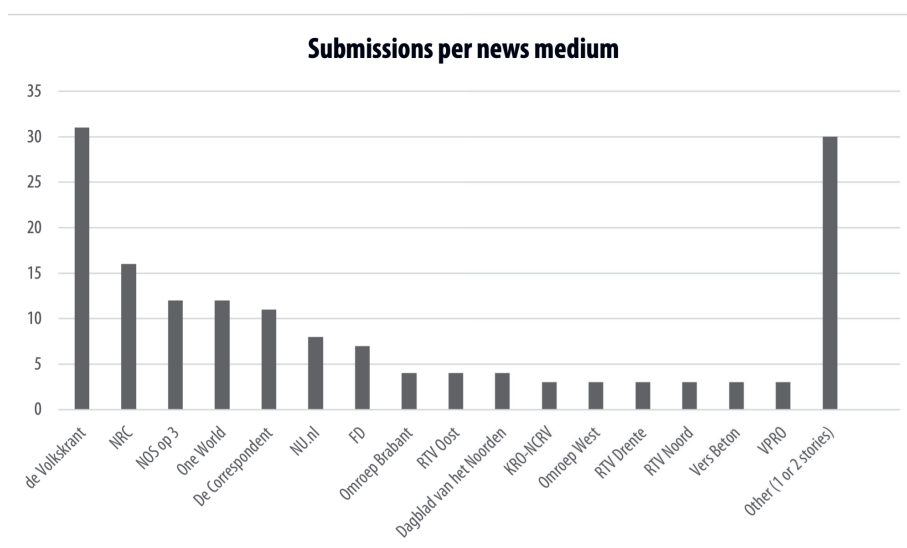
Submissions per news medium

Figure 2 – *Submissions per news medium.*

Multimedia narrative structures

To get an idea of Dutch interactive multimedia stories, we have analysed 20 productions' multimedia characteristics and narrative structure in more detail. An interactive multimedia story is usually made by an interdisciplinary team consisting of journalists, photographers, designers, documentary makers and programmers. These are longer, complex stories with a lot of in-depth content mainly presented in text, photos and videos. To read and watch all the production content, our coders spent an average of 58 minutes per production, ranging from 15 minutes to 3 hours.

Of the 20 selected stories, nine are linear, seven multi-linear and four non-linear. In linear stories, text or video, supplemented with other media forms, form a continuous narrative. For instance, NRC's *The Heartbeat of Lehman Brothers* has a linear structure. This story is a reconstruction of the weekend in which the bank filed for bankruptcy, the starting point of the financial crisis. The core of the story is a written narrative. It is complemented by photos, videos, animations and data visualisations.

In multi-linear stories, users can choose between different storylines, each presented according to the logic of a linear story. The order in which the user consumes the stories does not matter. In *Refugee Republic*, made by De Volkskrant and Submarine Channel, the user can choose between four different 'walks' through a refugee camp in Afghanistan. Each walk offers a sequence of various media forms; illustrations alternate with photos and videos.

In non-linear stories, information is arranged thematically, and the user takes a personal path through the material. The story is divided into parts, none of which tell the whole story. The order in which the user moves through the parts is not essential. This non-linear structure is found in *Oostwaarts; working in Germany* by RTV Noord. After an introductory video, the user can choose between subtopics that are offered in different media forms.

Interactive multimedia stories often contain separate instructions for the user. In most cases, we found such an instruction in a multi-linear or non-linear story. The presence of reading instructions in unconventional, complex stories indicates that the makers are aware that the story structures are substantially different from conventional journalistic stories, and that users may be unfamiliar with this type of story and do not know how to navigate.

In the 20 stories examined, at least three media forms are used, our selection criterion for multimediality. Yet, more media forms are used in many cases, with a maximum of eight (figure 3). Makers prefer text, photos and videos, with photography often playing a supporting role.

Previous research by Hiippala (2017) also shows that text is the most common media form in interactive multimedia stories created by print media. Therefore, in our study, we examined the relationship between the background of the news medium, i.e. print, broadcast or online, and the dominant media form was chosen. We have found that text as the dominant form is most often used by both print and online media, whilst broadcasters more often opt for video (figure 3). Given the background of these media companies, this is quite logical. In our selection, print media chose video as the dominant form only once, whereas broadcasters relatively more often chose text. A possible explanation is that producing text requires less technical skills than creating a video does.

The use of platforms outside one's own website is relatively common. These are mainly platforms such as YouTube, Twitter and Instagram (figure 4). However, using a platform does not mean that the story is told cross-platform. Usually, the choice is made to present all content belonging to production on a website hosted by the news medium. External channels are then embedded on this website. Usually, this concerns embedded YouTube videos. Thirteen of the eighteen stories that deploy video as a media form make use of it. The rest makes use of their in-

Dominant and used media forms

Figure 3 – *Media forms used per production.*
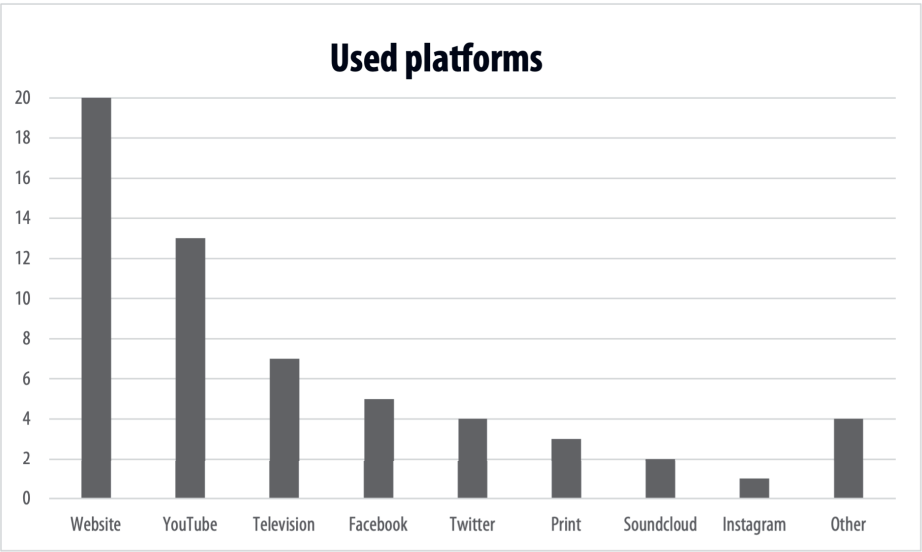
Figure 4 – *Platforms used.*

house video and audio players. All parts of the story are therefore prefer-ably presented on one website.

This pattern is also elucidated in other studies (Dowling, 2017; Dowling & Vogan, 2015; Hiippala, 2017). A clear presentation on one website is more user-friendly, especially if the story has a complex structure. Dowl-ing & Vogan (2015) call this a cognitive container. Moreover, such a pre-sentation is a strategy to keep the user on the news medium's website. This strategy has a positive effect on their own metrics, helps news media to sell online ads and strengthens the reputation of the news medium as a platform for innovative storytelling (Dowling & Vogan, 2015).

Interactivity for in-depth content

The analysis shows how different story structures are used to connect media forms and platforms. Here, interactivity plays an important role, as users navigate through a linear, multi-linear and non-linear story dif-ferently. To get an idea of the role of interactivity, we have studied nine stories in more detail (Table 1).

Table 1

Name	News organisation	Publication	Brief description	Story structure
The Heartbeat of Lehman Brothers	NRC	12/09/2013	Longread about the weekend in which investment bank Lehman Brothers filed for bankruptcy.	Linear
Oosting Committee reappointed because of possible cover-up	Nieuwsuur	25/01/2016	Background on reappointment following an investigation by Nieuwsuur.	Linear
Operation Armchair: how a small Dutch company helped the CIA to bug the Russians	The Correspondent	24/09/2015	The cooperation between a Dutch company and the CIA to eavesdrop on Russians is reconstructed.	Linear
Why Srebrenica had to fall	VPRO	29/06/2016	Reconstruction of the fall of Srebrenica.	Multi-linear
The In-Depth Auditory	Trouw	20/04/2016	Interactive videos about the admission procedure of the IND (Dutch Immigration Service).	Multi-linear
Here #inMolenbeek	NOS op 3	10/06/2016	Instagram story about the Brussels neighbourhood of Molenbeek, home to many Jihadists.	Multi-linear
Eastbound: working in Germany	Omroep Drenthe	2014	About working in Germany. More and more people from Drenthe are looking for work across the border.	Non-linear
Gelderland Helps	Omroep Gelderland	2015	Residents can get into contact to help each other.	Non-linear
The Hoogstraat until the bombardment	NRC	14/05/2015	Interactive map of the Hoogstraat (Rotterdam), re-constructing the street before the bombardment in 1940.	Non-linear

We characterise the interactive elements in these stories using Nash's (2012) model. To map how interactivity contributes to the story's meaning, she makes a distinction between form, function and context, as described earlier. Table 2 provides an overview of these three dimensions for each of the nine stories examined.

Table 2

Name	Form	Function	Role of user
Lehman Brothers	Scrolling, clicking	Users experience what the last weekend was like; they control the order of events and can choose to get more in-depth information.	Joining the experience
Oosting Committee	Scrolling, clicking	Users have control over the information that is part of the story. They can study the primary sources from Nieuwsuur's research for themselves.	Spectator
Operation Armchair	Scrolling, clicking	Users experience how the journalist has discovered the story. They can study the primary sources from De Correspondent's research for themselves.	Joining the experience
Srebrenica	Clicking	Users can choose to get in-depth information next to and during the documentary. They have control over the addition of information.	Spectator
The In-Depth Auditory	Clicking	Users can talk to an asylum seeker and can personally decide who gets a residence permit.	Participant
Here #inMolenbeek	Following, clicking	Users can follow the Instagram account updates and can watch videos made by Molenbeek inhabitants.	Spectator
Eastbound	Clicking	Users have control over the information that is part of the story and determine the sequence.	Spectator
Gelderland Helps	Clicking, typing	Users can post and answer help requests.	Participant
The Hoogstraat	Clicking	Users can explore what the Hoogstraat looked like; they have control over the information part of the story.	Spectator

When we take a closer look at the functions of interaction in the table above, we see that in six stories, interactive options are used to give users control over which information they consume (table 2). In *The Heartbeat of Lehman Brothers*, the *Oosting Committee* and Operation Armchair, the presentation of the interactive elements is similar. These linear stories offer more in-depth information by embedding other media forms in or next to the running text. Users scroll through the story and choose from the provided information. In *The Heartbeat of Lehman Brothers*, the last weekend of the bankrupt investment bank Lehman Brothers is reconstructed through the eyes of eight characters.

In the margin of the written text, the user can click on images of newspaper articles and embedded YouTube videos that provide background information (figure 5). These place the events in the story in a broader context. In the cases of the *Oosting Committee* and *Operation Armchair*, users see images of primary sources from the journalist's research inserted into the running text. In both stories, users are included in the journalistic investigation. Not only can they view this extra information, but the access to source material also reinforces the truth claim of the journalistic investigation.

Why Srebrenica had to fall has a similar structure, with the critical difference that making a choice is not always optional here. The documentary is divided into six chapters that play one after the other, although users also choose a chapter themselves. After each chapter, users must decide whether to consult the in-depth information or go on immediately to the next chapter. The in-depth information is offered in a linear story with text and video material from 1995. These parts form stand-alone storylines. Besides these 'excursions', users have further options for interaction. When playing the documentary, pop-ups appear on screen at strategic moments. Users can click on them to get background information about specific subjects. At that moment, the documentary pauses, and
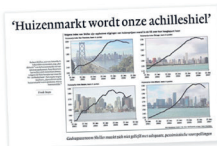
New York, zaterdag 13 september 2008, 6:00

En zij zagen het niet

Terwijl de Lehman-bankiers die ochtend hun kater uitslapen, worden de topmannen van de vier zakenbanken na een even korte nacht alweer wakker. Dick Fuld is de enige die niet onderweg is naar een dag van nieuwe onderhandelingen bij de Fed, maar om zeven uur op zijn in mist gehulde 31ste verdieping zit. De kapstokken zijn voor een keer leeg.

Na dit weekend zullen Fuld en zijn bank al snel het symbool worden van de crisis. Fuld zal *crook*, oplichter, genoemd worden, uitgescholden om zijn inhaligheid, zijn onvoorzichtigheid. En die onvoorzichtigheid was er ook. Vanaf december 2007 gaat het al slecht met Lehman Brothers, maar weinigen denken nog dat het echt mis kan gaan. "Lehman gaat Bear Stearns niet achterna", schrijft columnist Richard Beales op 18 maart 2008 in *Breaking views*.

De bank maakt die maart bekend dat 5 procent van alle werknemers weg moet. Lehman Brothers presenteert een kwartaalwinst die met meer dan de helft is gedaald door risicovolle investeringen. In het tweede kwartaal boekt Lehman Brothers zelfs een verlies van 2,8 miljard dollar (1,8 miljard euro). Het is het eerste kwartaalverlies dat de bank boekt sinds die in 1994 werd afgesplitst van American Express en naar de beurs ging.

Fuld is zijn optimisme dan nog niet kwijt. Ondanks het gigantische verlies is de bank volgens hem gezond. Men hoeft zich geen zorgen te maken. Lehman valt niet uit elkaar, Lehman heeft zijn activa niet verkeerd ingeschat. Columnisten Richard Beales en Lauren Silva lijken de overname van de bank dan pas, na de bekendmaking van de cijfers, waarschijnlijk te vinden: "Van een hele reeks financiële instellingen is Lehman Brothers de minst voor de hand liggende kandidaat om onafhankelijk te blijven."

'Huizenmarkt wordt onze achilleshiel'

NRC Handelsblad, 13 oktober 2007

Lehman gaat Bear Stearns niet achterna

NRC Handelsblad, 18 maart 2008

Lehman met rug tegen muur

NRC Handelsblad, 17 juni 2008

New York, vrijdag 12 september 2008, 9:00

Trek ten strijde

Die spanning is bij Lehman dan al tot een hoogtepunt opgelopen. In de hele financiële wereld gaat het slecht, maar nergens gaat het zo slecht als bij Lehman. Topman Dick Fuld heeft eerder dat jaar *zwaarden uitgedeeld* aan zijn bankiers. De boodschap: trek ten strijde, verzamel de troepen. Want onze bank gaat het hier dan ook redden.

Fuld is in 2008 de langstzittende bestuursvoorzitter aan Wall Street. Onder zijn leiding wordt Lehman de vierde zakenbank van het land, met vestigingen over de hele wereld. Hij is de verpersoonlijking van de bank. Steeds weer sleept hij het bedrijf door crises. Tijdens de Aziatische financiële crisis in de jaren negentig daalt het aandeel van Lehman sterk. Fuld trekt de bank door die crisis. Aan het begin van de huizencrisis in 2007 moeten talloze topmannen van banken om hem heen het veld ruimen. Fuld blijft staan.

Fuld heeft een competitieve, bijna agressieve houding en manier van handelen. Op zijn werkkamer heeft hij een levensgrote pluchen gorilla neer laten zetten. Sindsdien wordt hij, veertig jaar na zijn begin bij de bank, 'de Gorilla' genoemd. En daar is hij trots op.

Larry McDonald herinnert zich hem anders. Fuld was voor hem onzichtbaar. In de jaren voor de val van de bank ziet McDonald en zijn collega's hem "niet één keer" op de beursvloer. Iedere ochtend wordt hij naar kantoor gereden, zijn chauffeur belt dan met de receptie. Die drukt op een knopje dat een lift stilzet. Een man beschermt de lift en laat er niemand anders in. En als Fuld dan binnenloopt, recht uit zijn auto, hoeft hij maar vijf meter te overbruggen waar hij mogelijk iemand kan tegenkomen. Daarna gaat hij meteen door naar de 31ste verdieping. "Totaal losgeslagen van de werkelijkheid."

En dat is hij misschien ook wel. "Zolang ik leef, wordt dit bedrijf nooit verkocht", zegt Fuld eind december 2007 volgens *The Wall Street Journal* nog. "En als het wordt verkocht als ik dood ben, zal ik het vanuit het graf voorkomen." Maar iets meer dan een half jaar later staan de zaken er anders voor. De 22 dollar per aandeel waar Lehman in 1998 naar naaste, lijkt vandaag bijna acceptabel. Op 12 september 2008 is Lehman ter ver onder de boleng gezakt. De kans wordt steeds groter dat Fuld en zijn plastic zwaarden de strijd gaan verliezen.

De Gorilla

Dick Fuld rip out your heart

"I wanna reach in, rip out their heart and eat it before they die"
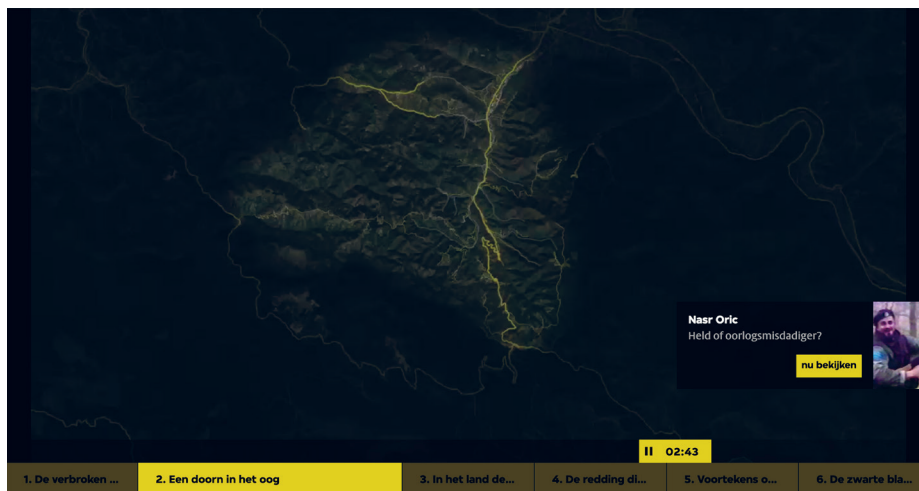
Figure 5

Figure 6

new information appears on screen in text or data visualisation (figure 6). Interactive elements in these four stories allow for two types of usage that, according to Hernandez and Rue (2015), can be called either 'passive' or 'active'. Passive users choose to follow the ongoing story and not delve into the background information or primary sources, whereas active users deepen the story. The function of this form of interaction is that it enables users to give additional meaning to the story.

Figure 7

In non-linear productions, user interaction is necessary; the user has to piece together the individual pieces into a coherent whole. In *Eastbound*, users first watch an introductory video that reveals that more and more people from Drenthe are looking for a job across the border. They then find themselves in a menu (figure 7) where they have to choose between various subtopics. Within these subtopics, it is usually necessary to make another choice for one or another part of the subtopic. In this way, users gather information about working in Germany. The information is offered as video, data visualisation and text. All clickable elements are recognisable because the clickable text is bright red. This way, users al-

Van Schaardenburgh, fruit 3
Fa. Bakker & Rip electra 9
Voetinstituut 'Centrum' 11
Streefland huishoudartikelen 13
Joods Tehuis 39-89

H. ter Meulen's, warenhuis 81

Zeelenberg, boter en kaas 111
Woonhuis 113
N. Aandagt & Zn. galanterieën 115
Oudemannenhuis 125

Schmeink, ijzerwaren 147
V&D 153

Kersholt & Fluitsma, leder 167
Woonhuis Anna de Lange 169
Woonhuis 171
Joh. Dollée, herenmode 177b
Wed. Kraus 181
Pension 183a
Hiddink's Wijnhandel 185a/b
Logement 187

Tandarts Backer Dirks 219/a
De Modeshow 219
Overstrijd, uurwerken 223
Spiekerman, paraplu's 227
Lunchroom De IJsbeer 229
H. van Dam, stoffen 231
Apotheek 237
Cohen Stoffen 243
Modia 249
Mühlmann, glas en porselein 249
Maison Pöckel, banket 251
Weijl, banket 257
Juwelier Noorlander 277
Coupeur L. Schulster 279
Juwelier Delmonte 285
Dameshoedenzaak Marlène 289
Pfaff Naaimachinehuis 311/13
Hunkemöller 317
Schoenmagazijn 321
Bioscoop Thalia 325
Hollenkamp, mode 327-335
L. de Jongh & Co, grossiers in
Witte, staalwaren 341
Gebr. Lampe 343-349
Stoffenhuis J. Monnickendam 351
De Kaplaars, schoenen 353/355
Kattenburg, mode 359
Schoenenmagazijn Huf 369
Parfumerie Van Soest 373
De Stad Parijs 379
Boekhandel W.J. van Hengel 385
Roques, sigaren 387
C&A Hoekpand

6 Van Run, slagerij
12 Mozes Stad, kantoorboekhandel
20 Woonhuis fam. Denies

36a Barbier Albert Onnes
42-46 C. Lap's Kleedingmagazijnen

70 Woonhuis Marinus Verschuren
70-74 J. Wijbrands, electra
106-108 Tabaksfabriek Dobbelmann

126 Woonhuis Petrus Bakker

136-140 City Theater
142 Volkslux

158 Foto Americain
160 Asta Theater
168-174 De Ster Modemagazijnen
182-184 C. Bakker electra

198 Spekslager Van Vugt

214 Poffertjessalon
216 Woonhuis fam. Blazer
218 Glaser's bedrijfskleding
220 Maison van den Brink

256 F. Meyer Linnenmagazijn

264 H.&G. Schröder
266-268 Dameslingerie

290 Café Rondeel

298b Pension Tholenaar
302 R. & J. Dick Ltd.

310-320 Wisbrun & Liffmann, mode

322-326 Huisman Herenmode

336 Juwelier Blom
340 Heijink en Van Vreeswijk
344 Coppers' corsets
348-350 Schönau, tapijten en meubels
360 Dijckhoff mode

370 Greve & co

382 Pastorie St Dominicuskerk
386 Magazijn De Modegids
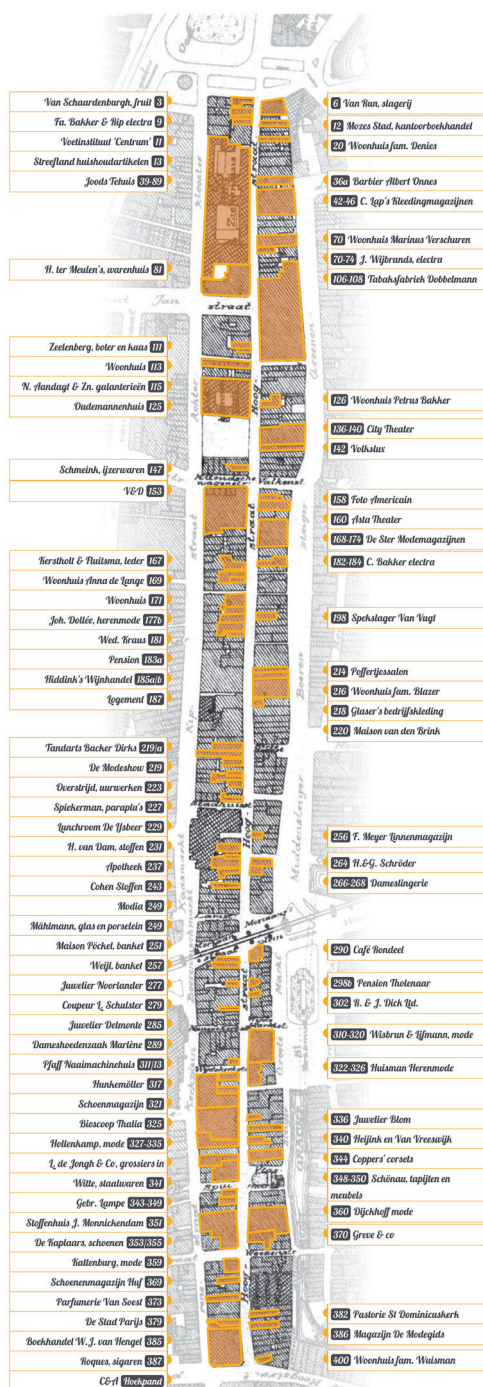
400 Woonhuis fam. Wuisman

Figure 8

ways know which options are available. *The Hoogstraat until the bombardment* uses a similar, although less complex structure. The story is presented as a clickable overlay on a historical map of Rotterdam (figure 8). Users view the map from above. On the map, the plots of houses and buildings are outlined and numbered. When users click on them, a pop-up appears with information about the plot. Each pop-up contains a short text about the residents and companies that have been in that building, sometimes with an image or photograph. By looking at different buildings, the user can explore the Hoogstraat by themselves.

Interactive elements are central to the non-linear stories and enable users to explore the material and draw their conclusions. This form of interaction is aimed at active users who are looking for an in-depth exploration.

In these interactive stories, users are not given a role within the story world. This finding aligns with the information-giving function of the interaction. In *Heartbeat* and *Operation Armchair*, narrative techniques are used to allow users to experience the story. In *Heartbeat*, the events are told from the perspective of eight former employees of the bank. In the text, users are given information about their emotions and thoughts during the last weekend. In *Operation Armchair*, the user is transported into the emotions and thoughts of the journalist and thus experiences the investigation as it slowly unfolds before the journalist.

The six stories discussed above are interactive to a limited extent: users mainly control the amount and sequence of information but do not become part of the story world. Yet we also see examples where the aim of the interactivity is to make the user part of the story: *The In-Depth Auditory* and *Here #inMolenbeek*, for instance.

In a sense, *The In-Depth Auditory* and *Here #inMolenbeek* are opposites. In *The In-Depth Auditory*, users are put in the shoes of an IND employee and must use interviews to determine whether a person is entitled to a

Figure 9

residence permit. Users decide how the 'interview' will proceed. After a short explanation of the IND's procedures, users can choose between three people who have applied. They then enter an interactive video. The asylum seekers look straight into the camera as if they are looking directly at the users. Asylum seekers introduce themselves and then tell their stories. Everything that asylum seekers say is subtitled, and certain words are framed (figure 9). These words are clickable. When users do so, the asylum seekers tell more about the topic at hand - as if users have asked them a question about it. At the end of the interview, users must decide whether an asylum seeker's application will be granted.

Here #inMolenbeek (NOS op 3) is a story published exclusively on Instagram. The idea is that users follow the story and encounter new posts in their timeline, which they can view and respond to. Here users do not become part of the story, but the story is made a part of users' timeline and thus a part of their media experience.

Finally, interaction in *Gelderland Helps* is used to bring users into contact with each other. It can therefore be characterised as service-oriented instead of narrative or informative. On the *Gelderland Helps* website, users can make appeals and respond to posts made by others. The aim is

for users to come into contact with each other and help each other out. Users are central to this website. The content they publish on the site then serves as input for reportages by broadcaster Omroep Gelderland. In this way, users are involved in the journalistic process.

The various ways in which interactivity is used in the nine stories analysed show unmistakably that it is mainly a matter of allowing users to deepen their understanding of the subject matter. To this end, they are given the option of adding information themselves, consulting sources or choosing their personal sequence of the material.

Discussion

This study draws attention to Dutch interactive multimedia stories. Since the publication of *Snow Fall*, editors have been experimenting a great deal with this new journalistic form of storytelling. In this study, we map out this development. In addition, we wanted to know how the two fundamental characteristics - multimediality and interactivity - take shape in this narrative form.

In the Netherlands, we find that national news media, such as the Volkskrant, NRC, the Correspondent and NOS op 3, produce most interactive multimedia stories. The consolidation of this journalistic form by large newsrooms can be explained because such stories are labour-intensive and expensive. Smaller newsrooms may not have sufficient financial clout to produce these kind of stories on a structural basis.

Previous research (Dowling & Vogan, 2015; Hiippala, 2017; Jacobson et al., 2016) has created the impression that, following *Snow Fall*, mainly print media are experimenting with interactive multimedia stories. This study shows that this image is only partly correct. When we look at the type of news medium in the content analysis, we see this journalistic format recurring in a large variety of news media and across the entire width of the Dutch journalistic landscape. However, print media do submit the majority of stories per title to journalism awards. We also

see that the use of media forms is related to the background of a news medium. Broadcasters, for instance, use video as the most important media form in a story. That previous research (Dowling, 2017; Hiippala, 2017) shows that especially text is an important media form, seems more a consequence of the selection of the corpus of these studies than a characteristic of the genre.

It is remarkable that interactive multimedia stories, despite the intensive and expensive labour process, are neither archived by the news media themselves nor by one of the Dutch media archives. The complexity of these productions plays a vital role in this; dynamic and interactive elements, in particular, are difficult and time-consuming to archive. This difficulty with conserving these narratives leads us to suspect that this is not only a problem in the Netherlands but elsewhere as well.

This study then zooms in on multimediality and interactivity. We see that technological possibilities are used to involve the user in the story in various ways. How this happens differs fundamentally from that of traditional media forms. In interactive multimedia stories, familiar media forms are combined with narrative structures that are new to journalism, such as multi-linear and non-linear stories. Interactivity is used to make complex stories accessible by offering additional information and primary sources. Doing so provides depth and transparency - with the journalist being the narrator and the user the spectator. To a limited extent, we see that interactivity aims to make the user a participant in the story. Aston and Gaudenzi (2012) emphasise that interactivity changes the relationship between maker and user by giving users agency in creating a story. Our study shows that user agency is generally limited to adding information to someone's personal reading of the story.

The maker's control over the story is strengthened when the components of the story are presented on a single website. This pattern underlines the findings of Hiippala (2017) and Dowling (2017) that the genre is moving towards telling linear stories, presented in what Dowling

and Vogan (2015) call a *cognitive container*: a distraction-free, online environment for users.

This study has looked at a new, innovative form of journalism within the Dutch context. The corpus consists solely of stories that are considered authoritative by journalists and media; it, therefore, does not provide a complete picture of Dutch journalistic practice in this field. Here, data collection is a problem - not only because there are no locations where these kinds of stories are collected, but also because these stories vanish from the Internet. In addition, the insights of this study are limited to formal characteristics that can be mapped using content analysis. For now, questions about the composition and working methods of the teams and the financing of such stories remain unanswered.

The actual interactivity of the user remains challenging to investigate via content analysis alone, even after we intensified our work on this point. Therefore, we have mapped out the assumed interactivity, i.e. the interactivity the makers have included as options in their productions. First of all, these are interactive elements that involve the user in the story in various ways. At the same time, we also see applications in which the user becomes part of the story. Research into these forms of journalistic storytelling is still in its infancy, and we know very little about the influence of interactive storytelling on the relationship between journalists and their audiences. Therefore further research is necessary, especially into the design process and the reception of the interaction that accompanies this form of journalism.

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NAVIGATING INTERACTIVE STORY SPACES

The architecture of interactive narratives
in online journalism

Abstract

Over the past decade, journalists have created in-depth interactive narratives to provide an alternative to the relentless 24-hour news cycle. Combining different media forms, such as text, audio, video, and data visualisation with the interactive possibilities of digital media, these narratives involve users in the narrative in new ways. In journalism studies, the convergence of different media forms in this manner has gained significant attention. However, interactivity as part of this form has been left underappreciated. In this study, we scrutinise how navigational structure, expressed as navigational cues, shapes user agency in their individual explorations of the narrative. By approaching interactive narratives as story spaces with unique interactive architectures, in this article, we reconstruct the architecture of five Dutch interactive narratives using the walkthrough method. We find that the extensiveness of the interactive architectures can be described on a continuum between closed and open navigational structures that predetermine and thus shape users' trajectories in diverse ways.

Introduction

An African woman, dressed in a red shirt and black headscarf, is looking at you from your screen. Sitting at a table, she appears tired:

> I'm not feeling well, but I can talk. I am married, but I do not love my husband. I uh I came here... I didn't travel alone. I came here with Kees. I'm really having a hard time in Holland. I'm getting tired of everything. I can't sleep without my medication. In Guinea, I wasn't like this at all. After that first interview, I remembered everything. I do not feel good today.

The situation described above is a scene from the interactive multimedia production *Het Nader Gehoor* (The Detailed Hearing) created by freelance collective Lighthouse Reporters for Trouw, a Dutch national newspaper rooted in a Christian tradition. Here, "you"—one of the users in front of the screen—are asked to interview three asylum seekers and assess if they are eligible for temporary resident permits. Mariama, a 22-year-old woman from Guinea, has applied for a temporary resident permit at the Dutch immigration service (IND). She speaks to users as though they were sitting across from her at the table during an IND interview and they can virtually converse with her in an interactive video sequence. But before users can talk to her or the other two asylum seekers, an introduction video explains the setting: users are told that the immigration service determines who gets a permit based on an extensive interview (the detailed hearing) where asylum seekers are obligated to truthfully share all relevant information. The video instructs users to "watch, listen, and decide."

This interactive narrative invites users to take on the role of an immigration officer in an interactive video sequence to discover how the immigration process works. *Het Nader Gehoor* is part of a growing body of in-depth journalism that involves users as active participants by mak-

ing interaction an integral part of the narrative. Over the past decade, news organisations have invested in creating more and more elaborate in-depth journalistic stories like *Het Nader Gehoor* to provide an alternative to the increasing speed of the relentless 24-hour news cycle (Le Masurier, 2015). Commonly described as *digital longform journalism* (Dowling & Vogan, 2015; Dowling, 2019), and also referred to as *interactive documentaries* (Aston & Gaundenzi, 2012; Uricchio et al., 2016) in certain contexts, these narratives blend different media forms, such as text, video, audio, photography, and data visualisation with the interactive possibilities of digital and networked technologies. These narratives engage users by inviting them to navigate through an interactive story space. Studies of fictional interactive narratives have shown that interactivity can indeed contribute to empathy and engagement as part of the user experience (Hand & Varan, 2009; Roth & Koenitz, 2019). However, as Ducasse et al. (2020) show in the context of interactive documentaries, moments of obligatory interaction lead to significant user drop-offs. Moreover, Groot Kormelink and Costera Meijer (2018) convincingly reveal that user activity does not equate to interest in or engagement with the news, but that its significance changes depending on the context. These ambiguous responses to interaction as part of narrative experiences, urges us to scrutinise these interactive texts in more detail. Therefore we focus in great detail on the strategies creating interactivity in such narratives.

The role of interactivity has been considered a means to achieve deeper audience engagement by giving users agency in journalistic productions (Dowling, 2019; Picone, 2016; Usher, 2016). However, whilst research in journalism studies has particularly scrutinised the multimediality and multimodality of digital longform journalism (Hiippala, 2017; Greussing & Boomgaarden, 2019; Jacobson et al., 2016; Marino, 2016; Pincus et al, 2017), little attention has been given to the distinctive role of interactivity and *how* this specific feature of online journalism enables user agency in the construction of a plot. A notable exception is the work

of Anderson and Borges-Rey (2019), who examine the relationship between journalists and their audience in the context of data visualisations. Like in the early studies of narrative data visualisation by Segel and Heer (2010), the academic work on digital longform journalism has mainly focused on categorising the variety of interactive journalistic non-fiction. This has resulted in typologies that help identify the diversity in interactive and multimedia journalistic storytelling (Jacobson et al., 2016; Hernandez & Rue, 2015; Hiippala, 2017; Planer & Godulla, 2020; Anonymous, 2021). However, to fully understand how interactive journalistic narratives give users agency, the architecture of interactivity of these narratives has to be addressed more in depth. This requires an approach that allows us to systematically describe how the narrative establishes navigational options for users, enabling them to create individual instantiations whilst exploring a narrative's story space.

To do so, we find fertile ground in interactive narrative theory. In this study, we discuss digital longform narratives as story spaces (Jenkins, 2004; Ryan & Thon, 2014) that involve users in a narrative process through narrative and navigational cues displayed on the screen. Our approach is inspired by the neoformalist approach to filmic narrative as a process that occurs between creators, text, and spectators (Bordwell 1985; Thompson 1988). Conceptualising the interactive narrative as a process that depends on the navigational structure of the digital story space, and the choices users make within that space, enables us to reveal how creators have predetermined the potential interaction between users and the narrative. In the following text, we focus on what we call the *interactive architecture* of the narrative, referring to Jenkins's (2004) approach to interactive narratives. Specifically, we want to scrutinise how the interactive architecture of a story space shapes the agency users have in the narrative process, and thus, in the construction of a plot.

For this study, we have reconstructed the *architecture of interactivity* of five Dutch journalistic interactive multimedia narratives created be-

tween 2016 and 2019. By mapping the navigational structure of these five narratives through iterative walkthroughs (Light et al., 2018), we reconstruct a variety of more open and more closed architectures that guide users in their exploration of the story space. Before we present the reconstructions of the interactive architectures of the selected five Dutch narratives, we want to discuss our theoretical framework in more detail.

Digital longform and interactivity

Digital technologies have provided journalists with a range of new creative possibilities to develop and present their stories. Interactive narratives have, as a form of digital longform journalism, been seen as the digital progeny of "narrative" or "literary" journalism (Dowling, 2017; Dowling & Vogan, 2015; Giles & Hitch, 2017; Jacobson et al., 2016; van Krieken, 2018). Narrative journalism has its roots in the literary narratology of new journalism (Blanken & De Jong, 2014; Kramer, 2012), an American journalistic movement from the 1970s spearheaded by prominent journalists like Tom Wolfe and Truman Capote (Giles & Hitch, 2017; Blanken & De Jong, 2014). This journalistic genre, closely related to the feature story, uses literary narrative techniques to engage readers. However, traditional textual approaches are not sufficient to understand the decisive interactive qualities of these productions since interactive multimedia narratives combine not just techniques from written and audiovisual journalism, but also use genuine digital techniques such as interactive data visualisations and the parallax scroll, which were famously used in *Snow Fall: The Avalanche at Tunnel Creek* (Dowling & Vogan, 2015; Hiippala, 2017; van Krieken, 2018). To grasp this convergence of textual, audiovisual, and interactive storytelling as a key characteristic of the genre, and to describe the visual techniques used in interactive narratives, concepts such as "the animation of literary techniques," (Jacobson et al., 2016) "cinematic techniques," (Dowling & Vogan, 2015; Hiippala, 2017) and "embedded and interactive multimedia" (Giles & Hitch, 2017) have been introduced. For example, Hiippala (2017)

shows in detail how visual transitions between different media modalities are employed to connect diverse textual and audiovisual elements. However, the focus on multimodality and multimediality has left the interactive dimension of the genre somewhat underappreciated. Studies in the fields of data journalism (Anderson & Borges-Rey, 2019; de Haan et al, 2017; Drucker et al., 2019 Segel & Heer, 2010), interactive documentary (Nash, 2012), and news games (Bogost, 2008; Ferrer-Conill et al., 2020) suggest that interactivity plays a role in the construction of meaning regarding the news. Focusing on digital longform journalism, Hernandez and Rue (2015) analysed the design of multimedia narratives with an emphasis on interactivity. To describe user experiences related to the narrative design of a production, Hernandez & Rue differentiate between "continuous," "comprehensive," and "immersive" experiences (2015, 96-98). But their model is of limited use for our approach, since these three categories are of different conceptual levels. Whilst the first two categories refer to the ordering of the story elements (from linear to non-linear), the latter describes a supposed overall effect of the narrative design on audience engagement.

What's more helpful to tackle the structuring and navigation of different parts of an interactive narrative is the term "page-flow" introduced by Hiippala (2017, 425). It describes how different media modalities and story elements of interactive multimedia narratives are organised and connected to each other. This term "page-flow" thus covers the relation between different media modalities within the narrative design of a production. It implies that users need to interact with the production to navigate between different elements of the narrative, specifically when story elements are not presented in a linear way. Whilst Hiippala focusses in his analysis on the multimodal presentation, the ways in which users can interact with and navigate between the different elements and modalities of a production is not discussed in detail.

The architecture of the story space

When addressing the implications of interactivity in narratives, narratologists, literary scholars, and film critics highlight the difference between traditional linear and new interactive media forms (Montfort, 2007; Ryan, 2014). Ryan argues that narratology traditionally focused on two dimensions of narrative: the text as designed by the creators and the cognitive construct of the narrative as created by the recipient when perceiving the text (2014). For interactive narratives, Ryan highlights that it is relevant to consider the difference between the presentation of a narrative via a linear media form as opposed to the interactive narrative text; the structuring of the narrative presentation of the former is defined exclusively by the creators whilst for the latter, the structuring depends on user activity. This aspect of interactive narratives has been referred to as "procedural" (Koenitz, 2015; Montfort, 2007; Murray, 1997) or, in the context of persuasive games as "procedural rhetoric" (Bogost, 2008). Essentially, procedural approaches to interactive narrative forms acknowledge that both the structuring of the presentation and consequently, the cognitive reconstruction of the narrative, are dependent on user activity. The ability to affect the structuring of the presentation is what is considered "user agency" (Laurel, 1993; Murray, 1997).

In neoformalist narrative theory, user activity has always been considered part of the narrative process (Bordwell 1985; Thompson, 1988). Developed for the analysis of film, and thus for linear forms of presentation and reception, neoformalism considers the text a collection narrative cues steering recipients in inferring a film's story based on what they call the text's plot (Bordwell 1985). The plot is a particular structuring of the narrative cues that determines what and how narrative information is presented to recipients (Bordwell, 1985, 52). Jenkins argues that this approach to narratives is particularly suitable as the basis for interactive narratology, as a narrative is considered "less a temporal structure than a body of information" (2004, 126). For interactive narratives, next

to narrative information, this body of information also includes what we call *navigational* information or *navigational cues* that guide users' activities; for example, clickable buttons opening an earlier undisclosed part of the story space. Building further on the procedural nature of interactive narratives, Koenitz (2015) introduces a set of terms for the analysis of interactive narrative design. Central to Koenitz's theory is the "narrative system" that contains what he calls the "protostory." He defines the protostory "as a space of potential narratives" (99). This concept is particularly useful for an in-depth analysis of the interactivity of such narratives. However, we suggest that what Koenitz calls the *protostory* can better be understood as a *story space* for potential narrative constructs, or individual trajectories, that occur as the result of individual explorations based on user-story space interactions shaped by navigational cues and the narrative's interactive architecture.

Obviously, spatial metaphors are prominent in the above-discussed approaches as is in our approach to interactive journalistic narratives. Spatiality is commonly featured as a key characteristic of the narrative potential of digital media (Jenkins, 2004; Jenkins, 2006; Laurel, 1993; Murray, 1997; Ryan, 2004; Ryan, 2014). Spatial metaphors are used in particular to describe the non-sequential manner in which the navigational cues and the story information of interactive narratives are structured. In this context, *spatiality* does not refer to the spatial setting of the represented narrative world, nor to an actual physical space, but rather, it indicates that the plot is not presented in a fixed order, like in a book or a film. Rather, the presentation of the story information happens as users explore the story space, guided by navigational cues.

Building on Jenkins (2004), here we adopt the term *architecture* as a metaphor to describe the structure of an *interactive story space* in journalistic interactive narratives as its architecture of interactivity. The interactive architecture of a narrative, as designed by its creators, describes how the navigational cues of the story space are configured to shape the

interactive process. As our analyses show, this structure of cues can vary between linear sequencing and multi-linear or even non-linear structures (Hiippala, 2017; Dowling, 2017; Hernandez & Rue, 2015). The story space can be modelled as the total of narrative and navigational cues, whilst the narrative's architecture of interactivity describes how the relationship between all navigational cues shapes users' potential activities. The architecture of interactivity thus establishes what Anderson & Borges-Rey (2019) call a "constructed audience." Navigational cues direct and guide user activity, and hence, the potential choices users can make within the boundaries of the story space result in individual instantiations of the narrative.

Method

In this study, we focus on the interactive architecture of the story spaces of five Dutch journalistic interactive narratives. Commonly, interpretative, textual, and narratological analyses are done through a close reading of the media text, though the methodological practice is fractured at best (Fürsich, 2009). Furthermore, since for interactive narratives, the presentation of text depends on user interaction (Ryan, 2014), traditional textual approaches are unsuited for the study of the interactive architectures. Therefore, we structure our "close-reading" by reconstructing the interactive architecture through iterative "walkthroughs" of each narrative. Light et al. suggest in their instruction for walkthrough analyses of apps to include a "step-by-step observation and documentation of an app's screens, features, and flows of activity" (2018, 882). Following this approach, we generated and accumulated in our walkthroughs different instantiations of the five narratives by engaging with the narrative and navigational cues.

The data was gathered by one researcher following the same protocol for all five interactive narratives, consecutively focusing on (1) an in-depth description of the narrative, (2) generating visualisations of the

interactive structure of the narrative, (3) mapping navigational cues that guide users through the story space, including the available choices, and (4) representing these findings with a final walkthrough as wireframes (see figures below). Wireframes are schematic visualisations of the possible interactivity, a common practice in software development and web design. By documenting the iterative instantiations[1], we generated rich data to reconstruct the interactive architecture of the story space and its complete navigational structure. Based on the walkthroughs and the wireframes, we focused our analysis on how various navigational structures shape potential user interaction and particularly, how user activity within the story space is shaped by its interactive architecture.

For our analysis, we selected five interactive multimedia narratives created by Dutch news media between 2014 and 2019. The narratives are published on stand-alone websites hosted on web domains of major journalistic organisations. The five narratives were selected because they are exemplary for international trends of this genre and showcase a variety of narrative and navigational structures found in our previous content analysis of interactive narratives in Dutch online journalism (Anonymous, 2021). Together, the five productions display diverse architectures of interactivity (Table 1), allowing us to compare how different interactive architectures structure potential user interaction. To capture a full scope of interactive journalistic narratives, we have also included one with a traditional linear structure that offers no alternative pathways through the story space and thus, only has minimal variation in the potential instantiation of a plot.

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1   The descriptions, drawings, and mindmaps this data collection generated are available upon request.

Table 1 – *The five interactive narratives were selected to display variety in their sequencing of the narrative and navigational cues.*

Name	Sequencing	Publisher	Year
Kan geboortebeperking het wereld-wijde voedselprobleem oplossen? (Can birth control solve the worldwide food crisis?)	Linear	De Volkskrant	2019
		National newspaper	
Het Nader Gehoor (The Detailed Hearing)	Multi-linear	Trouw	2016
		National newspaper	
Uit het Moeras (From the Bogs)	Multi-linear with options to explore non-linearly	Dagblad van het Noorden	2019
		Regional newspaper	
Refugee Republic	From non-linear to multi-linear	de Volkskrant & Submarine Channel	2014
		National newspaper & documen-tary production house	
De Industrie (The Industry)	Non-linear with option to explore linearly	VPRO & Submarine Channel	2016
		National public broadcaster & documentary production house	

Analysis of five interactive architectures

In the next section, we discuss the interactive architecture of each of the five cases in order of increasing complexity (see Table 1). In our analyses, we focus on the consequences of the complexity of the different interactive architectures for potential user activity and individual instantiations of the story space.

## Kan geboortebeperking het wereldwijde voedselprobleem oplossen? (Can Birth Control Solve the World's Food Problem?)

The data-essay *Kan geboortebeperking het wereldwijde voedselprobleem oplossen?* resembles a conventional journalistic article that includes two moments of interaction (Figure 1). It orders the information linearly, with the addition of interactive and animated data visualisations to answer its central question of whether birth control can decrease overpopulation of the planet. The production presents a singular plot, establishing the reasoning of the creators. This plot emerges from a linear presentation of narrative and a few navigational cues (Figure 2) leading users from text to visualisation (Figure 2 – nr.1). The text directs users through the story space by posing questions, explaining the answers, and taking users along in the line of reasoning with a liberal use of the inclusive rhetorical devices "we" and "you." An example is the following sentence that explains how a graph should be interpreted: "As you can see, both birth and death rates have decreased over the past 200 years." Also, questions are often posed using inclusive pronouns, including users in the creators' argument.

The two interactive visualisations support the creators' line of reasoning. The first asks users to enter their birth year and then displays how many people have been born since then. The second allows users to change the birth rate of each continent and see the resulting consequences on the growth of the world's population. Thus, both interactive features invite users to play with

Figure 1 - *The landing screen of Kan geboortebeperking het wereldwijde voedselprobleem oplossen? ends with an interactive data visualisation where users can enter their own birth year.*

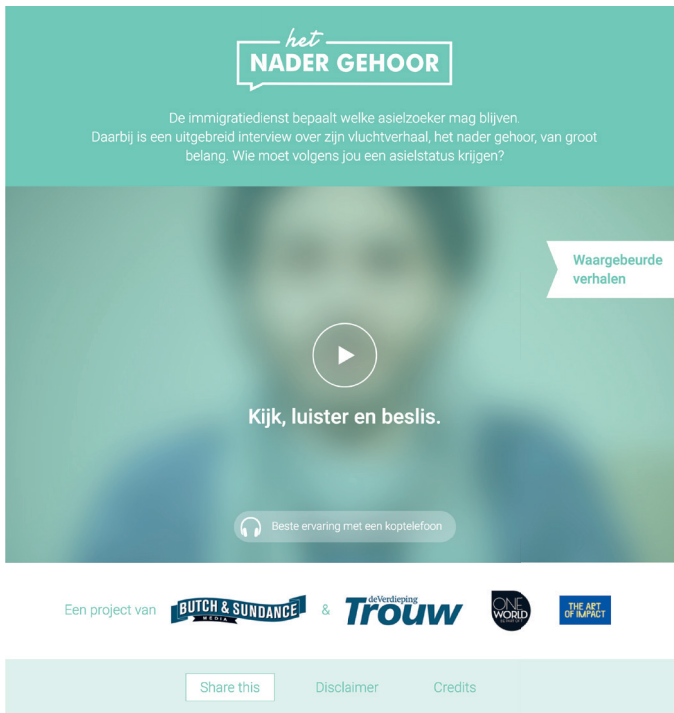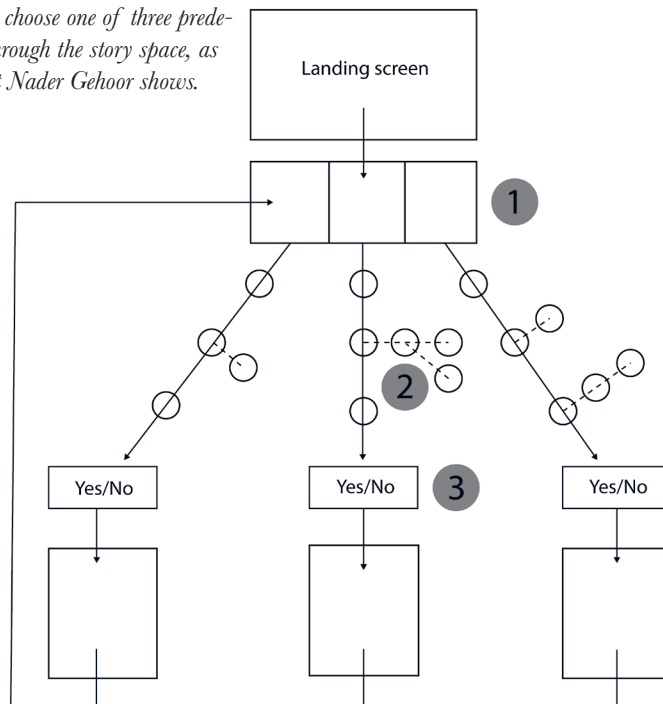Figure 2 - *The architecture of Kan geboortebeperking het wereldwijde voedselprobleem oplossen?*
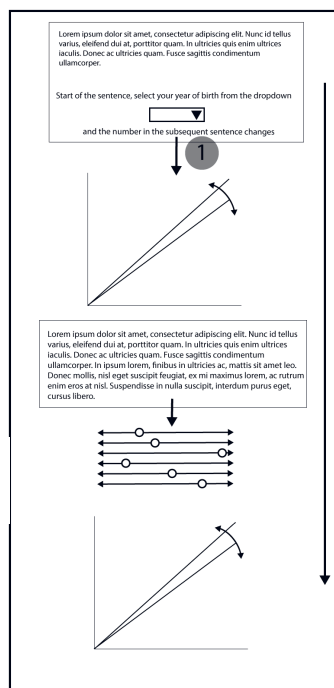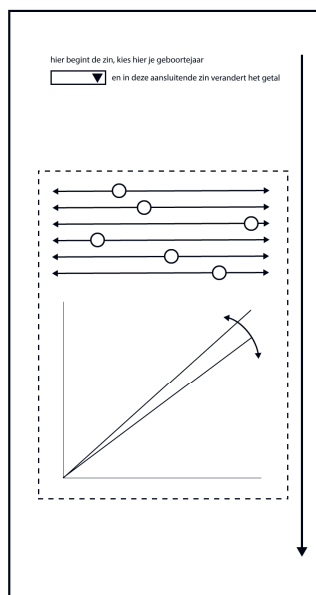
Figure 3 - *The landing screen of Het Nader Gehoor sets the scene for users to take on the role of an immigration officer.*

Figure 4 - *Users can choose one of three predetermined trajectories through the story space, as the architecture of Het Nader Gehoor shows.*

the presented data and to explore the statistical consequences as the visualisations change based on users' input. The visualisations are embedded in the argument by the text preceding and following the graphs. The preceding text includes navigational cues instructing users how to interact. Whilst the text following each interactive visualisation explains, independently from users' input, how the data should be interpreted.

Within the linear story space of *Kan geboortebeperking het wereldwijde voedselprobleem oplossen?*, the interactive architecture supports the creators' reasoning. This closed navigational structure allows for just a single trajectory through the story space. Potential for user activity is limited to the manipulation of data in the two interactive visualisations. However, as our analysis reveals, the interactive visualisations prompt users to reach the same conclusions as presented by the creators, based on their line of reasoning.

Het Nader Gehoor (The Detailed Hearing)

The interactive documentary *Het Nader Gehoor* requires more extensive navigation, whilst at the same time, the story space is structured in several closed sequences. The production presents the detailed hearings of asylum seekers about the reasons they fled their countries and their journeys to the Netherlands. Such a hearing is part of the asylum procedure in the Netherlands. The production mimics interviews of individual applicants by placing users in the position of an immigration officer. This situation is established during the opening sequence, where users are instructed to pay particular attention to applicants' willingness to share their migration stories truthfully and without contradictions. The landing screen (Figure 3) opens with the following text:

> The immigration service determines which asylum seeker may stay. An in-depth interview about their flight story, the detailed hearing, is crucial in this decision. Who, according to you, is eligible for asylum? Watch, listen and decide.

After the introduction video, users are asked to choose one of the three interviewees (Figure 4 – nr. 1). The interviews are presented in an interactive video sequence simulating a conversation between the interviewee and user. The applicants' answers are subtitled and as they are telling their stories, certain words are highlighted as navigational cues. By clicking on a highlighted word, users can add sections of the interview to the video sequence and gain more information about an applicant's background; this is optional, as indicated by the dotted line connecting the circles in the wireframe (Figure 4 – nr. 2). Previous and skipped clips remain available, allowing users to review clips as well as watch skipped clips later on. At the end of the interview, users are asked to decide whether the applicant should be granted a permit (Figure 4 – nr. 3), and once they have made their decision, the original decision made by the Dutch Immigration Service is revealed and explained.

In *Het Nader Gehoor*, users are immersed in the story space but have limited agency to create an individual instantiation. According to the architecture, any individual choice leads to the same ending. Navigational cues are configured to lead users towards making a decision about their interviewees' fates. The user's decision may differ from the IND's decision that is revealed at the end of the trajectory, leaving users free to consider the differences and critically reflect on the role of the IND and the Dutch immigration policy.

Uit het Moeras – Verhalen uit de Veenkolonien (From the Bogs – Stories from the Peat Colonies)

Our third case, *Uit het Moeras*, invites users to explore a collection of family stories from the Peat Colonies, a historically poor area just south of the city Groningen in the north of the Netherlands, from the perspective of people living there. It allows users more agency in the construction of a plot by offering an extensive interactive architecture in a multi-linear story space.

The story space is divided into five different sections connected through a menu. Two sections, *Timeline* and *Family Stories*, are connected through a more open architecture of the story space when compared to Het Nader Gehoor. The *Timeline* (Figure 5- nr. 1), spanning the years 2006 back to 1880, offers various navigational cues on the landing page, leading to the family stories and additional information about significant historical events for the region. Contextual information about the area is available via the menu option *Peat Colonies* (Figure 5 – nr. 2).

The interactive architecture suggests a preferred trajectory: the navigational cue presented on the landing screen (Figure 6) proposes users to start their individual exploration at the *Timeline*, which takes them through different family stories, highlighting how these are interwoven with the economic decline of the region. The reversed chronological order of the story space is emphasised on the landing page where the introductory text asks:

> Where do you come from? Where are you going? *Uit het Moeras* tells family stories from the Peat Colonies: a swamp area where pioneers delved for peat, waterways brought riches, and agriculture and industry flourished. Until modern times turned its back on the area.

The introduction ends with a navigational cue, an instruction telling users how to navigate through the story space:

> On the timeline below, you can follow families. Back to the past: from granddaughter, to father, to grandmother. In between the families you read about the history of the area.

This text directs users to the *Timeline*, which appears on the screen when scrolling down. The *Timeline* then offers various navigational cues that

lead to narrative information about the members of five typical families and the socio-political and economic events that have shaped their lives. The navigational cues to the section *Family Stories* are presented as albums with family photographs and the socio-economic events as notes on paper, occasionally including old photographs (Figure 7). As users decide which navigational cues to follow, they create their instantiation of the narrative and thus, an individual plot by combining the histories of various family members with contextual information. The *Timeline,* as the suggested beginning of a user's trajectory through the story space, does not enforce a chronological order since the navigational cues are arranged to interrupt this chronology. Using the perspective of family members on the history of the region, the story space connects multiple and diverse personal experiences, allowing users to construct their own pathway whilst exploring the different generations' and families' testimonies.

Like the *Timeline*, the pages with the *Family Stories* organise the narrative information chronologically. Each of the five *Family Stories* is a collection of scenes from the lives of several family members. The scenes are written in the style of narrative journalism. Each family member has their own sub-section on the page of their *Family Story*, which serves as the destination of the navigational cue on their own family album in the *Timeline* (Figure 5 – nr. 3). Thus, when users click on the button of Job Aardema's photo album in the timeline (Figure 7), they are transported to his account on the page of his family's story. Once on the page of the *Family Story*, users can navigate to other family members either by scrolling through the page or using a family timeline (Figure 8 – bottom-left), with buttons to each family member's section within the *Family Story*.

The narrative information of *Uit het Moeras* is ordered in multiple sequences interrupted by navigational cues. The architecture offers non-linear navigation through a multi-linear story space, thereby creat-
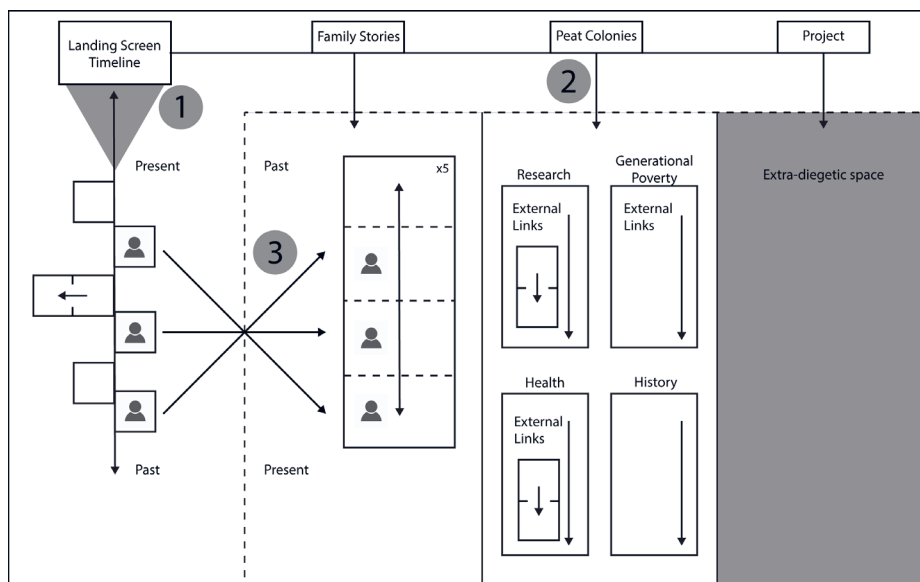
Figure 5 - *Architecture of Uit het Moeras.*

Figure 6 - *The introductory text on the landing screen of Uit het Moeras points users towards the Timeline and disembark on their exploration of the story space.*

Figure 7 - *Timeline with photo albums of the individual family members and notes that fold out to reveal more information about socio-economical events.*

Figure 8 - *Each Family Story has its own timeline of the birth years of each family member.*

ing a more open navigational structure than the two previously discussed productions offer to their users. Furthermore, the architecture suggests the start of individual trajectories and opens up the navigation soon after, leaving users relatively free to construct their own plot. This open architecture, in combination with the multi-linear organization of the story space, particularly the *Timeline* and the *Family Stories*, gives users agency over their own structuring as they explore and consider the lives of people living in the Peat Colonies.

Refugee Republic

Like *Uit het* Moeras, the architecture of our fourth case *Refugee Republic* suggests user agency since it offers extensive navigational options for users to explore the story space. *Refugee Republic* invites users to imagine themselves being virtually present on the location as they explore this story space. The production is a collection of observations and stories from Domiz Camp, a UN refugee camp in Iraq that in 2014, when the *Refugee Republic* was published, housed over 38,000 Syrian refugees. Its interactive architecture allows for navigation through the story space based on an illustrated map of the camp that organises the presentation of the narrative information according to spatial logic. During the opening sequence, on the landing screen and in the introduction video, users are directed to the *Map* (Figure 9), and at the end of the introduction video, users are directly addressed and welcomed to *Refugee Republic*. This invites them to take on the role of a visitor of the camp and thus, to explore the story space in this role.

The legend of the *Map* (Figure 9, top-left) instructs users that the camp can be explored by zooming, clicking, and dragging on the map. Zooming in on the map reveals a collection of illustrations based on observations made in Domiz Camp that are commented on in text by an authorial voice (Figure 10). These comments offer contextual information characterising various locations in the camp, such as "The Entertain-

ment Area" or "Single," where single men live. Users can inspect various locations on the *Map* on their own account, creating their own trajectory through this section of the story space (Figure 11 – nr. 1). Furthermore, users can choose to follow one of the four *Walking Tours* that offer narrative information about daily life in the camp and its inhabitants. The *Map* displays four walking tours as coloured lines meandering through the camp. These are accessed by clicking on the line, or by choosing one of the tours in the map's legend. Like the *Family Stories* in *Uit het Moeras*, these *Walking Tours* are separate sections within the story space, accessible through the central navigational structure.

Progressing from the *Map* to the *Walking Tours*, the navigational structure changes from open to relatively closed. This section of the story space is multi-linear, with the narrative information appearing in four predetermined sequences (Figure 11- nr. 2). On the *Walking Tours*, users—as virtual visitors of the camp—encounter inhabitants and observe scenes of daily life; for example, in people's tents, at the mosque, or at the school. Each tour has a similar navigational structure: users scroll horizontally through the tour along a backdrop with similar illustrations, including comments, as on the *Map*. This is explained on the first screen of the tour. Following the navigational cues, users are directed towards a more intimate and detailed view of life in a refugee camp. As users scroll through this backdrop, photographs, videos, or other illustrations slide onto the screen, providing extra personal and detailed information about inhabitants, their living situation, and places in the camp. The additional information is presented in text or audio and appears if users stop scrolling on the image. Occasionally, a photograph will present a navigational cue that grants access to a more in-depth story about an inhabitant or place, which is then arranged in sequential order as well; but the scroll direction changes to vertical (Figure 11 – nr. 3). At the end of a tour, a button pops up, leading back to the map (Figure 11 – nr. 4).
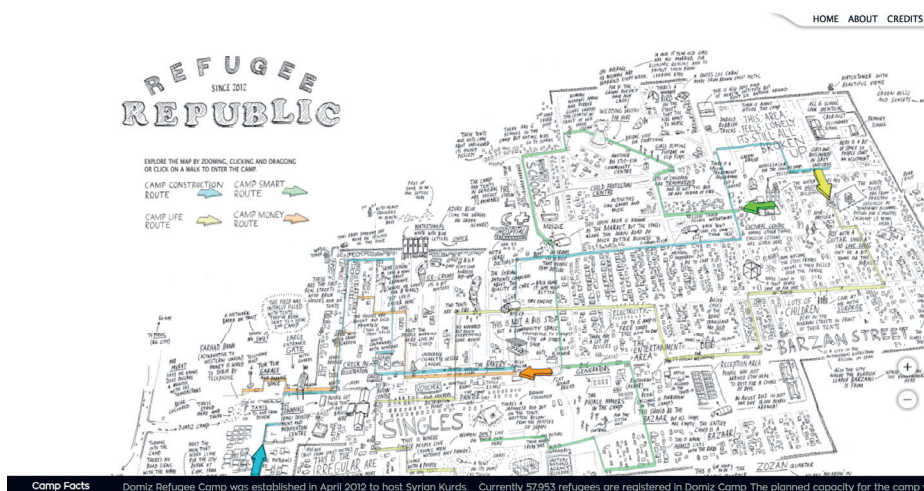
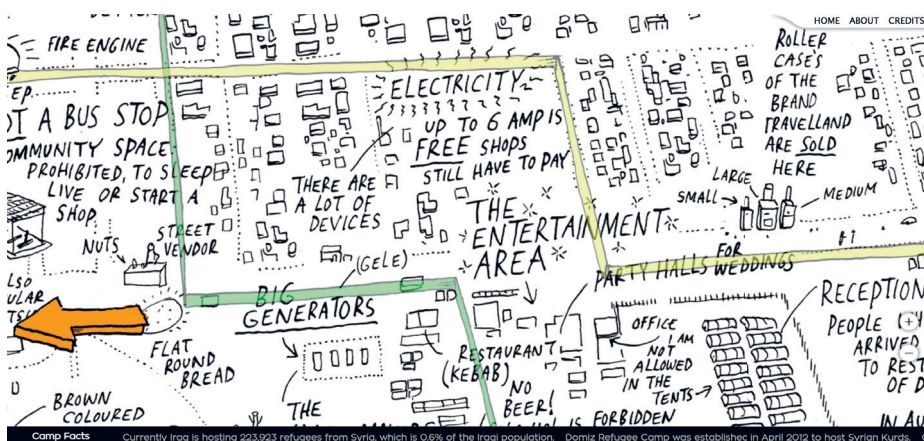**Figure 9** - *This illustrated map is the central navigational structure of Refugee Republic.*

Figure 10 - *Zooming in on the map reveals commentary on the various locations found in Domiz Camp.*
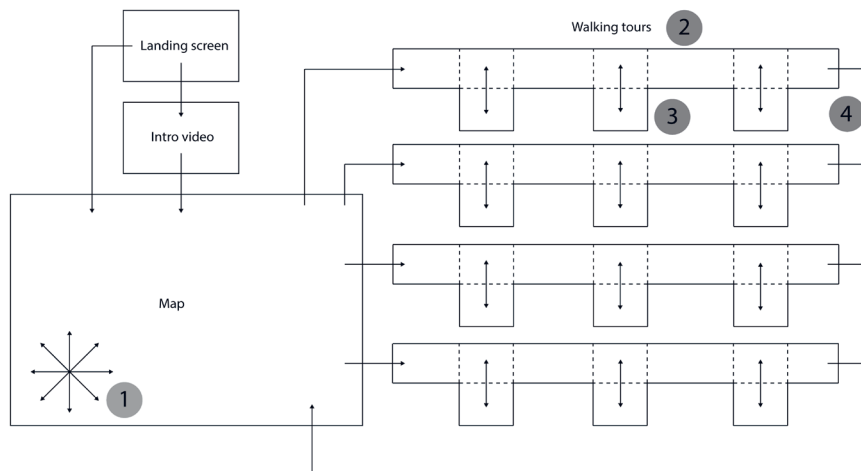
Figure 11 - *Architecture of Refugee Republic.*

The architecture of *Refugee Republic* combines two distinct navigational structures strictly separated in two sections of the story space: open navigation on the *Map*, and relatively closed navigation on the *Walking Tours*. The interactive architecture of *Refugee Republic* allows for different instantiations since users can explore the story space on their own or choose a predetermined walking tour. However, the architecture also ensures that each individual trajectory always goes through and returns to the *Map*. The story space of *Refugee Republic* offers an open non-linear mode of navigation on the *Map* and a more linear and author-controlled mode in the *Walking Tours*. Users can choose between these modes, and beyond that, decide on numerous moments whether they want to explore a person, place, or event more in depth. In other words, *Refugee Republic*'s interactive architecture offers a partially open story space for users' explorations, potentially creating numerous and rather diverse instantiations of the daily lives of refugees in Domiz Camp.

De Industrie

Our final case, *De Industrie*, is a collection of information and stories about the Dutch drugs industry, one of the most important players in the worldwide drugs trade. It is based on extensive research and interviews with people (formerly) working in that industry, who share their experiences in the enormous drugs networks that pervade the country. Like *Refugee Republic* and *Uit het Moeras,* the interactive architecture of this production guides users through different sections of the story space to be explored and requires users to construct their own plot. The structuring of narrative information is non-linear. However, navigational cues are sometimes visually emphasised to suggest a particular trajectory to users. It offers three different sections, each with a distinct navigational logic: *Map*, *Network*, and *3D environments with audio stories* (Figure 12).

Users are addressed directly at the end of the introduction video and invited to start navigating on the *Map* in their own neighbourhoods, emphasising that the drug industry has permeated the whole country. When the introduction video ends, a satellite image appears with the Netherlands at its centre (Figure 13). The area of the Netherlands fills with brightly coloured dots, each a navigational cue that can be clicked on. Furthermore, users can fill out their postcode in a frame just below the text "Where are you?" Both options lead to a zoomed-in screen of the *Map*, including the dots plotted on there. The introduction video, in combination with the text "where are you?" indicates that the suggested trajectory for users is to start their exploration at their place of residence. On the zoomed-in screen of the *Map*, the coloured dots represent news items covering drugs linked to that location. Certain dots are enlarged and show the headline of that news item, inviting users to continue their exploration by clicking on one of these emphasised navigational cues. Other dots and thus, news stories, remain visible and accessible for users who wish to deviate from the suggested trajectory.

By clicking on a news item, users enter the *Network* section of the story space (Figure 12 – nr. 1). The *Network* appears partially on the left side of the screen and invites users to explore a segment of that network visualisation related to the topic of the news item (Figure 14). For example, if users click on a news item about a dismantled weed farm, they are taken to a segment of the network visualisation with more information about weed farms. At the centre of the screen, a navigational cue is displayed that, upon clicking, takes users to 3D-rendered visualisations of central locations of the drugs network and their actors (Figure 12- nr. 2). They are represented as white human shapes set in a 3D-rendered environment representing their workspace (Figure 15). The audio segment with an interview starts playing automatically, and whilst, in this case, a large-scale cannabis farmer shares his experience with the drugs industry, users can explore the 3D-space by clicking on the numbers or look around by manipulating the camera's perspective.
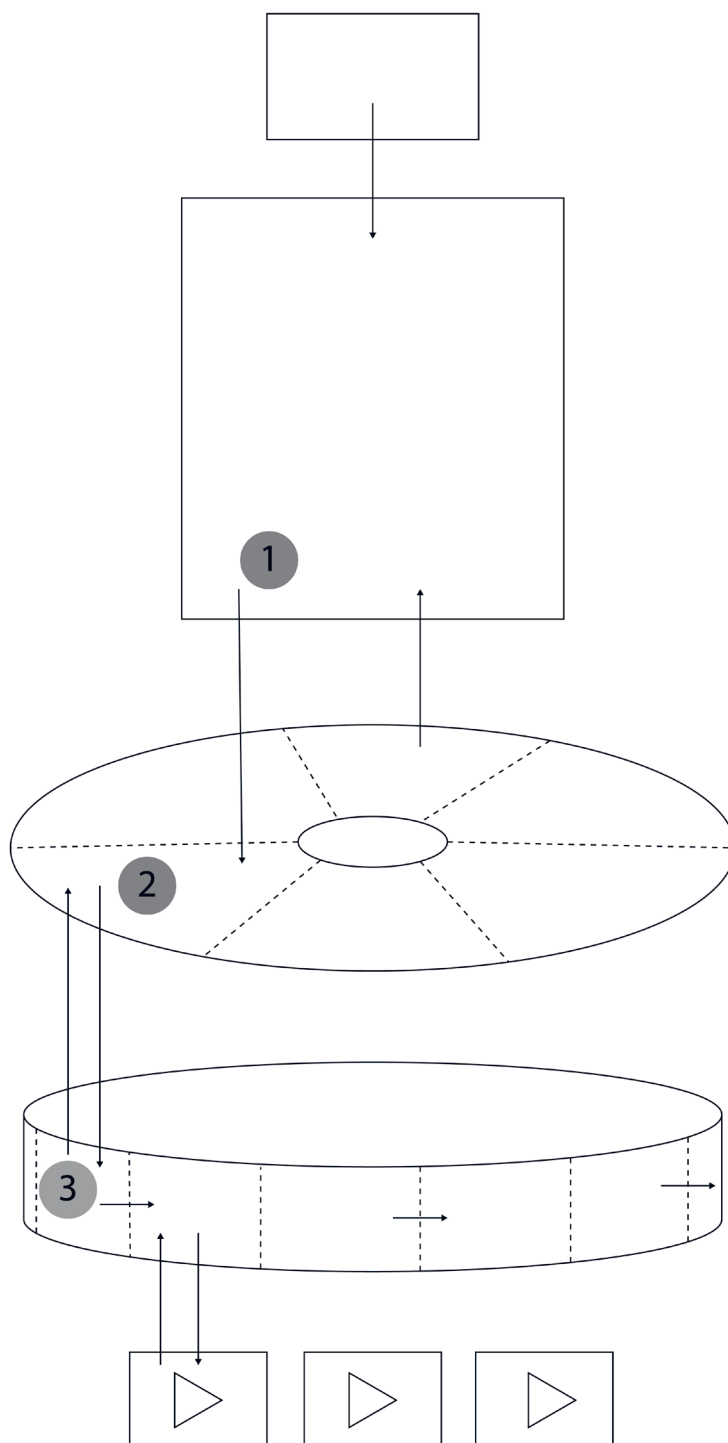
Figure 12 *-Architecture of De Industrie.*

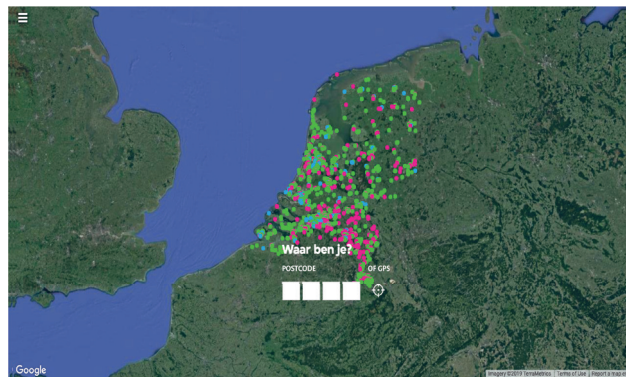Figure 13 - *The first section is the Map. Here, users can enter their postcode and access news stories about the drug industry in their own neighbourhoods.*
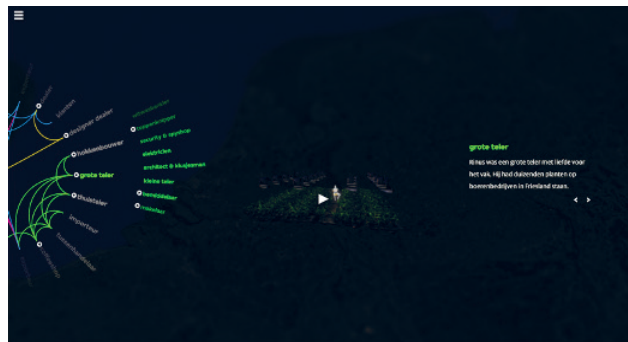

Figure 14 - *Clicking on a news item on the map leads to a segment of the Network that covers the topic on the news item.*

Figure 15 - *From the Network, users enter the 3D environments in which anonymous actors in the drug industry talk about their lives.*

Once an eyewitness account ends, users have to decide how to proceed their trajectory through the story space; they can return to either the *Map*, the *Network*, or go to another 3D-animated environment (Figure 12 -nr. 3). In this last case, users can choose between two 3D environments in order to proceed. Again, we can discern a preferred trajectory through the story space, as the navigational cues that lead to more 3D environments are visually emphasised.

Whilst none of the sections of the story space has a predetermined sequence, suggested trajectories guide users subsequently through the three sections of this non-linear story space, starting with the introduction video which leads to the *Map*, and through the *Network* to the 3D environments. This layered structure of the story space retains non-linear ordering of the information in each section. The construction of the story space and its interactive architecture offers an open navigation, allowing for numerous different trajectories of individual users whilst at the same time, emphasising cues that suggest trajectories to users that take them to the core material of the presented narrative material: the interviews. The interactive architecture of *De Industrie* facilitates a linear navigation through a non-linear story space. It offers several trajectories guiding users in their explorations, resulting in diverse instantiations of the narrative. However, users can explore the story space based on their choices, since next to the suggested navigational cues, there are numerous alternative ones that, when clicked on, open more areas to be explored within this layered story space. Of the five cases discussed here, the architecture of *De Industrie* suggests the most extensive user agency since it offers a navigational structure for numerous individual instantiations of the narrative, each constructing a different plot.

Trajectories through story spaces and user agency
Our analyses of the five cases reveal a diversity of interactive architectures that can be described on a continuum of rather closed to more

open, complex story spaces and navigational structures. We described two different types of trajectories that the architectures construct for users: predetermined trajectories that offer limited additional options for user activity, and suggested trajectories that provide diverse pathways with a variety of options for further choices, enabling users to construct rather individual instantiations of the narrative. Having identified these differences not only between the five cases, but also between different sections of the same productions, this allows us now to consider the consequences of different interactive architectures for user agency.

In more closed architectures like *Kan geboortebeperking het wereldwijde voedselprobleem oplossen?* en *Het Nader Gehoor,* the trajectories are predetermined by placing the navigational cues in an order supporting the authors' arguments and the respective plots. In *Kan geboortebeperking het wereldwijde voedselprobleem oplossen?*, the navigational cues are part of the argument, and user input functions strengthen the author's line of reasoning. In *Het Nader Gehoor,* the interactivity is more extensive, as users can choose between three different predetermined trajectories and can decide whether they explore more than one. However, once a particular trajectory is chosen, users are offered limited agency in manipulating the instantiation of the story space.

In more open architectures, the trajectories are less distinct, and to a greater or lesser extent, users retain the option to stray from suggested trajectories that we identified in all our cases. Certain navigational cues are emphasised and start or continue trajectories through layered story spaces, as the analysis of *Uit het Moeras*, *Refugee Republic*, and *De Industrie* reveal. In *Uit het Moeras,* the emphasis is on the *Timeline*, and users are urged in that direction on the landing page. *Refugee Republic* and *De Industrie* resolve the emphasis visually; the first by using bright colours to draw attention to the *Walking tours* and the latter by guiding users through the sections by prominently placing navigational cues that lead to the 3D-environments.

Suggested trajectories offer a guide for the exploration of complex and layered story spaces. The architectures of *Uit het Moeras*, *Refugee Republic,* and *De Industrie* show that each of these open story spaces is divided into sections. By varying the order of narrative and navigational cues within each section, these architectures play with the tension between open and closed navigation. In *Refugee Republic,* this is demonstrated by the switch between the *Map* and the *Walking tours,* thereby shifting from an open navigation to a more closed one with a predetermined trajectory. Whereas *Uit het Moeras* opens up a multi-linear story space with an architecture that offers an open navigation within and between various sequences. *De Industrie* is the reverse of *Uit het Moeras* and allows a closed navigation through a non-linear story space by emphasising certain navigational cues, whilst alternative options remain available to users.

The different interactive architectures of our five productions reflect different extents to which creators grant users the agency of constructing individual and thus, less preformatted instantiations of an interactive narrative. It seems that the more a production invites users to explore a topic, situation, or space, the more extensive the scope for user agency is. And vice versa: a narrow scope for user agency seems to be accompanied by an argument about or a view on the issue.

Conclusion

In debates on new forms of journalism, interactivity is often hailed as an emancipating feature that grants users agency, giving them the freedom to participate in journalistic productions (Dowling, 2019; Picone, 2016; Usher, 2016). Certainly, interactivity has the potential to open up narratives for users to participate. However, our analyses show that including interactive features in journalistic narratives provides users with diverse degrees of agency, depending on the type and complexity of the interactive architecture of a narrative. Though user agency is essential for the procedural nature of these narratives, it is shaped within the bounds of

the interactive architecture, that is to say within the bounds of the story space designed by the creators, which can be more or - as in some of the cases discussed above - less open in terms of agency granted to the user.

Interactivity is crucial within these story spaces because it affects the users' experience of the narrative and therefore the construction of meaning in journalistic stories, as Anderson & Borges-Rey (2019) and Nash (2012) have demonstrated. Interactivity draws our attention to a question that simmers underneath the innovation of narrative formats in journalism and addresses the changing dynamics between journalists and their audience. We can , along with journalists and news organisations, ask how the new interactive options could improve the supposedly ever more precarious relationship between journalists and their audience (Nelson, 2021). At the same time, the question is why journalism - again - turns to technology to fix this relationship.

Here, our interest was to understand in particular how the architecture of interaction structures the relationship between authorial input and user agency, a relationship that shapes the actual reception process of interactive multimedia narratives. Analysing interactive architectures uncovers a field of rather diverse, more closed and more open, multilinear or non-linear navigational structures. Scrutinising the ordering of navigational cues has helped us to understand such differences, sometimes even between different sections within the same production. Our analyses of the more complex and more layered story spaces that require users to contribute to the construction of the plot through their choices—each resulting in a specific instantiation of the story space—revealed a fundamental tension between authorial control and users' agency within interactive journalistic narratives.

Whilst interactive narratives enhance journalists' devices in storytelling (Jacobson et al., 2016), the fundamental tension between authorial control and user agency of interactive story spaces, requires creators, as Drucker et al. (2019) argue for data visualisation practices, to think

carefully about the design of the interactive architecture of their stories and how, when, and to what level they want to transfer agency to users. By utilising the potential of interactive storytelling, journalists can create new ways of engaging users in exploring stories blending playful and entertaining forms of interaction with a deeper exploration of layered background information on the covered topics. This does not only appeal users' intellectual engagement, but it also involves them emotionally in an open and more collaborative construction of meaning making.

However, this potential of interactive narratives in digital journalism seems at the same time to challenge the traditional perception of journalistic authorship. Recent content analyses of digital longform show a trend toward more linear and closed story spaces (Dowling, 2017; Hiippala, 2017), suggesting that journalists seem to prefer retaining control over their narratives by limiting the extent to which users are granted agency in the construction of the plot. This seems to reflect a traditional understanding of the journalist's professional role and related routines. In analogue media and traditional forms of journalism, journalists have always been in control of their narratives, and it was not until the rise of digital and networked technologies that the relationship between journalists and their audience started changing, amongst others by exploring interactive options of storytelling. The question remains whether users appreciate their new role and responsibility in the construction of the narrative. Results of reception and audience studies so far are ambiguous in this regard. Therefore, further reception studies are needed to examine how interactive architectures and different navigational cues shape and affect audience engagement and the user experience.

Our study suggests that studies of interactive journalistic longforms should particularly address the architectures of interactivity in detail to understand the shifting relationship between authorial authority and user agency. Though the scope of our study is limited, as it discusses

only five cases, all of Dutch origin, and therefore might not fully grasp the increasing sophistication in interactive storytelling (Dowling, 2017), we think that our concept of the architecture of interactivity could be a cornerstone for a more thorough understanding of interactive journalistic narratives - not only for textual analyses of broader representative samples, but also for production and reception studies. Understanding how interactive architectures include trajectories for users' textual explorations sheds light on journalists' conceptualisation of user agency and thus on how journalists imagine their relationship with their 'audiences', now to be imagined as active 'users'. Particularly interesting for further research is the question how these imaginations influence choices made during the production process. In the broader context of discussions about the future of journalism, the question remains how the role of journalism and the role of the public develop in light of ongoing and future innovation in journalistic narrative formats. Whilst there is certainly potential to change the traditional relationship between journalists and their audiences, the emergence of new devices and technologies, such as smart speakers and conversational interfaces, will keep transforming this relationship as well.

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THE IMAGINED USER AND THE DESIGN OF AUDIENCE ENGAGEMENT

Tracing the imagined user in the production process of journalistic interactive narratives.

Abstract

Designing interactivity as part of journalistic narratives is a relatively new practice that emerged following *Snow Fall*'s success in 2012. Producers aim to increase audience engagement by creating interactive journalistic narratives. To this end, journalists collaborate with designers in interdisciplinary teams. Few studies describe the new practice that is the result of this collaboration. In this study, we unravel the practice of designing in-depth journalistic narratives for audience engagement by focusing on the imagined user as part of the production process. We reconstruct the production processes of three Dutch narratives. Our analysis unravels how producers develop the role of users by considering the experience and the accessibility of the narrative. Together these underpin the development of the imagined user and the subsequent entextualisation. However, beliefs concerning imagined users vary between team members and can be traced back to members' background and to technological affordances of programs used to design interactivity. Consequently, different imaginary users converge and collide during the production process. Our findings show that despite producers claiming they approach users differently when designing for audience engagement, their actions reveal that the imagined users are grounded in more traditional notions for authorship and the role of users in journalistic practices.

Introduction

Designing for interactivity as part of journalistic stories is a relatively new practice in journalism. The practice first gained significant professional attention in the years following the success and critical acclaim of *Snow Fall* in 2012, which inspired news organisations to experiment with and develop their interactive forms of in-depth journalism (Dowling, 2019). These interactive forms emerged from the convergence of written and audio-visual journalistic traditions with the affordances of digital media and are known as *digital longform journalism* (Dowling, 2019; Hiippala, 2017). The genre is considered part of a broader movement in journalism, seeking deeper audience engagement through innovative and immersive storytelling (Dowling, 2019; Nelson, 2021).

So far, few studies have focused on the production process of digital longform (Planer & Godulla, 2020). In this study, we ask how journalists design for interaction when creating interactive non-fiction. Typically, journalistic narratives of this genre combine different media forms and require user activity to continue the story (Hernandez & Rue, 2015; Hiippala, 2017; Jacobson, Marino & Gutsche, 2016). Consequently, the production of these narratives requires news organisations to assemble interdisciplinary production teams that are familiar with both journalistic and design practices (Chaplin, 2016; Doherty, 2018; Planer & Godulla, 2020; Uricchio, 2016). The new practice, emerging from this convergence of journalism and design, is characterised by the pursuit of audience engagement. This pursuit of audience engagement presupposes producers approaching the role of users in their narratives differently.

In this study, we focus on how producers develop the role of users in this practice by unravelling the process of designing for interactivity as part of the production process of interactive narratives. In this context, Anderson and Borges-Rey (2019) introduced the term 'constructed audience' to describe the construction of user behaviour through the specific interface characteristics of interactive data visualisations. Anderson and

Borges-Rey see the interface as the site of the encounter between journalists and their audience. According to them, the user becomes recognisable as a construct in the interface of the published production. Before completing the production during the production process, ideas about user behaviour and audience engagement are less pronounced, though these are essential in shaping the interaction design. As envisioned in the mind's eye of individual producers, the user can better be considered an 'imagined user' (Coddington, Lewis & Belair-Gagnon., 2021; Litt, 2012; Nelson, 2021; Robinson, 2019). The question for our study is how producers consider the 'imagined user' during the design process of journalistic narratives designed for audience engagement.

Given that interdisciplinary teams usually needed to create interactive narratives, we ask how individual team members come to a shared understanding of the imagined user experience of their narrative. We presume that the imagined user is a useful analytical concept for understanding how producers design audience engagement. The imagined user describes journalists' collective "sayings and doings" (Witschge & Harbers, 2018 p.110) concerning audience engagement and users' supposed behaviour and emotional response to the interactive narratives. These "sayings and doings" raise the question of how audience engagement is shaped during the production process: How do interdisciplinary teams translate their ideas about users into a specific interaction design? What is the role of technological affordances?

Inspired by a practice theory approach (Witschge & Harbers 2018), in this study, we examine how producers shape the role of users in the design for audience engagement as a journalistic practice emerging from the relationship between all actors involved in the production process, set within a particular material context (Ahva, 2017; Lewis & Westlund, 2015; Witschge & Harbers, 2018). We reconstruct the production processes of three Dutch journalistic interactive narratives by triangulating data obtained through document analyses, in-depth semi-structured

interviews, and focus groups. Through these qualitative reconstructions (Reich & Barnoy, 2016), our study provides a thorough understanding of the development of the imagined user by actors involved throughout the process and how this shapes the design for audience engagement.

Audience engagement and interactivity

In scholarly literature, *audience engagement* is often connected to *interactivity*. The relationship between these two concepts is rarely discussed explicitly, even though a persistent assumption holds that interactivity can increase audience engagement, which in turn allegedly strengthens brand loyalty (Dowling, 2019; Picone, 2016; Usher, 2016).

In recent years audience engagement has become a key component of news organisations' commercial and editorial strategies and is often seen as necessary for the economic survival of journalism (Broersma, 2019; Costera Meijer, 2020; Nelson, 2019). These strategies not only focus on the number of audience interactions but also their quality (Lawrence, Radcliffe & Schmidt, 2018; Lehmann et al., 2012; Nelson, 2018). Editorial strategies especially seek to refocus the relationship between journalism and its audience by seeking more and deeper audience engagement in diverse ways, ranging from interactive stories, comments below news stories, and discussions online, to more extensive forms of participatory journalism where (offline) community building becomes part of the journalistic process (Nelson, 2021; Wenzel, 2020). In this study, we focus on practices seeking online engagement, and this is where interactivity rears its head: to increase the quality of audience activity online, news organisations look for innovative and interactive ways to engage audiences with their content (Dowling, 2019). In this context, audience engagement refers to the users' willingness to invest time, attention, and emotion (Lehmann et al., 2012). Broersma (2019) points out that this engagement is "a precondition for processes of meaning-making, value creation, and connecting to public discourses." (1). He stresses that when

users are engaged, they connect cognitively and emotionally to the media content, leading them to invest in making sense of the text.

We focus on interactive journalistic texts created to increase users' emotional, cognitive, and active involvement in the narrative process. Ideas about audience engagement are entextualised into interactive and narrative cues that invite users to become 'engaged'. Steensen and colleagues (2020) argue that cues for audience engagement appear in various forms ranging from far-reaching forms of interactivity (e.g., collaborating in the journalistic process), minor forms of interactivity (e.g., making choices between predefined options by just clicking) to formats that appeal to users' empathy (e.g., narrative journalism). However, rather often and astonishingly, journalistic interactive narratives do not include far-reaching forms of interactivity. Studies have shown that in recent years various interactive formats emerged, ranging from linear narratives with a narrow scope for user activity to non-linear story spaces with extensive interactive options (Hernandez & Rue, 2015; Hiippala, 2017; Jacobson, Marino & Gutsche, 2016; van der Nat, Müller & Bakker, 2021). Narratives that require only "small acts of engagement" are common (Picone et al., 2019 p.2011). These 'small acts' refer to minimal forms of interactivity, such as clicking to start a video within a larger journalistic narrative. It seems that such forms of interactivity are prevalent in online journalistic practices of designing for audience engagement.

Designing for audience engagement: a new practice

Whilst it has been theorised that producers' growing focus on their audience is having a profound impact on journalistic production processes, leading to innovation in journalistic interactive narrative forms, amongst other things (Broersma, 2019; Costera Meijer, 2020; Nelson, 2021), a lack of empirical research describing this change persists. How do journalistic practices change when producers consider users? How do producers design for interactivity? How is the role of the users shaped during the pro-

duction process? Recent studies tend to focus more on the pivotal role of metrics in changing journalistic practices, showing that knowledge of audience behaviour is changing the way journalists work (Anderson, 2011; Cherubini & Kleis Nielsen, 2016; Zamith, 2018). Yet little attention is given to the nitty-gritty of the day-to-day work of designing for user interaction. Following Ahva (2017) and Witschge & Harbers (2018), we assume that it is helpful to approach design for audience engagement as a practice enacted by the actors involved in the production process. Our approach allows us to consider how journalistic interaction design and the imagined user dynamically emerge from the knowledge, beliefs, and activities of actors involved in the practice. Witschge & Harbers (2018) emphasise that "a practice thus develops from the complex interaction of a web of enactments and discourses, past and present, by a myriad of actors, not only journalists but also those surrounding it (whether they are publishers, web developers or marketers)" (112). With Witschge & Harbers, we contend that the agency to shape practices resides at human actors although the materiality of the production process is vital in the enactment of any given practice. We argue that the material context is an integral part of the practice that must be considered alongside the actors involved in the production process.

What does this mean for the production process of interactive non-fiction? Even though few studies explicitly describe the production process of interactive non-fiction, we can identify interesting areas of inquiry regarding the practice of designing for audience engagement and the role of users herein. We know that journalists create interactive narratives to engage their audience in new ways (Dowling, 2019; Dowling & Vogan, 2015; Uricchio et al., 2016). This new type of journalistic narrative urges journalists to work alongside new actors such as designers and programmers. We are interested in how the imagined user emerges from this collaboration between journalists and designers, particularly when enacting the design for audience engagement. Essential to the pro-

duction process are the new programs and technologies needed to create the interaction design. These technologies come with their own affordances and specific predetermined ideas about how they should be used (Akrich, 1992; Hight, 2017). We wonder how this particular material context shapes the role of users in the production process of interactive narratives: How do technological affordances shape the design decisions made? And what does this imply for the role of users?

Earlier studies have shown that interdisciplinary work poses challenges during the production process, including trouble understanding and synthesising each other's practices and negotiating who leads when making design choices (Smit, de Haan & Buijs, 2014; Zahedi, Paoli & Guité, 2011). Furthermore, new actors will contribute their own 'industry trade stories' (Caldwell, 2008) and internalisation of their practices. Therefore, we ask how the industry trade stories from different disciplines shape the practice of designing for audience engagement: How are varying beliefs about users incorporated into the production process? And what are the implications for the entextualisation of these beliefs?

Reconstructing the production process

In this study, we approach designing for interactivity as an emerging practice in journalism (Witschge & Harbers, 2018). We unravel how the imagined user is shaped as part of this practice by reconstructing the production process of three Dutch journalistic interactive narratives (Reich & Barnoy, 2016). These reconstructions allow us to scrutinise how actors shape the role of users within both the narrative and the production process (Lewis & Westlund, 2015; Witschge & Harbers, 2018). To this end, we triangulate data gathered in three consecutive steps: 1) a document analysis, 2) in-depth interviews with producers of interactive journalistic narratives, and 3) focus groups with these same producers. Furthermore, we use visualisation techniques to help producers recall the production process (Hölsgens, de Wildt & Witschge, 2020). This generates the rich

data necessary to reveal how the actors involved in the practice shape the interaction design.

Data collection and analysis

In the first step, we reconstructed a timeline of each production process based on document analysis. The analysed documents included emails, unpublished drafts, applications for funding, sketches, and prototypes. The timeline was reconstructed on a matrix (table 1), dividing the production process into five stages: idea, exploration, production, publication, and post-publication.

Table 1 - *The matrix that was used to reconstruct the production processes.*

		Idea	Exploration	Production	Publication	Post-pub
Interdisciplinary teams	Team composition	How did the composition of the team change over time?				
	Execution/ working together	How did the teamwork together? Who was in the lead when making decisions?				
Entextualisation	Research/Story	How did the research progress? What story did the team want to tell?				
	Form/Plot/Interaction Design	How did the interaction design develop? What forms were chosen?				
Effect	Audience/Users	How did ideas about the narrative's effect on users develop?				

In the second step, to gain a deeper understanding of the practice of designing for audience engagement, we wanted to ascertain, for each stage in the process, how actors were involved in (1) interdisciplinary teams and editorial context, (2) entextualisation of the interaction design, and (3) development of the effect and the role of the audience (table 1). Therefore, we conducted in-depth interviews with the fifteen producers of the three selected case studies. For each case, we included at least one journalist, one designer, and the project leader. During the interviews, producers visually mapped the relationships between actors involved during the different stages of the production process. Producers were also prompted to

draw freely to help explain how the process developed. Documents, such as sketches, prototypes, and emails, were used to jog producers' memory.

In the third step, we identified pivotal events in the production process of each narrative based on the data gathered in these interviews in combination with the document analysis. These events became topics for discussion during the focus groups with the producers. We chose focus groups to allow each team to recall the production process in more depth collectively. Before each focus group session, we plotted the pivotal events on a timeline. During the focus groups, producers were asked to write down (on post-its) their associations with each event, focusing on the team, collaboration, story, interaction design, and audience/users. Subsequently, participants were asked to plot all post-its on the timeline. This exercise fuelled the discussion about the event. Each focus group session started with a conversation about the roles of each team member. The sessions ended with a 'complete-the-sentence exercise' (We created a [...] to achieve [...] with a [...] team). This last exercise forced producers to focus on what was essential for them during the production process.

The data generated during the focus group sessions were analysed using Atlas.ti. During this analysis, we ran through several coding cycles (Saldaña, 2016) as we reconstructed the production processes. After an exploratory cycle, we coded the data along the process axis in our matrix (table 1). This was followed by a coding cycle focusing on actors identified in the literature and represented on the vertical axis of our matrix.

Case studies

Our study scrutinises the role of users in the production processes of three Dutch interactive journalistic narratives. The three selected cases show variation in the composition and experience of the interdisciplinary teams, their position in relation to news organisations, and the interaction design of the narrative (table 2). In this section, we describe the production process of the three cases.

Table 2 - *The three case studies vary in team composition and their relation to news media.*

Title	Organisations	Team composition	Duration of process
Uit het Moeras	Dagblad van het Noorden (regional newspaper)	Narrative journalist Project leader Writers Photographer (freelance)	January 2018 – February 2019 > New content is still being produced
	Bloei Media (web design company)	2 web designers	
Kan geboortebeperking het wereldwijde voed-selprobleem oplossen?	The Volkskrant (national newspaper)	Data journalist Project Leader Editor Designer	February 2018 – December 2018
De Industrie	Submarine channel (interactive documentary production company)	Documentary maker/director (freelance) Developer (freelance) Project leader	June 2015 – November 2017
	VPRO (public broadcaster)	Journalist/editor Project leaders 2 interaction designers	

Uit het Moeras (From the bogs)

Uit het Moeras is a collection of family stories, historical events, and background information about generational poverty in a historically poor region in the North of the Netherlands published on a stand-alone website. The narrative was produced by journalists from regional newspaper Dagblad van het Noorden, and two web designers from BloeiMedia.

A narrative journalist initiated the idea. She wanted to tell a different kind of story about the inhabitants of the region because she felt these people were often the topic of journalistic stories but rarely got a voice themselves. Early on, when the journalist and the project leader

were trying to raise funds, the idea emerged to place these stories on an interactive timeline. This timeline would provide historical context for individual stories, they reasoned. During the application process, they asked web design company BloeiMedia to provide an estimate for designing a website featuring a timeline and family stories.

The timeline was to become the most crucial interactive feature because it was supposed to provide the central navigational structure of the narrative. The team started with a series of meetings in which they explored the technical implementation of the timeline and other features on the website. At the start of the production phase, two parallel production processes emerged: one for the website and one for the family stories, descriptions of historical events, and background articles.

The central idea for the interaction design remained intact throughout the process, with the timeline featuring as the main navigational structure. Technological affordances and an attempt to render the complex subject material more accessible shaped the design of the timeline. The team was inexperienced in designing interactive narratives, which led to an initial prototype of the timeline with too many features – they had built-in everything they wished. Later they reversed these choices because it made the narrative relatively inaccessible.

Kan geboortebeperking het wereldwijde voedselprobleem oplossen? (Can birth control solve the world-wide food problem?)

Kan geboortebeperking het wereldwijde voedselprobleem oplossen? or *Geboortebeperking* as we will refer to this narrative from here on, is a data essay featuring interactive data visualisations. The essay deals with the question of whether promoting wider use of birth control, particularly in Africa, could halt population growth, thereby preventing a worldwide food crisis. A team of journalists at the national newspaper the Volkskrant created the essay as part of a larger project called *De Voedselzaak* (The Food Question).

The idea originated when the project leader encountered racist comments on social media in reaction to stories published for *De Voedselzaak*. Social media users remarked that birth control in Africa would solve the world's food crisis. In response to these comments, the project leader wanted to answer this question through data research. He approached a data journalist and pitched the idea informally. This marked the beginning of an exploration phase in which the data journalist studied UN data to determine if they could answer the question and model the data in interactive graphics that users could explore. This resulted in a prototype of the essay, with working interactive visualisations, that was pitched in an email to the relevant section chief and the project leader.

The premise of the data essay was to convince users of the producers' answers to the central question. The interactive visualisations served to let users reach the same conclusion as the producers. After the data journalists produced the prototype, the project leader and the editor started working on the essay's text. The tone of voice received particular attention as the topic was sensitive. Both said they hoped to avoid sounding paternalistic.

The data journalist on the team was the central figure in the production process. As she explained, doing research meant finding out what story could be told *and* if the data could be modelled so that users could explore the data. Beyond that, the aim of the data essay was very clear to everyone, and consequently, the initial idea did not change much during the production process. Furthermore, this production process was remarkable because of the apparent absence of external influences.

De Industrie (The Industry)

De Industrie is an interactive documentary about the Dutch drugs industry. A large interdisciplinary team created the interactive documentary, a co-production between public broadcaster VPRO and Submarine Channel, a production house that focusses on interactive narratives.

The initial idea came from the managing director of Submarine Channel, and he asked a freelance documentary director to make an interactive documentary that showed how the drugs industry permeates every aspect of Dutch society. This marked the beginning of an exploration phase, in which the director worked with a project leader, a programmer, and several researchers. First, they applied for funding for this exploration phase, which is typical in the film industry. After funding was granted, they developed their design, resulting in applications for funding for the production phase. At this point, Submarine Channel initiated the collaboration with public broadcaster VPRO. After funding was granted a combined team of people from Submarine Channel and VPRO started producing the interactive documentary.

The premise was to immerse users in the Dutch drug industry through 'spatial storytelling'. This was presented as an essential feature of the interactive documentary in the applications for funding. During the exploration phase, the team designed a layered navigational structure that would take users through a map and a network visualisation to people working in the drug industry.

Whilst the central premise remained more or less the same throughout the project, the team made significant development in the interaction design. The application to produce the narrative included a detailed description of the ideas about the navigation at that time, including mock-ups and prototypes. The production phase started with a secondary exploration phase because much was left undecided. During this phase, the team figured out how to translate the central premise into a navigational structure that would fulfil the promises made in the applications whilst simultaneously satisfying the wishes of the various stakeholders and the team's ambitions. The director summarised this process as making a production that was "amazing, mobile-first, research-based, snackable, spatial, data-driven, targeted at a wide audience, but personal, featuring investigative journalism, cinematically

attractive, an Emmy-winning project, with impact, socially relevant, and cheap."

Analysis

Our analysis focuses on the role of imagined users in the production process of interactive multimedia narratives. Producers wanted to engage and involve users. In this context, they perceived interactivity as instrumental in achieving this goal. In our analysis, we first reveal how producers incorporated audience engagement in their design of interactive narratives. Subsequently, we unravel how the imagined user emerged from the dynamics between the actors involved in the process.

How the imagined user shapes the production process

In our reconstructions of the production processes, we found two crucial concepts producers refer to in the context of audience engagement: 'experience' and 'accessibility'. Producers tend to talk about experience when asked about their initial ideas and the general aim of the narrative. When discussing the experience, producers imagine how users will respond to the narrative emotionally. Producers' concept of experience remains rather vague but is connected to style (tone-of-voice, narrative journalism) and immersion in a narrative world. The question of accessibility arises mainly during the production phase, when the producers entextualise their ideas – meaning when creating, designing, coding, writing, and researching. For producers, 'accessibility' refers to the imagined behaviour of users as they experience the narrative. In this context, producers are focused on the functional interaction design and ask themselves if the interaction works as intended. Producers connect specific narrative and navigational cues to the imagined behaviour and experience.

Experience

When asked what they hoped to achieve with their narratives, producers expressed their wish to create audience engagement by providing their users with an experience. For producers, the experience is connected to the type of story they wish to tell. For example, the application for funding for *Uit het Moeras* stated: "*Uit het Moeras* is a constructive project. We show how multiple generations have lived in poverty by telling personal narratives about inhabitants and their ancestors." The narrative journalist who spearheaded the project explained that she wanted to tell the story from the inhabitants' perspective and consequently used literary techniques to tell these family stories. When asked what they wanted to achieve, the web designers of *Uit het Moeras* responded: "to move people." It was therefore important to the narrative journalist to tell the stories of genuine people, using their real names. One web designer stated: "It's about real people" and the narrative journalist continued: "Because that has more impact." Similarly, the application for funding for *De Industrie* clearly expressed the aim to let users experience the strange world of the drug industry – the director calls it a "Harry Potter-like" alternate reality. In their application for funding, the producers connected the wish to appeal to users' emotions to the desired impact they aimed for, namely increased understanding:

> "With the interactive documentary, we want users to personally see and feel that the drug industry is all around us. (...) The impact we want to have with this production is that users realise and understand the size and proximity of this industry, the many people involved, and the interwovenness of the underground with everyday life."

For both *Uit het Moeras* and *De Industrie*, the aim was to appeal to users' sense of involvement with and understanding of the story by immersing

users in another world. The producers of *Geboortebeperking* aimed for a different experience, although for them, the desired effect was to increase users' understanding as well. *Geboortebeperking* initially came about in reaction to audience behaviour on social media. The producers wanted to provide a data-based answer to racist questions asked on social media. The data journalist on the team translated this into an approach that let users answer their questions by exploring the data in interactive visualisations. Together with the project leader and the editor, the data journalists crafted an essay to guide users through the teams' answers to the racist questions. With this experience, the producers wanted to convince users of their point of view, which the project leader described as "turning their world upside down." The editor explained that by "providing facts and information, users can come to their own insights, and in this case, we hoped that some people would adjust their preconceived notions."

During the production phase, audience engagement goals set earlier were translated into specific elements in the narrative that function as a means for users to access the experience. These elements include navigation options and stylistic choices, such as opting for narrative journalism as a storytelling form. Producers said audience engagement starts at the opening screen of the narrative (although this is not necessarily the first element producers design during the production phase). The producers of *Geboortebeperking* called this 'onboarding.' The team's data journalist explained that onboarding aimed to "lure people into the story and make them curious, like: 'how does this work?'" The project leader added that designing a proper onboarding will ensure that the audience is invested in the story and lead to a better understanding of the subject material. Interactivity is crucial, argued the data journalist, because if users get to do something (like exploring the data), they feel more engaged, and they also start to engage with the issue at hand on a personal level. Taking time to carefully consider how users enter the narrative allowed the team to imagine how users might respond to their design and sto-

ry. They thoughtfully provided an answer - the data essay - in response to audience reactions posted on social media. The project leader, who was responsible for the text, explained that he was very conscientious in developing a tone that would neither antagonise nor paternalise their audience. He described his tone as 'tongue in cheek' and attested that he wrote the text as part of an imaginary conversation with his audience.

We see similar imaginary interaction with users in the other two production processes. The director of *De Industrie* wanted users to experience the proximity of the drug industry and proposed a layered story space that would immerse users in this world. The narrative journalist and the project leader of *Uit het Moeras* chose narrative journalism to engage users. The project leader explained: "We made a conscious choice to tell the family stories in scenes. (...) That is the essence of the story, and this also shows how we think from the user's perspective – it's not a newspaper story, but a website story." Producers involve users in their creative process and design these experiences by adopting their perspectives and letting this alternate viewpoint guide their design decisions. The producers determine what constitutes an interesting experience by imagining the emotional response to their stories.

Accessibility

Likewise, producers imagine user behaviour when they are designed to ensure the accessibility of their narrative. One of the pitfalls of interactive narratives is that producers want to include too much in their story, as online space is potentially limitless. Moreover, producers deal with vast amounts of information, as interactive narratives' exploration and production phases tend to incorporate extensive research. This occurred in all three processes. The producers solved this issue similarly by substantiating their design choices with industry trade stories from existing journalistic and design practices.

In doing so, producers again take on the imagined viewpoint of users when they evaluate the accessibility of the narrative as clearly happened during the production process of *Uit het Moeras*. The producers designed an interactive timeline to make other parts of the narrative accessible. The team decided they wanted to personalise the experience by creating extensive filter options that would allow users to adjust the presentation of the timeline to their specifications. However, during a meeting, they decided this was far too complex because, as the web designer put it: "If we are having a hard time understanding this, how is the average user supposed to understand it?" Here we see that the designer decided to change the design based on what he believed the average user would find too complicated. His reasoning is rooted in web design trade stories about useability and user behaviour.

Accessibility of the information was also a concern for the producers of *De Industrie*. They wanted users to be able to experience both the proximity and the scale of the drug industry. To this end, they gathered different types of information ranging from personal stories to factual and contextual information. Moreover, they had done extensive research, meaning there was a lot of source material to choose from, and the published narrative contains over three hours of content. During the exploration phase, the producers proposed (in their application for funding) a narrative composed of three layers, with each layer conveying a different type of information.

The team needed to figure out how users would be able to navigate these layers. The two interaction designers approached this as a useability and user experience issue. One of the designers explained that he constructed the navigation with both active and passive users in mind. For interaction designers, thinking about different user perspectives and making design decisions on their behalf is part of their training. Meanwhile, the director and the section chief were concerned with the internal consistency of the content and the connection between the different

types of information. They asked themselves questions like "what routes can people possibly take? How much information do users want, when do they get a sense of this world?" Eventually, the team decided to visually emphasise preferred trajectories through the narrative, uniting the interaction designers' expertise and with the expertise of the director and editor. The producers approached the problem from their respective disciplines and merged their trade stories about useability and storytelling whilst imagining how users might behave within the production.

During the production process of *Geboortebeperking*, the producers had slightly different concerns about the accessibility of their narrative. The data journalist on the team explained that she had a vast amount of data that first needed to be analysed and then modelled so that users would be able to explore the data. She analysed and visualised the data during the exploration phase. "I always look for interesting visuals. The further I progress in the process, the more I focus on this aspect. When I have a clear idea about the data, I start thinking about what visuals I want to use." This meant that before the decision to produce the narrative was made, the data journalist had already designed a rudimentary interactive data visualisation. Thus, for the data journalist, accessibility was a central consideration from the start of the production process. Consequently, the interaction design was clear early on, which gave the team time to develop other elements of the experience.

Revealing the imagined user

Our analysis shows that producers involve users in their production process by including an imagined user perspective when making design choices. When prompted to tell us more about their users, producers would refer to their target audience or lack thereof. The project leader of *Uit het Moeras* simply said: "everyone, we didn't have a specific audience in mind." Though when asked to elaborate, the narrative journalist explained that they were trying to engage the people whom the story is

about, thus people living in the Peat Colonies: "that has been a struggle, because the people the story is about are hard to reach." *De Industrie* had a broad target audience defined in its application for funding. This audience was described as millennials and older (16-35 years, and 35-65 years), critical thinking, interested in news stories about drugs, politics, society, and economics. The director summed it up as: "well, it was for a wide audience. It was rather vague, but we kind of aimed at millennials and older." This corresponds with audiences typically targeted by both companies involved, VPRO and Submarine Channel.

Geboortebeperking had the most clearly defined imaginary user, and producers would often mention that they would imagine how "those trolls" would respond to their work. However, when asked whom they wanted to reach, the target audience became much larger. The editor explained: "This has never been made explicit, but we aimed at a larger, a much larger group of people who wondered about the same question (as the racist commenters on Facebook)." The project leader further described that they had a target audience that is atypical for the Volkskrant: "We wanted to reach people who normally don't want to read or are less inclined to read about hunger and Africa." It seems that producers think of their users in more traditional ways, and believe they (the producers) have a story to tell and a target audience to receive that story.

Our data reveals that producers did not substantiate their knowledge and ideas about users with additional research. None of the three production processes that we reconstructed for our study included user testing (at least not in any formal way), even though this is common in both web design and interaction design practices outside the context of journalism. The applications of funding for *De Industrie* did include user testing in the proposed planning, but it was cancelled near the end of the production process as the team ran out of time. When creators wanted feedback on their design from someone outside their team, they would ask a colleague or a friend. This happened both during the production of

Geboortebeperking and *Uit het Moeras*. The latter project's leader explained: "We showed it to a few people from our social circle and asked, 'how would you navigate this?'"

Moreover, when asked how well their production had performed, producers admitted that they had not evaluated the metrics. It seems that beliefs about users' response to the designed experience and the accessibility of that experience are rooted in the existing practices familiar to individual team members. Interestingly, producers seldom connect their user perspective to the characteristics assigned to their target audience. Consequently, it remains rather vague who the imagined users are.

To sum up, producers design for audience engagement when designing interactive narratives by creating an imagined experience and making that experience accessible. Initially, the focus lies primarily with the experience. As the process moves from its initial phase towards the entextualisation of audience engagement in the production phase, it shifts towards imagined accessibility of the narrative and whether the imagined interaction might work as intended. Our analysis reveals that this practice is shaped by producers' beliefs and assumptions about user behaviour and experiences rooted in existing practices and renegotiated between the actors involved. In the following section, we discuss how the imagined user emerges from 1) technological affordances and 2) the composition and dynamics within the team.

The role of technological affordances

The technology used to create interactive narratives comes with its own set of affordances – in other words, the tools producers use to make these narratives are inscribed with a particular use and user in mind. Not just in terms of the producers using the tool but also in what kind of interaction design producers can make with the chosen software. *Uit het Moeras* was made in WordPress. The project leader and the narrative journalist outlined a rudimentary interaction design centred on an interactive timeline

and asked the web designers to implement this design in a website. The web designers combined WordPress plug-ins to build what they call the 'engine' of the website. Once the website was functional, they tweaked the design to fit their clients' needs: "This is how we always work", one of the designers said. Combining existing Wordpress plug-ins led to a product that could be seen as new and original. When asked *how* they approached their production process, the web designers attested that they worked based on trial-and-error.

This trial-and-error process is iterative, and the designers went back and forth between adjusting the code and interacting with their design. In doing so, they toke on the perspective of a 'stupid' user: "You take into consideration that the user is sometimes pretty stupid. Not to sound condescending but because we notice that sometimes we think something is logical, but then I think "how would my mom act on the site?" she will click on three things and if she doesn't get what she expects she'll leave. (...) We don't test elaborately, but (ask ourselves) how can we guide the stupid user." Going back and forth between coding and taking on this perspective was done until the website works as intended. Additional feedback on the design was gathered by first asking their team members to test the website. Close to publication, the website was 'tested' by colleagues working in the newsroom and family and friends.

The data journalist of *Geboortebeperking* experienced similar dynamics with the affordances of her chosen tool. The interactive data visualisations was designed using Observable, a specialist toolkit made for this exact purpose. The data journalist described Observable as "interactive notebooks in which you can do calculations and make graphs. You can also make graphs that let the user make some selections." The output is JavaScript which can be incorporated into the code of websites. In addition to being able to create interactive data visualisations, Observable also automates part of the research process because the tool can perform complex calculations. Like de web designers of *Uit het* Moeras, the data

journalist first developed the interaction design in a similar iterative process. Being very experienced with Observable, the data journalist knew the potential user experiences that she could create using this tool. She would ask herself, whilst building the interaction, how users could explore the data. The producers of both *Uit het Moeras* and *Geboortebeperking* emphasised that they could create whatever interaction design they had in mind with their chosen tool. However, in both cases, the producers *typically* work with the same technological affordances. For example, the data journalist's research approach for *Geboortebeperking*, which was to explore if she could model the data for user interaction, fits perfectly with the affordances of Observable. Being highly specialised in a particular technology, which both the data journalist and the web designers were, is fundamental in their conceptualisation of their imagined user because producers will always subconsciously be imagining the user experience within the potential and limitations for user interaction dictated by the specific software they use.

Technological affordances played a different role in the conceptualisation of the imagined user during the process of *De Industrie*. The producers wanted to innovate interactive storytelling by immersing users in a spatial narrative. This concept was developed during the exploration phase but not yet connected to a specific technology. During the production phase, 'spatial' became 3D environments users would be able to interact with. Furthermore, at the time (2015-2016), it became apparent that people were mostly consuming media on their phones, and the team, in particular the programmer, wanted to make the narrative 'mobile-first'. This meant they needed a technology that would be able to convey 3D environments on mobile phones. One of the interaction designers explained: "Eventually, this was developed towards the end of the project because you can't start if you're unsure about the story you want to tell. Moreover, we needed extensive research to find a technology that best suited our needs and was also suited for mobile" The director ex-

plained that they found a scanner that allowed them to scan a real space and render it digitally. The images were then made into 3D environments by Zesbaans, a VR production house, and ported to SketchFab, which allowed the environments to be displayed on mobile and desktop systems. The initial idea was not yet connected to the specific affordances of a piece of software.

The producers had a vision of how interactive storytelling *ought* to immerse their users in a narrative world, essentially formulating desired technological affordances. "I wanted the 3D environment to be rendered, not a movie but in such a way that you could navigate, and that is what made it complicated. Zesbaans said I was crazy, and they were kind of right," the director attested. Whether this was technologically possible or whether users wanted this type of interaction with a narrative world was secondary to the objective of experimenting with interactive storytelling. Consequently, the team experienced tension between the technological affordances of their chosen tool and their ambitions for the narrative design.

There was much discussion about the added value, and the project leader confessed during his interview that if they had made a clear choice about "the real added value" sooner in the process, they would not have created the 3D environments. He recalled the editor saying, "I don't know if we need the visualisation to tell this story." The editor herself substantiated this when she evaluated the persistent desire for 3D visuals: "I'm thinking no, we're not doing this because if you fill a space when there is audio, people will look and no longer listen, and we want them to hear these stories." One interaction designer even said: "I don't understand why the points of interaction were included, because all the information is also told in the audio story." Her counterpart added: "We were looking for a way to cater to the lean-forward user, and it could have worked, but we needed to do something with pausing the audio." By the time the spaces were finished, the project had run out of time and money, and the project leader explained: "at that time, we didn't have the means

to come with an alternative." Ultimately, the 3D environments could not express the producers' imagining of the user experience because there was no consensus about how to entextualise the desired immersive user experience. Whereas the other two production teams imagined how users would interact within the possibilities and boundaries of existing programs, the producers of *De Industrie* encountered a gap between their imagination and what was possible at the time. For both ways of creating interaction design, technological affordances shaped how the imagined activity of the user was eventually entextualised.

Team composition and dynamics

In this section, we will look closer at how specialised knowledge allows team members to enact the practice of audience engagement design by taking ownership of certain parts of the production process, thereby entextualising their perspective on the imagined user. There was a clear connection between the specialisation of individual team members and the elements meant for audience engagement in all three processes. Furthermore, the composition of each team was also shaped by the specialisation of different team members – teams were assembled by the idea initiator. The project leader of *Geboortebeperking* wanted a data-driven story. In this case, he approached the data journalist. This automatically also meant that *Geboortebeperking* would include interactive data visualisations because this data journalist always tries to model data in a way that allows users to explore it. The project leader also contributed significantly to the form. Their journalistic style is essayistic, meaning he tends to write articles that express a line of reasoning. The role of users in the production was further negotiated in developing the tone of voice – which was a back and forth between the project leader and the section chief. This search for the right tone of voice was, in essence, a question of how to address users. Especially the project leader struggled: "The data journalist wrote a text and then I rewrote that like a 1,000 times because we were very

scared that we were too 'tongue in cheek' or too paternalistic or that we would go with the (racist) frame too much, that was a personal fear of mine that we would be accused of legitimising racist people and their ideas." The editor was able to guide the project leader is his search for the right tone: "the first version was more a direct response to those trolls, but I always think 'you want to keep people as long as possible' and this misses the point. You achieve more with a factual tone than with your own indignation." They chose to approach their users not as ignorant bigots but as curious users who wondered if birth control would help resolve the world's food crisis. In this negotiation, specialised professionals focus on different aspects of audience engagement founded in their collective and personal imagined users. The data journalist focuses on the explorative user and the project leader and editor on the racist trolls.

Similar dynamics were present in the team of *Uit het Moeras,* which was initiated by a journalist who specialises in narrative journalism. A colleague suggested that she ask a web design company the newspaper worked with before creating the website. This company came, as described above, with a particular approach to web design. The team of *Uit het Moeras* was inexperienced in interactive storytelling, and the interaction design was a process of improvisation informed by web design practice familiar to the two web designers because they were considered experts by the rest of the team. However, seeing as no one could be regarded as an expert in interactive storytelling, the interaction design emerged from web design and narrative journalism practices. Consequently, no one claimed the lead in the decision-making process – the web designers were focussed on accessibility and what they call the 'stupid user', whilst the narrative journalist was concerned with the experience and concentrated on the narrative style to engage users. This resulted in two parallel processes during the production phase: one focusing on website users and one on the user as a more traditional reader of journalism.

In the very experienced team of *De Industrie,* we see that negotiating agency in the production process can lead to tension when different practices and conceptualisations of the imagined user collide. The director's beliefs about audience engagement are reflected in a central idea that the narrative should immerse the user into a constructed world whilst allowing for exploration. This innovative approach shaped the production process. Before her work on *De Industrie*, she had directed the creation of several interactive narratives focussed on spatiality and immersion. During the production phase, this collided with the expertise of the interaction designers. Tension arose between the practices familiar to the interaction designers and the director. The former being trained as designers and the latter as a filmmaker and an artist. They all were trained to think about interactivity in relation to storytelling and users. However, their trade stories didn't match. The director's decisions were guided by her vision of an immersed user curiously discovering a new world, whilst the interaction designers' choices were guided by the active versus passive user, more common imagined users in interaction design practices. The way existing practices converge, or indeed collide, shape the imagined users that emerge throughout these production processes. Producers seem to consider multiple user perspectives when they design journalistic narrative for user activity but in doing do stick to what is familiar to them.

Discussion and conclusion

Our analysis reveals how the imagined user shapes interaction design during the production process of interactive non-fiction. Producers assume that interactivity leads to audience engagement because it can make journalistic stories accessible and experienceable to users. The imagined behaviour and experience of users are entextualised in the interactive narrative text. In doing so, producers enact their beliefs about the imagined user as they make design choices. Producers seem to place

the imagined user at the centre of their production process. Our analysis elucidates a practice of designing for audience engagement that emerges from the convergence and collision of existing practices of journalism and design and technological affordances inscribed in the software used to create interaction design. The imagined user that emerges from this web of practices serves producers as a compass for their design choices.

Our analysis contributes to the debate about the transition towards so-called audience-centred journalistic practices by examining the role of users in the production process of interactive narratives in detail. Whilst much of the literature on this transition focusses on how metrics change existing journalistic practices surrounding news work (Anderson, 2011; Cherubini & Kleis Nielsen, 2016), our study focuses on the design of the emotional and behavioural aspects of audience engagement (Nelson, 2019; Steensen, Ferrer-Conill & Peters, 2020). Surprisingly, during our interviews and focus groups, it became apparent that metrics didn't play a significant role in the production process of interactive non-fiction. Most producers commented that they were unaware of how their audience received their narrative. This stands in stark contrast with the rising importance of metrics for news production (Anderson, 2011).

Moreover, characteristics assigned to their target audience were neither connected to specific activities or emotions of their imagined users nor were assumption tested. If producers sought additional feedback outside the team, they turned to colleagues, and friends and family as sources. This is in line with the sources for the imagined audience that Robinson (2019) identifies in the context of news production.

Our study confirms as Coddington and colleagues (2021) point out, that the way journalists imagine their users shapes the stories they make significantly. As shown, different imagined users emerge, converge, and sometimes collide as different practices come together in interdisciplinary teams. Tracing the implications of these diverse imagined users

has revealed tensions between producers' believes and their enactment of those believes. Producers say they approach users differently when designing for audience engagement, but their actions reveal that the imagined user is grounded in more traditional notions of authorship and the role of users in journalistic stories. It seems that existing journalistic practices are reproduced in innovative narrative formats. We wonder what direction journalistic innovation would take if producers imagine their users differently. New audience evaluation methods may contribute to such a reimagining of news users.

Our findings provide avenues for further research on the role of design practices in journalism and the implications for journalistic practices aimed at increasing audience engagement. The imagined user can be a useful concept besides Anderson and Borger-Rey's 'constructed audience' (2019). Studying how producers translate the imagined user to a constructed one in the architecture of interactive non-fiction will further develop our understanding of the different roles users play in journalism's day-to-day work. Further studies should discuss this considering new formats such as conversational interfaces and the rebirth of audio journalism both of which seem to be the latest technological answer in journalism's ongoing search for connection with its audiences. The implications of how journalists imagine their audience, particularly when it comes to journalistic innovation, will shape journalism's relationship with its audience going forward.

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CAPTURING AUDIENCE ENGAGEMENT:

How users respond to interactivity in journalistic narratives designed for audience engagement

van der Nat, R., Bakker, P., & Müller, E. (forthcoming). Capturing audience engagement. How users respond to interactivity in journalistic narratives designed for audience engagement.

An earlier version of this text has been submitted to ICA 2022

Abstract

As part of digital longform journalistic stories, interactive elements are designed to elicit a sense of engagement for users. Persistently, producers assume interactivity contributes to audience engagement. However, they rarely substantiate this assumption with additional user studies as part of the production process and consequently, know little about the user experience of the interactive stories they create. In this study, we are interested in this assumption and specifically examine the relationship between interactivity and the user's sense of engagement. In this context, engagement refers to users' willingness to spend time and attention to create meaning whilst interacting with a journalistic story. We consider engagement part of a user experience involving an active and emotional response to narrative and navigational cues. To capture this user experience, we used the *concurrent think-aloud* method, and we asked participants (N=17) to verbalise their thoughts and feelings whilst interacting with an interactive journalistic narrative. This method allowed us to analyse 1) verbalised thoughts and feelings, 2) corresponding body language and facial expressions, and 3) user activity and navigation on the screen. The data indicates tension between users' awareness of interactivity and of narrative cues. Our analysis illuminates that interactivity draws users' awareness to the interactive form and away from the story, even when the response to navigational cues is positive.

Introduction

News users are not necessarily looking for interaction with journalistic stories. Interactive journalistic narratives are designed for user activity because producers believe that such activity can contribute to audience engagement (van der Nat, Bakker, & Müller, forthcoming). This journalistic practice first gained significant professional attention after the publication of *Snow Fall* in 2012 by The New York Times (Dowling, 2019). In the subsequent years, news organisations around the world created their own *Snow Fall*-inspired narratives and assembled interdisciplinary teams to design narratives combining different media forms with the interactive affordances of digital media to increase and deepen audience engagement (Dowling & Vogan, 2015; Hiippala, 2017; Jacobson, Marino & Gutsche, 2016; van der Nat, Müller, & Bakker, 2021). Persistently, news organisations turn to interactive forms in their quest to fix what they consider a broken relationship with their audiences (Dowling, 2019; Nelson, 2021), typically assuming that interactive elements provide audience engagement (Picone, 2016; Usher, 2016).

However, research shows that news organisations struggle to accurately capture audience engagement in their audience evaluation methods (Nelson, 2018). Moreover, during the production process of interactive narratives, additional insights on users' responses are seldom sought out by producers, as we found in a previous study on the role of users in this process (van der Nat, Bakker, & Müller, forthcoming). Consequently, producers know very little about the connection between interactivity and audience engagement. In this study, we examine the relationship between users' sense of engagement and interactive elements of journalistic narratives. In this context, engagement, or audience engagement, refers to users' willingness to "invest time, attention, and emotion" (Lehmann et al., 2012 164) to create meaning (Broersma, 2019). So far, the user experience of interactive journalistic narratives has gained little attention. Our study aims to grasp this experience and analyse the

role of interactivity in users' sense of engagement and their willingness to interact and engage with the narrative.

We propose to approach audience engagement as a user experience involving an active and emotional response to narrative and navigational cues users perceive on their screens (Groot-Kormelink, 2020; Steensen, Ferrer-Conill & Peters, 2020). By emphasising the experiential quality of users' sense of engagement, we position our study in the growing body of literature on audience perceptions and expectations of journalism (see, i.e. Banjac & Hanusch, 2020; Edgerly, 2017; Picone, Courtois & Paulussen, 2015; Swart, Peters & Broersma, 2017), and the immediate and lived experience of news use (i.e. Boczkowski et al., 2021; Groot Kormelink & Costera Meijer, 2019). "News experience" is emerging as a central concept to tackle crucial questions in journalism studies and is starting to gain significant attention. With our choice to frame the reception of interactive journalistic narratives as "experiences", we follow Bengtsson and Johansson (2020) and adopt a bottom-up approach to and user perspective on audience engagement.

User experiences are fleeting and therefore, hard to grasp, especially since users are unlikely to consistently feel the same sense of engagement – or indeed, disengagement – as they interact with a narrative. To capture the user experience, we used the *concurrent think-aloud* method. We asked participants (*N*=17) to verbalise their thoughts and feelings as they interacted with an interactive journalistic narrative (Boren & Ramey, 2000; Groot Kormelink, 2020; van Someren, Barnard & Sandberg, 1994). We recorded, transcribed, and analysed respondents' immediate emotional and active responses to the interactive and narrative cues presented on their screens. The responses captured in the think-aloud sessions were supplemented by structured interviews immediately following the session to substantiate our interpretation of the user's emotional response. This method allowed us to capture the user experience by analysing 1) verbalised thoughts and feelings, 2) corresponding body language

and facial expressions and 3) user activity and navigation. By focusing on these three aspects of the experience, we could unravel the role of interactivity in the user experience of narratives designed for audience engagement. Our findings indicate tension between users' awareness of navigational cues and their ability to engage with narrative cues.

User experience: emotional and active involvement

The connection between interactivity and users' sense of engagement has, so far, not been examined in the context of interactive journalistic narratives. Studied as *digital longform journalism*, the focus has been on multimedia presentation and its effect on users. The following section will first discuss how the user experience of digital longform journalism has been conceptualised based on textual analyses and a handful of reception studies. We then turn to reception studies done in the broader context of media studies that focus on the connection between interactivity and users' sense of engagement in more detail. Findings of these studies indicate tensions in the field: interactivity can contribute both to engagement *and* disengagement.

The user experience of digital longform journalism

Although the user experience has not explicitly been a topic in the debate on digital longform journalism, the literature gives an indication of the supposed user experience. Central to the conceptualisation of digital longform journalism are storytelling techniques, multimedia presentation, and interactivity, although studies on this last aspect are scarce.

Digital longform journalism is consistently considered the digital progeny of narrative and feature journalism (Dowling, 2019; van Krieken, 2018; Hiippala, 2017; Jacobson, Marino & Gutsche, 2016). In this context, the application of cinematic and literary storytelling techniques gained much attention. The convergence of written and audio-visual journalistic storytelling traditions with the storytelling potential of in-

teractive narratives has been crucial for the conceptualisation of the genre (Uricchio et al., 2016; van der Nat, Müller, & Bakker, 2021). Peters (2011) maintains that producers consciously craft "the experience of involvement" by incorporating emotional cues. This experience refers to the emotions that occur in users as they engage with journalistic stories. Additionally, for non-interactive in-depth journalism, Wahl-Jorgensen (2019) finds that producers consistently try to engage readers by appealing to their emotions through moving storytelling techniques. Whilst this connection is rarely made explicit in the literature on digital longform, their focus on narrativity and storytelling implies a similar relationship between interactive journalistic narratives and storytelling techniques to appeal to users' emotions.

The appeal for emotional involvement is accompanied by user activity as part of the user experience. Focusing on this aspect, Hernandez and Rue (2015) propose a categorisation of digital longform journalism based on supposed user experiences, each requiring different types of user activity. Whilst their model is of limited use to us, their interest in the relationship between design and user experience reveals that user activity is an essential facet of the experience. Dowling and Vogan (2015) show that this user activity is typically presented in a distraction-free online environment, meaning one without advertisements and links to other news stories or external websites. Both Dowling (2019) and Hiippala (2017) suggest that this distraction-free environment for user activity makes it easier for users to feel engaged.

Even though emotional appeal and user activity are deemed crucial for user engagement of interactive journalistic narratives, only the multimedia presentation has gained attention in reception studies. The focus has been on the relationship between multimedia storytelling, a positive evaluation of the narrative, and users' sense of engagement (Greussing & Boomgaarden, 2019; Marino, 2016, Pincus, Wojcieszak & Boomgaarden, 2017). In her eye-tracking study, Marino (2016) focuses

on the complexity of multimedia presentation for the user experience, revealing that users experience the narrative holistically instead of fragmentarily as separate media forms. Furthermore, the visual attractiveness of the narrative is considered essential for the user experience, as Greussing and Boomgaarden (2019) elucidate how this elicits an initial positive response. Moreover, they show that positive emotions regarding the multimedia presentation heighten users' sense of involvement. These findings reiterate the importance of emotions for users' sense of engagement, and we wonder whether their responses to interactive elements follow a similar pattern.

To summarise, the debate on digital longform journalism seems to indicate both an emotional and active response to journalistic narrative design for interactivity. Interestingly, the emotional responses are thought to occur in reaction to 1) emotional appeal weaved into the story and 2) the presentation and design of the narrative text.

Interactivity and users' sense of engagement

As the role of interactivity in the user experience of interactive journalistic narratives has been underappreciated, we turn to the broader fields of media studies and human-computer interaction (HCI) to get a better grip on user activity and their sense of engagement.

In these fields, users' sense of engagement is linked to their ability to make meaningful choices, as this allows for personal involvement with story events. Hand and Varan (2009) suggest a connection between interactivity and empathy. For them, interacting with the story affords users to enact events rather than just witness them. Doing so sets in motion a process of personalisation of story events. According to the authors, users can empathise with characters in the story by taking on perspectives inside the narrative world, thereby increasing their emotional engagement with the story and making what Roth and Koenitz (2019) call meaningful choices that allow users to participate in the story.

Several studies reiterate that an increased sense of participation also contributes to users feeling involved in the story (Coelho et al., 2006; Hand & Varan, 2009; Sherman & Craig, 2002).

Whilst this indicates a positive relationship between interactivity and audience engagement, other studies have demonstrated that interactivity's effect on users' sense of engagement is more complex than that. In their meta-analysis of the literature, Yang and Shen (2018) contend that interactivity effectively engages users because it elicits positive emotions and increases enjoyment. However, their analysis also indicates a negative correlation between interactivity and cognition, suggesting extensive interactivity may cause cognitive overload. Vorderer, Knoblach and Schramm (2001) come to similar conclusions in the context of interactive television, which they argue is a form of entertainment suitable for audiences with high cognitive abilities. Thus, interactivity is not only associated with users' sense of involvement with the narratives; this research suggests it can also increase the likelihood of cognitive overload, leading to disengagement instead. This duality in the findings is further elucidated by Ducasse, Kljun and Čopič Pucihar (2020), who find a significant drop-off in users at any point of interaction in the context of interactive documentaries. Furthermore, Groot Kormelink and Costra Meijer (2018) suggest that interaction may not indicate interest at all, let alone engagement.

Thus, interactivity as part of the user experience may contribute to users' sense of engagement if the interaction enables them to make meaningful choices that lead to personal involvement with story events. However, interaction is also connected to cognitive overload, leading to disengagement and eventually user drop-off.

Method: Think-aloud protocols

We aim to contribute to a deeper understanding of the complexities of interactivity as part of the user experience. This study used the concurrent think-aloud protocol to capture the user experience. We asked participants to verbalise their thoughts and feelings as they perform a task, with minimal interference from the researcher (Boren & Ramey, 2000; Groot Kormelink, 2020; van Someren, Barnard & Sandberg, 1994). Originally designed to study cognitive processes as participants perform a task (Ericsson & Simons, 1980 in Boren & Ramey 2000), the think-aloud protocol is widely used in usability testing for software interfaces and web design (Boren & Ramey, 2000; Lewis, 1982; van den Haak, de Jong & Schellens, 2003). Moreover, as Groot Kormelink (2020) has demonstrated, the method yields rich and salient data on the user experience of journalistic stories, as participants can verbalise their feelings and thoughts as they interact with news stories. The advantage of the concurrent think-aloud protocol is that this method gathers emotional and active responses before users can cognitively process their experience and assign meaning to their activities and emotions (Boren & Ramey, 2000; Groot Kormelink, 2020).

Data

The objective of the think-aloud sessions is to capture users' immediate emotional and active responses to interactive narratives. Findings from our previous study (van der Nat, Bakker, & Müller, forthcoming) show that producers assume that interactivity increases audience engagement, and we wanted to scrutinise this assumption by analysing the user experience in more detail. Therefore, we selected three narratives, created by the producers of our previous study, and aimed for at least five participants per narrative for the think-aloud sessions. We ended up with seventeen participants in total (table 2).

We asked participants to verbalise their thoughts and emotions whilst interacting with the narrative. Occasionally, the researcher encouraged participants to express their thoughts and feelings if they had fallen silent. We recorded the participants and their screens and supplemented the data with structured interviews in which we asked participants to reflect on their experience. We used the interview data to substantiate our interpretation of the participants' emotions. This method yielded the salient data necessary to analyse the complexities of the user experience because we could examine the participants' 1) verbal and emotional expression, 2) facial expressions and body language, and 3) their interaction with the narrative. By corroborating these three aspects of the participants' responses with their reflections expressed during the interviews, we could unravel how participants responded to interactivity as part of their user experience.

Cases

We selected three Dutch interactive narratives that display variety in how their producers attempt to engage users with interactive elements as part of the narrative (table 1). Each narrative is presented on a standalone website, thereby providing a distraction-free environment that is thought to contribute to user engagement (Dowling, 2019; Dowling & Vogan, 2015; Hiippala, 2017). The narratives also contain storytelling techniques to appeal to users' emotions (Peters, 2011; Wahl-Jorgensen, 2019). This section introduces each narrative briefly; a more thorough analysis of their interactive architectures can be found in van der Nat, Müller & Bakker (2021).

Kan geboortebeperking het wereldwijde voedselprobleem oplossen? (2018), or *Geboortebeperking* for short, is a data essay exploring the effect of birth control on the world's food crisis through data analysis. An interdisciplinary team created it for the national newspaper, the Volkskrant. This linear

narrative engages users through two interactive data visualisations and takes them along the author's line of reasoning through several animated visualisations.

Uit het Moeras (2019) invites users to explore a collection of family stories from the Peat Colonies, a poor area in the north of the Netherlands. The production is a collaboration between journalists at regional newspaper Dagblad van het Noorden and web designers at web design company BloeiMedia. The family stories are made accessible through an interactive timeline. On the webpage of the family stories, users encounter a second interactive timeline with links to the different stories of family members featured on the page. Users also find additional historical and contextual information in the timeline or background articles provided in a separate website section.

De Industrie (2017) is an interactive documentary that aims to immerse users in the Dutch drug industry. The narrative comes from a collaboration between public broadcaster VPRO and Submarine Channel, a production house specialising in interactive narratives. Together, they assembled a large interdisciplinary team to design the narrative. The narrative starts with a map where users are invited to fill out the postcode of their area. Doing so takes users to a section of the map corresponding with their postcode. Here, they find news articles about various drugs-related issues linked to their neighbourhood. Clicking on a news item takes users to a network visualisation of the drug industry, through which they can access 3D-rendered environments with audio stories told by people working in the drug industry.

The three Dutch narratives we selected vary in narrative structure and interactive options. We specifically chose our three cases because they provide users with different interactive options. The interactive elements in these three narratives vary in the extensiveness of user activity required.

Table 1 – *The three interactive narratives were selected because they offer diverse user experiences.*

Title	Topic	Interactive architecture[1]	Intended user experience[2]	Partici-pants
Kan geboortebeperking het wereldwijde voedselprobleem oplossen?	The effect of birth control on the world's population growth.	Linear narrative with two interactive data visualisations.	Personalisation and exploration of the data to convince users of the producers' line of reasoning.	5
Uit het Moeras	Generational poverty in the Peat Colonies.	Multi-linear narrative with an interactive time-line, family stories and background articles.	Immersion through exploration and narrative journalism.	6
De Industrie	The pervasive-ness of the Dutch drugs industry.	Non-linear narrative with a map, network, and 3D environment with audio fragments.	Immersion through personalisation, visual salience, and exploration.	6

Participants

Our previous study revealed that news organisations aim to reach higher educated and younger audiences with their interactive narratives (van der Nat, Bakker, & Müller, forthcoming). Therefore, we recruited the participants amongst college students between 17 and 25. We wanted a broad selection with average users. Therefore we took care to select participants from a variety of majors. We avoided students with a media or journalism major, as we expected them to approach these stories more analytically than an average user in the target group.

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1   As reconstructed in our previous study on the interactive architecture of interactive journalistic narratives (van der Nat, Müller, & Bakker, 2021)

2   Extricated from data gathered in our previous study on the production process of interactive journalistic narratives (van der Nat, Bakker, & Müller, forthcoming)

Table 2 – *We selected seventeen participants.*

Participants				
Name*	**Age**	**Gender**	**Narrative**	**Duration***
Christine	20	F	Geboortebeperking	29:02
Cleo	19	F	Geboortebeperking	07:12
Hannah	21	F	Geboortebeperking	22:12
Isa	24	F	Geboortebeperking	03:55
Noa	18	F	Geboortebeperking	06:45
Ayla	23	F	Uit het Moeras	08:11
Carolyn	25	F	Uit het Moeras	01:07
Emily	22	F	Uit het Moeras	23:59
Livia	21	F	Uit het Moeras	22.04
Peter	18	M	Uit het Moeras	25:31
Rachel	24	F	Uit het Moeras	15:27
Kathy	25	F	De Industrie	14:06
Megan	19	F	De Industrie	25:26
Nikki	20	F	De Industrie	06:45
Oliver	19	M	De Industrie	04:42
Scott	25	M	De Industrie	26:44
Wendy	22	F	De Industrie	22.04
*Names have been anonymised			*until drop off point	

Think-aloud sessions

Two researchers performed the sessions, which took place at the University of Applied Sciences in Utrecht in March 2021. To test our setup and ensure we approached the sessions similarly, we performed four sessions together. Each hour-long session started with a short introduction explaining the think-aloud protocol, followed by a think-aloud exercise

to get participants used to verbalising their thoughts and feelings. We asked participants to interact with particular narratives. If participants dropped off before 20 minutes passed, we asked them to continue until they reached 20 minutes. Participants were free to continue if they wanted. However, one of the narratives contains over three hours of material. Therefore, we decided to cap the time to 45 minutes. We concluded sessions with a structured interview in which we asked participants to reflect and elaborate on their emotional and active responses to the narrative. We would, for example, ask why they wanted to stop at a particular time, what emotions they experienced during the session, and how they looked back on the interactive elements of the narrative. We recorded both the participant and the activities on their laptop screen during each session, and we then transcribed the participants' verbalisations and interviews.

Coding and analysis

For the analysis, using Atlas.ti, we corroborated data from the transcripts of the verbalisations, subsequent interviews, and observations in both video recordings made during the session. For the first open coding cycle, we inductively coded the participants' emotional expression in the transcripts, the corresponding body language and facial expression, and activity on the screen in both videos. We corroborated our interpretation of the participants' emotions with their own evaluations of their emotions, using both the transcripts of the think-aloud sessions and the interviews.

For the second coding cycle, we were interested in the progression of emotions as participants interacted with the narratives and how the expressed emotions related to body language and navigation. Saldaña (2016) suggests reconstructing an emotional journey for each participant after the first coding cycle. We created a sequence of the participants' emotions and added to this emotional journey; the corre-

sponding body language and navigation through the narrative result in
what we call engagement journeys. These journeys reveal how emotions
progressed throughout the session and what body language and naviga-
tion is associated with the emotional progression.

Operationalising engagement and disengagement

Our literature review suggests that participants may emotionally respond
to both the story's emotional appeal and the interactive form. Therefore,
we coded how participants react to narrative or navigational cues.

We recognise a sense of engagement when users respond to nar-
rative cues as part of what Peters (2011) calls the experience of involve-
ment. Interactivity may also contribute to their sense of engagement be-
cause as the literature review indicates, this enables them to personalise
story events by making meaningful choices (Hand & Varan 2009; Roth
& Koenitz, 2019).

In respect to navigational cues, we consider a positive emotion-
al response to contribute to the users' sense of engagement, whilst a
negative response may indicate cognitive overload (Yeng & Shen, 2018)
or disinterest, suggesting disengagement leading up to user drop-off
(Ducasse, Kljun, & Čopič Pucihar, 2020).

Furthermore, following Salen and Zimmerman (2004), we dis-
tinguish functional and explicit navigational cues. Functional naviga-
tional cues are utilitarian and allow users to navigate by scrolling and
clicking to access different parts of the narrative text. Explicit naviga-
tional cues refer to navigational cues that invite more intensive user ac-
tivity, such as manipulating a data visualisation or looking around in a
3D environment. Producers designed these explicit interactive elements
to increase users' sense of involvement.

To reconstruct the participants' engagement journey, we coded
when user engagement moved up or down, indicated by their response
to narrative and navigational cues. We interpreted engagement as go-

ing up when participants responded positively to navigational cues or emotionally reacted to narrative cues. When they reacted negatively to navigational cues, we indicated engagement going down.

Interactivity and users' sense of engagement

Our method enabled us to draw connections between verbalised emotions, facial expressions, and body language and correlate that to navigation in the narratives. In this section, we first analyse participants' responses to explicit navigational cues. We then pay particular attention to those instances when participants are focused on narrative cues and use functional navigational cues to continue the story. Finally, we consider fluctuations in and progression of the emotional response to interactivity by analysing instances of disengagement.

Explicit interactivity: a double-edged sword

Our findings show that participants' responses to explicit interactive elements designed to increase users' sense of involvement with the narrative are ambiguous. Indeed, these features can elicit a sense of engagement, but we have also observed participants quickly losing interest when interacting with such a feature that made them feel confused and overwhelmed. The instances when the explicit interactivity seemed to heighten engagement are options to personalise the narrative to an extent.

Such elements are part of the interactive architectures of *De Industrie* and *Geboortebeperking*. After watching the introduction video of *De Industrie*, users are taken to a map of the Netherlands and asked to fill out their postcode. Doing so takes users to the section of the map corresponding with their postcode. During the opening sequence of *Geboortebeperking*, users can select their birth year in a drop-down menu that occurs mid-sentence. Choosing a birth year changes the sentence and the graphic below the text.

Users responded with excitement and surprise, and expressed that personalisation options make them feel engaged and immersed in the narrative. When participants responded to the explicit interactive elements, we first observed a change in their posture: they would lean forward and reach for the mouse or trackpad. This change in posture indicates that the participant is getting ready to act.

Once Megan realised that she could fill out her postcode during her think-aloud session, she looked surprised: "Oh, very ooooh, and then I can choose for myself where I go. I live in The Hague. This is fun. Let's see. (...) I notice that I'm really into this and very interested because it's about my town." Personalisation as part of the user experience is considered fun. After another participant, Hannah, had figured out how selecting her birth year affected the story, she reacted: "Oh, that is kind of fun. That shows me how many people have been born since I was born. That makes the interaction personal." During the interviews, participants commented that personalisation made them feel engaged with the narrative because it made the narrative recognisable. Hannah emphasised again how much fun it was. Kathy explained she felt engaged because "I could type in my postal code and then I saw the area. Everyone knows that coffee factory at the end of the street. That's when I felt like it was very close." This feeling of personal involvement is associated with the interaction. Upon encountering this type of explicit interaction, users first feel excited, and when they realise the narrative text adjusts to their personal information, they start feeling engaged because it allows them to internalise the story. We observed that participants were eager to proceed in the narrative, especially when they comprehended the function of the explicit interactive option.

However, this positive response to an explicit interactive element does not guarantee lasting engagement, as becomes clear in Oliver's engagement journey of *De Industrie*:
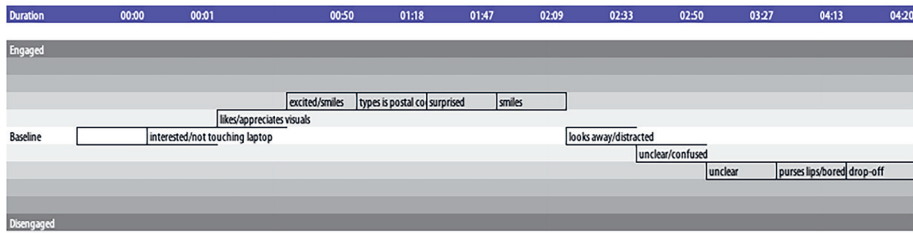
Duration	00:00	00:01		00:50	01:18	01:47	02:09	02:33	02:50	03:27	04:13	04:20
Engaged												
				excited/smiles	types is postal co	surprised		smiles				
			likes/appreciates visuals									
Baseline		interested/not touching laptop						looks away/distracted				
									unclear/confused			
										unclear	purses lips/bored	drop-off
Disengaged												

Figure 1 – *Oliver's engagement journey with De Industrie.*

We asked him to interact with *De Industrie*, and after he watched the introduction video, he noticed the option to enter his postcode around 00:50 min and said: "It's kind of like a video game." We observed that he started to smile, and when we asked him how this made him feel, he responded: "I have to say, it does look really interesting." Oliver's interest appeared to peak until around 02:33 min, when he started looking away from his screen.

On his navigation video, we saw that he quickly clicked through the narrative and ended up listening to an audio story and clicking around in one of the 3D environments, a second explicit interactive element in *De Industrie*. Users can, for example, listen to a cocaine dealer telling his story whilst looking around in a 3D rendering of the park he usually deals at. Users can explore these environments by manipulating the "camera" with the mouse or trackpad (like in a video game) and clicking on numbers displayed in the environment. Doing so reveals a pop-up with text. The design invites users to simultaneously engage with the audio story and interact with the interactive features.

At one point, he said: "It's a bit hard to follow when they are talking, and I can also read something. I don't really understand it. I miss what is being said." When asked how this made him feel, he confessed that he did not understand. In his interview, he further explained that he thought the audio stories were a bit long and that the stories did not excite him. The interactivity in the narratives seemed to disappoint

him after his initial positive reaction: "It was interactive as in you can click everywhere, but the way you click through. It wasn't a great experience." After a flying start, his engagement quickly dropped as the dual modalities in the 3D environment made it hard for Oliver to follow the audio story, a pattern we saw repeated with other participants as well. The explicit interactivity in the 3D environment prevented him from responding to narrative cues.

All participants who interacted with the 3D environment whilst listening felt similarly. Some would interact with the environment from the start, expressing excitement in response to the 3D models and the ability to look around; others would turn to this element when they got bored with the audio story. For example, we observed Rachel clicking on one of the numbers presented in the 3D environment whilst listening to an audio story. She reacted: "Oh, the story is separate from what you click on." She continued to listen and click around in the environment: "Hmm, it's not the smoothest environment where I am now. I'm not really able to click on the things. So... I'm leaving."

Several users believed that the information behind the numbers was the same as conveyed in the audio story. Scott even felt a bit disappointed when he realised this during his think-aloud session: "It makes me feel a little bit, I don't want to say bored, but I feel a little bit I don't know. Cheated is a bit excessive. I just kind of get this gut feeling; maybe I could get this quicker. I'm a little bit disappointed when I immediately read what I'm listening to." Overall, being asked to read and listen simultaneously pulled participants out of their sense of involvement, as they were no longer able to follow the audio story, as was exemplified in Oliver's reaction.

Although participants responded negatively to the dual modalities of the 3D environment, a sense of personal involvement with the story could still elicit an increase in users' sense of engagement, as was the case for Nikki. When she encountered her first 3D environment in

De Industrie, she perceived a dotted figure sitting in the middle of a room filled with cannabis plants, a home grower with an illegal greenhouse in his attic. She leaned forward: "Ooooh, this is really nice." Meanwhile, the audio story started, and we observed her listening attentively whilst clicking around the model of the attic. Noticing the progress bar of the audio fragment, she remarked: "I do see that he's going to talk for a whilst." She listened a whilst longer, leaning forward, head resting on her hand, occasionally looking away from the screen. It took too long, she appeared bored, and the story did not grab her attention. "I notice myself dropping out. So, I'm going to click away. This was the home grower. Now I return to the map."

The following audio story she encountered was the cocaine dealer, who sits on a park bench. Again, she leaned forward and manipulated the camera, this time, also nodding as she listened to the dealer telling his story: "This supports what he explains, and that we are literally in a park with all the sounds. I find that very nice." When we asked her how this made her feel, she described a sense of presence that she felt in both environments, but this sense was stronger for the dealer. "I could be someone who sees this happening," she explained, referring to the scene in the park. She continued to explain that having empathy and compassion evoked by the narrative feels good to her.

What stands out in Nikki's session is that the story about the dealer evokes a strong sense of recognition. The feelings that emerge in response to the narrative cues appear to be pleasurable to the participant. Being able to look around and gather more information about the environment contributed to this feeling. However, the opposite seemed to happen during her encounter with the home grower. Whereas she could imagine meeting the dealer in her own life, she could not connect in a similar way to the home grower's story. The explicit interactive options then drew her attention first to the additional information and then also to the progress bar of the audio fragment, a functional naviga-

tional cue, which made her aware of the length of the audio fragment. Nikki's diverging sense of involvement with each 3D environment reveals tension between emotionally responding to narrative cues versus interactive ones.

When encountering explicit interactive elements, participants would emotionally respond to them. This finding suggests that explicit interactivity as part of the user experience of interactive journalistic narratives may distract users from narrative cues, whilst interactivity may heighten users' sense of engagement, as it leads to personalisation of the narrative, allowing users to internalise the story better.

Story first: functional interactivity in the background

We have observed that being aware of navigational cues makes it more challenging to get involved with them. This becomes noticeable because when verbalising their reactions, participants would emotionally respond to the navigational cues and narrative format rather than narrative cues and what is happening in the story. Whereas, when participants verbalised their emotional response to narrative cues, the emerging emotions corresponded with emotions evoked in the narrative text. When our participants appeared fully engaged with the narrative, they did not verbalise being aware of the navigational cues. Instead, in the navigation videos, we observed our participants using the navigational options whilst being swept up in the story, as was the case for Emily.

During her session, Emily quietly scrolled through the timeline of *Uit het Moeras* and clicked on the first entry *Agenda, changes, and alliances in the Peat Colonies*. A piece of text folded out, and she quietly read. "Oh, inheritable poverty. Interesting! But what is it exactly?" she reacted. Her navigation video showed her clicking on the portrait of Gerrie van Riezen, a teenager who grew up in the Peat Colonies in the north of The Netherlands.

This interaction took her to a page with the story of the Derksen family. This page presents three stories: the grandmother, the daughter,

and granddaughter Gerrie. However, because Emily clicked on Gerrie's portrait in the timeline, she was immediately taken to the bottom section of the page that presents Gerrie's story. Navigating to the other two stories required her to scroll up or click on one of the names in a menu on the screen's bottom-left. She frowned, whilst reading about Barbie, Gerrie's chihuahua: "Oh dear, it is a rat on high legs," she sniggered. We observed her hand resting in her neck, her body leaning slightly forward, scrolling down with the trackpad to reveal the next bit of text. "Hmm," she just read that Gerrie's mother is afraid to do groceries without her daughter because they often do not have enough money to pay: "It makes you face the facts of things you don't see every day." She attentively continued to read about Gerrie's life, as well as her mother's (Derkje), and her grandmother's (Dinnie). We observed her frowning, nodding, whispering along as she read, and occasionally commenting about what she is reading. Whilst doing this, she scrolls up to navigate to the next story and then down when reading the story. "They're in the same situation", she commented about Derkje and Dinnie, "their life progressed the same. Very curious." At the end of the family story, she expressed compassion, empathy, and hope regarding the lives of these three women: "I hope that the youngest doesn't get her first child at fifteen. Also, now I would stop as I have read one family's story."

Significant in her experience is her response to the narrative cues whilst at the same time, navigating the unconventional interaction design of the family pages of *Uit het Moeras*. However, her attention is on the story, and she hardly notices how she must navigate the different sections. We observed for other participants a similar engagement with narrative cues. During such engagement with narrative cues, participants' emotional responses emerged in correspondence with emotions present in the text. Participants would comment on what was going on. For instance, we observed Rachel looking surprised whilst listening to an audio story in *De Industrie* about a seller of synthetic drugs. "All right,"

she says smiling, "how do you end up here as a father?" She leans for-ward and clicks around in the 3D environment: "A webshop? Okay…" The disbelief Rachel expressed in her think-aloud session indicates she is emotionally involved with the story. Negative emotions that emerge in response to narrative cues likewise suggest such involvement as we saw happening with Isa when she read that a minister had said something slightly racist: "Okay, that is a weird thing to say (…) It gives me a kind of weird feeling". She frowned and continued: "Why do you say that? I'm thinking weird guy saying weird things." When asked how this made her feel, Isa attested that she felt a bit angry and uncomfortable when reading this.

During these instances of involvement with narrative cues, par-ticipants seem to be using navigational cues subconsciously. The body language we observed in this context can be described as attentive and focused, and included the following: head resting on their hand, slightly leaning forward, silently mouthing the words as they read, not touching the trackpad or mouse – only occasionally reaching when scrolling or clicking was necessary – and facial expressions reflecting the emotions narrative cues evoke in them.

So far, we discussed how for our participants, interactivity seems to contribute to their sense of engagement. Participants expressed a particular sense of involvement when they were offered options to per-sonalise the narrative. Moreover, we observed a sense of engagement in response to narrative cues when participants recognised their lives in the story. The participants' sense of involvement was interrupted by interactivity that requires extensive user activity. This makes users aware of the interactive options. Our findings show that this awareness can undoubtedly increase users' sense of engagement but can also prevent engagement with narrative cues if the goal of interactivity remains un-clear. In the following section, we discuss how participants' sense of dis-engagement develops in response to interactivity.

Interactivity leading to drop off

In our participants, we observed a clear pattern of increasingly negative emotions in reaction to interactivity preceding the drop-off. Without fail, early drop-off – that is, a drop-off before the narrative was either finished or the participant was asked to stop – occurred when participants felt confused, frustrated, or bored.

The associated body language was typically restless, like looking away from the screen or clicking around in the narrative – looking for more engaging content, perhaps. After reading the introduction of *Uit het Moeras,* Carolyn, for example, immediately declared she would not waste her time because it seemed like much work. She decided to explore the narrative anyway. We observed her scrolling through the timeline, and at one point, she sped up her scrolling and said: "Hmm. Let's see how I return. Oh, here." And she clicked. She then commented that she did not find the website very clear and said: "Yes, then I kind of want to drop off. I don't want to figure it all out." Even if participants expressed interest in the topic, navigational cues that were unclear would eventually lead them to drop off. Consider Noa's engagement journey through *Geboortebeperking*:
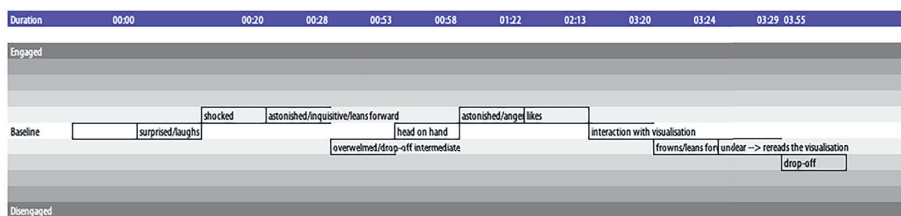

Figure 2 – *Noa's engagement journey with Geboortebeperking.*

Initially, the narrative seemed to grasp her attention. We observed Noa reading, scrolling, smiling, and nodding; up until 00:55 min, she is responding to narrative cues. Though she appeared attentive as she continued to read, she started to get restless. She explained that her main reason for continuing is her interest in the topic; were this not the case, she would drop off during such a long introduction. Significantly, the questions annoyed her and when asked how this made her feel, she answered: "This makes me restless. I immediately want answers. There are so many questions at the start of the article that it's impossible to provide answers quickly. You'd have to read the whole article."

Noa's demeanour changed as she encountered the sentence where she could select her birth year. She smiles as she clicks: "This is, of course, really nice (...). That makes it very personal, I think." Like the other participants who were asked to interact with *Geboortebeperking*, she reacted positively to the option to personalise that narrative. Noa clearly expressed interest in the topic, but from the start, commented on the form, which indicated she was not focused on what she was reading. Her negative appraisal of the questions was not in response to the questions as narrative cues but to the stylistic choice, so a formal aspect. She expressed excitement when she encountered the option to personalise the narrative by selecting her birth year. However, this did not negate her earlier sense that she needed to work to get to the answers, which she was unwilling to do. Her engagement with the narrative continues to waver. When she encountered the interactive data visualisation, she expressed appreciation for the interactivity but also found it difficult to understand: "Yes, on the one hand, I really like this graphic. Uhm, but on the other hand, I think it's really complicated." As she evaluated the graph, we observed her moving one of the sliders in the graph for the first time and continued to say: "I have to read it a few times before I understand it well. Okay, this is the situation now, and if I change it, then I don't see how it is now anymore. But it's nice to see that Africa stands out so much, but it takes a whilst before it really sinks in what I can do."

Interestingly, as we observed in the video, she did not interact with the visualisation before commenting on it. Be that as it may, the purpose of the visualisation was not clear to her. As she proceeded to the next one – an animated graphic of the population growth and distribution in the Netherlands since 1950, including the prognoses for 2050 – her confusion about the purpose of the graphics in the narrative remained. She declared that she would like to stop now. When asked why, since she had initially expressed interest in the topic, she explained that if she did not understand how it works, she wouldn't read such an article. After we asked her to continue her reading of the narrative, she finished and expressed that she would have regretted stopping early because she really enjoyed it. What is remarkable in Noa's interaction with *Geboortebeperking* is that she decided to invest time because the topic interests her, despite initial misgivings about both the length and style of the text. However, this was not rewarded as she struggled to understand the data visualisations she encountered. Both the interactive and the animated ones seemed to draw her attention away from the written text, which she needed to interpret the visualisations.

Isa likewise expressed negative emotions in response to the explicit interactive elements in *Geboortebeperking*.
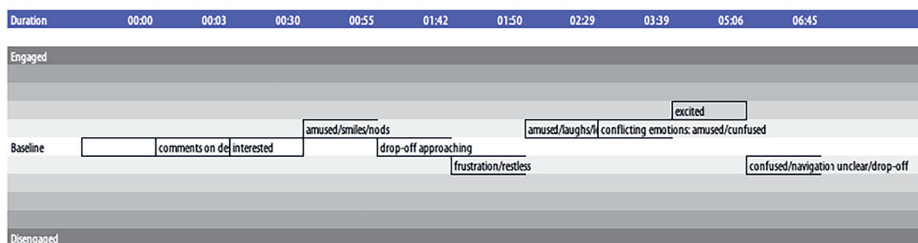

Figure 3 – *Isa's engagement journey with Geboortebeperking.*

Like Noa, she initially responded emotionally to narrative cues. However, when she encountered the data visualisation around 03:20 min, she frowned, leaned forward, and said: "I don't understand. This is how the world population grows. I have to reread this." After she's done re-reading it, she says that she usually would now leave. When we asked her why, she explained that the story is all over the place and she lost her concentration. Remarkably, she reached this point immediately after she interacted with the visualisation. It seems that when the participants' attention is drawn to interactivity, their sense of engagement is interrupted. In the videos, we observed participants becoming restless, annoyed, and eventually frustrated as they click and scroll through the narrative, attempting to understand what is going on. This indicates that making users aware of interactive options may pose a risk to users' engagement when the function of the navigational cues remains unclear, as the instances discussed above explicate.

Noa's and Isa's interactions with the narratives indicate that the purpose of interactivity needs to be very clear to users to increase their sense of engagement. If this is not the case, it sets off a negative emotional journey starting with slight annoyance and confusion that ends with frustration and the eventual drop-off. Take, for instance, Ayla's assessment of what unclear functional navigational cues did for her when reading *Uit het Moeras*: "Well, this pulls me from my 'reading story'. At least a little bit. I will return to it for now, but if this happens more often, I will drop out more quickly. For now, I will leave it alone because I don't really know what I can do with it."

She was evaluating what we observed happening before: she was exploring the timeline of *Uit het Moeras*. She clicked on one of the stories presented in the timeline, Minnert Aardema's portrait. This interaction took her to his story on the page where his family's stories are collected. However, we observed Ayla immediately scrolling up. It seemed unconscious because she did not notice that the page automatically took her to

Minnert's story. As this was happening, she appreciated the timeline: "I really like this because it gives you the sense that it is a bit interactive." Then she leaned forward, her screen showing the top of the page with the family story, not Minnert Aardema's story: "Uhm, I don't really understand…" She clicked on the second interactive timeline on the family page. "Or is this the timeline? Okay, this is unclear, and I don't like that. There are things at the bottom (of the screen), and I don't know what to do with those." She ignored this for now and started reading the story, and we observed her trying to click on images. Nothing happened because the images were not interactive. Whilst she expressed appreciation for the narrative style but did not engage with it, she explained that she felt unsure and frustrated because her interactions did not do anything. This eventually led her to drop off. Throughout her experience, her interaction with the navigation was not smooth, and it continued to draw her attention to the interactive form. This progressed her negative emotions from annoyance to frustration, interrupted and prevented her sense of involvement with the narrative cues, and eventually led to her drop off.

The objective of our analysis was to scrutinise how users respond to interactivity as part of an interactive journalistic narrative. Our findings show users are not either engaged or disengaged; instead, we observed their sense of involvement fluctuating between feeling engaged and disengaged in response to narrative and navigational cues. Particularly, we elucidate how users' sense of engagement progresses in response to explicit and functional interactive elements they encounter during their user experience. Our study reveals tension between users' awareness of navigational cues and narrative cues. The analysis shows that interactivity draws users' awareness to the interactive form and away from the story, even when the response to navigational cues is positive. This does not mean that producers should forego interactivity in journalistic narratives altogether. However, interaction design needs to entice users to engage with narrative cues, bringing the story to awareness.

Discussion and conclusion

News organisations continue to shape their relationships with their audiences by developing new ways to engage people in the news and other journalistic genres. However, like other studies that focus on the experience of news and journalism (Costera Meijer, 2021; Groot Kormelink & Costera Meijer, 2019; Peters, 2011), our study shows that 1) engagement is fleeting and progressive, and 2) engagement depends on interest and personal recognition.

Certainly, interactive features can contribute to engagement, especially when users can personalise the narrative, which increases their involvement with the story. It seems that users consider this a meaningful choice (Roth & Koenitz, 2019). Along with Peters (2011), we suggest that the "experience of involvement" is essential to users' sense of engagement. Interactivity that allows users to personalise the story elicits positive emotions regarding the interactive form and increases the likelihood of users feeling engaged. This supports earlier findings of Greussing and Boomgaarden (2019) and Yang and Shen (2018), that an initial positive evaluation of either the multimedia presentation or interactivity may lead to more engagement. However, explicit interactivity can also prevent users from engaging with narrative cues. If the purpose is unclear and expectations are not met, these interactive features can have the opposite effect and evoke negative emotions in response to the interactive form that will eventually lead to user drop-off. Interacting then becomes laborious as it interrupts the flow, something which Groot Kormelink and Costera Meijer (2019) also demonstrate through their video ethnographies on news use.

Think-aloud protocols have given us a unique insight into the progression of users' sense of engagement throughout their user experience. However, our study has limitations. Even though our participants are digital natives and thus familiar with interactivity as part of their media consumption, during the structured-interviews most of our

participants said they had never encountered an interactive journalistic narrative before. Their unfamiliarity with the genre may have influenced the participants' perception of interactive cues (Groot Kormelink & Costera Meijer, 2019), however our data shows their learning curve. In this sense our participants were fresh eyes, especially because we did not tell them we were interested in their interaction with the narrative, rather we emphasised their experience. However, cues may have been ignored because participants did not interpret them as cues, or they simply did not know what to do, which may have led to negative emotions regarding the interaction. Moreover, the results may have been influenced by the pressure of interacting with a narrative in a lab setting. As a researcher asked participants to go through the narrative with cameras pointing at them, participants may have postponed their drop off as they felt pressure to continue. However, the lab setting did ensure that participants weren't distracted by their phones, housemates, or the internet. This setting allowed us to analyse the tension between involvement and distraction during their exposure to one interactive journalistic narrative. Undoubtedly, appealing to and retaining users' sense of engagement with digital longform journalism is much more complex when users are immersed in their daily lives.

It seems the potential of interactive narratives is not fully realised during the reception process. Our study suggests that producers may only be minimally able to affect the users' sense of engagement through their interaction design, as engagement mainly seems to occur in response to narrative cues. Our study thus contributes to the discussion about the tension between user agency and authorial control in the reception process of interactive forms of journalism. And despite the promises on interactivity, it seems that users may prefer authorial control.

We suggest future research should look more closely at the progression of users' engagement when interacting with existing and emerging news genres, especially those aiming to increase audience en-

gagement. Furthermore, we observed users looking for more engaging content as part of their interactions. This behaviour indicates that users may utilise tactics for engagement; behaviour that promotes engagement, such as leaning forward and reading along with the text. A study scrutinising both the news organisations' strategies and users' tactics for engagement, combining both producers' and audience perspectives, would significantly contribute to our conceptualisation of the changing relationship with journalists and their audience.

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APPENDICES
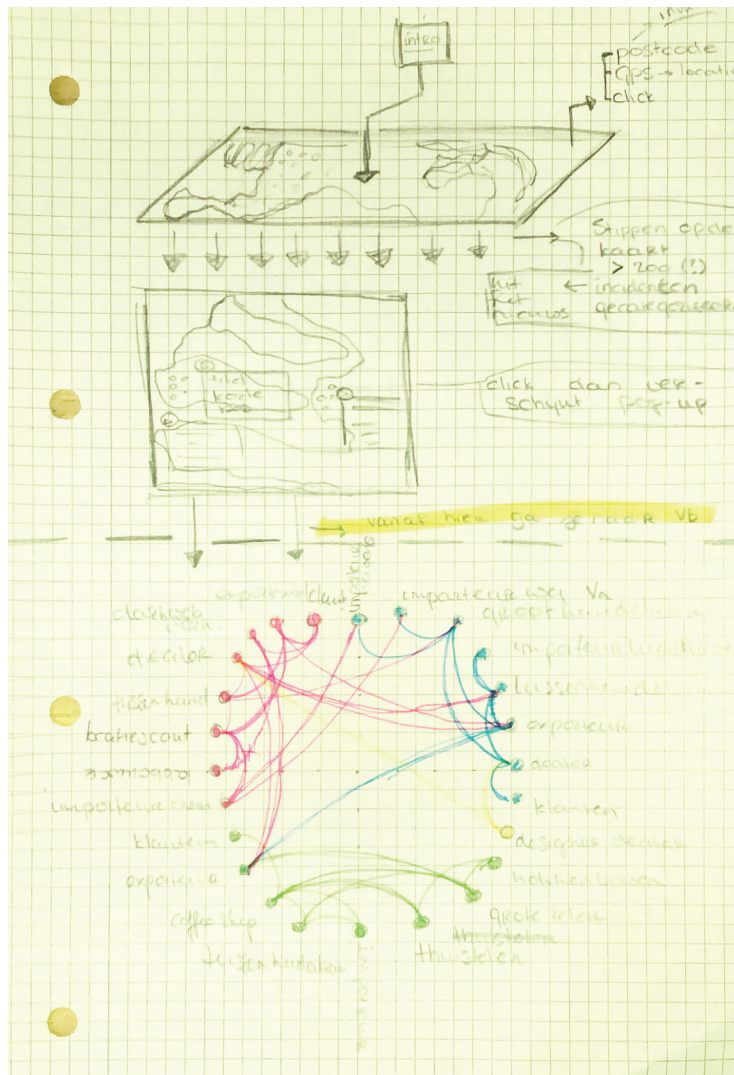
Appendix 1: Figures narratological analysis

Figure 1 – *After writing a detailed description of each narrative, I visualised the interactive structure using pen and paper.*
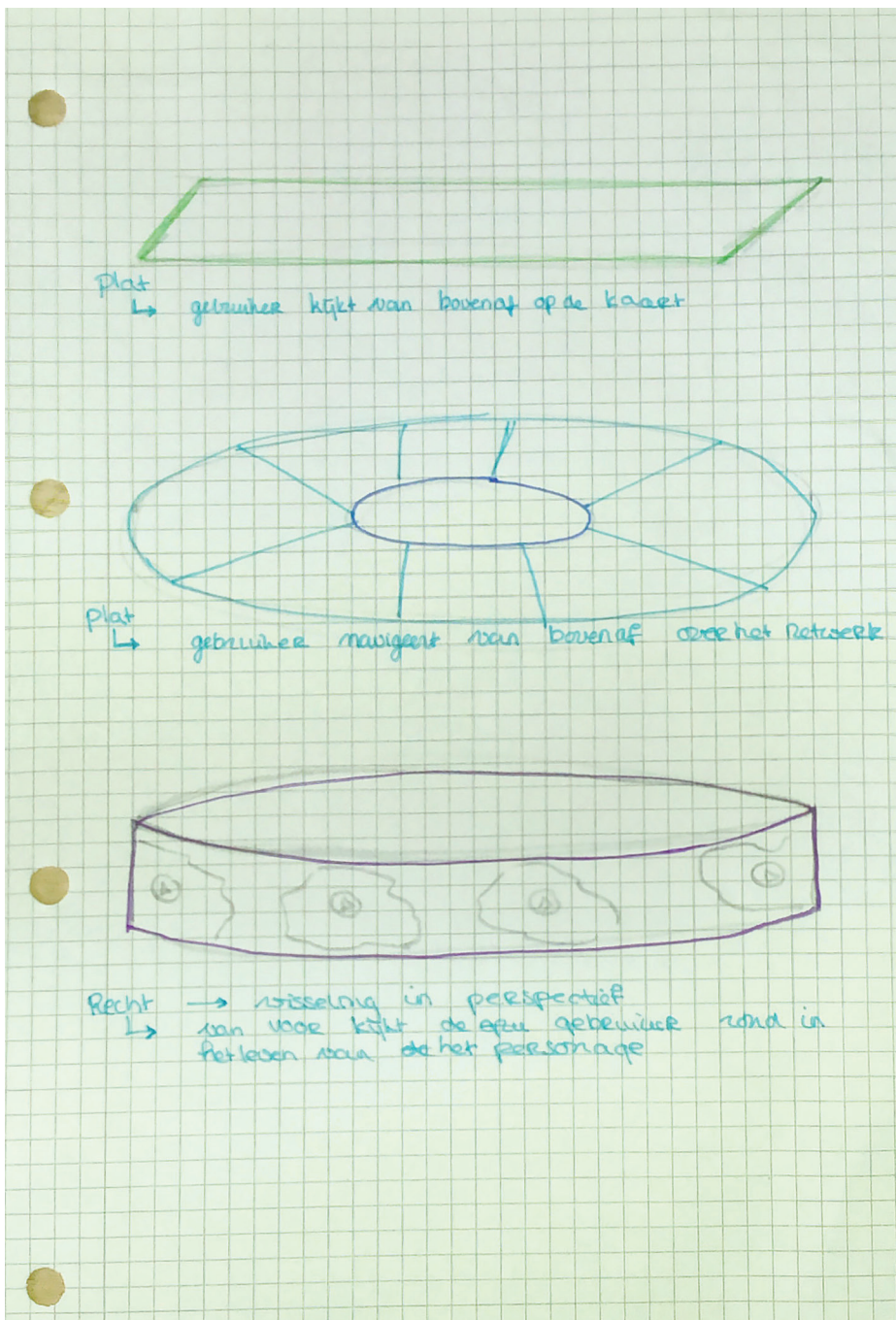
Figure 2 – *After my initial sketches I characterised the story space of each narrative in one drawing.*

Figure 3 – *To visualise the choices presented to users, I mapped the interaction design using Post-its. Orange for authorial control, and blue for freedom for users.*
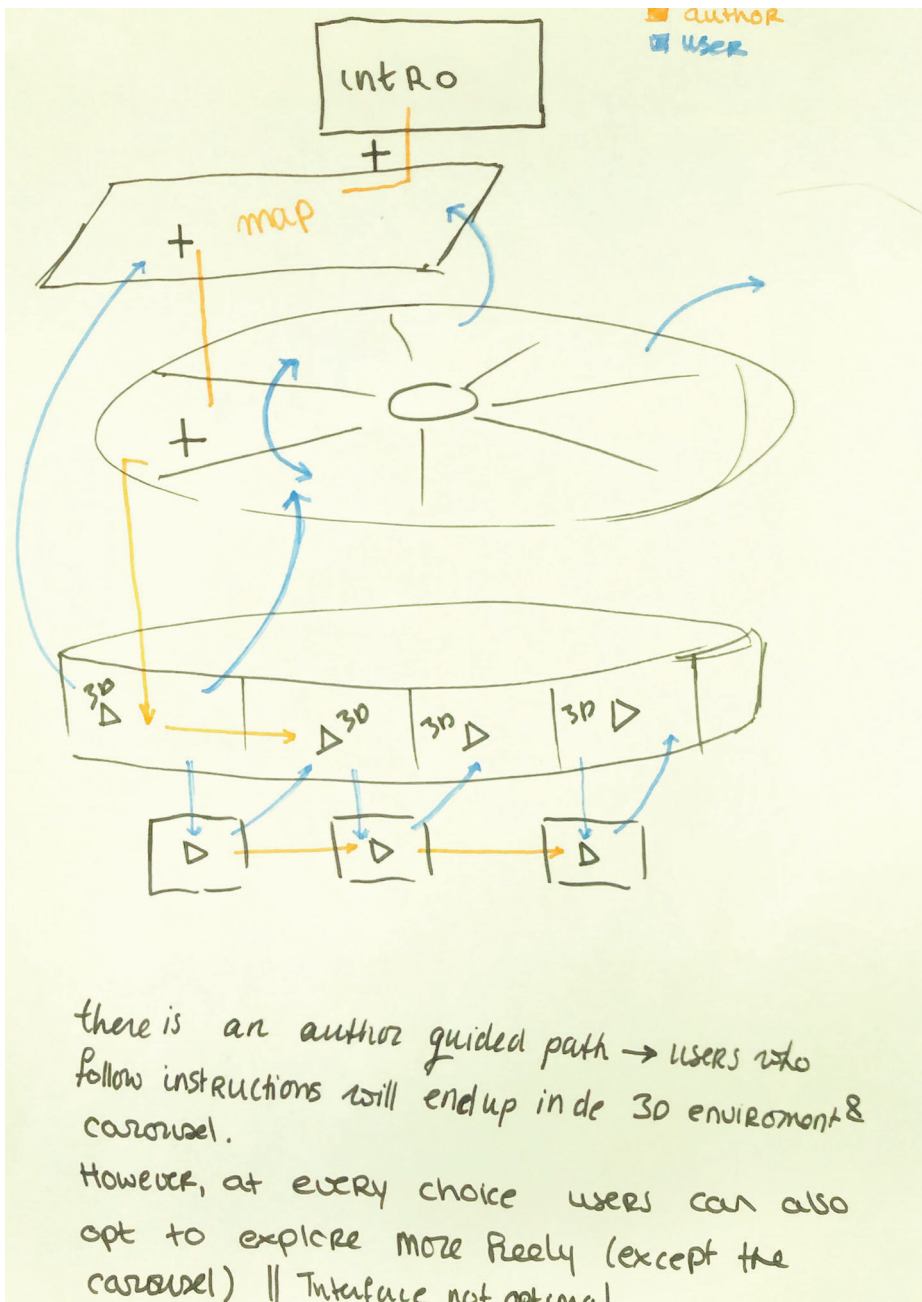
Figure 4 – *I combined the mapping of the interaction design with the drawing characterising the story space.*
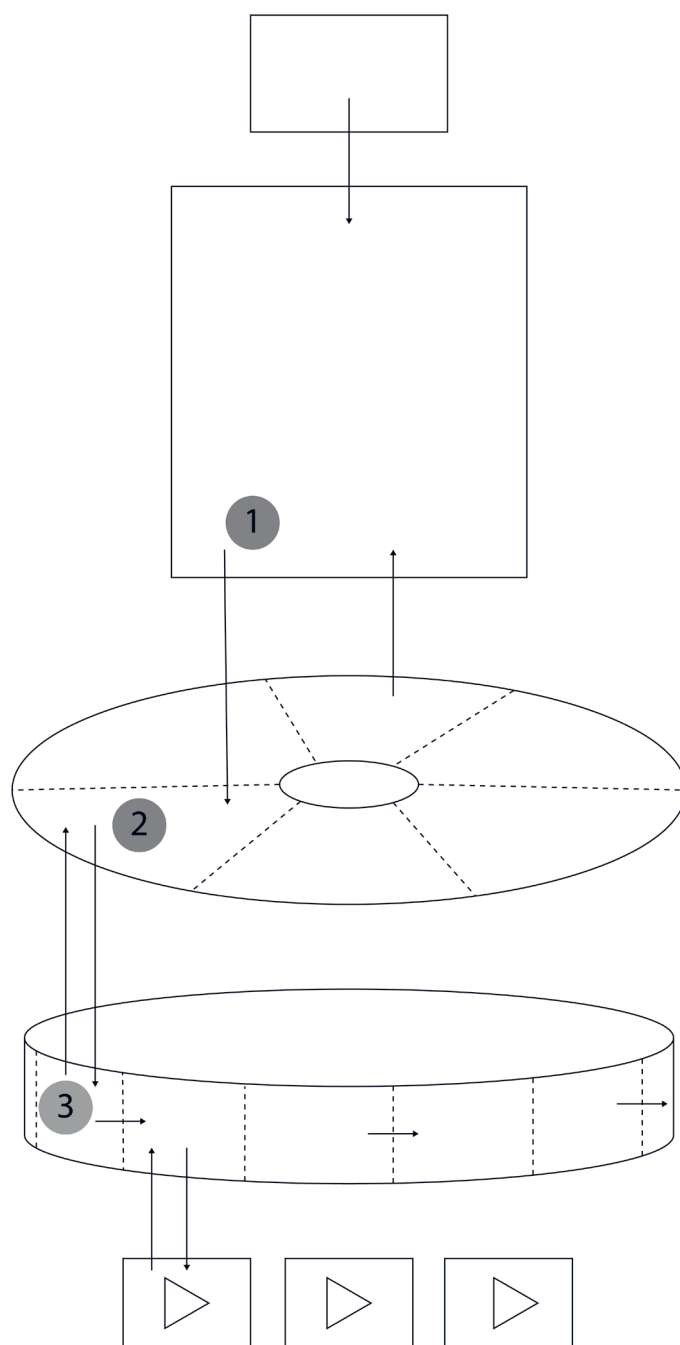
Figure 5 – *Eventually I made wireframes for each narrative to represent the interactive architecture of the story space.*

Appendix 2: Protocol focus groups

Aim: During the focus group producers discus how their production process progressed. Based on data gathered with the document analysis and during the interviews, the researcher reconstructed a timeline and identified key events. The aim of the focus group is to reveal how knowledge, experience, technology, editorial strategies, and team composition lead to the final design for the narrative. I am particularly interested in the interaction design and the conceptualisation of the user.

Topic: the production process of the case study
Duration: 1,5 hours (2 hours for De Industrie because the group size)

5 min – Introduction

10 – Who are you in the team?
Respondents create a persona of themselves. They base this persona on a questionnaire:
1. What was your role in the team? (Multiple choice: leader, follower, guide, creative)
2. What was your professional function? (Multiple choice: journalist, designer, documentary maker, project leader)
3. How would you characterise the organisation culture? (Scale 1,2,3,4,5)
4. Who is allowed to innovate at your organisation? (Multiple choice: everyone, particular people, one department, nobody)
5. Determine to what extent you have master the following skills (Scale 1,2,3,4,5 for each skill: Storytelling, research, design, coding, project management, audience research)
6. How often have you created an interactive narrative? (Multiple choice: once, 2-3 times, 4-6 times, more than 7 times.)
7. How proficient are you at improvising? (Scale 1,2,3,4,5)

10 min – discuss persona
How do others regard your role in the team?

40 min – timeline
The team collectively reconstructs a timeline. For each event selected by
the researcher, the producers are asked to write down (on a Post-it) their
first association in the categories determined in the matrix. Then the
team discusses the event based on what was written on the post-its.

20 min – summary
Each producer summarises the focus group by filling out statement:
We create a …
With the aim to …
With a …. team.
Discus the statements

Equipment
Recorders (iPhone and laptop)
Timeline on paper
Post-its and markers
Printouts of exercises

Appendix 3: Protocol Think-Aloud sessions

Set-up
• Table + chair + laptop
• 2 camera's (one pointing at the screen, on at the participant)
• Windows and door open for ventilation

Before arrival of participant
• Clean all surfaces

Arrival
• Short explanation of the session
• Signing consent form
• Emphasise that we want to know how they experience the narrative
• That we want them to verbalise their thoughts and feelings
• And that we will interrupt as little as possible
• We record you, and your screen, because we also want to capture how you move and what choices you make in the story

Exercise Think-aloud (5 min)
https://www.volkskrant.nl/kijkverder/2019/met-duncan-laurence-luisteren-naar-arcade-toon-voor-toon

Think-aloud (20-30 min)
Instruct the participant:
• Go through the narrative as you normally would
• Don't talk to us, but towards the screen
• Verbalise all your thoughts and feeling (nothing is wrong, we want to capture your experience. So say if you feel curious, annoyed, and maybe nothing at all – anything that comes to mind)
• Let the participant interact with the narrative – there will be a natural drop-off point.
• If that occurs before 20 minutes have past, ask the participant to continue
• You could ask the participant to interact with a specific section of the narrative

(As researchers we take notes of interesting moments we want to ask questions about later. Some participants will find it hard to verbalise and will describe their emotions during the interview)

Sections to direct participant to after natural drop-off occurred:

Bevolkingsgroei
https://www.volkskrant.nl/kijkverder/2018/wereldbevolking/

- Choosing birth year
- Playing with the second graph
- Text directly before and after the graph
- Animated graphs (so, keep scrolling)

Uit het Moeras
https://uithetmoeras.nl/

- Timeline (links to family stories + foldout text historical events)
- Family stories (ask the participant to choose a person in the timeline, or to navigate via the menu)
- Peat Colonies (ask the participant the read the background information)

De Industrie
https://deindustrie.vpro.nl/home

- Map (fill out postcode. You can also ask to start anew from the map)
- Network (ask participants to explore the network)
- 3D audio stories (ask to listen to more audio stories with and without interaction with the 3D space)

Structured interview (15-20 min)

- How did you like the narrative?
- Have you seen this type of journalistic story before?
- What media do you prefer? (reading, watching, gaming?)
- What stories do the creators want to tell?

- How was that made clear? Do you have a better understanding of the topic now?
- How did you feel involved with the story?
- Why did you drop-off at <...>? What happened? (asked about what they were feeling)
- What emotions did you experience? (you can also ask about sometime specific you observed)
- Or: I saw that you did <...>. What happened? (continue asking about their feelings)
- How can the topic <...> become more vivid and lively for you?
- At different instances you can interact with the narrative, such as <...>
- What did you think about these interactive options?
- Did you think them interesting? And was it clear why you had to make these choices?
- If you could change one thing about the narrative, what should change to make you feel more engaged?

INTERACTIEVE JOURNALISTIEKE VERHALEN

Op zoek naar balans in de relatie tussen journalisten en hun publiek

Interactie als onderdeel van het journalistieke verhaal is tien jaar na de publicatie van het veel geprezen *Snow Fall: The Avalanche of Tunnel Creek* (The New York Times, 2012) niet meer weg te denken. De eerste experimenten met interactie stammen uit de jaren '90. Maar het genre komt tot 2012 niet echt van de grond omdat het nogal een gecompliceerde journalistieke vorm is. Zo vraagt de productie van interactieve journalistieke verhalen om een behoorlijke investering – qua geld en tijd – van nieuwsmedia. Niet alleen is er sprake van een verdiepend en meeslepend journalistiek verhaal waar diepgravend onderzoek voor nodig is zoals dat ook het geval is bij reportages en verhalende journalistiek. Het verhaal wordt daarnaast op een multimediale en interactieve manier aangeboden. De nieuwe vaardigheden die nodig zijn om zulke verhalen te maken, zoals ontwerpen, *interaction design* en programmeren, waren – zeker in die tijd – niet zomaar op elke redactie aanwezig. Behalve deze uitdagingen, werd ook gedacht dat verdiepende journalistiek online niet goed tot haar recht zou komen. Mensen zouden vooral kort en snel nieuws willen lezen op een scherm.

Niets blijk minder waar want het grote succes van *Snow Fall*, dat zelfs een *Pulitzer Prize* (een van de meest prestigieuze journalistieke prijzen ter wereld) heeft gewonnen, heeft duidelijk gemaakt dat er online ook

plaats is voor verdiepende journalistiek. Langere en interactieve vormen van journalistiek worden op allerlei redacties met grote regelmaat gemaakt – van vermogende nationale en internationale nieuwsorganisaties als de Volkskrant of The New York Times tot regionale en lokale titels als Dagblad van het Noorden en Vers Beton. In navolging van *Snow Fall* maken nieuwsorganisaties ondanks de uitdagingen toch ruimte om hun eigen interactieve verdiepende verhalen te maken. Nieuwsorganisaties verkenden de interactieve multimediale journalistiek in de jaren '10 door zoveel mogelijk verschillende interactieve verhalen te maken. In die tijd zijn er dankzij het experimenteren veel verschillende interactieve vormen ontstaan. Ondertussen, tien jaar later, is de experimentele fase voorbij en zien we dat het normaal is geworden om verhalen doelbewust te voorzien van interactieve elementen, of dat journalisten dit juist bewust achterwege laten omdat het niets toevoegt aan het verhaal.

In mijn onderzoek richt ik mij op deze interactieve journalistieke verhalen en ben ik vooral benieuwd naar de consequenties van interactiviteit voor het verhaal, het maakproces en de gebruikerservaring. Het is belangrijk om dit te onderzoeken omdat de manier waarop interactiviteit door de makers is verwerkt in journalistieke verhalen iets zegt hoe journalisten de relatie met het publiek voor zich zien. Latere innovatieve ontwikkelingen, zoals nieuwsgames en immersieve journalistiek, zijn terug te voeren op eerdere experimenten rondom vernieuwende en interactieve vertelvormen.

In deze samenvatting plaats ik mijn onderzoek eerst in de context van ontwikkelingen in de journalistiek. De afgelopen decennia heeft de journalistieke praktijk steeds meer aandacht voor het publiek en dat heeft zijn weerslag in verdienmodellen *en* in het soort verhalen dat journalisten maken. Daaropvolgend geef ik een overzicht van de vier studies die ik tijdens mijn PhD hebt gedaan. Ik bespreek kort de aanpak, methode en resultaten van elk onderzoek.

Het publiek wordt belangrijker

Om de rol van interactiviteit in de journalistieke praktijk goed te kunnen duiden, is het nodig deze journalistieke vorm in bredere context te plaatsen. Verdiepende onlinejournalistiek is in de wetenschappelijke literatuur aanvankelijk neergezet als een reactie vanuit de kwaliteitsjournalistiek op de steeds sneller wordende nieuwscyclus. Maar er is meer aan de hand. Het publiek is namelijk een steeds grotere rol gaan spelen in de journalistiek.

Met name de opkomst en definitieve doorbraak van het internet in de jaren '90 en '00 is bepalend geweest voor de grotere rol van het publiek. De positie van de nieuwsmedia op de advertentiemarkt verslechterde in deze periode wat nieuwsmedia ertoe dreef op zoek te gaan naar nieuwe verdienmodellen. Adverteerders verkozen online advertenties boven het duurdere print. Nieuwsmedia werden steeds afhankelijker van Google, en de verliezen waren nauwelijks te compenseren. Toen advertentie-inkomsten uitbleven, wendden nieuwmedia zich tot hun publiek – dat in eerste instantie niet of nauwelijks betaalde voor online nieuws. *Snow Fall* is een goed voorbeeld – het idee is namelijk niet ontstaan op de redactie, maar op de advertentieafdeling die op zoek was naar een manier om het aantal online abonnementen van The New York Times te verhogen. Het succes van *Snow Fall* speelde een sleutelrol in het toenemende besef bij media dat nieuwsgebruikers wel eens bereid zouden kunnen zijn om te betalen voor verhalen die naast informatief ook een unieke beleving zijn.

De toegenomen aandacht voor het publiek had dus zijn weerslag op de verdienmodellen van nieuwsmedia en op het type onlineverhalen dat journalisten maken. Het publiek werd namelijk na *Snow Fall* niet langer gezien als een passieve ontvanger van het verhaal, maar als een gebruiker die het verhaal kan ervaren, kan kiezen welke informatie onderdeel uitmaakt van het verhaal, en soms zelfs iets kan zeggen over hoe het verhaal verder gaat.

In mijn onderzoek komt naar voren dat het doel van interactieve journalistiek is om bij gebruikers het gevoel van betrokkenheid te creëren (*audience engagement*), wat, zo wordt gedacht, de bereidheid om te betalen ook vergroot. Makers proberen dit te bereiken door interactieve elementen toe te voegen – zoals bijvoorbeeld een kaart van Nederland waar gebruikers hun postcode kunnen invullen zoals het geval is bij *De Industrie* van VPRO en Submarine Channel, of een interactieve datavisualisatie waarbij gebruikers variabelen kunnen aanpassen zoals bij *Kan geboortebeperking het wereldwijde voedselprobleem oplossen?* van de Volkskrant.

Verder blijkt uit mijn onderzoek dat in interactieve verhalen de emoties van gebruikers op verschillende manieren worden aangesproken. Uit ander onderzoek naar de rol van interactiviteit in games blijkt bijvoorbeeld dat interactie het gevoel van betrokkenheid kan vergroten omdat gebruikers meer handelingsvermogen (*agency*) hebben in het verhaal. Daarnaast gebruiken de makers ook veel literaire en cinematografische verteltechnieken. *Uit het Moeras* van Dagblad van het Noorden en BloeiMedia, laat door de inzet van narratieve journalistieke technieken gebruikers beleven hoe het is om in armoede te leven. Bij interactieve journalistieke verhalen zien we steeds weer een combinatie van interactie en het aanspreken van emoties door verhalende technieken – met als doel de betrokkenheid van de gebruiker te vergroten.

Hoewel deze ontwikkelingen in de wetenschappelijke literatuur redelijk wat aandacht hebben gekregen, blijft de rol van interactiviteit onderbelicht. Daarom wilde ik mijn onderzoek daarop richten: het beter duiden van interactiviteit in de journalistiek. Mijn onderzoek is een bijdrage aan de wetenschappelijke discussie over verdiepende interactieve journalistieke verhalen, ook wel bekend als *digital longforms* en *interactieve documentaires*. Het genre, dat zowel wordt onderzocht binnen het veld *journalism* als *documentary filmstudies*, kent uiteenlopende theorieën. Voor mijn onderzoek ontwikkelde ik een aanpak die tussen die twee velden een brug probeert te slaan.

Onderzoeksopzet

Omdat de journalistieke praktijk van interactieve verhalen interdisciplinair is, heb ik een aanpak ontwikkelt die recht doet aan de verschillende disciplines waarbij ik gebruik maak van theorieën en methoden uit verschillende disciplines waaronder *narratologie*, *mediastudies*, *game studies*, *science and technology studies* en *journalism studies*.

Het zit namelijk zo: makers van online journalistieke verhalen combineren verschillende mediavormen, zoals tekst, video, en datavisualisaties, met allerlei interactieve mogelijkheden. Het doel is daarbij een meeslepend en interactief verhaal vertellen. Dit vraagt van makers vaardigheden die van oudsher geen onderdeel zijn van de journalistieke beroepspraktijk, bijvoorbeeld ontwerpen, *interaction design*, en programmeren. Precies daarom is voor een online interactief verhaal een interdisciplinaire onderzoeksaanpak nodig. Deze aanpak komt op verschillende manieren terug in de vier artikelen van mijn proefschrift.

Bevindingen

In het eerste artikel wordt het Nederlandse veld verkend, omdat tot dusver het onderzoek vooral is gedaan in de Angelsaksische context. Het bleek lastig om een goed beeld te krijgen van Nederlandse interactieve journalistieke producties, omdat dit soort verhalen niet of nauwelijks worden gearchiveerd. Daarom heb ik gekozen om op basis van de inzendingen van drie belangrijke journalistiekprijzen (De Loep, NL Awards, en VOJN Awards) zelf een collectie samen te stellen. In de jaren 2015, 2016, 2017 en 2018 bleken Nederlandse nieuwsmedia enorm productief. Mijn collectie omvat 155 online interactieve verhalen in allerlei vormen. Die verhalen zijn niet alleen gemaakt door bekende nationale nieuwsorganisaties, zoals de Volkskrant en NOS op 3, maar ook door kleinere nieuwsmedia als RTV Oost, Vers Beton, en Dagblad van het Noorden. Deze variatie geeft aan dat dit soort verhalen in de gehele breedte van de Nederlandse journalistiek werden geproduceerd.

In het artikel analyseer ik hoe multimedialiteit, interactiviteit en narrativiteit tot uiting komen in de producties. Mijn onderzoek laat zien dat technologische mogelijkheden op zowel het gebied van multimedialiteit als interactiviteit worden ingezet om de gebruikers op uiteenlopende manieren te betrekken bij het verhaal (narrativiteit). De wijze waarop dat gebeurt zien we terug in de verhaalvormen die fundamenteel anders zijn dan bij traditionele journalistieke vormen. Bij interactieve multimediale verhalen worden bekende mediavormen gebruikt in combinatie met voor de journalistiek nieuwe vertelvormen, zoals verhalen waarbij gebruikers kunnen kiezen uit verschillende verhaallijnen.

Interactiviteit wordt, zoals eerder gezegd onder andere ingezet om betrokkenheid te creëren alsook om complexe verhalen toegankelijk te maken. Door bijvoorbeeld extra informatie en primaire bronnen aan te bieden voor verdieping en transparantie. De gekozen methode geeft slechts beperkt inzicht in de rol van interactiviteit. De resultaten laten zien dat interactiviteit aanwezig is, maar geven nog weinig zicht op de werking van interactiviteit en de manier waarop gebruikers worden betrokken. Dit terwijl deze verhalen vrijwel altijd activiteit van de gebruiker vragen.

De beperkte kennis over interactiviteit inspireerden mij om juist dit aspect verder uit te werken. Na mijn verkenning van de 155 online verhalen heb ik de uiteindelijke focus van het onderzoek bepaald. Het werd mij duidelijk dat interactiviteit als onderdeel van journalistieke verhalen verregaande gevolgen heeft voor de verschijningsvorm van het verhaal (*text*), het bijbehorende productieproces en de gebruikerservaring. Hier ontstond dan ook het idee om drie deelstudies te doen waarbij ik me telkens op een andere fase richt.

Omdat ik grip wilde krijgen op interactiviteit – wat nogal een breed en soms ook vaag begrip is – ontwierp ik een onderzoeksaanpak waarbij een klein aantal *case studies* steeds terugkeren en vanuit een ander perspectief worden geanalyseerd met innovatieve onderzoeksmethoden. Waarbij elke onderzoeksmethode is gekozen omdat het in staat is een

ander onderdeel van het proces te belichten. Ik heb gekozen om met kwalitatieve onderzoeksmethoden te werken, zoals diepte-interviews en focusgroepen, omdat die rijke data generen waardoor ik de dynamiek tussen makers, gebruikers en technologie kon analyseren.

In het tweede artikel ontwikkel ik een conceptueel model waarmee interactieve journalistieke verhalen kunnen worden geanalyseerd. Hiervoor introduceer ik de termen *verhaalruimte* (*story space*) en *interactieve architectuur*. Ik beargumenteer dat interactieve verhalen wezenlijk anders zijn dan niet-interactieve verhalen omdat de presentatie van het verhaal op het scherm van de gebruiker afhankelijk is van de activiteit van diezelfde gebruiker. Het verhaal biedt de gebruiker keuzes aan waardoor elke gebruiker potentieel een eigen versie van het verhaal construeert. Hierdoor, zo beargumenteer ik, ontstaat een *verhaalruimte* die door middel van een *interactieve architectuur* – het totaal aan keuzemogelijkheden – te navigeren is.

In het artikel reconstrueer ik de interactieve architectuur van vijf journalistieke verhalen. De vijf verhalen zijn gekozen omdat ze variëren in complexiteit. Om de interactieve mogelijkheden volledige in kaart te brengen, heb ik meerdere keren een systematische doorloop van het verhaal gedaan en gedocumenteerd (*walkthroughs*). Mijn analyse laat zie hoe gebruikersactiviteit in journalistieke verhalen op uiteenlopende manieren vorm krijgt. Dit varieert van gesloten interactieve systemen waarin gebruikers weinig mogelijkheden hebben om een eigen weg te kiezen, tot open systemen waarin gebruikers een hoge mate van vrijheid hebben. Complexere interactieve architecturen zag ik meer terug in open verhaalruimtes. Gebruikers worden dan niet geheel vrijgelaten. Juist in deze complexe open verhaalruimtes lijken makers te spelen met de spanning en dynamiek tussen open en gesloten interactieve elementen. Zo ontstaan verhaalruimtes met verschillende secties waarbij afwisselend de maker en de gebruiker controle hebben over het verloop van het verhaal.

Dat deze complexe interactieve journalistieke verhalen vragen om een ander productieproces dan meer gangbare journalistieke genres, lijkt evident. Er is vrij weinig bekend over interdisciplinaire productieprocessen in de journalistiek. We weten zelfs nog minder over de productieprocessen van verhalen die als doel hebben gebruikers op andere manieren te betrekken (*audience engagement*). Dit laatste veronderstelt namelijk dat makers ontwerpbeslissingen maken waarbij zij rekening houden met de gebruiker. Doorgaans gebeurt dit niet; gebruikers worden niet betrokken bij de productie, zo blijkt uit mijn onderzoek. In plaats daarvan hebben makers allerlei ideeën en aannames die samenvattend een imaginaire gebruiker (*imagined user*) vormen. Daarom staat in het derde artikel de volgende vraag centraal: hoe komt de imaginaire gebruiker tot stand tijdens het productieproces van interactieve verhalen?

Om hier een antwoord op te kunnen geven, heb ik eerst de productieprocessen gereconstrueerd. Dit heb ik gedaan door documentanalyse, diepte-interviews en focusgroepen met de makers te combineren. De bevindingen uit het onderzoek leggen een spannende tegenstelling bloot. Makers zeggen namelijk dat ze op uiteenlopende en voor de journalistiek nieuwe manieren de gebruiker meenemen in het productieproces, maar, zo blijkt, hun daadwerkelijke activiteit reflecteert dat niet. De imaginaire gebruiker ontstaat vanuit technologische mogelijkheden (*affordances*) van de gebruikte software en de achtergrond van de makers. Het valt op dat ondanks de versmelting van journalistieke en ontwerppraktijken, gebruikerstesten en ander aanvullend publieksonderzoek nauwelijks worden ingezet tijdens de productieprocessen van interactieve journalistieke verhalen. Het blijkt vooral dat een traditioneel journalistiek publiek wordt gereproduceerd in de imaginaire gebruiker van interactieve verhalen. Daarbij hebben makers zelf niet goed in beeld hoe gebruikers reageren op de interactieve mogelijkheden binnen het verhaal.

Aangezien makers zelf niet goed weten hoe het publiek reageert op de interactieve mogelijkheden binnen het verhaal, ligt het voor de

hand om hier in het onderzoek de aandacht op te vestigen. Makers werken aan de hand van de aanname dat interactie ervoor zorgt dat gebruikers zich meer betrokken voelen bij het verhaal. Of dat ook zo is, analyseer ik in het vierde artikel. Hierbij ben ik vooral benieuwd hoe interactie de gebruikerservaring beïnvloed.

Om hier grip op te krijgen gebruik ik *Think-aloud* protocollen waarbij gebruikers wordt gevraagd om hun gedachten en gevoelens uit te spreken terwijl ze interacteren met een interactief verhaal. De resultaten laten zien dat interactiviteit zeker kan bijdragen aan een gevoel van betrokkenheid, maar dat betrokkenheid vooral wordt ervaren als gebruikers ongestoord het verhaal kunnen volgen. Wanneer gebruikers zichzelf herkennen in het verhaal voelen zij zich bijzonder betrokken. Interactiviteit kan hieraan bijdragen wanneer dit gebruikers in staat stelt het verhaal persoonlijker te maken, door bijvoorbeeld je eigen postcode of geboortejaar in te vullen. Zolang onduidelijk wat de bedoeling is van de gevraagde interactie, leidt interactiviteit juist af van het verhaal.

Samen leveren de artikelen een samenhangend beeld op van interactieve verdiepende journalistiek in Nederland. Door interactieve verhalen vanuit verschillende perspectieven (het verhaal, het maakproces, en de gebruikerservaring) te onderzoeken wordt zichtbaar hoe betrokkenheid wordt ontworpen en vertaald naar een verhaalruimte (*story space*) met een interactieve architectuur en hoe nieuwsgebruikers reageren op deze architectuur.

De resultaten van de vier onderzoeken leggen een spanning bloot tussen de belofte van interactiviteit en de daadwerkelijke toepassing. Hoewel de relatie tussen journalisten en hun publiek aan het veranderen is, komt deze voort uit traditionele ideeën over auteurschap en de rol van het publiek; journalisten willen een verhaal vertellen en gaan er van uit dat er ook een publiek voor is. Daarnaast denken makers invloed te hebben op de gebruikerservaring van journalistieke verhalen. Dat zal tot op

zekere hoogte zo zijn maar makers betrekken hun gebruikers nauwelijks bij het productieproces. Hierdoor zit er bij de makers een gat in de kennis over de gebruikerservaring. Uit ander onderzoek naar het gebruik van *metrics* op redacties blijkt ook dat kennis over het publiek vooral tot stand komt uit eigen ervaringen van de journalist, contact met journalistieke bronnen, en makkelijk meetbare online gebruikersstatistieken. Dit zag ik ook terug in mijn onderzoek.

Mijn onderzoek vult dit gat tussen journalisten en hun publiek gedeeltelijk op, maar maakt ook duidelijk dat het perspectief van gebruikers een onderbelicht aspect is in zowel het onderzoek als de journalistieke praktijk. Het is onwaarschijnlijk dat *audience engagement* en de toegenomen aandacht voor het publiek vanuit de makers een tijdelijke ontwikkeling is. Nieuwsmedia zijn blijvend op zoek naar een nieuwe invulling van de relatie tussen journalistiek en het publiek. Toch is tot nu het onderzoek, ook het mijne, vooral gedaan vanuit het perspectief van makers. De beroepspraktijk, en ook het journalistieke onderwijs, heeft behoefte aan nieuwe richtingen om de relatie met het publiek vorm te geven.

Curriculum Vitae

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Research interests

Interactive narratives | journalism design | audience engagement | emotion in journalism | user experience design in journalism | news experience | audience perceptions on and expectations of journalism | relationship between journalists and their audience

innovative research methods | research by design | arts-based methods | qualitative research

Education

PhD at University of Applied Sciences Utrecht | Research Centre for Journalism | Utrecht University and University | Department of Cultural Studies | 2017 – ongoing
Supervisors: Prof. dr. Eggo Müller and dr. Piet Bakker

MA in Journalism and New Media | Leiden University
Thesis: Crossmedia Stories: exploration of the characteristic of journalistic crossmedia narratives.

MA in New Media and Digital Culture | Utrecht University
Thesis: Corporeal Encounters. The Technobodies of Dance Dance Revolution and the Kinetic Interface.

BA in Communication and Information Science | Utrecht University
Thesis: Revisiting Wetware. Toward a corporeal approach of gameplay.

Publications

van der Nat, R., Bakker, P. & Müller, E. (forth-coming) Capturing audience engagement. How users respond to interactivity in journalistic narratives designed for audience engagement.

van der Nat, R., Bakker, P. & Müller, E. (forth-coming 2022) The imagined user and the design of audience engagement. Tracing the imagined user in the production process of journalistic interactive narratives. *Under review for Digital Journalism Special Edition Journalism + Design*

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Conference Presentations

van der Nat, R. (February 2021) The practice of audience engagement. The role of users is the design of interactive *narratives Etmaal van de Communicatiewetenschap 2021*

van der Nat, R. (February 2020) Caught between journalism and interaction design. Reconstructing the creation process for interactive multimedia stories *Etmaal van der Communicatiewetenschap 2020*

van der Nat, R. (September 2019) Who are you designing for? Reconstructing interaction design for interactive multimodal narratives in online journalism *Future of Journalism Conference Cardiff 2019*

van der Nat, R. & De Bruin, K. (July 2019) Story first. Teaching J-school students how to tell interactive multimedia stories *World Journalism Education Conference Paris 2019*

van der Nat, R. (February 2019) Who's in charge? The enactment of agency in interactive multimodal narratives. *ECREA Journalism 2019 PhD workshop*

van der Nat, R. (November 2018) Coming to terms with journalistic multimedia narratives *ECREA Lugano 2018*

van der Nat, R. (June 2018) Who's in charge? Coming to terms with agency in journalistic interactive narratives *!NECS2018*

van der Nat, R (September 2017) (Un)usual suspect. Exploring multimedia storytelling. *The Future of Journalism Cardiff 2017*

van der Nat, R. & Bakker, P. (March 2017) MediaGeneration Next Generation as predictor for future media habits *ECREA Journalism Odense 2017*

van der Nat, R. & Bakker, P. (January 2017) MediaGeneration Next; Generatie als voorspeller voor mediagebruik *Etmaal van de Communicatiewetenschap 2017*

van der Nat, R. & Bakker, P. (November 2016) Journalism's dirty little secret. The rise of content curation in newsrooms. *NeFCA Political Communication & Journalism*

van der Nat, R. & Bakker, P. (February 2016) Cracking the curator's code. Wat is curatie en hoe ziet het eruit? (Translation: what is curation and what are its characteristics?) *Etmaal van de Communicatiewetenschap 2016*

Smit, G, de Haan, Y & van der Nat, R. (February 2016) Nieuwswaarde van datavisualisaties (translation: news value of data visualisations) *Etmaal van de Communicatiewetenschap 2016*

Guest lectures

van der Nat, R. (December 2019) Interactieve multimediale verhalen *Guest lecture at University of Ghent*

About the author

Renée van der Nat is a research associate at the research group Journalism in Digital Transition, lecturer at the Institute for Media (School for Journalism) at the University of Applied Sciences Utrecht and PhD candidate at Utrecht University Department for Media and Cultural Studies. She holds a master's degree in Journalism & New Media (Leiden University), with a specialisation in crossmedia storytelling, and New Media and Digital Culture (Utrecht University), with a specialisation in gender studies.

In 2017 Renée started her PhD project with a research grant from the University of Applied Sciences Utrecht , dividing her time as researcher and lecturer at the School for Journalism. During her PhD trajectory under supervision of Prof. dr. Eggo Müller and dr. Piet Bakker, Renée presented her research a several international conference – amongst them The Future of Journalism conference, ECREA, !NECS and The World Journalism Education Conference. Her research proposal was selected for the highly competitive PhD workshop for ECREA Journalism Studies 2019. Her research is published in highly ranked, international peer-reviewed journals such a Digital Journalism.