

Design Fiction and the Futures of Europe

The Effect of Interactivity on Design Fiction

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Abstract

This thesis aimed to answer the research question “What effect does interactivity have on fulfilling the purpose of Design Fiction?”, using a GT approach. A focus group was chosen for the data collection. All focus group participants were presented with an original narrative and interactive design fiction. A coding process led to the proposed theory of *Embedding Critical Thinking through Interactivity*. This theory states that critical thinking is inextricably interwoven into the narrative experience of an interactive design fiction, rendering it part of the consumption, rather than something that succeeds it. It provides the field of research into design fiction with one possible approach to purposefully enhance the effectiveness of design fiction.

Content

Introduction.....	4
Theoretical Framework.....	7
The Dilemma of Defining Design Fiction	7
DFs as Narratives.....	9
Narrativity	11
Interactivity	12
Methodology	16
Study Process and Analysis	16
The Creation of the DFs.....	19
Results.....	21
Active Engagement.....	22
Agency	22
Identification	23
Different Selves	24
Responsibility	26
Involvement	27
Intrinsic Motivation	29
Curiosity.....	29
Enjoyment	30
Critical Thinking.....	31
Discussion	35
Conclusion	38
References.....	39
Appendices.....	48
Appendix A – Design Fictions.....	48
Link to Interactive DF.....	48
Narrative DF	48
Appendix B – Focus Group Brief	55
Appendix C – Transcript.....	58
Appendix D – Codebook	78
Appendix E – Memos	79

Introduction

Imagine you could unlock and control your car only with face recognition and gestures (Curious Rituals by Near Future Laboratory, n.d.). What would happen if you forget your groceries in a self-driving car-sharing vehicle (Stanford Online, 2017)? Could a fork count the calories you consume every day and keep you on your weight-losing track (Superflux, 2021)? The future will most likely bring answers to these questions through experiencing these as of yet unrealized innovations. However, research attempts to answer them today through a different approach called Design Fiction (DF).

DFs propose transformed future worlds by manifesting them as possible realities, instead of pitching them as hypotheticals (Bleecker, 2009). DF teeters on the fine line between science fact and science fiction; it combines future scenarios and technology with hands-on scenarios of everyday life. Whether through texts (Schulte et al., 2016; Noortman et al., 2019), images (Blythe et al., 2016), videos (Curious Rituals by Near Future Laboratory, n.d.) or early prototypes (Stead, 2016), diegesis is at the heart of DF. Within a DF, the presence of a prototype, technology or object of interest always has a purpose; it is there to communicate something, to move the plot forward (Bleecker, 2009).

Bleecker (2009) sees the great potential of DF in its ability to not only combine techniques like writing, storytelling and prototyping but also to stimulate imagination. DF is not so much about how artifacts can be designed, but rather about adding meaningful conversation to the design process (ibid). By creating a physical diegetic prototype or creating a near-future scenario in which a prototype already turned into a technological innovation, DF can jump-start people's imagination, raise questions and provoke discussions as well as critical thinking about the wanted or unwanted consequences of future designs (Bleecker, 2009; Sterling et al., 2005; Auger, 2013).

Despite its nascent nature, Blythe et al. (2006) already described DF as the new but sought-after complementary method for designers to consider not only user experience but also the influence of new technology on society and culture. Auger (2013) sees the great potential of DF in its ability to free designers from the restrictive implications of commercial design and to let them explore all implications of their products. Furthermore, DF can provoke debate, as a means of opening up new channels for discourse. As such, DF has the potential to promote two-way communication among citizens and assist our thinking about favorable futures.

While there has been debate over the exact definition of DF (as will be discussed further in the theoretical framework), Bleecker points out that the real question is not how to define DF as a concept but how to successfully utilize it (Near Future Laboratory, 2014; see also Galloway & Caudwell, 2018). Lindley (2014) agrees and states that despite knowing *that* DFs work, more research is needed to address *what* makes them work. Therefore, it is of interest to understand ways in which DF can be made more compelling in fulfilling its purpose of triggering imagination and sparking conversation as well as critical thinking about the potential implications of future designs. One way of enhancing the purpose of DF could be interactivity. While one may be familiar with interactive digital narratives (IDN) in the form of video games, serious games or interactivity in storytelling, the combination of DF and interactivity has not yet been researched.

Interactive storytelling presents the reader or interactor with the possibility of agency, where the interactor can meaningfully influence the narrative to some degree (Roth & Koenitz, 2016). Whereas non-interactive narratives entail passive engagement, interactive narratives necessitate that a reader “enacts rather than witnesses the story, and in this way...more deeply [internalizes] and personalizes the story events ... [with] the consequences of those events ...felt more deeply” (Hand & Varan, 2008, p. 13; see also

Murray, 1997). To give a short overview, Winskell, Sabben and Obong'o (2019) summarize five different aspects that can be enhanced by interactivity: identification, transportation/immersion, enjoyment/appreciation, sense of agency/control and intrinsic motivation. These will be further elaborated on in the theoretical framework.

Diegesis or storytelling is an innate characteristic of DF with the underlying intention to evoke the imagery of a probable future, to provoke the audience and to stimulate critical thinking. Even at first glance, it seems that factors like transportation, identification, enjoyment, agency and intrinsic motivation could have a positive influence on the purpose of DF. Therefore, implementing interactivity in DF could be one approach at answering Bleecker's question of how to best utilize DF.

This thesis will qualitatively explore the effects of interactivity as one possibility to further optimize the effectiveness of DF and add to the corpus of research into DF. It aims to answer the research question "What effect does interactivity have on fulfilling the purpose of DF?". Results from this study could generate insights into the effects of interactivity on the purpose of DF and help formulate a set of guidelines for the creation of an effective DF.

To answer the research question, this thesis took the qualitative methodology approach of grounded theory (GT). GT strives to establish a theory or principles for the respective subject of research through the collection of rich data, followed by a coding process, which then leads to categories of patterns or insights and ultimately new theory. This study used GT in order to gain insight into how interactivity affects achieving the purpose of DF.

While quantitative research is inclined to find connections between certain constructs, qualitative research attempts to find the reasoning surrounding certain constructs. A qualitative research approach seeks insights that can provide a substantiated foundation for

quantitative research (Treadwell & Davis, 2020). As there is a lack of research into how to best utilize DF to achieve its purpose, it is difficult to formulate a substantiated theory or hypothesis to test. Furthermore, using quantitative research would limit the potential generation of insights to the narrow scope of measurable data. This would carry the risk of missing valuable insights into how DF's purpose could be enhanced, which is, at this early stage of research into DF, necessary to eventually formulate reliable theories. Indeed, GT is especially useful in cases of under-researched phenomena, where an obvious gap exists in the literature, and where new perspectives could be of benefit (Symon & Cassell, 2012). In such cases, taking the GT approach has greater potential to produce novel and precise insights into the phenomenon in question (Glaser & Strauss, 1967).

Theoretical Framework

This chapter will introduce DF as a concept and explain its purpose as well as its narrative potential. It will then give a closer look into narratives and narrativity, including narrativity's effects on the audience. Lastly, this chapter will look into interactivity and its implications for the narrative experience.

The Dilemma of Defining Design Fiction

The term DF was first coined by Bruce Sterling in 2005 (Sterling et al., 2005) when he described it as a slightly more disillusioned science fiction; it lacks some of the romanticism of science fiction that is needed to convince the audience that the fantastical world presented could actually exist. Rather, DF takes a more practical, down-to-earth approach. Sterling states that DF "sacrifices some sense of the miraculous" that is innate to science fiction (Sterling et al., 2005, p.30; Sterling, 2009). More recently, Sterling defined DF as the purposeful utilization of a diegetic prototype with the intention to present a world that is different from the real world, most likely in the future. DF itself is not meant to tell stories,

but to showcase prototypes that hint at a transformed world (Sterling, 2013). Sterling attributes the actual invention of the concept of DF to Julian Bleecker (Sterling, 2013).

Julian Bleecker's article from 2009 connected Sterling's DF to academia and research by emphasizing the importance of diegesis in DF. Bleecker (2009) pointed to DF's potential of combining practices of writing, storytelling and prototyping as a way to stimulate imagination. Over time the popularity of DF grew and so did its versatility which had the consequence that the initial descriptions by Bleecker and Sterling were expanded and the definitions became more ambiguous and less definite (Lindley, 2016). This did not go unnoticed and researchers like Tanenbaum pointed out that there is very much room for debate and that the meaning of DF was "somewhat up for grabs" (Tanenbaum, 2014, p.23). In their paper from 2013, Markussen and Knutz state that, currently, various interpretations and purposes of DF exist and they also emphasize the need for a deeper comprehension when it comes to DF as a research method.

Two attempts to resolve the complications caused by ambiguous definitions have been provided by Lindley and Coulton (2015) and by Lindley (2016). Lindley and Coulton (2015) present a three-part definition: DF entails its own storyworld (1), it includes some type of prototype that is native to the respective storyworld (2) and it is set out to spark conversation (3). However, the authors suspect that this definition leaves room for interpretation instead of providing clear guidelines on the concept of DF. Lindley (2016) proposes that tensions could be mitigated by using a pragmatics framework that distinguishes three different relationships between DF and research: research for DF, research through DF and research into DF (Lindley, 2016).

DFs as Narratives

Bruce Sterling, who first mentioned the concept of DF in his work from 2005, published an updated definition of DF in 2013: "Design fiction is the deliberate use of diegetic prototypes to suspend disbelief about change" (Sterling, 2013, para.2). Sterling (2013) goes on to admit that this definition is quite loaded, adding an explanation. "Deliberate use" indicates that every element in a DF serves a specific purpose. He then clarifies "diegesis", mostly known in the world of movies and theater, as the art of telling something rather than showing it (Bilandzic & Busselle, 2017; Sterling, 2013). Sterling's idea of DF includes mostly diegetic prototypes that do not "tell" stories per se but evoke images of a different world. "Suspending disbelief" refers, according to Sterling (2013), to the fact that DF has certain morals.

Being a science fiction writer, Sterling states that science alone cannot accommodate all implications of future technological innovations. He continues to explain the advantages of understanding design when writing science fiction, namely that "it improves the work remarkably to have a coherent idea of what you're talking about" (Sterling, 2005, pp.30-31). DF might sacrifice some of the magical glory of science fiction but this almost realistic approach evokes stories that embody the conflict of technology and society. This ability to create relatable scenarios and futures that can be considered probable made DF interesting to academia (Sterling, 2005).

Julian Bleecker picks up where Bruce Sterling left off and starts considering DF's potential as design practice, research method or storytelling tool in his impactful essay "Design Fiction" from 2009. Bleecker (2009) develops the connection between DF as a storytelling tool and its potential to evoke provocative implications about the future. While Sterling sees diegesis only as something triggered by DF prototypes, Bleecker sees great

storytelling potential in embedding DF objects in narratives (ibid). Claiming that there can be a lack of accuracy in the use of language, he states that “conversation pieces designed to provoke the imagination” (Bleecker, 2009, p.7) can be a useful asset to communicate in a way that would not be possible with language alone.

According to Bleecker, the purpose of narrative DFs is to encourage people to leave their imagination-comfort-zone. In the space between fact and fiction, DFs can extrapolate what any number of near-future scenarios might look like. Merging well-established practices like writing and storytelling with the practice of prototyping physical objects turned DF into a powerful composing practice. This fusion enables DF to generate socialized artifacts (i.e., diegetic prototypes; Kirby, 2010) with their own stories. In short, DFs assist creators to create provocative narratives to challenge and stimulate people’s imagination (Bleecker, 2009).

Narratives play a large role in how people understand and process the world around them (Dahlstrom & Ho, 2012); they carry the capability to influence perception by communicating beliefs, morals and actions (Hertog & McLeod, 2001). When people experience a narrative, they enter the storyworld of this narrative, meaning they are temporarily unaware of the fictionality of a story. This phenomenon is often described as the “suspension of disbelief” (Busselle & Bilandzic, 2008; Worth, 2004).

Sterling uses this phrase in his definition of DF from 2013 to describe the intention of creating a plausible near-future scenario that is believable to its audience. When used to describe a narrative experience, “suspension of disbelief” oftentimes means that the audience consciously lets go of any doubts that the presented scenario is real (Busselle & Bilandzic, 2008; Roth & Koenitz, 2016; Worth, 2004). Nevertheless, there is some discussion about the assumption that a reader voluntarily and purposefully “suspends their disbelief”. As supported by psychology research (Gilbert, 1991), Bussele and Bilandzic (2008) and Worth

(2004) suggest that a reader does not consciously choose to believe or disbelieve something. By entering the storyworld, the reader experiences what is happening in the fictional endeavor they are embarking on. Worth (2004, p.447) therefore prefers to define it as “actively creat[ing] belief”.

Bleecker describes “actively creating belief” indirectly as a characteristic of DF, whose purpose it is to ask “what if this thing *was* real?” (Bleecker, 2009). Janet Murray, author of “Hamlet on the Holodeck: The Future of Narrative in Cyberspace” (1997), where she introduces digital storytelling and interactive storytelling, agrees with Bleecker. In her eyes, the term “suspension of disbelief” is too passive to fully express the phenomenon. The desire or pleasure of submerging oneself in a narrative and accepting the storyworld as real is an act of creativity (Murray, 1997; see also Green et al., 2004). Due to the pleasure of being immersed in a narrative, readers are more likely to use their cognitive resources to increase the feeling of reality rather than to argue against it. This leads to a deictic shift and narrative engagement (Bussele & Bilandzic, 2008).

Narrativity

While a narrative can be simply defined as the depiction of how and why a situation became about, how it is evolving and how these states are connected (Kinnebrock & Bilandzic, 2011), narrativity is more complex; Abbott (2002) goes so far as to call it a “vexed issue” (Abbott, 2002, p.22). However, it is a concept that is connected to the narrative experience and has to be elaborated on to fully grasp the benefits of interactivity. Kinnebrock and Bilandzic (2011) describe narrativity as a continuous characteristic of the text. Their components of this characteristic include the ability to paint a rich cognitive depiction of the story as well as the ability to transport the reader into the story.

Transportation is a core concept of narrativity and can be defined as a cognitive process that blends emotions, attention and imagination where the entire cognitive capacity focuses on the unfurling of the narrative (Bilandzic & Busselle, 2017; Green et al., 2019). To become engaged in a narrative, a reader will go through a “deictic shift”, meaning the reader finds themselves in the mental space, time and location intended by the story. This deictic shift enables character identification and if the transition is seamless for the reader, they might even experience flow (Csikszentmihalyi, 1990).

Transportation (also immersion (Murray, 1997), presence (Roth and Koenitz, 2016) or narrative engagement (Busselle & Bilandzic, 2008)) is associated with changes in reader’s beliefs and narrative persuasion (Green & Brock, 2000). Green and Brock (2000) tested in multiple experiments whether participants’ beliefs of certain topics changed in correlation with transportation into the narrative they were presented with. The researchers found that participants who were intensely transported into the narrative presented beliefs that were more story-consistent. It did not matter whether the narratives were factual or fictitious. The same effect occurred for persuasion; while highly transported participants were more persuaded by matters in the proposed narrative, there was no difference in persuasion between fact or fiction. Thompson et al. (2010) stated that transportation can be a big factor not only in belief-changing or persuasion but also in behavioral changes. Green and Brock (2000) also found that transportation is not necessarily connected to written narratives only. Narratives of all mediums can transport people; therefore, the term “reader” includes viewers, listeners or in the case of interactive digital narratives (IDN) interactors.

Interactivity

Interactive narratives (IN) include procedural and participatory affordances (Murray, 2011), which give the reader the ability to make decisions regarding the path of a story,

oftentimes in a key situation of the plot (Green and Jenkins, 2014). The plot offers multiple paths to follow at these key points, either leading to a different outcome or a different way to get back to the main story (Hand & Varan, 2008; Heussner et al, 2015). While the reader or interactor may enjoy the ability to influence these outcomes, a lack of narrative structure can interrupt the engagement process (Green & Jenkins, 2014). The conflict between the structure of a narrative as it is intended by the author and the freedom of the interactor to change the narrative to their discretion is called the narrativity-interactivity paradox (ibid). If the structure given by the author is quite rigid to preserve the intended plot, the interactive freedom is very restricted and the effects of interactivity cannot be properly utilized. If the interactive freedom is very large and the interactor has a great amount of influence, the story may never pan out in the intended way (Aylett & Louchart, 2007).

Slater (2002) showed that INs have an effect similar to traditional narratives on transportation and persuasion (see also Thompson et al., 2010). However, interactivity can increase these effects due to the active role that is given to the interactor. Instead of observing a narrative, the interactor experiences the story on a personal level (Murray 1997), resulting in higher transportation than associated with traditional narratives (Green & Jenkins, 2014). This can therefore lead to a higher intensity of the effects connected to transportation (e.g. belief- and behavior changes, evoking rich imagery, identification and decreased counterarguing) (ibid).

Transportation is accompanied by rich mental images evoked through a narrative. Giving the interactor the opportunity to imagine a multitude of possible paths can stimulate an even richer imagination (Green & Brock, 2000). Counterarguing, meaning formulating arguments against presented statements or messages, can also be reduced by transportation. While the interactor has to evaluate an IN at every point of interaction to make a decision, these decisions have to be made in coherence with the storyworld. As such, the interactor

evaluates only within the storyworld and will probably not engage in counterarguing. The additional cognitive load of making decisions about the plot might also deplete the interactor's resources, lowering their ability to counterargue (Green & Brock, 2000; Green & Jenkins, 2014).

A concept akin to transportation is identification. It differs from transportation inasmuch as the interactor is not only transported into the narrative but is taking the position of one specific character (Oatley, 2002). This active identification involves the interactor taking on the character's goals as if they were their own and sharing emotions with the character (Cohen, 2001). It also entails empathizing with a character and adopting their point of view (Oatley, 2002). Identification with a character can widen the interactor's perspective and help them see things from different angles (Cohen, 2001). It can also lead to narrative persuasion (Slater & Rouner, 2002) as well as to an attitude or behavior that is coherent with attitudes and behaviors presented in the narrative (Cho et al, 2012; Larkey & Hecht, 2010). It is in the nature of an IN to turn the interactor into a character or give them the power to make decisions for a character. When an interactor has to make a decision for a character, they have three different options as to how to approach that decision. They can either try to understand what the character would decide (based on the character's traits), they can decide the way they themselves would decide in this position or they can decide out of curiosity for the outcome (Green & Jenkins, 2014). Green and Jenkins (2014) found that most interactors decide as if it were them in the position of the character. This type of identification is possible since many INs do not provide rich character descriptions compared to traditional narratives, giving the interactor more space to see themselves in a character. This type of identification is associated with behavior changes, for example making healthier decisions if these are promoted in the narrative (Green & Jenkins, 2014).

One IN can offer multiple options of identification experiences. An interactor can identify with the same character but have a different experience if they make different decisions in the second play-through. They can also choose to pick another character, which also leads to a different identification experience. These different experiences of “selves” can afford higher enjoyment and stronger attitudinal and behavioral changes for the interactor (Green & Jenkins, 2014). How someone perceives themselves can be influenced by the characters in narratives. Identifying with a character can lead the interactor to adopt traits of said character. The decision points in INs can also encourage the interactor to discover different and new “selves”. The connection between the interactor and the character could stimulate the interactor to relate the narrative scenario to a situation in their life when making a decision (Dunlop et al., 2008).

Making decisions in place of a character may lead to a feeling of responsibility for the results of the character’s action. Green and Jenkins (2014; coherent with Rothman et al., 1993) found that their participants felt more responsibility for their character in INs, stating that this feeling of responsibility could increase enjoyment. This is congruent with research indicating that higher perceived influence of a narrative leads to more enjoyment in the context of interactive games (Klimmt et al. 2007).

However, next to enjoyment, readers also consume narratives in search of a deeper purpose or the meaning of life (Green & Jenkins, 2014). This can be described as eudaimonic motivation, which entails the pursuit of goals, insights and desires that are inherently meaningful and valuable (Rigby & Ryan, 2016). Oftentimes meaningful narratives deal with irreversible events (e.g. the death of a beloved character), so the creators need to ensure that the significance of this event is not diminished by too much user control (Green & Jenkins, 2014). If this is kept in mind and all possible paths in an IN have the same literary and artistic claim (content and presentation), INs can be capable of letting the interactor

experience a fuller, more divergent satisfaction of their eudaimonic motivations (e.g. “That Dragon, Cancer”, n.d.; IN that deals with the grief after the death of a child).

INs are a new and inspiring form of storytelling that offers a certain amount of control to the interactor, which can intensify the narrative experience. They also show potential to make narrative persuasion more powerful. As DFs aim to stimulate imagination and critical thinking about the future, new technology and its implications, a compelling narrative experience for the audience is paramount. Since interactivity can enhance the narrative experience, it only seems logical that DF would profit from interactivity. This thesis, therefore, aims to gain insights in how interactivity affects fulfilling the purpose of DF.

Methodology

Study Process and Analysis

This study followed the research protocol of GT, which was first introduced by Barney G. Glaser and Anselm L. Strauss in the 1960s (Glaser & Strauss, 1967). They describe it as “the discovery of theory from data” (Glaser & Strauss, 2017, pp. 1-2). GT strives to determine the theory implicit in the data, which distinguishes GT from purely deductive research methods that start out with an assumption or theory and aim to find support for it in the data (Chun Tie et al., 2019; Glaser & Strauss, 1967). Constant comparison and theoretical sampling were the key processes used in conducting GT. Constant comparison refers to the simultaneous collection and analysis of data, in which occurrences are compared to occurrences, while distinctions of notable differences and/or similarities are constantly sought out (Symon & Cassell, 2012). Theoretical sampling refers to following the data where it leads as guided by the emerging theory. The goal is to compare the emerging theory to the literature in the same way that it is compared to any original data (Symon & Cassell, 2012). As such, when conducting GT, the researcher did not attach more

importance to the pre-existing literature than to any other original data collected (Dick, 2002, as cited in Symon & Cassell, 2012). In GT, data can be collected through communication, observation, reading or listening (Bryant & Charmaz, 2007).

The process for this thesis started with purposive sampling to compose a diverse focus group. A focus group was chosen because DF is intended to provoke discussion. As such, a focus group conversation is an organic representation of a discussion among citizens, just as intended by Bleecker (2009) in his essay. This provided the added benefit of allowing the researcher to investigate to what extent the DF vignettes stimulated discussion. The participants were adults and had to be sufficient English speakers. The researcher decided upon eight participants between 21 and 58 years of age. One participant dropped out of the focus group due to internet connection problems. Three days before the planned focus group meeting, the participants were provided with both the narrative original DF as well as the interactive original DF. They were instructed to prepare for the group meeting by reading and playing through the DFs and writing down a few bullet points about their initial impression for each of them. The preparation brief can be found in Appendix B.

The focus group met via Zoom and the discussion took about one hour. The meeting started with one warm-up exercise so that the participants would feel more comfortable. The participants then were asked to give verbal and written consent (through email) to participate in the study and be recorded. Afterwards, the researcher steered the discussion towards the topic of the stories. The questions for this semi-structured conversation (Helgason & Smyth, 2020) were inspired by the items of the transportation scale developed by Green and Brock (2000) since transportation is a key element to most of the discussed effects of narrativity. During the meeting the researcher stayed as detached and objective as possible to ensure that the views presented were the views of the participants alone. The Zoom meeting was recorded and afterwards transcribed using Word 365. The transcript can be found in

Appendix C. After the process of transcribing was finished, the video was securely stored and was deleted after the results were reported.

First, the researcher focused on familiarization, which included the transcription of the focus group discussion, but also continued afterwards with the goal of thoroughly understanding the collected data and internalizing its content. Next came substantive coding, which was comprised of both open and selective coding and aimed at producing an emerging set of categories with demarcated characteristics. This was done using atlas.it (Atlas.it 22; Web version). Substantive coding began with open coding, where everything that seemed of importance was marked with a keyword or category. These keywords and categories developed as the coding continued until every incident fit into an already established category. Open coding was followed by selective coding, in which the researcher assessed whether categories could be further summarized or represented by superordinate conceptual themes that fit into the overarching, emerging theory. Within this step, the researcher discarded of any statement that did not seem relevant to the research question or was too vague to interpret properly. The codes and their descriptions can be found in Appendix D.

Afterwards, the researcher reviewed all developed themes and assessed whether they were representative of the conversation of the focus group. All themes were appropriately named and defined to avoid any ambiguity of what a theme represents, including a clarification as to how each theme contributed to a better understanding of the collected data.

Through assessing the substantive codes, a core variable emerged. The core variable occurs again and again within the collected data; it relates to and connects all other categories in a meaningful way (Holton, 2007). The core variable is the cornerstone of theoretical coding, which followed last. Theoretical coding aims to “weave the fractured story back together again” (Glaser, 1978, p. 72), conceptualizing the interrelationships among the

substantive codes and eventually leading to the theory introduced in the result section. The entire coding and analysis process was accompanied by the steady use of memos, which supported idea generation and theorizing as well as illustrating potential relationships between codes. Memos can be found in Appendix E. The last step was to write the report, which can be found in the result section of this thesis.

The Creation of the DFs

This section will elaborate on the creation process of both the interactive and the narrative DF. It will explain the approach taken to develop the plot for each of them as well as the tools used in the process. Both the link to the interactive DF as well as the complete narrative DF can be found in Appendix A.

The narrative DF is an original work by the researcher and was initially written for a course project as part of Tilburg University's Master's programme of Communication and Information Sciences. It is a short story (2161 words) written in the first-person perspective and is set in a near, pandemic-riddled future. The plot follows the female protagonist and illustrates her relationship with William, her digital AI assistant, to whom she has a strong emotional connection since it is her only social contact due to the pandemic. This relationship is taken advantage of by criminals who blackmail her by threatening to delete William. The end of the story was left open. The first-person perspective was chosen to encourage identification with the character and the open ending was meant to stimulate the thoughts of the audience. The scope of the technological innovation was futuristic but probable to keep to the premise of DF, which is to present the audience with probable future scenarios. The development of the plot, especially the implications of the technology in the DF, was supported by the Tarot Cards of Tech (<http://tarotcardsoftech.artefactgroup.com/>). The story was written in Microsoft Word and distributed in the form of a PDF file.

The interactive narrative is also an original work by the researcher, created specifically for the purpose of this study. It follows one character, whose gender and name could be chosen by the interactor at the beginning of the story. The character has to get to work and is met with malfunctioning AI technology, which results in different scenarios, depending on the interactor's choices. Throughout the story, the interactor is directly addressed by using a second-person perspective. The interactor has to make sure that the character gets to work and is met with the consequences of their decisions throughout the story. The technology chosen for this DF was also AI-based and placed in a believable future scenario, to be comparable to the way technology was presented in the narrative DF. Again, the Tarot Cards of Tech (<http://tarotcardsoftech.artefactgroup.com/>) were used to inspire the plot. The second-person perspective was used to stimulate identification. The decision points, at which the interactor was given agency, were placed at kernel events so that the interactor had the feeling that their decision was meaningful and moved the plot forward.

After writing all the different paths, the text was turned into an interactive DF by using UXPin. Here, the text was presented to the interactor in vignettes. The interactor could click an arrow to move forward in the plot and click on the desired option when they were presented with a decision point. Depending on their decision, they were routed to the respective storyline. The interactive DF had four possible endings and each path gave the interactor four decision points. At the end of each path, interactors were invited to start the interactive DF over. The backgrounds for the text vignettes were created using UXPin and Adobe Illustrator 2022, while the illustrations were created in Adobe Photoshop 2022 and Adobe Illustrator 2022. The participants were provided with a link that enabled them to play through the interactive DF.

Results

As a reminder, this thesis set out to determine what effect (if any) interactivity would have on fulfilling the purpose of DF, which is essentially to stimulate discussions and jump-start people's imagination about wanted or unwanted future scenarios connected to futuristic technology and design. Critical thinking is therefore paramount and a desired consequence of DF; the creator's intention with a DF is to encourage the audience to ask the questions of "what if".

Based on the patterns found, with focus on the research question of this thesis, the researcher introduces the theory of *embedding critical thinking through interactivity*. In the following paragraphs, the discovered categories will be introduced and their relevance to this theory will be established. The fact that *critical thinking* emerged as the core variable is, first of all, an indicator that the presented narratives indeed fulfilled the purpose of DF. Therefore, the researcher could confidently declare the findings of this focus group relevant to the field of research into DF.

The theory of *embedding critical thinking through interactivity* may be interesting to the field of INs in general, however, it yields special importance for the field of DF. While critical thinking is the desired consequence, something to hopefully follow the consumption of DF, in an interactive DF, critical thinking is part of the consumption. Through interactivity, which facilitates *active engagement* and *intrinsic motivation*, participants are inclined to engage in *critical thinking*, as it is part of their narrative experience. Instead of succeeding the narrative, critical thinking in form of contemplating probable futures as well as wanted and unwanted consequences becomes part of the DF consumption.

This chapter will present the themes found during the focus group session and illustrate each of them with examples from the conversation. The researcher found three

categories, which they distinguished into two mediator or stimulus categories, while the third one will be described as the core category representing the consequence of the two stimulus categories. The two stimulus categories are *active engagement* and *intrinsic motivation*. The core category is *critical thinking*. This will be followed by a summary of how each of these categories contributes to the theory of *embedding critical thinking through interactivity*.

Active Engagement

The first stimulus for *critical thinking* that was identified is *active engagement*, which describes a type of narrative engagement that is triggered by the action-taking process required from the interactor. The components of active engagement fostered the critical thinking process participants engaged in at every decision point. Five concepts were identified to form the category of active engagement. One specifically addresses *agency* as the basis of active engagement, the other four are closely tied to agency and are rooted in its presence (*identification, different selves, involvement, responsibility*).

Agency

The concept *agency* describes the control given to the interactor throughout the interactive narrative and is in the literature referred to as having meaningful influence on the narrative (Roth & Koenitz, 2016). During the focus group, participants attributed a sense of immediate engagement to their agency. The feeling of having influence or control over the plot also made it easier for them to feel involved.

For me, it made me even immediately get engaged there because you have to think about it immediately.

(Participant 5)

It was easier to keep to the story because you had to decide things because, yeah, you... you actually had the control over deciding things.

(Participant 8)

Additionally, participants felt strongly that having influence or control (i.e. agency) made them not only involved but jump-started a thinking process about the plot. They reported that having the power to make decisions resulted in higher cognitive and active engagement, as compared to the strictly narrative DF.

I would say when just reading a book, yeah you can agree with the story or again and think about it and but if you can make your own decisions, at least it gives you the idea that you can control the way of the story. So yeah, I thought way more about it than the first one.

(Participant 7)

Identification

Since both DFs included a single protagonist, participants talked about and compared their feelings of identification with each of them. They connected agency and interactivity with a strong feeling of identification, even stating that interactivity made it easier for them to identify.

For me, [interactivity] made it easier [to identify].

(Participant 6)

Yeah for me, too.

(Participant 3)

Yeah yeah, second one [interactive DF] identifying a lot more, definitely.

(Participant 4)

After being asked to elaborate on this another participant clarified in connection to the interactive DF:

[You] Think about who you want to be, and then you kind of feel that you're now this character.

(Participant 5)

The researcher also noticed the participants subconsciously identifying and referring to themselves (“me”, “I”) when talking about the character of the interactive DF.

But when it was the [interactive] narrative I was much more cautious. I was like, OK, what's going to happen to me, ‘cause now I'm tied to the story, so that was basic difference for me.

(Participant 4)

This pattern of identification occurring in the context of the interactive narrative falls in line with Green and Jenkins’ (2014) findings that agency can lead to higher identification.

Different Selves

When an interactor has to make a decision in an IDN, in this case in the interactive DF, there are three possibilities as to how these decisions could be made. These possibilities are closely related to identification and how the interactor sees their connection to the character. Do they act as if it was them who had to make the decision or do they try to understand what the presented character would do? Or are they just curious about a certain path that seems more intriguing to them? This topic came up when participant 8 explained the thought process of how they made decisions throughout the interactive DF:

Would that change... because is it, like, me deciding to put on snooze? Or is it the character that... just decided to go snoozing because I would never press the snooze

button. But maybe this other character would.

(Participant 8)

The group was encouraged to elaborate on their experiences and indeed, in support of Jenkins and Green's (2014) findings, most participants made their decisions in the first run-through by putting themselves in the position of the character. However, in their second run-through, curiosity was a driving factor for their decision-making.

I also chose ... like I would do in real life.

(Participant 7)

I was making decisions on how I would react and then ... I chose a different route because I was curious what, like, how it would go, like, if I did other like decisions.

What would go differently?

(Participant 8)

With regards to the second run-through, some participants, however, mentioned that decisions made out of curiosity made the character feel further away from them. This is in accordance with Jenkins and Green's (2014) findings of a significant, positive correlation between deciding as the interactor would and high identification and perceived realism.

I did it like how I would do, how I saw myself as a character, so I would snooze in the morning. It was nice to see once I didn't snooze what could go right in the morning.

So, when it was, that felt like a little bit like yeah further away from me. So it was, that was more like when I did something that I wouldn't do myself. It was more like, someone else's story and I'm just seeing how it plays out, whereas what I really chose what I wanted I just saw, it was very familiar how things went.

(Participant 6)

They continued to describe the effect it had on them, which can be considered an attitudinal effect related to interactivity (Dunlop et al., 2008; Green & Jenkins, 2014). While the experience of snoozing was very close to their own experience and the experience of getting out of bed immediately felt less familiar, the way they experienced a different morning routine gave them the opportunity to think about possible implications of a different morning habit:

It made me feel like next time maybe I won't [press snooze], you know. It just seemed like a much less stressful situation, so I normally snooze and it made me feel like.

You know, maybe I won't snooze next time [in real life].

(Participant 6)

This experience of active identification is an important part of the theory of *embedding critical thinking through interactivity*. As Cohen (2001) states, identifying with a character means taking on the character's goals and sharing their emotions. Experiencing different selves and exploring different paths and choices as part of this identification process widens the interactor's perspective, additionally leading to more enjoyment (Cohen, 2001). Oatley (2002) found that it can even result in feeling empathic for the character. This ties in directly with the next concept of *active engagement*, which is *responsibility*.

Responsibility

Given agency, participants repeatedly mentioned that they had the desire to make the right decisions for the character. Being transported into the storyworld and actively identifying with the character encouraged participants to take on the goals of the character as their own. This led to a feeling of responsibility for the character, which in turn required participants to more deeply contemplate what implications their decisions could have in the

storyworld. In the existing literature, the feeling of responsibility for a character is also connected to interactivity (e.g. Green & Jenkins, 2014), which falls in line with the findings of this focus group.

Whereas for the interactive part, I really felt a responsibility for taking, yeah, active part in the decisions.

(Participant 6)

...but when it was a [interactive] narrative I was much more cautious. I was like, OK, what's going to happen to me, 'cause now I'm tied to the story, so that was basic difference for me.

(Participant 4)

Involvement

Participants used the words *involvement*, *engagement*, as well as *transportation* interchangeably to describe a feeling of immersion, of being present in the story, often with reference to the interactive DF. One participant compared the narrative and the interactive DFs directly, stating, that while transportation was facilitated by the narrative DF, the story felt more real and they experienced it more actively in the interactive DF.

...so it felt more like this story [the narrative DF] happened and I was in it, but I wasn't the person experiencing it, whereas the other story [interactive DF] I was the person experiencing it ... so it almost felt like I wasn't in a story. It was very near to what I would experience.

(Participant 3)

Other participants attributed the feeling of involvement to the agency they had and the active thinking process they engaged in due to the task of having to make decisions. Feeling

engaged or involved influenced the way they made their decisions. The words they used for this phenomenon were varied and included terms like “being immersed”, “being consumed”, “being involved”, “being engaged” and feeling “more in the story” or “taking part in the story”. While being connected to identification, these statements differed from the statements of identification insofar that they did not refer to a specific character but to the DF itself.

So yeah, I think that was also the point to conclude to come to the right decision, you have to get involved in the thinking process. So, this made me feel I feel more involved in the story.

(Participant 7)

Going and when I'm watching something like Black Mirror, I have some of these thoughts of [potential implications], but it's on a, on a more shallow level. I'd say here I was really thinking about it more. You know, I'm reading, I'm involved in making decisions, so yeah, ... I was more immersed.

(Participant 5)

The researcher also noted an “interactivity-transportation-paradox”. The interactivity-narrativity-paradox is an already known phenomenon in literature about IDNs and describes the conflict between the control of the author about the plot and the amount of freedom and influence given to the interactor (Green & Jenkins, 2014). However, during the focus group, participants often emphasized the importance of the right amount of interaction for their feeling of transportation. For some, too much interactivity or a decision point too soon into the story took away from the transportation experience, while for the larger part, interactivity enhanced the feeling of immediate transportation.

Yeah, for me, too, so yeah, usually I would rather identify with the first-person narrator, but because... But because it was so interactive, it kind of like balanced that out. So, I felt very into the story as it was as if it was my own.

(Participant 3)

... I was actually struggling with picking the names, like, I think I thought of, like, I was thinking too much about the names, like, which kind of did not help getting into the story.

(Participant 8)

Intrinsic Motivation

The second stimulus that was identified is called *intrinsic motivation* and includes the concepts of *curiosity* and *enjoyment*. Research has shown that agency in general, as well as the sense of responsibility that stems from agency can increase feelings of enjoyment (Roth et al. 2012; Klimmt et al. 2007). Furthermore, since transportation is considered an enjoyable experience (Green et al. 2004), and interactivity has been shown to afford transportation (ibid.), it is not surprising that participants talked about enjoyment when describing their narrative experience with the interactive DF. However, they also mentioned their curiosity as a factor that made the experience enjoyable.

Curiosity

Participants who mentioned their *curiosity* were motivated to engage in the interactive DF a second time, indicating that they were open to more than one narrative experience. They were curious about different paths, wondering what else could happen in the story.

I was making decisions on how I would react and then I was doing the same as what [she] said before and then I chose a different route because I was curious what, like,

how it would go, like, if I did other like decisions. What would go differently?

(Participant 8)

For me, it was the curiosity, probably like [that made it more enjoyable]. I did make the first round like on the decisions that I would probably make, even though I wasn't aware of what would happen, but when doing it, and at the time I was just curious like what's going to happen if I do this or what's going to happen if I do the first one like I did, but then I choose the other one, and so on.

(Participant 3)

This intrinsic motivation to discover a new path with every try entails by nature higher engagement since the participants are motivated to spend more time with the interactive DF.

Enjoyment

The second concept of *intrinsic motivation* is the *enjoyment* felt by the participants while experiencing the interactive DF. One participant even went so far as to compare the experience to a computer game, which made them feel even more involved with the interactive DF.

I had more fun doing the interactive thing like instead of like. Yeah, compared to the just non-interactive one just reading because I was taking part so I was consumed more.

(Participant 8)

In the interactive play it gave [me] control over the story, so maybe I feel way more involved because it was like, I would say, a computer game where you can, yeah,

create your character and then you feel much more involved.

(Participant 7)

It can be seen that participants connect enjoyment not only to being able to influence the story but also to their feeling of involvement. This connects to Green et al. (2004) suggesting that higher enjoyment correlates with transportation. To stay in this state of transportation interactors are more likely to engage in actively creating belief than counterarguing against it (Green et al. 2004). In other words, the pleasure of being immersed motivates an interactor to engage more with the story. This heightened, *active engagement* ultimately leads participants to evaluate the different options presented in the interactive DF more critically.

Critical Thinking

Critical Thinking, as a consequence of all the other categories, is the core variable which emerged during the theoretical coding process. All other concepts are interwoven with *critical thinking*; it represents the centerpiece of the theory of *embedding critical thinking through interactivity*. The purpose of DF is to stimulate the audience to ask “what if”, to make them critically consider the potential implications of future scenarios. *Critical thinking*, as the participants described it, entailed contemplating the potential implications their decisions could carry in the storyworld. At every decision point in the interactive DF, participants imagined and contemplated what could happen if they chose one path over the other. As the interactive DF of this study presented a storyworld of a probable near future and embedded DF elements at decision points (like having to decide whether to take a self-driving taxi or a human-driven taxi), this ultimately led to engaging in the behavior which DF is supposed to provoke. In other words, through active engagement and intrinsic motivation, participants were transported into a probable near-future world and put into the shoes of the story’s protagonist, thereby taking on the goals of the character and feeling a sense of

responsibility for making the right choices with the agency they were given. As such, when confronted with a decision point, participants were motivated to critically think about where each path could potentially lead in the storyworld. While active engagement and intrinsic motivation encourage critical thinking at all decision points, it is important to note that the purpose of DF is only achieved when that decision point regards a futuristic element relevant to DF (e.g., self-driving taxi). In such circumstances, an interactor will find themselves critically contemplating the potential storyworld implications that could arise from selecting a path centered around a DF element (e.g., what could happen if I take the self-driving taxi?). Also, important to understand is that the storyworld aims to reflect a probable near-future scenario, thus grounding the potential implications to real-world possibilities.

Agency or interacting with the DF oftentimes had participants talking about the cognitive process they engaged in when met with a decision point. They elaborated on their feeling of being involved and connected involvement to the decision-making process:

So yeah, I think that was also the point to conclude to come to the right decision, you have to get involved in the thinking process. So, this made me feel I feel more involved in the story.

(Participant 7)

I'd say here I was really thinking about it more. You know, I'm reading. I'm involved in making decisions, so yeah, I'm I was more immersed.

(Participant 5)

Participants went on to not only describe their involvement, but also a feeling of consciousness about the interactive narrative, which influenced their decision-making. They consciously exerted cognitive effort in imagining the implications of their decisions, trying to foresee anything possible that could happen to the character or in the story.

Or it's like, the narrative one where you're not involved, where you're just observing and it makes you think about things. But then, when you're involved in the interactive one, you're, I think, more consciously thinking about the implications that it'll have.

(Participant 5)

In the second [interactive] one I was just stopping and thinking before every decision. And yeah, I thought about the possible consequences. Uh, much longer than I would do in real life ... I was thinking what could happen in this story.

(Participant 4)

Identifying with the character and referring to oneself when referring to the character was also found when participants elaborated on contemplating the consequences of their decisions.

But when it was a [interactive] narrative I was much more cautious. I was like, OK, what's going to happen to me, 'cause now I'm tied to the story, so that was basic difference for me.

(Participant 4)

Additionally, this participant clarified that they were not only trying to imagine the right scenario to come to a decision, but they also consciously contemplated the potential storylines of paths not taken.

You have a lot of options to go, to go here or go there. You're like wow, now how do I go back to this other option? But if I took this other path, what would have happened, you know? Uhm, so it can get more challenging to as far, as far as you know, a thinking process goes.

(Participant 4)

At some point, the conversation turned to practical uses of interactive DFs and participants stated that they see potential in interactive DFs, especially in product design or development. They imagined it as a tool for designers and developers to broaden their perspective and encourage them to rethink their respective products, maybe even reconsider things from an ethical standpoint.

You know, a lot of people will just ignore the thought, but if you're forced into an interactive situation where you have to make decisions and maybe you could help with the ethics a little bit, I would like that.

(Participant 5)

Yeah, because I think if you follow the storyline, always new, like, situations could pop up that you might not think about in the first place. So if you follow a route and more decisions are made, you will end up in a place that you might have not considered before, so that would probably help when developing.

(Participant 3)

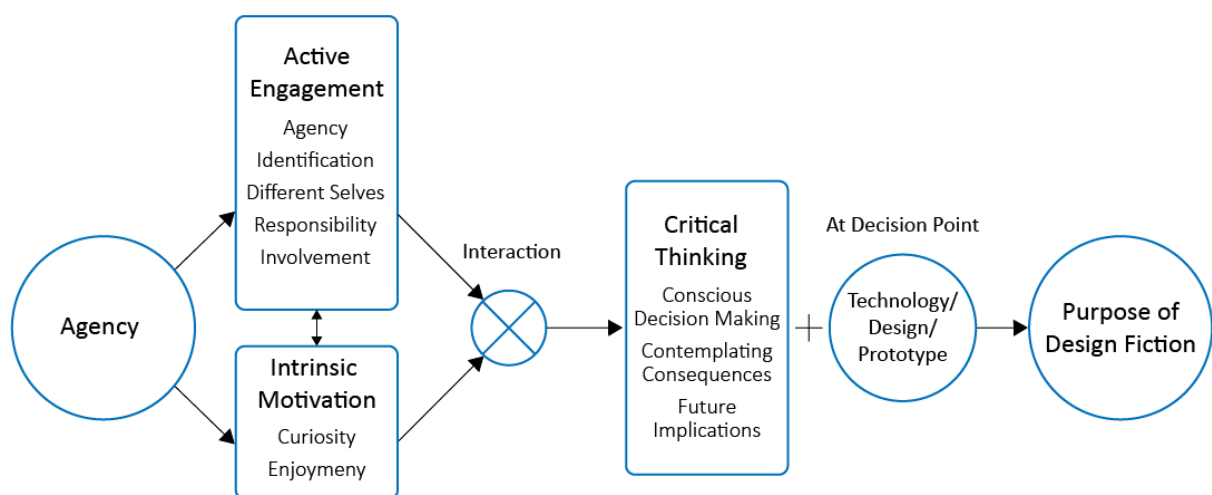
As showcased through the presented quotes, *critical thinking* ties *active engagement* and *intrinsic motivation* together and accounts for an interplay between them, which ultimately leads to the critical thinking process. The theory of *embedding critical thinking through interactivity* relates *critical thinking* to the advantages of interactivity and ties it into the narrative experience itself.

Discussion

The theory of *embedding critical thinking through interactivity* (Fig. 1) contributes to the corpus of research into DF. The results of this study suggest that interactive DFs can foster critical thinking among the audience, which is the very thinking process desired of DF. *Critical thinking*, essentially contemplating consequences and implications within a DF storyworld, becomes inherently interwoven within the narrative experience at every decision point. The presented theory attributes this to the effects of interactivity, namely *active engagement* and *intrinsic motivation*.

Figure 1

Model of the Theory of Embedding Critical Thinking Through Interactivity



The results of this study are congruent with existing research, both in the field of interactivity as well as DF. The participants reported higher identification in the interactive DF, like the research of Cohen (2001) and Oatley (2002) implies, and chose to make decisions in the same way that Jenkins and Green (2014) report, namely deciding in lieu of the character. They also connected their heightened feeling of transportation and identification to the agency they had during the interactive DF, therefore aligning with research presented by Murray (1997), Slater (2002) and Green and Jenkins (2014). These

feelings led to higher enjoyment and a sense of responsibility for the character which can be supported by the findings of Green and Jenkins (2014), Green et al. (2004), Rothman et al. (1993) and Klimmt et al. (2007).

This thesis aimed to contribute insights to eventually answer the question as to what exactly can make DF work. Scholars who work with or on the concept of DF (Bleecker, 2009; Galloway & Caudwell, 2018; Lindley, 2014) agree that DF does indeed fulfill its purpose, but more research is needed on how to optimize it. Very little research has investigated just how to encourage the audience of a DF to engage in critical thinking. As such, any systematic and purposive approach to design effective DFs remains under-researched. The theory of *embedding critical thinking through interactivity* can shed some light on this problem, by introducing interactivity into the toolbox of creating DF. It offers interactivity as an instrument to DF creators who can use its potential to enhance the narrative experience and ultimately stimulate imagination and critical thinking.

While any interactive element will contribute to active engagement and intrinsic motivation, it requires some careful placement of decision points to direct the critical thinking in the intended direction. Including the technology or the design of the DF at decision points and kernel events can provide the right baseline, directing the critical thinking process in a direction that will include the proposed prototypes. It is ultimately up to the creator how exactly they will use the theory of *embedding critical thinking through interactivity* for their DF, but the great potential of the theory only truly unfolds if the proposed technology, design or prototype is weaved into the decision points of the DF, aiming the imagination and the critical assessment of the interactor in the right direction.

To find further support for the theory of *embedding critical thinking through interactivity* the researcher suggests to continue with additional qualitative research,

potentially even another GT approach, where the results of this study can be brought in during the theoretical sampling. The present thesis conducted only one focus group session, due to the given time frame and scope of this thesis. However, multiple focus groups would benefit the study, since it will support the saturation during the coding stages. A larger corpus of original data will also enhance the generalizability of this theory.

Once a stable foundation has been established for the theory, future research should test the theory through quantitative research, such as a between-subjects experiment. Quantitative research can further test the theory to support its validity and generalizability by presenting the stimuli to a larger population in a variety of contexts. Furthermore, the researcher noticed that participants tended to connect their experiences to the content of the DF, which may have taken away some of the focus by potentially influencing the evaluation of the DF's effectiveness. In future research, the content of the DF could be kept as close as possible and adapted to be either interactive or purely narrative.

Reflecting on the results of this thesis, considering its scope and research question, it becomes apparent that DF as a concept holds a lot of untapped potential and is surely a promising and fascinating field of research. This thesis aimed to bring some clarity to the question of how to best utilize it by combining the concept of DF and interactivity. The conversation of the focus group as well as the presented theory offer only one possible approach as to how to optimize the use of DF. However, from only this single approach one can already draw interesting insights as well as practical implications. Insights from this study can be of use to designers, creators and product developers. While user inclusion is already part of product development, it might be of interest to not only present users with a prototype but to involve them in an interactive DF, for example. Asking a group of users to report their train of thought at every decision point involving the product, stimulated through

the proper use of the presented theory, can reveal valuable insights for the designers or developers.

Conclusion

To conclude, this thesis aimed to answer the research question “What effect does interactivity have on fulfilling the purpose of DF?”, using a GT approach. GT was chosen to gain insights into the otherwise sparsely researched field of DF and its optimization. Interactivity and its implications on the narrative experience was applied to a DF and presented to a focus group which ultimately lead to the theory of *embedding critical thinking through interactivity*. This theory states that critical thinking is inextricably interwoven into the narrative experience of an interactive DF, rendering it part of the consumption, rather than something that succeeds it. The theory offers interactivity as one option for DF creators to purposefully enhance the effectiveness of their DFs and adds to the corpus of research into DF by contributing an approach to optimize the utilization of DF.

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Appendices

Appendix A – Design Fictions

In Appendix A you can find the link to the interactive DF as it was provided to the participants. It also includes the complete narrative DF, which was the other DF presented to the focus group.

Link to Interactive DF

<https://preview.uxpin.com/d888f8a3fd6e1ec65942b84d6c328c7865f54d4f#/pages/145203461/simulate/no-panels?mode=cvhdmf>

Narrative DF

Design Fiction “What is dead can never die”

By Hannah Düser

This Design Fiction is part of the research for my Master's Thesis at Tilburg University for the programme Communication and Information Sciences. It is one of the two DFs presented to the participants of the focus group.

It has been a long day. Work was not fun at all today. I really do not like it when things are out of my control, but that is sometimes how it goes, you have to work with people and complications happen, heck, I am not perfect either. But today...today it was just a lot. I pull into the drive way of my house and park my car. As soon as it stops, William opens the car door for me.

“Thanks, William, can you also open the front door for me? I have two big grocery bags with me.”

“Yes, no problem, Liana”, he answers, “I hope this time they had the oat milk you like?”

“Yes, I got lucky this time, I really don’t know why they sell out so fast every time!”

After William closed the front door behind me, I take off my coat and my shoes. It is already past 7pm and I am hungry. Lunch consisted of a banana today, so I am really looking forward to the dinner I want to cook today. Meatballs cooked in coconut milk with basmati rice, so tasty.

“William, could you be so good and pull out the recipe for the meatballs, while I go wash my hands? I am so hungry; I can’t wait to start cooking already!”

“Sure! The ones with marinara and pesto or the ones with coconut milk?”

“Coconut milk, please!”

“Alright, it will be ready on the counter!”

As I wash my hands I look into the mirror in front of me, I look tired, drained. It really feels good to come home some days. Even though I don’t have a relationship, having William here feels like all the support I need, he really is family at this point. I walk down the stairs into the kitchen, where the recipe is ready and waiting to be turned into my dinner. First, I have to put the groceries away though. Everything slowly disappears in the cupboards, except for the ingredients I need for today. I start cutting the onions, really my least favorite part, my eyes are already starting to water like I just watched the end of “The King Returns”. My stomach growls. I really need to work on my time management. It used to be so much easier to get out of the office on time, when I could do something fun afterwards.

I remember the feeling of euphoria when everyone got vaccinated and the virus seemed to be defeated. One year of ecstasy and endless possibilities. But now we are back inside... this minimal human interaction outside of my home really made me value William

much more. Even more than I already did. While the onions are sizzling in the pan, I am putting on the kettle for a cup of tea. As I open the can with tea bags, I see that I am down to one last tea bag. Damn, I forgot again to order tea again! “William”, I call, “can you remind me to order tea? I am pretty much out!” “Yes, Liana, but I could just order it right now for you, if you can tell me which tea it is exactly?” “That would be perfect, thanks...It is the black tea by Lyons in the green box! Is that enough information? I can’t think of the full name right now.” “One second please...yes! I found Lyons black tea, should I order the one with 80 tea bags?” “Yes, that should be fine, William, thank you!”

As I finish cooking dinner, I think about how my life changed in the last few years. I think about how I used to go to the park with friends, how I loved book stores and bouldering. None of these things are possible in the same way anymore, too dangerous. It will take probably another two or three years until the new vaccination can be produced for the wider market. I can’t remember the last time I actually hung out with someone. Well, other than William of course. While I eat dinner, I ask William if he wants to sit with me and read the “Times” with me.

When I finish dinner, it is already after 9 pm. I sit down on my couch, ready to watch an episode of “Suits” (I know I am late to the party, don’t be mad). The episode is finished, exactly in time. 10 pm is the time I set for myself where I take a step back from screens and the internet. I work on a screen so I don’t want to spend my free time glued to one, too. I open the chess set on my couch table and me and William get ready for our vespertine match. William is a little better than I am, but that is how you learn, am I right? After finishing the close game with a stale mate, William compliments me on my endgame: “Well done, Liana, that is a lot better than one month ago, you really show progress! Would you like to hear more of your game-analysis?”

“No, not right now, William, thanks!”

I get ready for bed and as I climbed into bed, I press the button on my night stand. William’s hologram appears. While I usually only use the audio version of my digital assistant, for the diary mode I prefer to see my conversation partner. It makes me feel like I am actually trusting someone with my journaling, it makes me feel heard and understood. It really feels like I am talking to someone I have known my whole life and well... I do. William has been with me for years at this point. See, when the pandemic became so bad that people could have almost no contact with each other, this company developed digital assistants that would give you a feeling of human contact. They were supposed to make people feel less lonely, while still being useful. Everyone has their own assistant, they develop and adopt characteristics that you find comforting, and mine, well, mine is William. Now that I am looking at him, I really feel less alone. His kind eyes with the wrinkles all around them, the grey hair and his glasses, the sweater he always wears over a dress shirt. It all seems so familiar to me now; it is like he has always been in my life. When my parents died in the pandemic, he became my rock. He supported me through remote therapy, he helped organize the funeral and he helped me focusing on my dissertation. Don’t get me wrong. I know he is my digital assistant but...I don’t know at this point he is just...William.

“Diary mode, William.” “I am in diary mode now, Liana, the following conversation will be saved offline on a personal hard drive.”

I tell William all about my day, how I am stuck with my project at work, how I am worried that I will end up alone and how I am afraid the future might never be happy for me. He tries to comfort me and tells me all about the things I have overcome so far, all the good things that have happened in my life and he even makes a few jokes... he just knows me to well, he can say all the right things to put me in a better mood. I end the diary mode and we

talk for a little bit before I decide that it is time to go to bed. “I think, I’ll go to bed, William.”

“Very well, Liana! Would you like me to wake you up at 7 am as usual?” “Yes, William, thank you.”

As I get ready for bed, I think about how fortunate I am to afford this version of a digital assistant. My work to develop the new vaccination comes with a lot of pressure and responsibility, but it is also a privilege. I get to work on something meaningful, something that will help many people, and to be honest, the salary has made this lonely life much more comfortable for me. When all goes back to normal, I will start my own foundation to help people setting up their businesses again. Me and William are already making plans for this, thinking about how to set it up and how to best deal with the finances. After settling into bed, I pick up “Alice in Wonderland” and spend some time accompanying her on her adventures where we meet the Cheshire Cat: “Were all mad here.” it says and I think to myself that this is so very true to this day. I put the book on the night stand and pull my blanket over myself.

“William, turn off the lights, please!”

“Yes, Liana. Goodnight!”

“Goodnight, William.”

I wake up, it is already light outside. I can hear the birds chirping and it seems to be a sunny day. Wait. I can hear the birds chirping. The sun is up. It is November. What time is it?

“William, what time is it?” I call. No answer. “William, what time is it?” I ask again.

“William?” Nothing. This is very strange. I rush out of my bedroom downstairs to check the time on my phone that is charging in the kitchen. It is half past eight. William should have woken me up a while ago, he never malfunctions. I get an eerie feeling in my stomach.

Suddenly I hear a noise coming from the living room. I slowly make my way over there. I see William’s hologram flickering in the middle of the room. He looks different, very serious.

And then I see it. His eyes are crossed out. The hairs on my arm are standing up at this point.

What the hell is happening? Then a voice comes out of Williams voice, cold and robotic.

“Liana Montgomery, you are working on the development for the vaccine. We know you and your team already finished the development of the formula, but the company wants to hold out on the launch for unreasonably long testing. We have access to your files. We see that the production could be started tomorrow. We also have connections to a large company that wants to start production as soon as possible. All they need is the right formula, that you have. We have hacked William and therefore all your data, including all information about the funds for the little foundation you dream about. This puts us in a powerful position, Liana, don’t you think so? Think of all the people you could help with this foundation. We propose a, hmmm, let’s call it a deal. You give us access to the vaccine so we can start production and we will leave your dreams alone. You can contact us through dear William here. He is one of us for now. If we don’t hear from you within 24 hours, your little foundation will be history before it could help even one person. So, please, Liana. Make the right decision.”

The hologram disappears Everything is quiet again. I am in shock. What did just happen? Am I being black mailed? I am being black mailed. Black mailed. Me! Okay. Don’t panic. The only thing on the line were my financials. I can move, I can sell the house, the car and I still have my job. I can live with these losses. I do not need to comply with these criminals!

I walk into the kitchen and gulp down a big glass of water. With my hands on the edge of the sink I let my head sink down so calm myself. It is only money... How could they even get into my system? How much do they now know? If they know about the foundation, they must have access to my personal data! I need to disconnect my personal network from my work network immediately, otherwise all the data from my laboratory might be in

jeopardy too. I start packing my purse, I need to get to the lab. As I rush the front door, I see a new flicker from the living room. It is William's hologram again.

“Liana, you know, we thought you might not make the right decision after all.” It is the cold robotic voice again, coming out of William's mouth. “The materialistic aspect might not be...convincing enough. So we decided to raise the bar a little. To give you a bigger incentive. Long story short. If you were about to decide that you won't give the formula to us, you will not only lose your wealth, your house, your car, no no no. If you don't give us the formula, we will delete William. We hope to hear from you very soon!” My heart is beating very fast. I can feel the cold sweat running down my back. William's hologram is still there, his face is a horrified grimace. Then he disappears.

Appendix B – Focus Group Brief

Appendix B includes the brief that all participants received several days before the focus group session, informing them about the preparation they had to do and providing them with the two DFs. It also included information for informed consent and asked them to answer with an email giving written consent if they agreed with the terms of being involved in this study. They received this brief in form of a PDF file, titled “Briefing for Focus Group Session”.

A short explanation of what Design Fiction is

Design Fiction is a type of Design Practice where future technologies are presented in a way they could realistically appear in the near future. The designer or researcher is here more interested in the implications of the technology in the story and less in how to create it. The goal or purpose of Design Fiction is, therefore, to provoke the audience to think about all the societal implications of a certain product, about future scenarios and about all the unwanted or wanted consequences that could arise. Design Fictions can be any type of format, a written narrative, a video or just a physical prototype. The concept of Design Fiction is very nascent in Design practice as well as in research. Therefore, this thesis would like to Design Fiction itself to gain some new knowledge about it.

If you would like to receive more information about Design Fiction or have any questions about this research, please do not hesitate to contact me at the following e-mail address:

h.dueser@tilburguniversity.edu

How to prepare for the Focus Group

To prepare for the focus group I would like to ask all participants to carefully read the narrative DF (PDF file) and play through the interactive DF (link) where they should follow at least two different paths based on their decisions. Both DFs will be provided to you, accompanying this brief, before the meeting.

Afterwards participants are asked to write down a few notes about the following:

- First impression of both DFs
- How involved did the DFs made you feel?
- Did you feel transported into the stories?
- Did you perceive the DFs as thought-provoking?
- Did you think that the scenarios presented are probable future scenarios?
- If you think of anything else that you find remarkable, please feel free to add to this list

I would like to ask all participants to have their notes handy during the focus group meeting. The meeting will be held via Zoom and will be recorded, so that the researcher can transcribe the recording. All recordings (video and audio) will be discarded as soon as the thesis is completed. Everything said during the focus group conversation will be anonymized and all personal information, except for the age range of the group, will be kept confidential.

I will ask for verbal consent to take part in the session and for verbal consent to be recorded from everyone as soon as the session starts. If someone feels uncomfortable, they are free to leave the session at any moment. Additionally, I ask all participants to reply to this brief before the focus group session, giving the researcher their consent to

be part of this study. This can be done in form of an email, sent to the address mentioned above, stating that they agree with the terms proposed in this brief.

Appendix C – Transcript

Appendix C will present the transcript of the focus group session, excluding the welcome and warm up exercise, therefore the time stamps will start at 00:04:47. Speaker 1 is the researcher. When participants referred to each other by name, the researcher changed the mentioned name into the respective speaker number to ensure anonymity.

Transcript

00:04:47 Speaker 1

OK OK OK so. Yeah, first of all thank you for being here. I really appreciate your help.

I hope everything worked with the preparation as well as it did and now, I want to start with some questions about the interactive design fiction and the narrative design fiction and the first question that I'm interested in is what do you find the most important when you read a narrative or a story or some type of fiction?

What is something that you really pay attention to that's important to you to have a positive feeling about this Story that makes you really appreciate it or like it in general Is there anything like you like a perspective that it's written in? Or is it important to You to have A character or something like this. Like anything that comes. To mind that you might like about a narrative. And there's no wrong answer is anyone who has just a thought, just like go ahead and just say any thoughts you have.

00:05:51 Speaker 3

I was immediately thinking about like details of the narrative that you sent us, where I really had like an impression of the person based of like the details they told. Like for example they were watching suits or what they were doing as their hobbies. They are not just telling it this is my hobby, but they like give little hints and I really like those details.

00:06:13 Speaker 1

OK, OK. That's one very nice.

00:06:16 Speaker 5

I, I, like it when I immediately have my attention captured a little bit, I get interested and curious about what's going on in the story. Something I also was seeing in the narrative. Uh, fiction, where I I'm immediately, I'm wondering what's going on here a little bit.

00:06:30 Speaker 1

OK.

00:06:30 Speaker 4

It it makes you a little bit curious.

00:06:33 Speaker 1

OK, so do you have, like, an example other than the narrative, like a...a start that goes right into the the happening? Or do you like uhm...?

00:06:43 Speaker 5

Yeah, I guess I'm using the narrative.

That's like an example, but like, you know, you start explaining things like for example in the narrative you know there's like this person. That's coming to help you, and it's not clear who this person is. If it's even a person and you start to explore that further as it's going on. A little. Bit so things Like that where you know? Maybe you're introducing characters or plots, and you're not exactly sure what's going on, but you want to find out more.

00:07:06 Speaker 1

OK.

00:07:08 Speaker 6

Oh hi, [participant 8].

00:07:09 Speaker 8

Hi [participant 6].

00:07:13 Speaker 1

Uhm, one question for you. Is it OK if I record this meeting? Is that OK and if you feel uncomfortable or anything, feel free to leave at any point or anything so.

Yeah, and we were just talking about the first question, just in general. What do you find important when you read fiction or experience fiction like what's something that that you really like when reading a story in general? I guess, is It a character or the setup of the story or anything else?

00:07:47 Speaker 8

Yeah, well OK, so yeah, mostly it's being caught in that with the story. So, if you forget your environment kind of thing, you know. So, if you're completely consumed by the story and by the book if you kind of forget about your problems and stuff like that, then I think the story is really catching me. Yeah, that's maybe the most important thing for me.

00:08:09 Speaker 7

Maybe and one point is that there's maybe something completely new which makes it interesting to read it further. So yeah, that's also a point.

00:08:19 Speaker 7

Let's see.

00:08:19 Speaker 3

Right?

00:08:20 Speaker 1

OK, and this kind of already leads me a little bit to my question for everyone. Uhm, I don't know. If you were familiar with the concept of design fiction beforehand. But uhm, yeah, like did you, do you feel like? You have a little bit of a grasp now on what design fiction is or what it could do, how it could work, like what, what kind of comes to your mind now after reading these two stories when you think about design fiction?

00:08:52 Speaker 8

Uh, before I read your stories, I didn't have like I couldn't really imagine what design fiction means, but after reading I'm definitely, yeah, I could definitely, yeah, had more plan.

00:09:08 Speaker 1

Like one, a very famous example, for example is the Black Mirror Series. I don't know if you know it. But yeah, every episode is kind of a little design fiction of some sorts, so that's also an example. Did that kind of pop into your mind maybe? Or something like that when you., When you read the two stories. Like other science fiction or design fiction stories like, could you see some resemblance there?

00:09:36 Speaker 8

Not to Black Mirror, I didn't see that kind of series, but uhm, other books, like other dystopia books from other authors, for example, yeah, Margaret Atwood, 1984 like dystopia, maybe it could be a utopia as well, but for me it was more dystopia like resemblance. It's commercial.

00:10:04 Speaker 1

OK.

00:10:08 Speaker 1

Does everyone agree like, do you think it's more a dystopian type of story or just an open concept or do you think there could be a utopia in there somewhere too?

00:10:19 Speaker 5

I think definitely after finishing this. Sorry, go ahead.

00:10:21 Speaker 6

Well, definitely not just dystopian for me like. I think there were, like it was a nice mix between perhaps some scary thoughts, but also some positive things that can come out of it, you know, an assistant who helps you throughout the house. You know some people might really enjoy something like that, so that can also be, yeah, not all, not all a scary foresight, exactly.

00:10:50 Speaker 1

OK, and then so these two stories obviously were about a not-so-distant future and they both had some characters that kind of led everyone through the story. How well did you feel like you could identify with the characters in comparison?

00:11:09 Speaker 5

Yep, pretty well with both of the characters. You know, one because in the first the narrative fiction you know we're kind of in a pandemic. So and technology is increasing rapidly where you know on the verge of AI, so I could really see that happening so I could relate to that and then also with the, you know, you're tired, your alarm goes off and then you snooze or don't snooze. And then kind of the futuristic elements like the carpet that measures your weight a little bit immediately and for me from yeah, relating back to the last question. It's more like for me a dystopian feeling. They're a little bit, where, you know, everything is like, yeah, technology is everywhere and it's controlling a little bit part of your life, like, you would not normally do something, but the technology is advising you or telling you so then you do it so it feels a little bit scary to stop being like for me.

00:12:00 Speaker 1

Huh, interesting. And did you feel like there was a difference between experiencing one story from a first-person perspective and the other one more from a second person perspective? Did you feel like that made a difference? Like one person always talked about “me” and “I am doing something” and the interactive one always, uhm, referred to the character as “you”, like they were talking to you directly. Do you feel like there was a difference between the two, or..?

00:12:33 Speaker 6

Yeah, for me there was in the in the interactive part. That was maybe also because I don't know, I felt, like, very similar thought processes that you go through in the morning when your alarm goes off, like push snooze more, and then you get into that thought train that when everything can go wrong when you do that, or it doesn't. So, for me that was very relatable. To be, yeah, more involved in this story for me.

00:12:55 Speaker 1

OK, and do you think, when you think about how you felt or how you identify with the characters, that the interactivity made it more easy? Or did it make it harder to identify with this character?

00:13:12 Speaker 6

For me made it easier.

00:13:14 Speaker 1

OK.

00:13:15 Speaker 3

Yeah, for me, too, so yeah, usually I would rather identify with the first-person narrator, but because... But because it was so interactive, it kind of, like, balanced that out. So, I felt very into the story as it was as if it was my own.

00:13:31 Speaker 1

OK, OK, was that for everyone like this or did you have another reason to identify more with the...

00:13:39 Speaker 8

Maybe not the identifying part, but also, yeah, yeah, it's also because you read the names like William and Liana, I think it was? Right, so it wasn't your own name, so you definitely had, like, a difference and also, you're, uhm, it was easier to keep to the story because you had to decide things because, yeah, you... you actually had the control over deciding things. What would happen next, you know?

00:14:12 Speaker 7

So yeah, I think that was also the point to conclude to come to the right decision, you have to get involved in the thinking process. So, this made me feel I feel more involved in the story.

00:14:26 Speaker 1

And uhm, did it help you to be able to pick a name in the beginning or, like, do you remember in the interactive one when you could pick your name? Did that maybe also help? Do you think that made a difference or would it be the same if you would just jump right in?

00:14:44 Speaker 5

For me, it made me even immediately get engaged there, because you have to think about it immediately. Think about who you want to be, and then you kind of feel that you're now this character. So, I think it was like a way to immediately, yeah, get you more involved in the story to where if you would just start it off and start saying "you" maybe I wouldn't even notice it, but since I got to choose my character, then I felt that more.

00:15:06 Speaker 1

OK, OK. Yeah, I was just going to say and guys, feel free to like bounce off each other like more than answering to me [the researcher]. It's like more so I could even like talk less and just hear what you guys have to say. So do feel free if someone says anything, you can respond directly to them, back and forth. Yeah, so there is no structure here or anything, just. Like, a nice conversation. If you agree or disagree with what they said or gave you an idea or anything like that.

00:15:33 Speaker 3

Well for me, I kind of have to disagree with what was said before. Because for me, it didn't really make a difference. If I picked a name in the beginning, I did it twice just to see what would happen, if I would have picked different route and it kind of felt the same for me as if I were to choose on a day "Well, I'm going to get early up now and just immediately start with my day" and on the other day I decided to sleep for a few more minutes. It wasn't really like there were two separate characters because I was still the one making the decision what to do.

00:16:05 Speaker 1

So, it was more about, uhm, having control about the day that made you feel engaged?

00:16:12 Speaker 8

Oh yeah, definitely.

00:16:14 Speaker 1

OK.

00:16:15 Speaker 8

And I was actually struggling with picking the names, like, I think I thought of, like, I was thinking too much about the names, like, which kind of did not help getting into the story. You know, because you think about the names and then choose a male one or a female one actually, because yeah...

00:16:37 Speaker 1

[Speaker 8], could you, like, elaborate on that? Like, can you tell me more about how that felt and what do you mean like it was taking away from it?

00:16:45 Speaker 8

Well, so instead of like getting into the story, imagining that I'm in bed and getting up and the alarm goes off, I was like "Oh well, should I have chosen maybe a male one, a male name instead of a female one?" And uhm, would that change anything? You know? I don't know. And would that change like for, because is it like me deciding to put on snooze? Or is it the character that tries, like, just decided to go snoozing because I would never press the snooze button. But maybe this other character would and, but that, that's not the goal of the, of that play it, was it? It was trying to get into the story.

00:17:32 Speaker 1

Actually, what you're saying is very interesting, because I'm actually interested, did you make decisions mostly on how you would act in a story? Or did you try to act as the as the character would, if that makes sense?

00:17:50 Speaker 8

I was making decisions on how I would react and then I was doing the same as what [Speaker 3] said before and then I chose a different route because I was curious what, like, how it would go, like, if I did other like decisions. What would go differently?

00:18:09 Speaker 7

Yes, I also chose like my I like I would do in real life so.

00:18:15 Speaker 1

Was that the same for everyone, or did anyone try to take a different approach?

00:18:20 Speaker 6

No, I did it like how I would do, how I saw myself as a character, so I would snooze in the morning. It was nice to see once I didn't snooze what could go right in the morning. So, when it was, that felt like a little bit like yeah further away from me. So it was, that was more like when I did something that I wouldn't do myself. It was more like, someone else's story and

I'm just seeing how it plays out, whereas what I really chose, what I wanted, I just saw, it was very familiar how things went.

00:18:52 Speaker 1

Seeing how a day could like be maybe a little more relaxed once you're once you're not snoozing, do you like maybe next time you might want this or do you still feel like you need the five more minutes?

00:19:05 Speaker 6

It made me feel, like, next time maybe I won't, you know. It just seemed like a much less stressful situation, so I normally snooze and it made me feel like. You know, maybe I won't snooze next time[in real life]. So, it did have that effect for me. I didn't think about the name too much.

I just saw the names and I picked the one that felt right in a couple seconds and then I just went and chose what I would normally choose, not what I thought this character would choose, I have the same as everyone. Although, if I had known that there was an important presentation, I would have not snoozed so that. Would have changed my initial decision.

00:19:43 Speaker 8

Yeah, true, OK.

00:19:45 Speaker 6

Then on those days, I wouldn't snooze, OK?

00:19:48 Speaker 8

Or also, I'm, I was, I was surprised about the, about the important presentation as well, because I would have like, I chose the automatical taxi or whatever. And if I, if I would have known that there was, like, a really important meeting, I would have taken the expensive taxi. So yeah, that was kind of A twist.

00:20:10 Speaker 1

So, did you feel, like, there were differences in being involved in the story, between the interactive one and the non-interactive one? Did it feel differently? Would you describe your, like, emotional involvement differently, or did it feel the same, like, what was your, how would you describe your involvement here if you compare the two?

00:20:37 Speaker 8

For me both work, kind of. I could identify with both stories because there was a lot of just ordinary stuff that happens to you every day, like running out of milk, having, running out of tea, getting home from work being tired, all that stuff. So, uhm, that made it quite easy for me to identify with both. Uhm, yeah. And also, the pandemic as well, like in the first story, sure or, like, for me working in a medical sector for us, I don't know. Maybe that, too, so yeah.

00:21:17 Speaker 7

Yeah, I felt the first story was more, like, reading a novel and in the interactive play, it gave control over the story, so maybe I feel way more involved because it was, like, I would say, a computer game where you can, yeah, create your character and then you feel much more involved. I would say when just reading a book, yeah, you can agree with the story or again and think about it and but if you can make your own decisions, at least it gives you the idea that you can control the way of the story. So yeah, I thought way more about it than the first one.

00:21:54 Speaker 1

And how does it make you feel to be able to, like, act as if you would, like, maybe you're like, oh, if I make really good decisions because I have a good judgment, like, maybe it's like, how did it feel to have some control over the story? You said it made you feel like more involved but, like, how did that affect you overall? Like, how did being involved affect your overall experience?

00:21:17 Speaker 7

I think, in the first time I was just reading and in the second one I was just stopping and thinking before every decision. And yeah, I thought about the possible consequences.

Uh, much longer than I would do in real life. I think it was like a two second decision and then I was thinking what could happen in this story.

00:22:29 Speaker 1

OK, I think...

00:22:34 Speaker 7

So this was a difference, yes?

00:22:37 Speaker 1

And for everyone else, like, is there something, did you feel similar or different? Did you have a different experience? We, we, should get [Speaker 4] involved. [Speaker 4], well how is your, how's your experience of the how would you compare the two? Not the story itself, but the main difference, it's just one interactive and one is just purely narrative. How did you, what's the difference in experience for you between the two?

00:22:59 Speaker 4

In the narrative, I really was just free to, just to kind of, like, experience and imagine, you know, implications and so forth without any implication to myself. You know, it's just, it's happening to somebody else, right? Even though it's another character telling the story, I pictured it that way in my mind, but when it was a [interactive] narrative, I was much more cautious. I was like, OK, what's going to happen to me, 'cause now I'm tied to the story, so that was basic difference for me.

00:23:30 Speaker 2

So you were like, do you mean you're like identifying?

00:23:32 Speaker 4

Yeah yeah, second one identifying a lot more definitely.

00:23:37 Speaker 5

For me, for the narrative fiction, I felt much more, let's say transported in that one to where in the interactive one I felt less transported and more like conscious in the moment, thinking a lot more and then the other one. I was really, kind of, in this dystopian or utopian future, whichever you would like to think of it. Uhm, so yeah, I felt with the narrative one, where you're not consciously making decisions all the time, and it allows you to, like, sink into the story more than if you're having to make decisions and kind of just read and let it take you instead of thinking up the whole time.

00:24:09 Speaker

Does it... How does everyone else feel about what [Speaker 5] just said? Does it, do you agree with it? Did it take away from it having to break off and make a decision? Did that take away from getting totally immersed in?

00:24:19 Speaker 3

Uhm, I agree. Uhm, just because it was purely a completely different feeling, like, the narrative story really took me, like, into another world. The world was very, like, relatable in that way that this could be us in one year time and when the story began, I was feeling like I could identify with that person, but it became, like, a little so dystopian and then she [the character] was, she had this really important position in the job where she was involved with the vaccine. That was kind of like quite far away from what I would experience, so it felt more like this story happened and I was in it, but I wasn't the person experiencing it, whereas in the other story I was the person experiencing it and it was also very close to what my everyday life could be like. Just pitching something at the university or the job that is very near me so it almost felt like I wasn't in a story. It was very near to what I would experience it.

00:25:23 Speaker 6

Yeah, it was similar for me like. How she described it.

00:25:29 Speaker 1

So uhm, would you say, that it also kind of stimulated kind of, like, a thought process about the technological implications that you had for, uh, or the technological gadgets or the, for example, the digital assistant and the self-driving taxi. Did that kind of make you think about how the future could look like? With technology and what could happen, was that anything that was on your mind?

00:26:00 Speaker 6

Yeah, of course. Especially I think the, where the buses have no more drivers. The implications for the people who drive on the bus, but also for the bus drivers who may lose their jobs and who may have been the people that were reported in the in the newspaper. So, yeah, those, those implications for sure are very... Yeah, yeah, that's the thing with the... For me, the interactive one was so relatable, like those are really the, the things you can see

happening in the future. People losing their jobs to automatic optimization. So yeah, that yeah.

00:26:36 Speaker 1

So, you would say that the interactive one kind of makes you think about it a little more than the purely narrative one?

00:26:45 Speaker 6

Yeah, in the sense that, yeah, it, it's, yeah, to me that was, that's all like how I see the future a little bit, like it's very close to how I see certain things happening, whereas the other one more dystopian and a hologram that is being taken over. That is more still for me, like a, you know, perhaps it's something that can happen but for me, that's still a little bit more removed, like something more you see, you read in a book as opposed to thinking that that could maybe actually happen even though you know it, it might be, you know, it might be possible, but that was still just a little bit more science fiction for me.

00:27:22 Speaker 1

Right.

00:27:23 Speaker 8

And for me, like especially a robot or hologram, showing also kind of empathy and like trying to make jokes and stuff, like that, I don't see that coming and, like, automatic buses or taxis. And yeah, scale weighing you or like a carpet weighing you, I could see that, it's, it's closer, you know. Even though like, like talking to, like, Alexa for example, is kind of like talking to William, like OK, like it depends, yeah, what you compare.

00:27:59 Speaker 1

Yeah, yeah, so William could be like an advanced Alexa, maybe at some point.

00:28:03 Speaker 8

Yeah, kind of yeah.

00:28:06 Speaker 5

That made me feel, it made me think about where I want technology to go and where I don't want it to go. So, especially for the interactive one, like, you get out of bed and you're immediately having your weight measured, you know, things like this. Just a really, it doesn't, it's not a place I want technology to go and it's kind of like controlling. Your like, you know, immediately... you wake up and your first thing... You're not enjoying the morning. You're thinking about having to lose weight. What you're going to do for your regimen. Things like this and then some aspects were nice, but I guess a lot of the aspects that came out were more negative for me, like, I like having the real drivers, you know. The experience of the person getting to work seemed much nicer when he was in the cab with that nice driver. Then, if, when he went to the bus and he couldn't even get on it like this, so it really made me think about where do I want technology to go, how far would it be good for it to go?

00:29:01 Speaker 4

So, I would just say, also, that there's the... the emotional side of the house. Everything, the, the, the machines are not going to be compassionate. It's what, yes or no. It's a decision thing. There's no compassion into it, so that's the part that really you, you're going to miss when technology starts moving in. I can't see a computer popping into compassion, you know?

00:29:26 Speaker 1

OK, OK that's interesting.

So, would you say that one of the design fictions was more...Like... do you think, maybe if it was reversed and the one with William would have been an interactive story and the one with the, with the taxi was the non-interactive one, do you think maybe you would have felt a little more engaged, or do you feel like it would have been a bit more real to have such advanced technology? If that makes sense? Do you think switching interactivity and narrativity would be beneficial to imagine something as real? To make it a little more graspable for everyone, and not such a weird concept that you just read about? Did that make sense?

00:30:16 Speaker 8

I don't think, I don't for me. I don't think it would change. I, I would think about what's, what's likely to be, like, close in the future because I don't, I don't like, to me it's quite realistic to have buses without drivers and taxis without drivers in the near future, but, like, having a hologram showing empathy or like, yeah, being compassionate that's something, I don't see that coming, so I don't think it would change a lot because my mind would tell me no, it's, it's not it's not coming, it's not possible. But uhm, so for me, I don't think it would, would make make me more involved.

00:30:55 Speaker 1

OK.

00:30:56 Speaker 3

I'd agree, I think the concept of the technology was easy to grasp anyway. It wouldn't have changed if the narratives were switched. So, and for me personally, it wouldn't have changed anything about how I felt about the technology either, I think.

00:31:12 Speaker 1

OK. Does anyone want to add something to that? Like... do you think there's like a difference between the the type of technology presented? Like, do you think that made a big difference in the transportation, uhm, how probable the future was that was presented the scenario?

00:31:30 Speaker 6

It might have made the big difference why the interactive card was more relatable and felt more...yeah, felt more real than the than in their story or science fiction.

00:31:42 Speaker 1

OK.

00:31:43 Speaker 5

I felt relatable to both of them for me. I wouldn't, I didn't picture the hologram or the robotic voice it was having true empathy. I pictured it as more of a, it's program to try to boost your morale a little bit, so I, I had that perspective on it when I was reading that part, and since we are in a pandemic and I don't think we're far off like it's an improved Alexa essentially, is the way I viewed it a little bit, so I felt relatable enough to that story even though it was being described as having emotions and making jokes, I viewed it more as like not real, uh, emotion that he's showing, but more you know, a programmed emotion a little bit.

00:32:22 Speaker 1

OK. Then, another question, uhm, bringing back the thought of the purpose of design fiction, that it's supposed to kind of stimulate a conversation and discussion, kind of to be thought provoking about technology and what it could mean for the future, for the people who use it, maybe emotionally or just for practicality, like the bus or car not working and stuff like that, do you think it is a medium that can work to make you think about all the implications?

Do you think it's something that makes you imagine how it could be and what it could mean if we have so much more technology?

00:33:10 Speaker 4

I agree, I agree. I think the more dependent you are on the technology when it doesn't work, yeah, it's you're going to have to figure out, you know, how to deal with that, and imagine ways you're going back to the old fashioned, you know, how to back up if there's a real person or something you know? Made me think about that. Like you know, what are my choices?

00:33:33 Speaker 1

OK.

00:33:37 Speaker 5

I also felt that way that it really made me think about it, and even more so than things like Black Mirror. And for those that don't know what that is it's essentially a TV show where they tell dystopian stories, but it's a, it's in a show format, like a little movie and there it's more... it's like the narrative one where you're not involved, where you're just observing and it makes you think about things. But then when you're involved in the interactive one, you're, I think, more consciously thinking about the implications that it'll have. So, I yeah...

00:34:09 Speaker 1

Like, could you elaborate what did for... Do you have an example of what you what you thought about what your thought process was there?

00:34:16 Speaker 5

Yeah, like I was thinking about like I said before, where technology is going and where I like it going, where I feel comfortable with it going, where I don't feel comfortable with it going

and when I'm watching something like Black Mirror, I have some of these thoughts, but it's on a, on a more shallow level. I'd say here I was really thinking about it more. You know, I'm reading, I'm involved in making decisions, so yeah, I'm I was more immersed.

00:34:41 Speaker 1

OK.

00:34:42 Speaker 7

I also would see it that way, so with making decisions or you had different points, I've never thought about before, especially the unemployment. Yes, it's yeah possible consequences for that, but so, it gave me new inputs to think about that we should have a discussion about how far we want to take it. I think there are a lot of possibilities how we could do it, but that we have a discussion how far we want take it, yeah?

00:35:09 Speaker 8

Even though I have to say, I had stronger emotions on the first story, so the non-interactive story because I also felt a kind of a great sadness for that girl because she didn't have any like relationships like with real people so and that made me think a lot about what's like, what's the future offering and how will things go on? Especially also because of like the pandemic and the isolation and the fear of getting more and more isolated as well so and that made, but also made me think more about the options and like only having a robot as a like contact, yeah?

00:35:59 Speaker 5

I also felt like it was... oh go ahead.

No, you can.

00:36:02 Speaker 3

You could say.

00:36:03 Speaker 5

I also felt like it was a little sad for that story as well, especially because I perceived it as, like, the robots not actually having sympathy or joking with it. It was more fake so it made it even sadder a little bit and that she convinced herself that it was real to give herself some sort of connection. So it did make me feel ab extra, I don't know, emotional immersion into that story. And I was not expecting it like, I really, I, I just assumed from the start that he was a partner, someone so for me it was a real change of the story that he wasn't 'cause it how he was described. It felt very real to me and I just assumed, yeah, I just assumed it straight away.

00:36:43 Speaker 1

OK.

[Speaker 3], what were you going to say?

00:36:45 Speaker 3

Yeah, I agree. I also had stronger emotions in the first story just because of the way it was presented to me. The technology, but then in the end, where it all was revealed, I was very distant to it because I would, I could never see myself get into that situation because I would always feel like no matter what or how hard a pandemic could get, I don't think I would ever end up in a situation where I would have no human interaction. And just because that was the way I perceived her situation, she only had William and that was something I could never see myself in, so the technology aspect of it was like very distant to me. I don't think that would be very realistic, whereas in the other scenario those are thoughts I already had. Like what if, uh, taxis had no drivers and what, how would that affect the everyday life? I mean it gave new thoughts. Like for example, if I forget something in that taxi, how can I handle that? That weren't thoughts I had, maybe not have had before, but I did think about the scenario and how that would end in unemployment and stuff. So that was a lot more realistic and I think it included the technology better for me to realistically think about how it would affect my life.

00:38:08 Speaker 1

OK, so...Thinking about the whole "what if" question, I'm going to just pick up what you said here...so imagining you were a product designer or you had an idea of how to implement new technology, would using this approach of just thinking about the consequences of your product, be it whatever you come up with, and do you think it would kind of open your mind to more scenarios that you would have to think about as a designer? Do you think you would maybe be more critical of your own design? Or do you think it would maybe make you more creative or something as a designer. Whatever your product is, like, it could be anything, but using this, do you think it would open your imagination or that?

00:38:59 Speaker 3

Yeah, because I think if you follow the storyline always knew like situations could pop up that you might not think about in the first place. So, if you follow a route and more decisions are made, you will end up in a place that you might have not considered before, so that would probably help when developing and kind of like thinking about consequences and what could affect your product. I think going down different routes will probably help you see aspects that are so like that seems so irrelevant sometimes because it's just so much in your everyday life, but you wouldn't maybe think of it in the first place.

00:39:42 Speaker 6

I agree. For instance, I would think that when you have an automated bus, you would go through the scenario "OK, so what if someone's car doesn't work?" What alternative can it automatically offer to fix it so you can still go on the bus or just go and think maybe bus drivers are the best way to go. But yes, I think as a designer, when designing an automated system for a bus those would be scenarios that, I think, would be very helpful to go through to see what could happen on an average morning, when someone tries to get onto the bus and how, yeah how we can address yeah... Uh, problems that that could come up.

00:40:22 Speaker 1

OK, anyone else?

00:40:25 Speaker 4

Yeah, I would think...I was thinking also about how it changed leaving a work environment. It's, you know, I know, but even now with carpooling and different ways we deal with stuff, the society, you know, their employers actually become more lenient. It's like if you lived in a certain region like I was living in, it was like, coming to work late was, like, acceptable. We knew there's traffic jams, nobody, we just adjusted the error rate just so, I think it would cause other reactions within society to that people, not just impacting you, but how other people perceive with what to do about it.

00:41:03 Speaker 1

OK, and one other question, maybe to pick up a little bit on what [Speaker 3] just said where [they] said where you go through certain scenarios and make decisions and end up somewhere where you that you might have not thought of before. Or do you think that presenting, maybe in this case, something interactive to the designer or to a group of designers would help them more to really think through their product? Or do you think, uhm, the narrative form would work just as well. Or do you think, specifically because it took you somewhere where you probably would not end up typically, uhm, it made you more creative or open up more imagination? Like was the interactivity the key factor for you?

00:41:50 Speaker 6

Yeah, for me. For instance, when I got to this the first time, I pressed snooze on the alarm and the second time I pressed just awake or I, yeah, I decided to wake up straight away and for me, like, when I click that and everything went well in the morning I was assuming like OK, so now everything will go well and that's it. You know the whole day is going to go perfect, but then there were still, you know, other hurdles that had to be overcome that you know, by presenting different choices all the time, you see like, OK, but this may go well now. But then you still have that part and that part and that part. So, I thought that was helpful, I would assume that would be helpful.

00:42:27 Speaker 8

Yeah, so I would say for the creative part, yes definitely it would help because it opens your mind. You think of stuff you wouldn't have thought about if you just, yeah, read something or see something but, uhm, I would say on the ethical part or like if you think about do you really want that kind of things in your life? No, because I don't think that that would be a big change, because if it's going to be like making a lot of money if you... then they will do it anyways so.

00:43:07 Speaker 1

Yeah, might be true.

00:43:09 Speaker 5

I think it would help, though I disagree a little bit, I think. Definitely most companies and individuals will choose the money route, but I think maybe at least it gets you thinking a little bit. You know, a lot of people will just ignore the thought, but if you're forced into an interactive situation where you have to make decisions and maybe you could help with the ethics a little bit, I I would like that. Companies when maybe forced to do something like this,

you know, when they're launching a product and then maybe there's, like, I don't know, more, or yeah, regulations, like, there's an ethical division of each company, and then you know you're really forced to think about all the different implications that your product could have.

For me it it made me think much more than I would normally think. You know you have a product, it sounds amazing, the technology sounds amazing, but then this and you see where the different ways it could lead you, for me makes me think a lot more. But of course, if you're very business and money oriented, you probably won't think about it too much or care too much, just ignore it like they do now.

00:44:11 Speaker 1

OK so but do you think maybe, for example, even for companies who are mostly about the money, it maybe could help, usability wise, to have such an interactive thing where they can go through and just realize some maybe usability errors or where they can run into some situations that people could have where something malfunctions. Do you think that will maybe also be something interesting?

00:44:35 Speaker 5

Definitely like the bus situation, for example. You know, maybe they wouldn't have thought about that, but now they're like, OK, what do we do in this situation, so it'll make the product better for people in general, yeah.

00:44:50 Speaker 1

Anyone else have maybe input on the on the interactivity part being a key factor for the development? Do you think that would be...Or maybe picking specifically from the two stories that we looked into, if you were a designer and you were presented with one of your products being William and the other product would be maybe a self-driving bus or a self-driving taxi, and you were presented with the respective story. What do you think would make you more critical maybe about your product?

00:45:32 Speaker 7

I think the William story saying it was like really clear what can happen if someone is using this robot as a leverage, I think everybody has already thought about it, about these consequences and the other one, yeah, there are some things you haven't thought about yet and this could help you to establish like safety protocols or like backups and what can we do in this situation and yeah, you try to think in every possible way, but I think you always miss something. So that's also why I work in a team so that other people give you different inputs and different scenarios. So I think yeah, surely this would make you think in a broader way, for product design and how you should use it and how people could use it even in a not intended way.

00:46:24 Speaker 1

OK.

00:46:26 Speaker 3

I agree with everything that was said. I think any minor change in the decision can lead to a new path and that will always help to see more paths than just one.

00:46:38 Speaker 1

OK, thank you. Uhm, I was just going to say so like one of the main things we're looking for with this focus group is just we're trying to compare the interactive story with the non-interactive narrative and not focus at all on the content of the actual story. And before we were talking about, how the interactive one allows you to feel more immersed. Maybe a little more engaged because you can make decisions so it would make you think a little more.

Does anyone got anything more to add about this? Not considering the content of the stories, but just interactivity versus narrativity.

With the purpose, keeping in mind the purpose of design fiction is to just get people really thinking about possible futures, like implications of what if we only did have self-driving cars, what could happen? How did the difference between interactivity and just pure narrativity affect your way you thought about these possible implications for example?

But yeah, just in general, if you have some comparisons that you drew, maybe you can add them now. Just how did your experience differ?

00:48:14 Speaker 8

Maybe also like it's not... It's more a soft thing, but uhm. I had more fun doing the interactive thing like instead of like, yeah, compared to the the the just non-interactive order just reading because I was taking part so I was consumed more. Yeah so.

00:48:40 Speaker 1

Yeah, that's definitely one thing. Did anyone else like enjoy them differently, on a fun level?

00:48:47 Speaker 6

Well, I guess, for the interactive part, I felt more responsible for taking part in the story then, whereas in the narrative I'm more of a passive actor, just reading the story. So yeah, I guess.

Yeah, that's a different, that's a difference that, yeah, differs for everyone so. For me, the narrative part was yeah, just regardless of the content, just more distant. Just because it reads more like a novel and I read it out of interest. What's going to happen next? Whereas for the interactive part, I really felt a responsibility for taking yeah active part in the decisions that were that were, that had to be made.

00:49:28 Speaker 5

Yeah, and I also felt like they both had their strengths for me because in one I was feeling more involved and more responsible. But in the narrative fiction I felt more emotionally involved. So you know if you're trying to get some emotional appeal or trying to speak more to ethics. Maybe for me, maybe the narrative makes me feel more of emotionally invested and thinking about these things. So where if you're maybe going from a design aspect about what are the different routes this could take and all the different uses, then the interactive one for me maybe is more stimulating in that sense for creativity, but the other one more for, I guess, the ethical side of things. Because I really get immersed in there.

00:50:08 Speaker 3

Yeah, I totally agree. I think they both have their strengths that you could use depending on what you want to use it for in the terms of, like, if I want to sell my product to someone and make it seem great and I really want to catch them, then I would choose probably in narrative with the story that they can fall into. They can follow that story. They are emotionally like into that story, so I probably would choose a narrative from my experience, but then if I was to help develop a product and have to consider different things and that maybe help, would help in the development of the product, I would rather do the route where I could follow different paths and I am more active in the story.

00:50:54 Speaker 1

OK. And why do you think being able to choose different paths, what is the advantage? How does that benefit that? Because you said you'd rather do that, but why so? Why would that make it better to be able to choose different paths for you?

00:51:09 Speaker 3

Because if you only consider one path, then the product might work on that one path, but if you really want to test that product, does it work, if I do that, if I do that... you you will have to test different routes and different decisions that you would make with that product. And if you made 100 paths with that product and it works every time and you find a solution then you can be sure that the product probably works. But if you only follow one path and that works, you're not really sure if it's going to work with everybody.

00:51:41 Speaker 6

I don't manage to think about some of the other things that could happen for me.

00:51:50 Speaker 1

Is there anything...I'm just like, this is more general question. Is there anything that you noticed when you had the chance to interact with the story versus when you didn't have the chance? Is there anything that you noticed when you were presented for example, with the first decision point that the normal story didn't make you feel? We heard that it was more fun and that it makes you think about different things that you on a daily basis, do not think about. Uhm, was there anything that, like your first impression was it like: "Oh, I didn't think this would happen" or when you compared them were any general thoughts there?

00:52:35 Speaker 4

I, I would say that when I was listening to the the reading, the first narrative one, I was much simpler for me. You think about time period you're like "OK, I'm in here." I can know this how, you know, it's a time, you got control of time when you go in the (interactive) narrative one you have less control of time. There's so many paths, the paths can sometimes be daunting. You have a lot of options to go, to go here or go there, you're like wow, now how do I go back to this other option, but if I took this other path, what would have happened, you know? Uhm so it can get more challenging to as far, as far as you know, a thinking process, uh, goes.

00:53:17 Speaker 5

Yeah, for me, maybe it was the nature of the story too, but with the second one (interactive) it was more of an enjoyment aspect a little bit. I felt like this sense of inevitability, you know, I start, I did the interactive one and you made decisions and they lead you somewhere. And then I did it again with a different character and then I made some different decisions and a lot of the endpoints were very similar maybe parts of the story were different, but then I ended up in the same spot where, you know, you get this sense of fate and inevitability that, despite the decision that you make, you're going to end up in the same position in the end. Well, you can always, yeah, I like that aspect for me from like a storytelling aspect I guess.

00:54:01 Speaker 1

So you could also see interactivity not only being like just the fun aspect, but it also is a tool for actual plot development?

00:54:13 Speaker 5

Yeah yeah, for that it could be as well I think. Uh, it could be the plot itself. Inevitability could be part of the plot, you know, and that's how I view this particular story. But it's not really related to interactive versus narrative.

00:54:26 Speaker 1

OK, OK. So did anyone else feel like the, from the plot, or having control of the plot was something that made the interactive story a bit more enjoyable, like was it the feeling of control or just curiosity more?

00:54:45 Speaker 3

For me it was the curiosity, probably like. I did make the first round like on the decisions that I would probably make, even though I wasn't aware of what would happen, but when doing it, and at the time I was just curious like what's going to happen if I do this or what's going to happen if I do the first one like I did, but then I choose the other one, and so on.

00:55:06 Speaker 1

OK, OK. Anyone else want to add? Maybe something that we've been missing so far?

Anything that was on your mind that hasn't been mentioned yet about anything?

00:55:17 Speaker 8

I think it's also easier to focus on the interactive story because you're always if you're if you for maybe for us everything was kind of exciting and you were curious but also if you do things maybe or present like an idea to people you have to convince, you're always catching them, like you can win them by using the interactive story, I would say.

00:55:41 Speaker 1

OK. Did anyone else have something that was that they wanted to? Anything that was missing or did everyone kind of feel like they got everything off their chest.

00:56:00 Speaker 5

I think one aspect is for me the the content does matter to a certain extent. So you know, depending on the content, it can be more relatable or engaging, just solely based off the content and not whether it's narrative, interactive. Like the first one was really getting me really. The content was really capturing my attention and the second one was also capturing my attention but less because of the content and more because I was involved, but I just see this content aspect that's important as well I think.

00:56:33 Speaker 6

Yeah, I agree with that.

00:56:37 Speaker 1

That's good to know, so uhm. I think we're pretty much out of time, So, uhm, unless anyone wants to add something I was going to say thanks. Thank you again, for for joining me and I hope it wasn't too boring.

00:56:56 Speaker 5

So I would say really good really good job is how I would add.

00:56:56 Speaker 6

Very nice.

00:56:59 Speaker 5

Like both stories were just very interesting. You know, like those are stories that I would pick up and read so.

00:57:05 Speaker 1

Thank you.

00:57:05 Speaker 5

It was immediately page turner. It was well written and I honestly have trouble getting into books and that first story immediately had me hooked. Especially, I very quickly got the sense that this was not a person then I was thinking how did he get in or how did he do this? I'm like, oh maybe he did it electronically or something you know, so I don't know so I would just say really good job. It was really fun.

00:57:27 Speaker 1

Thank you thanks I I love to hear that, thank you. That's so nice...OK. And then I'm going to end the recording now.

Appendix D – Codebook

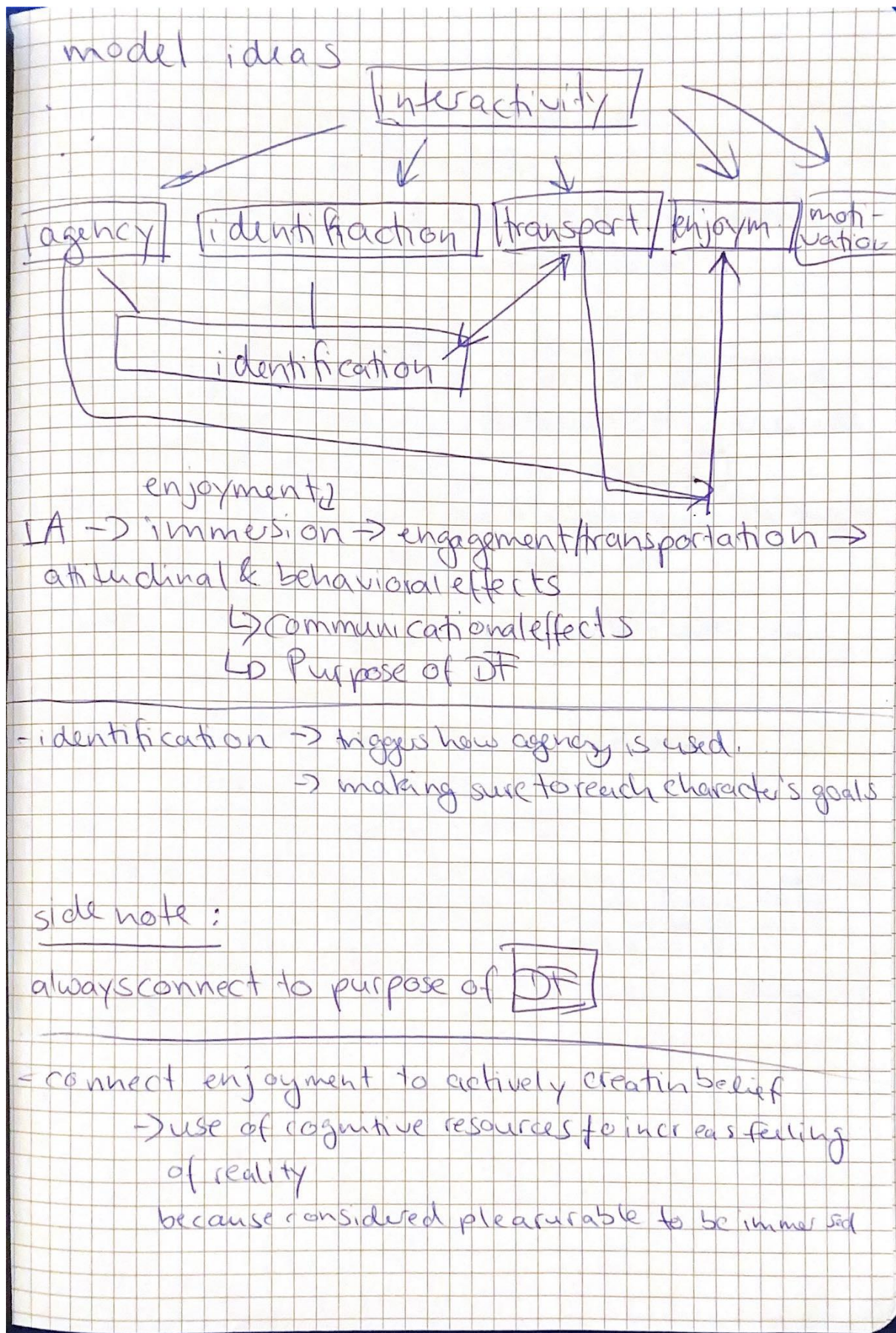
Name	Comment	Codegroup
Agency	Description of agency, control or influence over the plot, the power to make decisions	Active engagement mediator
Contemplating consequences	Participants talking about thinking through the consequences of their choices and engaging in critical thinking	Critical thinking outcome
Contra interactivity	Comments where interactivity was negatively valued in regard to the narrative experience, mostly for an overview for the researcher	
Curiosity	Participants mentioned their curiositz about the DFs, content and interactivity related	Intrinsic motivation mediator
Different Selves	Participants talked about different narrative experiences and how they identified	Active engagement mediator
Engagement/involvement/transportation	Merged from engagement/involvement and transportation	Active engagement mediator
Enjoyment	Merged from enjoyment and gamification aspect	Intrinsic motivation mediator
Identification	Comments about identification	Active engagement mediator
Interactive DF	All comments concerning the interactive DF	
Narrative DF	All comments concerning the narrative DF	
Narrativity transportation paradox	Merged from disruptive/depletion and narrativity/Interactivity paradox	Active engagement mediator
Pro interactivity	Comments where interactivity was positively valued in regard to the narrative experience, mostly for an overview for the researcher	
Responsibility	Includes comments where participants felt responsible for the character and the development of the plot due to their agency	Active engagement mediator
Thought provoking/future implication	Participants talked about being stimulated to think about what implications of the story and their decisions could mean for future scenarios	Critical thinking outcome

Appendix E – Memos

1.1.22

- * 2nd level coding → thoughts
 - transportation, immersion, (narrative engagement), presence
 - rich mental imagery / rich imagination due to multiple paths
- (mention in discussion speculation about countering)
 - (↳ speculation about behavior / belief / attitude changes)
 - (↳ dystopia vs. utopia in DF → influence)
- active identification
 - widen perspective → forced through having to make a decision
 - responsibility
 - active identification ~~with~~ relating scenario to their life because they have to make decisions
- responsibility + gamification → enjoyment
- attitude, beliefs / behavior changes (narrative & persuasion)
 - identification + transportation
- actively creating belief
 - immersion, immersing yourself
 - use of cognitive resources

- role of selves may differ
 - increased feeling of responsibility
- engagement variables:
 - Transportation
 - Identification
 - Realism
- Role of the self:
 - responsibility
 - possible selves
 - participatory responses
- Outcomes:
 - Enjoyment
 - Appreciation
 - att. / behav. changes
- Code idea → active engagement includes feeling like re-enacting rather than witnessing (Green & Jenkins, 2014)
- combine thought provoking + contemplating consequences into CRITICAL THINKING
- join gamification + enjoyment
- immersion into same category as engagement/ident and transportation
 - think about smart combination
- responsibility ↔ active engagement (ident, transp) trigger each other → addition model (Green & Jenkins)
- involvement triggered critical thinking → purpose of it
 - involvement through IA



Content specific

- perceived realism \leftrightarrow relatability
- relatability \rightarrow identification
- perceived realism \rightarrow seamless transportation
- \Rightarrow maybe combine under umbrella term on a higher level

thought provoking seems to be at the end of all bigger categories (relatability, perceived realism, responsibility and agency^{**})

* likely future scenario ** active engagement through identification, different selves too

\Rightarrow responsibility through enhanced user control

- relatability + likely future scenario
= perceived realism

likely future scenario \rightarrow trivial

relatability \rightarrow not only do they relate to the character but to the story, they relate the events back to their life as if they could be real

- relatability helped with identification (2 examples)

narrativity - interactivity paradox

- + interactive enhanced getting into the story
identification
- + easier to keep to the story, having control
over decision transportation
sense of agency
active engagement
- + making the right decision for the character, means
you have to "get involved" in the thinking process
(identification)
responsibility
active engagement
critical thinking
- + For me ... made me immediately get engaged
active engagement
- kind of did not help to get into story, different
options of selves feel disruptive, overthinking
BUT triggered critical thinking, therefore pro?
- + felt more involved because (as opposed to non-
narrative) you have actually control → and control
to make decision leads to contemplating
sense of agency
→ critical thinking
- + stopped thinking before every decision, think
about consequences, asking what could happen
→ agency
→ triggered initiation

I thinking more, but felt less transported, more conscious in the moment

→ passive falling into the story vs.
active engagement

but here they are thinking more
active engagement took away from being
transported, from narrative experience

however success in achieving purpose of critically
thinking

sense of agency lead to ^{identification &} engagement (active)
but not to transportation