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Faculty of Behavioural Sciences

## **Climate Fiction**

**How do climate fiction readers perceive the future?**

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## **Abstract**

In recent years, it has been suggested that climate fiction can help people to deal with the uncertainty of climate change (Constantino & Weber, 2021; Johns-Putra, 2016; Nikoleris et al., 2017). In the context of an increasing emergence of climate fiction and scientific interest in its impact, it is important to understand the readers' imagination of a future with climate change in association with climate fiction. This study analyses how climate fiction readers discuss their perception of the future in the face of climate change and its consequences. The paper presents the results of a thematic analysis of 15 interviews with climate fiction readers. In total, seven themes represent the ways interviewees constructed their perception of the future when discussing climate fiction or climate change in the future. The most common theme was "Reflective", followed by "Variety of possible futures", and "Uncertainty". Despite participants vaguely debating possible scenarios while applying critical reflection, they described uncertainty regarding a future with climate change. They constructed the future as being perceived as threatening in the present but did not seem to be able to draw a connection to imaginations of concrete action taking in the future. The paper suggests that climate fiction has the potential to be discussed in settings such as classrooms or book clubs when the content is close to the reader's personal situation. This may facilitate the formation of more concrete shared future imaginations and the readers' perception of being able to envision and create a more sustainable future.

## Introduction

Climate change is a phenomenon that is associated with an increasing frequency of destructive incidents and developments all around the world. According to the *Intergovernmental Panel on Climate Change* (IPCC), the shift in weather patterns has a predominantly increasing adverse impact on water scarcity, food production, health, and psychological wellbeing of individuals (Intergovernmental Panel on Climate Change, 2022; Susteren, 2018). Uncertainty and the difficulty of grasping the phenomenon of climate change often pose a challenge to people when imagining consequences of climate change and a possible future with it (Milkoreit, 2017). Previous research has shown that narratives, such as climate fiction, are able to support the understanding of situations where people experience deep uncertainty (Constantino & Weber, 2021). Yet, little is known about more concrete perceptions of the future and how they are shaped by reading climate fiction. Identifying these future perceptions offers opportunities to increase the knowledge on people's ability to envision and create a more sustainable future.

Next to scientific articles, news reports, and climate activism, fiction authors have increasingly begun to pick up the topic of climate change within their novels. Climate fiction, also referred to as "cli-fi", is concerned with anthropogenic global warming and its consequences for humans and nature in the context of fiction novels (Milner & Burgmann, 2018). It "creates psychologically immersive and visceral experiences of possible futures - including dystopic ones resulting from inaction and utopic ones resulting from systemic change" (Constantino & Weber, 2021, p. 155). Often, climate fiction is described as an individual genre, however, it appears in a variety of genres and includes different styles ranging from speculative storylines, including dystopian, postapocalyptic or more hopeful works, to works based on realism (Schneider-Mayerson, 2018). Well-known novels of speculative climate fiction that received critical acclaim include Bacigalupi's dystopian *The Windup Girl* (2009), Kingsolver's realistic *Flight Behaviour* (2012) and Atwood's post-apocalyptic *Oryx and Crake* (2003) (Johns-Putra, 2016).

Although there are opportunities of reading about possible future scenarios in climate fiction novels, there are many factors inhibiting people to imagine and create a better future. As uncertainty and public concern about a future with climate change are central factors when people are asked to create an imagination of the future (Norgaard, 2006), I will first take a closer look at how this state emerges. One of the key problems of dealing with climate change is psychological distance regarding time, space and self, which creates a certain abstractness of the subject matter (Van Lange & Huckelba, 2021). This means that despite already occurring consequences, climate change and its impact is often perceived as too distant, either in the future, in physical distance or regarding personal concern. For example, water scarcity due to climate change is mostly difficult to actually “see”, at least for most of the Western society. Running water from the tap is still available and drinking water is also not scarce in daily life in wealthy countries such as Germany or The Netherlands. This impact is rather a pressing problem in countries further away from us (Wright, 2019). Therefore, physical distance is increased, and personal concern is decreased. Due to factors like this, a future with climate change often appears to be perceived as difficult to imagine and uncertain by people (Milkoreit, 2017).

Despite increasing scientific knowledge and people, especially in wealthy countries, claiming to be increasingly concerned about the effects of climate change (e.g. from 18% to 37% from 2015 to 2021 in Germany (Jaganmohan, 2022)), actions have not been adjusted accordingly. This phenomenon is called the *Psychological Climate Paradox* (Stoknes, 2014). Here, Stoknes (2015) explains that individuals mostly act in an irrational way and simultaneously pretend to be rational when dealing with climate change. In other words, humans debate the long-term consequences while behaving in a way that prioritises their own short-term needs without changing to more climate friendly behaviour. Thus, the situation may also be described as a social dilemma because people must choose between their self-interest of more comfort in the short term and collective interest of mitigated climate change in the

longer term (Van Lange & Huckelba, 2021). Additionally, passive or active denialism is used as a psychological defence mechanism to reduce feelings of anxiety and guilt (Norgaard, 2006). When people are passively denying climate change, they, for instance, avoid exposing themselves to information about climate change. Within active denialism, people are actively rejecting scientific propositions regarding the topic as they contradict some of their fundamental beliefs, “such that continued economic growth should not be disrupted” (Stoknes, 2014, p. 9).

Due to the intricate nature of the underlying structures of climate change, the possibilities for creating more clarity in people’s minds are inevitably complex. Within a psychological context, researchers found a lower psychological distance regarding climate change to be associated with increased concern and the will to act more sustainably (Spence et al., 2012). Thus, there is a necessity to decrease the psychological distance of people towards the impacts of climate change and to support their ability of perceiving the future as influenceable. To reduce uncertainty and increase personal concern about climate change, van Lange and Huckelba (2021) proposed to make future consequences of a changing climate and possible instrumental action more concrete and less abstract.

Regarding the abstractness of possible futures in the context of climate fiction, Milkoreit (2017) proposed the *Theory of Imagination*. Here, the development of collective imaginaries of the future through climate fiction is introduced. According to Milkoreit (2017), collective imagination is necessary to achieve change regarding the issue of climate change. The theory explains that for social change to happen, goal setting and goal pursuit regarding the future are essential. In return, setting and pursuing future goals requires socio-climatic imaginaries, which may be defined “as collectively held visions of the future, both desirable and undesirable, that are informed by science and can support deliberation and decision-making in the present.” (Milkoreit, 2017, p. 14). Connected to the proposition of Milkoreit (2017) and his *Theory of Imagination*, it has been suggested by Toivonen (2022) that not only imaginations, but *shared* imaginations are essential when discussing climate change. Her study, which investigated

people's construction of agency regarding climate change, found that people emphasised that collective action is needed to limit climate change. However, the participants mostly spoke about the present instead of the future when considering collective action (Toivonen, 2022).

Some scholars have already investigated imaginations of the future in relation to reading climate fiction. For instance, Schneider-Mayerson (2018) has proposed that climate fiction may function as a means for creating and developing possible futures with climate change. Siperstein (2016) supports this “instrumental value” (p.132) in his dissertation in the form of climate fiction being able to teach people about a number of possible future scenarios with climate change and hereby facilitate individual and ultimately shared imaginations. He suggests that reading and discussing climate fiction in classrooms may facilitate students to engage with their beliefs, assumptions, and their own identity in the face of climate change (Siperstein, 2016). This may create hope and allow them to imagine sustainable futures while also expressing their ideas and critically explore possibilities for action (Beach et al., 2017). According to Yusoff and Gabrys (2011), “our ability to imagine other possibilities, to embrace decidedly different futures with creativity and resolve, to learn to let go of the sense of permanence we may have felt about certain landscapes that have seemed to be always so, and to embrace change, is paramount to building resilience and adaptive capacity.” (p. 529). Thus, climate fiction may be associated with how people think and communicate about the future. Communicating and reflecting may not only allow them to feel more capable of adjusting to potential damages of climate change, but also to engage in new opportunities. This increased feeling of capability, in return, may alter their future perception regarding climate change.

Next to future imaginations, it has been suggested that reading climate fiction also facilitates engagement with the phenomenon of climate change in general and allows for personal reflection (Nikoleris et al., 2017). Lindgren Leavenworth and Manni (2021) proposed that experiencing negative emotions through characters in climate fiction books may facilitate critical reflection and consequently support the decrease of psychological distance towards

climate change. In contrast, it has been argued that unpleasant emotions within this context are likely to result in avoidance (O'Neill & Nicholson-Cole, 2009). This is especially the case when the narratives are outside of a context that people can relate to and when they do not sense a deep personal concern. Schneider-Mayerson et al. (2020a) observed within an experimental study that reading climate fiction has a small significant positive effect on certain attitudes and beliefs regarding climate change. However, this effect was only significant immediately after reading climate fiction and disappeared after one month. Therefore, the effect of reading climate fiction seems to be solely short-term, which can be related to the previous findings of Stoknes (2014), that people mostly act on short-term needs.

Despite the growing interest of including the topic of climate change in emerging literature, there are only few studies empirically investigating climate fiction readers' perception of the future (Johns-Putra, 2016). Most studies either applied literature reviews, quantitative methods, such as a controlled experiment, or generated a broader overview of the reading experience with climate fiction regarding the readers' beliefs and attitudes towards climate change (Milkoreit, 2017; Schneider-Mayerson, 2018; Schneider-Mayerson et al., 2020a). Other studies solely focussed on a small scope of novels when investigating future perceptions in the context of climate fiction (Nikoleris et al., 2017; Schneider-Mayerson, 2020b). Moreover, most studies and literature reviews are rather concerned with immediate influences or associations of climate fiction in the present and not the future (Johns-Putra, 2016). As it was already proposed that climate fiction may be able to facilitate the imagination of collective futures and hereby increase the adaptive capability of people (Schneider-Mayerson, 2018; Yusoff & Gabrys, 2011), there is a need for additional qualitative research that focusses on how climate fiction readers perceive the future. Qualitative research has been proposed to produce a detailed and holistic picture of participants' experiences, especially when studying perceptions (Rahman, 2016). Therefore, this study is a valuable addition to existing research as it adds deep insight into climate fiction readers' perception of the future. In this

study, I ask the following research question: “How do climate fiction readers perceive the future?” and attempt to approach an answer by analysing interview data.

### **Methodology**

I conducted a cross-sectional qualitative study to explore climate fiction readers’ perception of the future by using semi-structured interviews. As the aim was to investigate the participants’ experiences concerning climate fiction reading, people who have read or were reading climate fiction at the time of the interview were invited to participate. All interviewees who took part in this study have different backgrounds and connections with climate fiction.

First, ethical approval was requested by the supervisor of this study and granted after consideration by the Ethics Committee of the Faculty of Behavioural Sciences at the University of Twente. As this study was part of a larger project, further Bachelor and Master students were collaborating with the supervisor. We conducted 36 interviews in English and German via Microsoft Teams or Skype, which lasted between 21 to 59 minutes. In case, participants asked to see the questions beforehand, we provided them with the list of interview questions. This increased the transparency of the interview and allowed a potentially stronger alliance between the participant and the interviewer to develop.

The participants were recruited by all the students working on this larger project via different routes. For instance, the study was uploaded on the website ‘Sona system’ of the University of Twente, which is a platform to gather participants for students. Additionally, we used personal contacts and social media platforms such as Facebook or Instagram. During the data collection, 36 participants were interviewed. Hereof, I interviewed 5 participants and additionally used interviews conducted by other students. In total, I included 15 interviews in the analysis as the suggested sample size for thematic analysis within this context amounts from 6 to 15 interviews (Clarke et al., 2015). The interviews were chosen based on their variety of

covered perceptions, ideas, and explanations about a future with climate change. Within the sample 13 participants self-identified as female and two as male with an age range from 20 to 63 years. Moreover, eight different nationalities were represented.

The interview protocol was created by the supervisor and adjusted by students working on their assignments and theses. It consisted of an introduction to retrieve demographic data of the interviewees and 21 questions with additional sub-questions (see Appendix A). To receive a better understanding of how climate fiction readers discuss various phenomena, including their perception of the future, we asked several questions. Interview questions, for instance, were *“Has reading climate fiction influenced your feelings with regards to climate change?”* or *“Has reading climate fiction influenced your perception of the future? If yes, in what way?”*. Overall, the questions were supposed to cover various experiences with reading climate fiction.

First, I transcribed the interviews to produce transcripts in English, including words and sounds, for the following analysis. During the coding process I used the guide for thematic analysis by Braun and Clarke (2006), which suggests to begin by becoming familiar with the data followed by creating the initial codes. I read the interview transcripts and paid special attention to any expressions of future perceptions, for example, in the form of imaginations or emotions. These were either explained in answers directly related to a question about future perception in association with climate fiction or in answers about climate change in general. After identifying these expressions of future perceptions, I started creating groups of alike topics. For the thematic analysis I gathered “codes” from the transcripts, and, with the help of the previously formed groups, I further connected them to “themes”.

I used an inductive approach to retain the meaning in the data as much as possible (Clarke et al., 2015). I worked with open coding and, therefore, modified the codes while I was applying them to the data (Maguire & Delahunt, 2017). The smallest codable unit was a clause, such as: *“I’m really pessimistic.”*. This clause would have been coded with *“pessimistic expectation for the future”* within the theme *“Reflective”*. An example of a code including longer or more

sentences would be: “I do feel responsible for my part. Uhm, but I just think that my part doesn’t really play a role.”. Here, the second sentence was included as well because it specifies the meaning of the first sentence and allows for further interpretation of the meaning. This example would have been coded with “Feeling of responsibility” within the theme “Responsibility”.

The themes represented groups of meaning that often included multiple codes with different forms of future perception. While identifying these groups and creating themes, I continuously reviewed the themes, checked their coherence in relation to each other, and adjusted them if needed. Following the six phases of thematic analysis, I then named the themes and developed clear definitions (Clarke et al., 2015). The final analysis included 111 data extracts coded with 17 codes and organised within seven themes of future perception.

## **Results**

The results comprise seven themes of climate fiction readers’ future perceptions (Table 1). In Table 1, the themes are organised from highest to lowest frequency of appearing in the data. Within each analysed interview, more than one theme was present. They either emerged when discussing climate fiction or when talking about climate change in general. The last column of Table 1 displays the emergence of a theme with “Yes” in case the majority of codable extracts occurred when discussing a question about climate fiction. Participants often constructed themes using different explanations, however, with similar core meanings. The most common theme was “Reflective” (frequency of 30), then “Variety of possible futures” (21), and “Uncertainty” (16).

Within the following paragraphs, each theme of future perception will be presented and discussed with the help of data extracts. To ensure the participants’ anonymity, they are referred to with pseudonyms. I slightly altered the data extracts to improve the comprehensibility as most participants were non-native English speakers.

**Table 1***Themes of Climate Fiction Readers' Future Perception.*

<b>Theme</b>	<b>Future perception is...</b>	<b>Codes included</b>	<b>Frequency of Codes appearing in the data (N)</b>	<b>Theme emerged when discussing cli-fi</b>
<b>1. Reflective</b>	Described in a reflective way towards a positive or negative direction; reflectivity is assumed when multidimensional information is considered by the participant when describing future perception	- Sensibility for the future situation - Realistic view regarding the future (sometimes backed up by science) - Pessimistic expectation for the future - Comparison to pre-existing knowledge	30	Yes
<b>2. Variety of possible futures</b>	Facilitated by cli-fi; possible future scenarios are suggested by cli-fi and readers are able to imagine them	- Imaginable scenarios that could happen in the future	21	Yes
<b>3. Uncertainty</b>	Pictured as uncertain; it is experienced as nearly impossible to predict the future situation	- Unpredictability of the future - Complexity of climate change	16	Yes
<b>4. Impact of action</b>	Made more concrete by an imagination of the impact and necessity of action	- Impact on future generations - Ability to change the future	13	No
<b>5. Emotions</b>	Described with regards to emotional states that are most	- Threat of negative consequences in the future	11	Yes

	prevalent when thinking about the future	- Emotional distance towards climate change		
		- Cli-fi as an emotional reminder for possible future scenarios		
<b>6. Optimistic</b>	Seen in a positive way	- Optimistic that the future can be improved - Hopeful that change will improve the future	11	No
<b>7. Responsibility</b>	Influenced by a feeling of responsibility for the situation	- Feeling of responsibility - Shift of responsibility - Butterfly effect	9	No

**Reflective (N = 30).** The participants described their future perception in a reflective way, either in a positive or negative direction. Here, reflectivity is assumed when multidimensional information and sources of information are considered by the participant when imagining the future. To begin with, four participants formed a rather realistic view on the future backed up by science and they sometimes even compared the scenarios in the climate fiction books to their pre-existing knowledge. Answering to a question about future perception, “Kim” has explained how she formed an imagination of the future in relation to reading climate fiction and informing herself about the current scientific knowledge.

Kim: *Let's take Risto Isomäki<sup>1</sup>, who I think is a brilliant journalist and non-fiction writer and fiction writer and knows a lot about climate change. Uhm... and his view*

<sup>1</sup> (Goodreads, 2022). *Risto Isomäki*. [https://www.goodreads.com/author/show/2743221.Risto\\_Isom\\_ki](https://www.goodreads.com/author/show/2743221.Risto_Isom_ki)  
Risto Isomäki is an author, an environmental activist, and a science editor. Thus, his climate fiction books include research-based facts and expertise from previous environmental projects he has worked on.

*is not very positive. Although he tried to be a bit more positive in his last book, I didn't find anything positive there really. I think my view of climate change really has formed according to what the scientists say. It is realistic. But it's also pessimistic.*

Kim argues that her view of the future is realistic but also pessimistic due to the findings of scientists. In her case, the science- and climate fiction author Risto Isomäki supports and underlines her view with his novels. She mentions that “he tried to be a bit more positive in his last book”. However, after taking her scientific knowledge into account, she seems to be more convinced by the scientists’ realistic opinion and therefore constructs the future in a reflective way.

Also answering to the question whether climate fiction has influenced her future perception, “Cecilia” argues that the stories and possible scenarios have sensitised her for what might happen in the future.

*Cecilia: Yes, because there are scenarios even if they are sci-fi or they're imaginary, they're still based on facts, and I would say that it [future perception] has been affected by those. Those stories have kind of remained at the back of my head quite strongly and a lot stronger than other books.*

She explains that although the stories are imaginary, they have the potential to elicit something in people’s minds as they are based on facts. This shows that Cecilia has considered underlying aspects of climate fiction that helped her to construct the future a little bit better.

**Variety of possible futures (N = 21).** Within this theme the participants constructed their future perception as being supported and enhanced by climate fiction. They explained that climate fiction offers perspectives for the future with a variety of scenarios. However, these scenarios are never concretely described, participants rather mentioned the existence of different scenarios without going into more detail. Nevertheless, in some variations of this theme, it was speculated whether the future might develop into a positive or negative direction. In the

following extract from “Theresa” who has read “The Overstory” by Richard Powers<sup>2</sup>, an example of the theme can be seen where she answered to a question about the influence of climate fiction on future perception.

*Theresa: I think it made me like maybe see possible ways it could go, or maybe even think that there's like 100 million possible ways it could go. Like obviously it could go bad, but it could go bad in like very different ways and it could also maybe like, kind of, I don't know, be evened out or something. Or we could come up with another solution. Like, no, I don't know, maybe we will live in a simulation or whatever. So, yeah. I don't know. I think it didn't like give me one specific vision for the future. Just kind of made me think about like different ways in which the future could go.*

Theresa, for instance, did not describe a concrete vision of the future. Instead, she only stated that she was able to imagine possible scenarios connected to reading climate fiction without giving details. However, she still considered both the positive and negative direction. Here, she interestingly switched from “it” when talking about a negative future to “we” when imagining a more positive future where a solution has been found. It seems like she first uses climate change as the agent of the sentence and then shifts to “we” are being able to improve something. Thus, she presents collective action as a premise for a positive future by using the pronoun “we”. Further, Theresa constructed her future perception in a way that indicates a sense of responsibility to change something to reach her envisioned future. This sense of responsibility stems from her explanation that humans, including her, could create a solution. However, she still does not state concrete steps of action and expresses her ideas vaguely. Theresa was talking about “The Overstory” when she answered the question about the influence of climate fiction

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<sup>2</sup> Powers, R. (2018). *The Overstory*. Norton & Company. <http://www.richardpowers.net/the-overstory/> “The Overstory” by Richard Powers and published in 2018 is a climate fiction novel about nine Americans who all made different experiences with trees, which bring them together to attend to the destruction of forests.

on future perception, which indicates that her construction of a future might be associated to the various ideas in the novel.

**Uncertainty (N = 16).** The participants constructed the future as uncertain and as something that is nearly impossible to predict regarding the circumstances of climate change. In the extract from “Cecilia”, the future was described as unpredictable and concerning.

*Cecilia: Well, they [future scenarios in climate fiction] seem to be very far away. But I think that the kind of the factual base, how the cli-fi books normally explain the background of... for example like they might be talking about the year 2100 but then they refer to what happened in the 2000 and those are kind of like very realistic scenarios what's going on today. Even if of course, you cannot be, you know, fortune-tellers and say that this is how it's going to look like in 100 years, but it feels like, I suppose, it could happen, and that's what kind of makes one so concerned about things. But I don't know how realistic they really are.*

Cecilia begins by explaining that the future scenarios depicted in climate fiction books “seem to be very far away”. However, then she further states that the books often describe the present situation as antecedent to imagined future scenarios, which makes them feel closer and more realistic. Thus, according to Cecilia, climate fiction seems to have the potential to reduce the emotional distance towards the future. Even though she does not arrive at a conclusion, Cecilia’s extract demonstrates her interaction and negotiation with the climate fiction books regarding her uncertainty. Furthermore, Cecilia applies the metaphor of a fortune-teller, stating that she cannot predict the future. She hereby illustrates and represents most interviewees’ perception of uncertainty. Most participants explained that the scenarios they have read about in climate fiction books may become a reality at some point, but they expressed a great uncertainty regarding concrete future developments. However, they did not explicitly mention that reading climate fiction has enhanced or decreased their feeling of uncertainty. In this

context, participants additionally mentioned the complexity of climate change, which may in return be connected to the uncertainty.

**Impact of Action (N = 13).** The interviewees made their future perception more tangible by imagining the impact and necessity of action towards a more climate friendly society. Within one variation of the theme (“Ability to change the future”) participants described how their belief of either being or not being able to change the future is related to their perception of the future. This can be seen in the following example from “Lia”.

*Lia: Because if we don't do anything for sure, maybe it [future scenario from cli-fi book] will be realistic. But if we tackle the problem, maybe it will be not.*

Lia, for instance, explains that she considers the various future scenarios depicted in climate fiction books as a serious possibility. She also explains that the negative scenarios may not become reality if humans, including herself, manage to solve the problem. However, Lia does not come up with concrete options for acting to “tackle the problem”. Rather, she formulates her statement in a speculative way as she uses the word “maybe” twice and she contemplates two opposing scenarios, suggesting an uncertainty regarding the future. “Erika”, on the contrary, portrays a different perception.

*Erika: I don't feel helpless. I'm not waiting for some politician from above or, for my part, a deity, the good Lord, or whatever they're all called, to come up with something. I think I'd rather see what I can do myself. Within my life, my life span.*

Erika states that she does not feel helpless and rather feels confident to find a solution to act in the scope of her individual life. Further, she compares politicians with some kind of “deity”, making it seem rather uncertain that change will be initialised by the government. Here, the theme “impact of action” refers to autonomously initiating action to create an impact.

Another participant commented that there should be a greater focus on climate fiction books as they could raise awareness.

*Cecilia: So, I do think that there should be more climate fiction because that could make even more people aware of the situation we're living in now, and how it's so essential that we all need to start acting and making decisions that have a more positive long-term impact.*

According to Cecilia, this awareness is necessary to achieve a more positive impact in the long term. The way she formulated her answer suggests that she is optimistic regarding a positive development of climate change, however, only if people realise the necessity to act and live an eco-friendlier lifestyle. Nevertheless, she does not suggest concrete ways of acting similar to Lia.

**Emotions (N = 11).** While constructing the future, participants included the absence or presence of emotional states when thinking about climate change and the future. A range of different emotions was displayed with threat and worry being the most prevalent ones. The extract from “Ben” displays the sentiment of his perception of the future in regard to reading climate fiction books.

*Ben: Uhm, the climate change is definitely, I think, the most pressing issue in the world and I think that's right now the main source of whatever issues exist and if issues continue to be exacerbated, I think it can all point back directly to climate change as a whole. So, I feel that the future is definitely the future in all these books. They just seem so real and scary.*

Ben presents climate change as a very urgent issue, and he even explains that future issues are directly related to climate change. Similar to other interviewees, Ben describes the future as it is depicted in climate fiction books as realistic, which shows how he perceives the future. By using the word “definitely” he makes his statement sound determined. Additionally, Ben expresses a threat that is evoked by reading climate fiction books by explaining that they “seem so real and scary”. During the interview, Ben mentioned that he read *The Parable of the Sower*

by Octavia A. Butler<sup>3</sup>, which suggests that the described scenarios in the novel may be connected to his perception of threat regarding the future. As the novel can be classified as dystopian and pictures a post-apocalyptic future, Ben's described future perception may be related to it. Ben's way of expressing himself ("in all these books") creates the impression that he expects all climate fiction books to be the same. However, during the interview he stated that he read approximately four books with solely one book he was certain of being climate fiction. Thus, he seems to base his rather determined future perception on only a few books.

Although further interviewees, similarly to Ben, expressed negative emotions regarding the future, other variations of the theme additionally addressed an emotional distance. Three participants mentioned psychological distance regarding climate change when discussing climate fiction. "Sarah", for instance, discussed the different ways people may perceive the future scenarios depicted in climate fiction books.

*Sarah: I imagine that works at either in the really distant future or really distant past might either feel very real in terms of like imagining where we're heading or feel very unreal in that they're too detached from what we're experiencing right now.*

The ambivalence in Sarah's example demonstrates that the future may be perceived in diverging ways, ranging from emotionally close to emotionally distant. However, she does not take a standpoint regarding her personal perception of the future. Another interviewee explained that climate fiction in general served as an emotional reminder for her. This shows that climate fiction may not only create new emotional connections, but it may also revive emotional experiences that individuals previously made.

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<sup>3</sup> Butler, O. E. (1993). *The Parable of the Sower*. <https://www.octaviabutler.com/parableseries>  
*The Parable of the Sower* by Octavia A. Butler is a post-apocalyptic climate fiction novel published in 1993, which addresses the scarcity of resources and describes a dystopian future as it may develop if no appropriate action is taken.

**Optimistic (N = 11).** Within the theme “optimistic”, seven participants constructed their future in a positive way by expressing their optimism and hope. They explained their optimistic perception in a way that reading climate fiction has led them to experience more hope and have a more optimistic attitude. Learning about possible future scenarios, either positive or negative ones, is described as a possibility to make people more aware of the need to act. In the following extract, “Sara” explained how climate fiction could be a starting point for people to become more aware and use possibilities for change.

*Sara: It [climate fiction] showed me how things could be in the future because they were realistic. But it also gave me kind of like hope for the future that you know... because we are writing about it right now or someone is writing about it and a lot of people are reading about it that maybe, you know, we could still change in some way. Because if we are aware of the problem, maybe it's better, you know, there's still room for change.*

Sara presents climate fiction books as being able to raise awareness. Interestingly, she discusses the influence of climate fiction as rather stemming from the process of writing and reading climate fiction in general than from the content of the novels itself. Here, she also includes herself as she explains her experience of gaining hope from reading and emphasizes that other people could benefit as well. This way humankind (“we”) could collectively change. Sara’s use of optimistic language (“hope for the future”, “there’s still room for change”) illustrates that she perceives the future as influenceable in a positive way. However, her choice of positive formulation also appears to be clichéd, which is a way of talking that Siperstein (2016) has previously noted. She is using phrases that create an idealised picture of how to deal with the situation.

**Responsibility (N = 9).** Regarding the theme of responsibility, the participants perceived the future as being influenced by a feeling of responsibility for the future situation. This was either

shown by describing a feeling of responsibility, a shift of responsibility for action to other people or by applying the metaphor of the butterfly effect. Participants mostly expressed a feeling of responsibility for their individual life and for a collective future. However, they simultaneously conveyed a certain helplessness in their answers, which is demonstrated in the following extract from “Christina”.

*Christina: I do feel responsible for my part. Uhm, but I just think that my part doesn't really play a role.*

Christina explained that she does not perceive her potential effort as influential regarding the development of climate change. According to her statement, she constructs the collective future as something she has no determining control over. Thus, she seems to describe a difficulty of connecting her range of possibilities for action to effects on a collective future.

In further variations of the theme “responsibility”, participants explained their perception of the future by including a shift of responsibility and by applying the metaphor of the butterfly effect from the chaos theory. The metaphor is usually applied to explain “cause and effect at a distance, e.g. a butterfly’s flapping wings in Brazil can cause a tornado in Texas” (Dooley, 2009, p. 2). Here, the participants used the metaphor in different variations, however, mostly referring to the distance in time when constructing future scenarios. For instance, in “Cecilia’s” example, climate fiction is described as a medium that reminds people and makes them aware of changes in climate over time.

*Cecilia: It's the whole butterfly effect, you know, so it's those kinds of scenarios that I think have made me think differently about the environment because I mean thinking back, the whole evolution, the whole environment and the whole nature has changed. So, through that, throughout the years there's so much you know that we still do today. Today we tend to think that this is how things always were, and this is how they always will be. That's how we'd like to think about everything, but still a lot has changed in*

*the past and a lot will change in the future. So just to see the ... read even fiction about the possible scenarios it does make you think.*

Cecilia mentions climate fiction with its depictions of possible scenarios as a reason for thinking differently. She applies the metaphor of the butterfly effect to explain that a different future can only develop when changes are made in the present. This example illustrates that some readers of climate fiction perceive their future as different compared to the present. Here, Cecilia states that humans naturally tend to favour habits and avoid change. Despite including herself in this statement by using the pronoun “we”, she expresses her own opinion pointing towards the opposite direction and excludes herself from this crowd. Therefore, the extract creates the impression that she considers herself as someone who has a deeper insight than other people. Although Cecilia does not mention her role in influencing a change, she explains that she expects a lot of change in the future, however, without going into more detail. This may imply that she does not have a concrete perception of the future, except that it will be different to the present.

Similar to this example, “Ben” explains the phenomenon that generations of people were previously struggling with the issue of climate change and left the following generation with the burden of taking action. Here, he explains a shift of responsibility as he describes that people do not sense the urgency of the issue. Simultaneously, he presents himself as well-aware and informed. However, he still does not mention concrete actions that he has performed to mitigate climate change.

*Ben: I think that because I know growing up not too long ago, that's when I started to learn that the generations before me had this same issue, and they were being warned as well. And they kind of just like, no, it'll be OK or, you know, maybe the next generation, my generation can take care of it. So, given that that was my real initial understanding of climate change as a younger person and then now having gone to*

*college, having had so many different conversations, my political science coursework of course, and then just being at the job currently now reading cli-fi as well.*

In the examples of both participants, the inaction of people is described as avoidant. Regarding the sentiment of their answers, those inactive people are almost described as self-centred without a sense of responsibility for future generations. Whereas Cecilia expressed herself with a more retaining word choice, Ben chose a more assertive one.

## **Discussion**

The paper discussed seven themes connected to future perception that climate fiction readers constructed in 15 interviews. A thematic analysis of the answers about how the interviewees perceive and thereby make sense of the future indicated that climate fiction readers perceive the future mostly as uncertain and difficult to predict.

The themes covered a variety of future perceptions ranging from the number of possible scenarios to the impact of action to different sentiments regarding the future. By discussing the variety of possible futures, participants underlined their uncertainty of what might happen either if people manage to make a change or if nothing is done to prevent further, or mitigate, climate change. In this context, participants also explained the impact different kinds of action may have on the future situation and to what extent they feel responsible for it. While discussing their future perception, participants additionally included their sentiments, which they connected to the topic. These were either negative, such as threat and worry, or rather optimistic and hopeful. The most common theme was “Reflective”, followed by “Variety of possible futures”, and “Uncertainty”. Four out of the seven themes in total (Reflective, Variety of possible futures, Uncertainty, Emotions) emerged when explicitly discussing climate fiction. This supports the claim of research that climate fiction has the potential to facilitate critical reflection and the formation of possible futures (Lindgren Leavenworth & Manni, 2021;

Nikoleris et al., 2017; Schneider-Mayerson, 2018; Yusoff & Gabrys, 2011). However, it also shows that readers still experience uncertainty despite engaging with climate fiction or because of it.

Within some themes, there seemed to be a certain connection between the future perception and the climate fiction books participants have read. For instance, books such as “The Overstory” by Richard Powers, which depicts various possible future scenarios, was presented as enhancing the imagination of the future. According to the theory of the *availability bias*, the probability of certain events or situations and how easy they are accessible for people, is associated with frequency (Tversky & Kahneman, 1973). Thus, the more future scenarios are displayed in climate fiction books, the more people may be able to form imaginations and perceive the future in a more concrete way. Furthermore, a participant (Ben) who read dystopian works with depictions of post-apocalyptic futures like “The Parable of the Sower” by Octavia A. Butler, expressed a perception of increased threat and hopelessness. However, the participant also described a well-conceived future perception with a sense of urgency. Therefore, climate fiction books about a possible dystopian future scenario might elicit negative emotions, but additionally facilitate critical reflection of the current situation. This is in accordance with the suggestion of Lindgren Leavenworth and Manni (2021), who proposed that the experience of negative emotions through the characters of a novel may enhance critical reflection.

Despite probing questions, interviewees mostly solely explained their future perception superficially, which is why the emerging themes were often vague. Participants talked about the existence of different scenarios that may develop in the future, however without giving concrete examples. This vagueness was also observed in an interview study exploring people’s sense of agency in relation to climate change (Toivonen, 2022). In this study, within several themes (impact of action, responsibility, reflective) it became apparent that interviewees were aware of the need to act for the future to be more positive and sustainable. Nevertheless, they either perceived their individual scope of action as not influential enough or completely shifted

the responsibility to rest of the population or seemingly more powerful people such as politicians. Here, climate fiction might be able to support the imagination of a collective scope of action by depicting possibilities for actions as a community. This might further result in promoting an imagination of a collective future.

Connected to this, participants' answers indicated that it was difficult for them to imagine a collective future. According to Milkoreit (2017), collective imagination, including goal setting, is essential to achieve change in the context of climate change. This seems to be difficult as participants rather pointed towards different groups, such as the future of adolescents or future action of politicians. Furthermore, it was noticeable that interviewees mostly directed their answers towards the present, even when explicitly being asked about future perception. When talking about the present, they were able to construct collective ideas, which was often shown by applying the pronoun "we". In contrast, when trying to imagine the future, participants rather excluded themselves from a certain group.

Moreover, climate fiction was presented as an emotional reminder, which can revive emotions that had already been experienced when dealing with consequences of climate change in the past. Thus, they experienced emotions while reading climate fiction that they already connected to climate change. This may counteract the emotional distance that participants constructed with regards to a future with climate change. By experiencing the emotions again, readers may develop a more concrete sense for the future and how they may feel then. Baumeister et al. (2007) have proposed that these reminders of previously experienced emotions connected to climate change may result in reappraisal and motivation for action. In addition, dystopian climate fiction was presented as hope-giving by interviewees of this study. Some of them explained that catastrophic scenarios eliciting negative emotions may especially have the potential to motivate people to act in order to prevent them from happening. This contradicts the claim of O'Neill and Nicholson-Cole (2009) of unpleasant emotions in the context of climate change resulting in avoidance and rather supports the potential of climate

fiction. Thus, climate fiction as an emotional reminder may be associated with a decreased emotional distance towards the future development and more stimulation for motivated action. However, this assumption should be considered cautiously as the participants of this study rather perceived the future as threatening in the present but did not seem to be able to draw a connection to imaginations of concrete action taking in the future.

The observation of participants not being able to connect their current future perception of threat to imaginations of ideas for improvement regarding climate change underlines the finding of Schneider-Mayerson et al. (2020a). The results of their study showed that reading climate fiction only had a small significant positive effect on beliefs regarding climate change that solely lasted for a short time after reading the novel. Hence, the effect might not be strong and long-lasting enough to nudge readers into forming more concrete imaginations of a future with climate change. Further, experiences and situations described in climate fiction books might often be too far from the reader's personal situation. As a result, climate fiction readers may not sense enough urgency to form imaginations to create a more sustainable future. Readers may not be able to connect emotions, which they experienced while and shortly after reading climate fiction, to their personal life. However, this connection has been proposed to be effective (Monroe et al., 2019). Monroe et al. (2019) suggested to focus "on personally relevant and meaningful information" (p. 1) in climate change education.

In accordance with Schneider-Mayerson (2018), I suggest that climate fiction might nudge already slightly concerned readers into a direction of forming more concrete future imaginations and remind them of the urgency to act. Creating these imaginations might initiate and enhance critical reflection and more communication about possibilities for the future. If climate fiction is read, for example, in schools or in book clubs it may be helpful to choose books where the future scenarios are not too far from reality and the reader's personal situation. Nikoleris et al. (2017) suggested that identification with protagonists allows the readers' experience to be less abstract and more personal. This way the emotional distance may be

smaller, and readers may be able to form more concrete visions. Here, it may be especially valuable to support the processing of negative emotions experienced through the characters as Lindgren Leavensworth and Manni (2021) suggested that this may enhance critical reflection. In addition, stories reinforcing that collective action has led to an improved future might be fruitful for supporting the formation of collective imaginaries, also described as shared visions of the future. In return, these collective imaginaries enhance people's goal pursuit for social change to happen (Milkoreit, 2017). As I showed with this study that climate fiction readers experience uncertainty, it might be helpful to offer a guided discussion when climate fiction is read in classrooms or book clubs. This way, the reflection process, which is already facilitated by reading climate fiction, may be enhanced further by discussing within a group.

The generalisability of this study is limited due to the sample size and the qualitative research design. Furthermore, the interviewees were mainly well-educated and therefore only represented a certain part of the population. However, the question remains whether climate fiction also reaches less educated readers in the first place. In addition, the study was performed during a phase in which the Russo-Ukrainian war significantly expanded. Further, the restrictions due to Covid-19 were decreased and people started to regain more quality of life. After periods of lockdowns and being restricted, they might have been even less willing to restrain their individual comfort to mitigate climate change. Thus, at the time of the interviews, the world's attention was rather focussed on these events and the consequences of climate change were deprioritised in people's minds. Nevertheless, the qualitative method of this study constitutes a valuable addition to previous research as most previous findings resulted from studies within a quantitative context (Rahman, 2016). The variety of participants' backgrounds presents a further strength of this study. They were culturally diverse and represented a wide age range, which increased the diversity of the findings.

Future research may investigate the association between different stylistic forms of climate fiction (e.g., post-apocalyptic, realistic, or utopian) with different future perceptions of

readers. Further insight may be gained by exploring whether similar themes and concepts arise within a different context (e.g., with a different sample or circumstances). Here, the method of a qualitative interview may be considered to receive detailed and reasoned answers for a more comprehensive picture of participants experiences and perceptions.

This paper investigated the future perception of climate fiction readers, and I demonstrated a variety of themes that emerged regarding a future with climate change. I found that the future perception was often described vaguely without concrete ideas. Connected to this, climate fiction readers expressed a lot of uncertainty concerning possible future situations and a difficulty to form imaginations, and especially *shared* imaginations. This may be connected to a certain psychological distance to the topic, which may in turn reduce the perceived importance of climate change (Van Lange & Huckelba, 2021). Therefore, a need for encouraging and supporting people with forming shared imagination arises. Climate fiction has a lot of potential to be discussed in settings such as classrooms or book clubs. In case that is considered, this thesis suggests that climate fiction books that are closer to the reader's personal situation are more likely to decrease the perceived emotional distance and facilitate imagination of a future with climate change. The facilitated imagination could then be discussed and critically reflected to additionally support the reader's perception of being able to envision and create a more sustainable future.

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## Appendix

A - Interview protocol

### **Climate-Fiction: Interview Protocol**

*Ask for their age and gender without assuming that people identify with the traditional binary division.*

*Ask for occupation and education.*

*Make sure you know their ethnicity and where they live in the world. Note that nationality is not ethnicity!*

1. How would you describe your views on climate change?
2. How would you describe your actions in terms of climate change?

**Next, we will move on to talk a little bit more about climate fiction or cli-fi, the kind of fiction that deals with climate change more or less directly.**

**Just to check, do you have an idea of what kind of literature we are talking about now?**

3. How much climate fiction have you read?
  - a. More than one: Could you tell me the names of some climate fiction books that you have read?
  - b. One: Which book was it?
4. How long have you read climate fiction?
  - a. When did you read your first book of climate fiction?
5. How much do you read in general?
  - a. Mostly cli-fi or something else?
6. What was the latest climate fiction book you read and when was it?
7. How was the reading experience (of the last cli-fi book you read)?

8. What is the best cli-fi book you have read?
  - a. Why it is the best?
  
9. How do you decide which cli-fi books to read?
  - a. That is, where do you hear about books to read?
  
10. What do you think has made you read climate fiction?
  
11. Do you discuss these books with other people in person or online?
  - a. Which topics are addressed in these discussions?
  
12. How have your experiences of reading climate fiction been in general?
  
13. What kind of emotions have you felt when reading cli-fi?
  
14. How realistic do you think are the scenarios depicted in the cli-fi books that you have read?
  
15. Has reading climate fiction influenced your feelings with regards to climate change?
  
16. Has reading climate fiction changed anything in your thoughts about climate change?
  
17. Currently, researchers are very interested in negative feelings related to climate change, for example, climate-change related anxiety or “climate anxiety”. Have you experienced anxiety because of climate change?
  - a. If yes, has reading climate fiction had an influence on your climate anxiety?
  - b. Do you think climate anxiety impacts how you think and act with regards to climate change?
  
18. Has reading climate fiction changed the way you perceive your chances to do something about climate change?
  
19. Has reading climate fiction changed something concrete in your actions with regards to climate change?
  
20. Has reading climate fiction influenced your perception of the future?
  - a. If yes, in what way?

21. Is there something else you would like to add about climate fiction reading or climate change that we have not yet discussed?

**Many thanks to you for your time and for your interesting answers!**