The Social Aspect of Reading Climate Fiction: An Exploration of Patterns in Interviews

on Cli-fi

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Bachelor Thesis

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Abstract

How people experience reading climate fiction books becomes increasingly relevant for researchers with the progression of global warming. However, the social aspect of this experience has not been the focus of investigation yet. Based on semi-structured interviews, the present bachelor thesis examines how readers discuss the social context of reading cli-fi. The transcripts were analysed with the thematic analysis approach. Starting already with the decision to read cli-fi, social factors including recommendations from close others and public opinions were influential, according to the participants. Next, cli-fi was perceived as an educational tool, not only for personal gain of knowledge, but also as a conversation starter for insightful discussions with others. Such discussions were furthermore perceived as more personal and thus meaningful for the interviewees. The personal aspect of reading cli-fi was described to result from identification with and empathy for the fictional characters. Such emotional involvement was perceived to be a major advantage of cli-fi, as it allows for emotional involvement in the subject of climate change. Furthermore, cli-fi was discussed in the context of reflections on society and politics. Responsibility for climate change was mainly attributed to powerful decision makers and several participants spoke of social activism. Activism groups and other groups that were characterised by a common interest in climate change were furthermore positively associated with coping and a sense of belongingness.

Keywords: Cli-fi, Climate fiction, climate change, social activism, climate education,storyworld

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Literature reflects concerns, interests and values that are dominant in society (Albrecht, 1954). Naturally, the growing salience of climate change in public discourse coincides with an increased appearance of climate-related issues in literature (Schneider-Mayerson, 2018). Currently, climate narratives are of eminent concern because they can be influential in how readers form their opinions (Fløttum & Gjerstad, 2017). One sub-genre of literary fiction that has received a considerable amount of attention in the past few years is climate fiction (further referred to as cli-fi) (Johns-Putra, 2016; Schneider-Mayerson, 2018; Tuhus-Dubrow, 2013). The term cli-fi stems back to reporter and activist Dan Bloom (Glass, 2013), who named the genre in 2007 and described it in an interview as a "global warning, a wakeup call, a warning flare, a cri du coeur" (Liggett, 2018). Bloom's quote reflects the urge to raise awareness on climate change and cope with it while anticipating the repercussions for authors and readers alike. Cli-fi can be defined as "fiction concerned with anthropogenic climate change or global warming" (Johns-Putra, 2016). Several pieces of literature are considered to belong to the cli-fi genre, without mentioning the aspect of climate change explicitly, for example, Vandermeer´s *Annihilation*[1]. Hence, there are no clear criteria for categorising literature as being cli-fi, as it often overlaps with dystopian and post-apocalyptic literature (Johns-Putra, 2016). Accordingly, the present bachelor thesis will classify all literary works that are interpreted as such by the participants and that deal with climate change in some way, more or less directly, as cli-fi.

The emerging popularity of the sub-genre has inspired researchers to theorise and hypothesise about several potential positive effects cli-fi can have on its readership and their experience with global warming. On one hand, Malpas (2021) recognised a prospect in cli-fi

literature to help readers to reflect on emotions regarding climate change, on the other hand, she also sees these books as providing insight into solutions to prevent global warming or cope with the effects. Thus, cli-fi can contribute to education about climate change, for instance, it has been suggested that grasping the complexity of the repercussions of climate change can furthermore be facilitated by reading cli-fi (Mar & Oatley, 2008; Johns-Putra, 2019). Similarly, Schneider-Mayerson (2018) hypothesised that such narratives can result in climate consciousness and progressive policies and politics. However, these assumptions were not supported in his study, in which participants perceived cli-fi literature more as "cautionary tales" rather than a potential future reality (p. 486, Schneider-Mayerson, 2018). However, he speculates that, although cli-fi literature may not cause attitude changes, it can function as a powerful reminder of the urgency of climate change (Schneider-Mayerson, 2018).

The Social Aspect of Cli-Fi

Cli-fi addresses social causes of climate change as well as social consequences, such as social division, economic instability and power imbalances (Johns-Putra, 2016; Schneider-Mayerson et al., 2020). Moreover, cli-fi frequently deals with interpersonal relationships within an environment post global warming. The social aspects of cli-fi, meaning how social climate change narratives affect real-life social interactions and how those interactions influences how readers perceive cli-fi books have not yet been addressed in detail. Some studies have mentioned social aspects, such as social influence as a predictor of reading cli-fi (Schneider-Mayerson, 2018) but none have focused on a systematic understanding of the social aspects relevant for readers of cli-fi.

The Decision to Read Cli-Fi

The process of reading cli-fi begins at the decision for the book, which is frequently promoted by other people, as a study found: 44.1% of participants read a cli-fi book because of recommendations from others, the main factor in choosing cli-fi in his sample (Schneider-

Mayerson, 2018). Moreover, positive reviews of books by others was another major factor for deciding to read cli-fi, as 26.7% indicated (Schneider-Mayerson, 2018). The role of others' recommendations is further highlighted by the finding that people often define the books that have been recommended to them by friends and family as most significant in their lives, mostly because the books are seen as having deepened their relationship with the individuals that recommended them (Breen et al., 2017). Moreover, Long (2003) found that the choice of books that people read plays an important role in individual identity as well as the group identity of literary circles. Therefore, exploring the social determinants of choosing to read cli-fi literature is crucial, as it influences personal relationships.

Interacting with the Storyworld

Although reading a book is by definition an individual activity, social processes nevertheless take place when taking a closer look. Mar and Oatley (2008) argue that reading fiction provides a model for social behaviour and a rich simulation of social life. By simplifying and abstracting the social world, fiction provides schemas and scripts for interactions and comprehension of social situations. Moreover, Mar and Oatley (2008) suggest that fiction functions to convey social knowledge predominantly through identification with literary characters. Identification with fictional characters involves a fusion of the readers' and the characters' minds, resulting in a shared point of view and stronger emotional reactions (Cohen, 2014). Mar and Oatley (2008) suggest that fictional narratives allow the reader to test their own emotional reactions and potential actions in situations and environments otherwise impossible to experience. According to Cohen (2014), this process of identification involves "learning by vicariously undergoing novel experiences, taking on new roles, and adopting new experiences" (p. 145). Thus, the question arises how cli-fi readers respond to an opportunity to experience a storyworld characterised by struggles of global warming, and how the social schemas provided by climate change fiction are linked to actual social interactions related to climate change.

The Educational Value of Cli-fi

Discourse on books takes place offline and online. New platforms and projects, such as Goodreads and several online book clubs provide a wealth of opportunities to read what users think of a particular book and discuss literature globally (Pianzola, 2021). Todd (2008) states that the search for the interpretation of and meaning behind literature shapes such discussions. In line with that, Lehman & Scharer (1996) found that learning about other people's perceptions of the book enriched their literary experience and broadened their horizon, as readers expressed in interviews. In the context of climate change, discussion with others provides opportunities to increase awareness of shared feelings on climate change, as well as shared identities based on such discussions (Simon & Kladermans, 2001; Breen et al., 2017). This gives insight into the potential for powererful coping strategies that discourse on cli-fi holds. For instance, Gillespie (2019) found that group discussions about the hazards of global warming proved to have various positive effects: many described changes in values and behaviour, greater emotional well-being and an increase in maturity and resilience. Cli-fi can provide such an occasion for discussion, as well as individual reflection on social aspects of climate change.

One recurring theme in cli-fi books is societal collapse, for instance in the form of a strong division between rich and poor or climate refugeeism (Goodbody & Johns-Putra, 2018). Researchers found that school children that read cli-fi as a part of their education recognised that climate change, as represented in the books, is adding to economic issues and consequently to social inequality (Leavenworth & Manni, 2020). As Leavenworth and Manni (2020) point out, "cultural and political structures and social mores of the reader's own reality can be viewed at an imaginative distance" (p. 731), as a result of speculative climate literature. This is possible through individualisation of the broader issue of climate change in cli-fi, meaning that it is structured and narrated around the experiences of an individual or a community (Zhou &

Niederdeppe, 2015; Skurka et al., 2020). This means that cli-fi can provide a unique perspective on possible futures and societal conflicts that may arise as a result of climate change and are depicted in cli-fi books.

Additionally, a large body of research has found that reading fiction often leads to increased empathy, in the understanding of other people's beliefs and emotions (Djikic et al., 2013; Keen, 2006; Mar et al., 2009; Zunshine, 2006). For instance, Schneider-Mayerson (2018) hypothesised that empathy has the potential to enrich awareness on climate inequality, which causes marginalised groups to endure disproportionately from the repercussions of global warming (Islam & Winkel, 2017). Empathy is a widely researched aspect in environmental psychology, as there is evidence that empathy correlates with pro-environmental attitudes and behaviour (Berenguer, 2007; Pfattheicher et al., 2015). However, it has not yet been studied to what extent cli-fi is successful in inspiring empathy for others affected by social injustices induced by climate change.

Research Question

A review of literature suggests that although the social aspects of reading fiction have been investigated, it has not been specifically looked into cli-fi in this regard. The urgency of climate change and the increased relevance of cli-fi calls for research into the social dimension of reading cli-fi, including the decision to read cli-fi, empathetic influence and the educational value of the genre. Hence, the research question for the present bachelor thesis is: *What meaningful patterns emerge when readers of cli-fi discuss the social aspect of reading the genre?*

Method

Study design

This research was part of a broader interview study carried out via the Group of Psychology, Health and Technology of the University of Twente. The present bachelor thesis

focuses on exploring themes that came up when participants talked about the social aspect of reading cli-fi. Data was collected by means of semi-structured interviews. The study was granted ethical approval on the 11th of February 2022 by the Ethics Committee of Behavioural, Management and Social Sciences at the University of Twente (approval number: 220077). The data will be stored according to the data policy of the University of Twente until 10 years after the research has ended

The interviews were conducted one-on-one by one member of the wider research team, which included Dr. Heidi Toivonen and ten bachelor and master of psychology students. and were audio and video recorded with Microsoft Teams (Version 1.5.00.15861). The data has been fully anonymised upon transcription by pseudonyms and the deletion of any names or places that could lead to the identification of the participant. The spoken language was mostly English, however, some of the involved students chose to conduct some interviews in their native language, German.

Procedure

Interviewees were recruited through the Sona System of the University of Twente, the university's platform for managing participant recruitment, as well as snowballing the personal network of the research team. Moreover, the study was posted on several social media platforms, including Facebook, Instagram, Twitter and Reddit, to find participants. Participants were included in the study if they were over the age of 18 and had read at least one climate fiction book. Microsoft Teams (Version 1.5.00.15861) meetings were scheduled with recruited subjects that met the criteria. Information on the study could be found on the Sona System or, alternatively, the research team sent an information sheet (see Appendix A) to the participants by email. They were informed about their right to withdraw from the study at any time, that their participation is voluntary and how long the interview will approximately take. Moreover, it was communicated how the data would be anonymised and stored and that the interview will

be audio- and video-recorded as well as transcribed. Contact information of the research supervisor was mentioned, in the case that participants wanted to ask questions or withdraw from the study later.

After the participants were informed by the interviewers about the aspects described above and had signed the consent form (see Appendix B), they recorded demographic data (age, gender, occupation, highest education achieved, ethnicity and country of residence). An interview protocol guided the questions the interviewer asked next (see Appendix A). However, the interviewers were free to ask further questions that clarified some of the participant's answers or went more into depth for specific topics. Moreover, the interviewers adapted their questions to the interviewee's responses. For example, if a participant had read only one climate-fiction book, the interviewer would refrain from asking about their favourite cli-fi book. The questions dealt with the reading behaviour, attitudes towards climate change, attitudes towards cli-fi and their experience reading it.

Sample

Dr. Heidi Toivonen conducted three trial interviews to confirm the usefulness of the interview protocol, after which the students carried out 27 interviews. Thus, 30 interviews were conducted in total. Considering the scope of the present bachelor thesis, I restricted the analysis to eleven interviews. I read all interviews and subsequently excluded them for analysis if they a) were comparatively vague in their descriptions and b) did not, or talked little about the social aspect of reading cli-fi.

The sample of the interviews that correspond to these criteria and that I selected to analyse consisted of eleven participants who said that they have read cli-fi and agreed to participate in the study. From the sample, nine identified as female, two as male and none as non-binary/diverse. As mentioned above, any literature was considered to be cli-fi if the participant identified some sort of connection to climate change in interpreting the work. The

interviewees´ ages ranged from 20 to 63. Most of the participants that were included were students (*n* =6) and all were caucasian. The demographics of the participants whose interviews were analysed are listed in Table 1.

Table 1

Demographics of the Participants

Participant pseudonym	Gender	Age	Nationality	Occupation	Cli-fi book(s) participant mentioned
Tina	Female	23	German	Student	*The Overstory* [2]
Emma	Female	63	Finnish	Employed	*Oryx and Crake* [3], *The Year of the Flood* [4], *Sands of Sarasvati* [5]
Vera	Female	60	German	Employed	*The History of Bees* [6], *The End of the Ocean* [7], *The Last Wild Horses* [8]
Penelope	Female	23	German	Student	*MaddAddam* trilogy [3,4,9], *Eleria* trilogy [10,11,12]
Molly	Female	31	German	Employed	*The History of Bees* [6], *The End of the Ocean* [7], *The Last Wild Horses* [8]
Amelie	Female	39	Swedish	Employed	*Flight Behaviour* [13], *Floating Worlds* [14], *Bangkok Wakes to Rain* [15]

Sina	Female	30	Belgian	Employed	*Weather* [16], *Flight Behaviour* [13], *The Overstory* [2], *Florida* [17], *Bewilderment* [18]
Ronald	Male	34	Belgian	Student	*Solar* [19], *The Ministry of the Future* [20]
Rebecca	Female	22	German	Student	*The Book of Strange New Things* [21]
Paulina	Female	26	German	Student	*The History of Bees* [6]
Leo	Male	20	Spanish	Student	*The Grapes of Wrath* [22]

Materials

Semi-structured interviews were conducted according to an interview protocol (see Appendix A), which was designed by Dr. Heidi Toivonen in collaboration with the ten students that collaborated with the data collection. The interview protocol consisted of three parts: demographic data, two general questions on climate change and lastly several questions regarding the participant's experience of reading cli-fi. In total the protocol consisted of 18 open questions, nine of which included optional probing questions.

The interviews were transcribed directly during the recording with the Microsoft Teams (Version 1.5.00.15861) program. Each transcript was checked for mistakes and edited with the help of the recording by the research team. Next, I subjected the selected interviews to analysis using the software program Atlas.ti (Version 22.0.2), which provided support in locating, coding and annotating quotes in the transcripts.

Data Analysis

The present study benefits from an inductive analysis that partly draws inspiration from thematic analysis, as conceptualised by Braun and Clarke (2012). In their approach, themes, or patterns of meaning, are to be identified within quotations. This proved to be difficult in the analysis, as I found potential themes scattered throughout the transcripts, instead of in several coherent quotations. This means that some patterns of meaning were ideas that were mentioned in multiple different contexts, and thus more patterns of meaning than themes.

While analysing the transcripts, I took inspiration from the six steps as suggested by Braun and Clarke (2012). First, I read the transcripts and highlighted potential relevant quotations in order to familiarise myself with the data. Next, I generated initial codes and modified them several times during the inspection of the data. Codes, according to Braun and Clarke (2012), provide a concise summary of the content of the unit of analysis. The units of analysis were the smallest segment of verbal data that makes sense to label with a code. Codes can be descriptive of the interviewee's expressions, or they can be interpretive and identify underlying meanings (Braun & Clarke, 2012). In the third step, I identified categories of the codes that capture relevant aspects in relation to the research question. The overarching categories are composed of several codes that relate to another, or make meaning of similar aspects of the participants' experience. After repeatedly reviewing the categories in terms of their coherence and inclusion of codes, I named the categories according to their meaning and defined them in a short description.

To give an example of how the transcripts were coded, the following quotation by the participant with the pseudonym "Rebecca" will be used: "Whatever you do, the people who are in power don't listen, kind of, so, you feel a bit like… small." I allocated this quotation with two codes: 'Not having enough political influence' and 'Governments do not take enough measures regarding climate change'. Rebecca's expression reflects that she sees the

responsibility in powerful decision makers to take action against climate change. Moreover, 'feeling small' reflects a helplessness that is due to a lack of influence in decisions. This quotation is illustrative of the code pattern seven: reflecting on society and politics, as she spoke of how she feels about her position as a citizen in Western society in the context of climate change, which she reflected on due to reading cli-fi. Both codes involve an interpretation of Rebecca's expression.

Results

The results of the analysis of the interviews can be described along four stages in which social aspects were relevant for reading cli-fi according to the participants: 1. The decision to read cli-fi; 2. While reading cli-fi; 3. Conversations about cli-fi; 4. Reflecting on cli-fi and climate change. There were several codes found in each of the stages that suggested a social aspect of reading cli-fi. However, it should be noted that participants frequently talked about climate change, which was not always related to specific cli-fi books, but still appeared in the context of speaking about the genre. All codes were combined to code categories, according to the social aspect of cli-fi that they address, and can be found in table 2, alongside with their definitions, as well as the number of times the codes occurred.

Pattern 1: The Decision to Read Cli-Fi

Code Pattern 1: Social Factors in Deciding to Read Cli-Fi: Private and Public Opinions (Overall Frequency of Pattern: 51)

When being asked about the means of deciding on what books to read, the prevalent factor was recommendations from the participant's social environment. According to the interviewees, a distinction can be made between public and private social influences that have led to the decision to read cli-fi.

Private recommendations to read cli-fi were given predominantly by friends and family members. Seven of the participants indicated that such recommendation played a role in their

Table 2

Patterns and their subsequent Codes

Code pattern	Definition of the code pattern	Codes		Number of occurrences of the code (n_1)	Number of interviews in which the code occurred (n_2)
Pattern 1: The decision to read cli-fi					
Code pattern 1: Social Factors in Deciding to Read Cli-fi	Participants described a recommendation from their social environment or public opinions as a reasons for reading cli-fi	Private opinions	Recommendation from friends and family members	12	7
			Reading cli-fi due to being a member in a book club	6	3
			Reading cli-fi due to professional or academic context	6	2
			Recommending cli-fi to others	2	2
		Public opinions	Choosing to read cli-fi because of public opinions	13	6
			Choosing to read cli-fi because of social media platforms	11	5
Code pattern 2: The educational value of cli-fi	Participants described a willingness to gain knowledge about climate change as a reason for reading cli-fi	Reading cli-fi can lead to more awareness and education about climate change		29	7
		Importance of being informed about climate change		12	6

		Expecting to gain knowledge from cli-fi	7	3
		Not having enough knowledge on climate change	6	3
		Understanding climate change better through cli-fi	4	2

Category 2: Reading cli-fi

Code pattern 3: Interacting with the storyworld	Participants mentioned an interaction with fictional characters or experienced reading cli-fi as a social experience	Identifying with fictional characters in cli-fi books	21	7
		Empathy towards fictional characters in cli-fi books	13	5
		Emphasising fictional social relationships when discussing cli-fi	10	6
		Comparing reading cli-fi to conversations about climate change	5	1

Category 3: Conversations about cli-fi

Code pattern 4: Exchanging knowledge in conversations about cli-fi	Discussions about cli-fi were described as a way to exchange facts, their emotions regarding climate change or new ideas	Cli-fi as a tool for education about climate change	19	6
		Gaining new perspectives through reading cli-fi	16	7
		Conversations about solutions for climate change	13	7

		Talking to critics of climate change	9	3
		Gaining new perspectives through conversations about cli-fi	5	4
Code pattern 5: The personal aspect of cli-fi	Cli-fi was described as providing access to thinking and talking about emotions regarding climate change	Experiencing emotional involvement in cli-fi stories	24	9
		Feeling more involved in climate change through reading cli-fi	14	6
		Cli-fi enables more personal conversations	4	3

Category 4: Reflecting on cli-fi and climate change

Code pattern 6: Coping with climate change	In the context of cli-fi, participants talked about coping mechanisms regarding climate change.	Reflecting on different possible futures as a result of reading cli-fi	14	7
		Resilience for climate change	8	4
		Cli-fi does not offer solutions	5	3
		Cli-fi offers solutions	4	3
		Imagining oneself in a post-climate-change world	3	3
		A change in society is needed	24	9

Code pattern 7: Reflecting on society and politics	Cli-fi was involved in reflecting on the effects of climate change to society and politics and vice versa.	Not having enough political influence	15	7
		Governments do not take enough measures regarding climate change	7	5
		Climate change needs more public attention	5	3
		Social inequalities cause climate change	3	1
Code pattern 8: Groups related to climate change	Participants talked about social activism and behavioural change in wider society and being a part of a group that intends to support that	Motivation to act through cli-fi	19	8
		I do social activism	15	3
		I am part of a group with common interest in climate change	14	3
		I should do more social activism	14	5
		Conversations about climate change/cli-fi are empowering	4	2

decision to read a cli-fi book. Moreover, two participants stated that they also recommended cli-fi books to close others they have read and enjoyed. When getting recommendations, participants were most often convinced of reading the genre because people whose opinion they trusted enjoyed the book or were intrigued by the topic. Three of the participants indicated that they read cli-fi because of their academic or professional background. For example, "Sina" stated that her reading climate fiction is limited to her professional context as a researcher on the cultural and literary aspects of climate change and "Ronald" depends on his colleagues recommending cli-fi books to him. Four of the participants are a part of a literary circle, which was described as an influence on their reading choice. "Emma" and "Amelie" stated that they are members of book clubs designated to cli-fi and thus have read cli-fi books because of being a part of it.

Public recommendations stemmed mainly from social media. Here, five participants named Goodreads, Instagram, and Youtube as platforms where they get inspiration for buying specific books. For example, "Paulina" described the benefits of Goodreads as follows:

"I also have some friends on Goodreads and I see their activities. I see when they are reading books and when they want to read books. So I just go a lot through all the different kinds of information on there and just see what sounds interesting to me."

Moreover, the popularity of books played a role for seven of the participants in choosing what book to read. For instance, Paulina indicated that she read *The History of the Bees*[6] because it was on the bestseller list of the bookshop, she bought it from. Two of the participants remarked that part of the reason they read a cli-fi book was that they were intrigued about the genre after reading the description of the present study and wanted to participate. All of the above are examples of how social influences, mainly opinions and recommendations of others, influence the participant's choice of reading cli-fi.

Code Pattern 2: The Educational Value of Cli-Fi (Overall Frequency of Pattern : 58)

Frequently ($n_1 = 29$), participants attributed an educational value to cli-fi, or a potential to act as a tool for increasing awareness of climate change. This is related to the notion that many participants placed high importance on distributing and acquiring knowledge about climate change in general ($n_2 = 5$). The aim of gaining knowledge about climate change influenced the decision to read climate-change-related books and three participants mentioned that they expected to learn more about climate change from cli-fi. For instance, Paulina indicated that she perceives cli-fi as an entertaining way to learn about climate change, which is why she read *The History of Bees*[6].

The motivation to gain knowledge about climate change was not only described to be intrinsic, but two participants also attributed it to a wish to be able to participate and be in conversations. For example, "Molly" described this importance as follows: "You can't have a fixed opinion on it (climate change) unless you're totally immersed in the subject yourself and have a lot of scientific information". Being knowledgeable about climate change was associated with confidence in talking about climate change by two participants. For instance, "Tina" explained that she does not want to come across as unknowledgeable or spread misinformation in conversations on global warming. In her experience, reading about climate change makes her more self-assured in discussions. For her, this includes cli-fi but also non-fictional books that inform about global warming and its consequences. Cli-fi was repeatedly perceived as an educational tool to gain knowledge and form an informed opinion on climate change, as well as a prerequisite to discussing the topic with others, according to the participants.

Pattern 2: Reading Cli-Fi

Code Pattern 3: Interacting with the Storyworld (Overall Frequency of Pattern: 48)

Six of the interviewees emphasised the interpersonal relationships within cli-fi books when talking about them. For instance, Tina enjoyed how the characters "interact with one

another and how they relate to each other" the most about the cli-fi book she read, *The Overstory*[2], Moreover, six readers were able to identify with the fictional characters, as well as feel empathetic about the situation they are in. Molly said that by identifying with the characters in the cli-fi books she read, it was easier for her to understand the complexities of climate change. According to her, cli-fi helped her be more aware of the versatile ways people may suffer from the consequences of global warming in the future. In line with this, Rebecca compared non-fiction books to fiction books that deal with climate change, which she perceived to be "more personal." She elaborates that in being able to identify with fictional characters, she automatically relates the characters' reality to her future.

One participant, "Penelope", reflected that reading cli-fi makes up for having detailed discussions with others about the climate crisis: "It feels like having kind of a conversation about the topic that's important, even though it's not a conversation, I´m reading a book". Here, Penelope spoke of an access to discourse about climate change by reading a book. Although she is the only participant that described such an experience, it highlights that for some people cli-fi can be a tool for dealing with the threat of climate change in, what is for them, a social context.

Pattern 3. Conversations About Cli-Fi

In total, nine of the eleven participants indicated that they discussed a cli-fi book after they read it. However, these discussions varied in depth. While "Leo" told his mother about the book who asked him a few questions, Sina talked about discussing the ethics of bearing children in an age of global warming with her friends. None of the participants indicated that they discussed cli-fi online.

Code Pattern 4: Exchanging Knowledge in Conversations about Cli-Fi (Overall Frequency of Pattern: 75)

Similar to deciding on literature, acquiring knowledge additionally plays a major role in conversations on cli-fi books for the participants. Thus, the fourth pattern is a variation of code pattern two. One major way participants described this gain of knowledge was that they gathered new perspectives on climate change after reading cli-fi ($n_1 = 16$), but also when discussing a cli-fi book ($n_2 = 5$). The main takeaway from four participants' discussions about cli-fi with others, was that they benefited from new perspectives on the book, but also on the climate change issue in general. For instance, Leo described this as follows:

"We can share ideas. And I can gain also… I can learn some new ideas that I didn't get from the book. I would also like to discuss a climate change-related book with another person that didn't necessarily read the same book as me, but also a book related to climate change and then we could see how the both stories that we read are related to climate change and how they differ and how they are similar to each other."

Here, Leo expresses what seemed to be the main benefit for many participants, namely gaining knowledge by talking to others about cli-fi and climate change, in the form of new perspectives on the book, for example. The value of exchanging knowledge by discussing cli-fi was expressed by participants in the way that they thought that others might have understood the book in another way or have different ideas about it compared to themselves. By debating various interpretations, they experienced or hoped to experience the literature differently and broaden their views of the topic. Similar to how Molly experienced cli-fi broadening her horizon as described before, Sina said cli-fi has helped her to understand the intricate causes and consequences of climate change better.

In turn, cli-fi has enriched and informed conversations for the interviewees. Sina additionally talked about how the complexities she understood had also helped her to talk to people that have different opinions on climate change than her, as she was able to understand their perspectives better.

Interviewees ($n_2 = 6$) moreover talked about the way cli-fi could or already is utilised to teach others about global warming. Sina pointed out the potential benefits of introducing cli-fi to the classroom: "Having these discussions in a classroom group setting, it's a powerful way to mobilise collectively or to think collectively about such kind of networked and systematic issues (climate change)." The quote illustrates that Sina perceived reading about and thinking critically about climate change and the factors responsible for it as a form of social activism. Thus, learning about climate change, as described in the interviews, was perceived as an objective, as well as a result of reading or discussing cli-fi, illustrated by the examples of code grouping four and two above.

Code Pattern 5: The Personal Aspect of Cli-Fi (Overall Frequency of Pattern: 42)

The majority of participants ($n_2 = 9$) expressed that they experience cli-fi as offering an access to conversations with others about climate change that go beyond the factual level. A quote by "Vera" illustrates a feeling of emotional involvement in climate change that cli-fi triggers, which the interviewees reported frequently ($n_1 = 24$). In the interview, Vera expressed that cli-fi made her more aware of the importance of climate change in an emotional way. She furthermore distinguishes cli-fi from non-fiction climate literature:

> "It's a more emotional reminder than to read it in a nonfiction way. I read it in the paper or online, just the facts. They don't go into me so deeply. But when I watched the film or when I read climate fiction, it's more emotional and it's for me, it's an emotional reminder: OK, this is a point and this is a very important issue and I should stick to it and try to work with this.``

Vera's quote demonstrates that fiction can trigger an emotional reaction that may motivate behavioural change and create an awareness of personal involvement. Similarly, Rebecca perceives cli-fi to be more objective and adding an 'emotional value'.

As seven other participants did, Rebecca relates this quality of cli-fi to the identification with the fictional characters and the reader's empathy towards them:

"Nonfiction, it's probably a bit more dry and it's not really the story of some people you can relate to so there is less empathy and less attunement. And I think fictional books, it's most like the story of a human and then you can relate to them and you think, like, 'What if it will maybe be myself'. And it's like it becomes more personal."

Rebecca describes in this quote that empathy towards fictional characters makes the discourse on climate change emotionally more accessible to readers of cli-fi. Similarly, Tina reported that she perceived cli-fi as an opportunity to engage in more emotionally complex and personal conversations about climate change and Penelope found the genre to be a 'more direct experience' than reading and watching news on global warming. Cli-fi was thus generally perceived as a fictional, but direct emotional 'experience' of climate change.

Code Pattern 6: Coping with Climate Change (Overall Frequency of Pattern: 34)

Six interviewees described their way of social coping with climate change in the context of reading cli-fi. The majority of the participants ($n_2 = 10$) experienced reading cli-fi as a form of preparation for the consequences of climate change. Some of the participants ($n_2 = 4$) spoke of coping in the context of being a member of a book club. For instance, Amelie experienced hope for dealing with those consequences when she discussed it with the members of her book club:

"In the book club, one thing that we discussed a lot, and which was also something that I thought about when reading it, was that it gave this perspective that even if we see some of the worst effects of climate change there could still be a good life for some people in the future. Somehow it's a bit relieving that it's, you know, the world won't end even if we don't succeed with meeting the Paris agreement of 1.5 degrees."

In her interview, Penelope repeatedly stressed that an aspect that she perceived as realistic in the cli-fi books she read was that the characters simply continued with their daily life activities, even though they experienced catastrophes. She compared this to movies that glamorise post-apocalyptic heroes and dramatise their suffering, in her opinion. In the cli-fi book she read, Penelope experienced the resilience of the fictional characters as more accurate and was able to identify with them more, thus this pattern of codes is related to the third pattern, interacting with the storyworld.

While five interviewees didn't feel like cli-fi books provided solutions, three interviewees mentioned that cli-fi presented solutions in some form, although two of them did not substantiate this further. Leo highlighted that he realised through the cli-fi book he read, *The Grapes of Wrath* [22], that humans have to prepare for climate change by reflecting on how they will behave:

> "I think it's important to read about and hear about stories of these hypothetical cases so when it (global warming) actually happens to us we have a better idea of how to act and then, yeah, and we can reflect because I think it would be a big catastrophe when we would behave very like survival instincts"

Here, Leo refers to the dystopian description of the society in the cli-fi book he read. He perceived that exploitation of the poorer proportion of the population by a small number of powerful actors in the book as its main theme and estimated a similar future as realistic for the world. The quote illustrates how cli-fi provides an approach to dealing with climate change, namely reading cli-fi and reflecting on society's as well as one's own reaction to catastrophes.

Pattern 4. Reflecting on Cli-Fi and Climate Change

Code Pattern 7: Reflecting on Society and Politics (Overall Frequency of Pattern: 54)

There was a rather high consensus among the participants that climate change is a societal problem and that it, therefore, requires increased public attention and change on a

societal level. Nine respondents suggested that to combat climate change, societal change is needed. A lack of action from powerful decision-makers was elaborated on by five participants. Decision-makers perceived as responsible for taking action were described in terms such as "corporations and politicians" (Penelope) or "very powerful people" (Leo). Sina summarised this as follows: "I think that the individual actions are a source of very manageable things to do, but they are also a distraction from the kind of more systematic, collective change that we need". Sina's quote reflects a general idea within the sample that the individual people are responsible for changing small aspects of their everyday lives, but the more powerful instances are the ones that are able to prevent the worst-case scenario for climate change.

In relation to this, Rebecca described that "people who are in power don't listen", and Leo established that it is a human tendency to strive for power which correlates with the exploitation of others. Moreover, he is of the conviction that climate change is largely caused by social inequality. This reflects a lack of political power required for making a difference regarding climate change, that seven participants experience. For instance, Molly suggests that "it is easier to change something at my individual level than at the large political or societal level" and Ronald described a feeling of helplessness regarding actions toward the protection of the climate. All in all this pattern incorporates that as a result of reading cli-fi, participants reflected on politics and society regarding climate change.

Code Pattern 8: Groups Related to Climate Change (Overall Frequency of Pattern: 66)

Five participants reported that the majority of their actions regarding climate change are on an individual level. At the same time, four of them, and an additional other participant expressed that they feel a responsibility to engage more in collective activism. As for seven other participants, for Tina this responsibility was heightened by reading cli-fi:

"I do have to say it (reading cli-fi) also kind of made me feel, like, ragey. What is it called like? Like a motivation and kind of being like in a very angry kind of way motivation where it's like: 'That sucks. Now I'm gonna have to do something!'."

Furthermore, three of the participants were willing to become and three respondents are currently engaged in social groups that partake in climate activism. For instance, Rebecca is currently organising the first student strike for the climate with some of her friends in her place of residence. An idea of placing importance on social activism becomes clear here.

This concept is reflected in the interviews in the form of feelings of empowerment after reading cli-fi. For instance, Rebecca stressed that the conversations she had in her friend group before organising the strike were "empowering" and she felt like she was less alone with her anxieties around climate change. Furthermore, she indicated that she enjoys being part of a group in which every member "stands behind it (climate activism)" and described a sense of belongingness. Her account illustrates that the present pattern is related to code pattern 6, as it shows the potential of climate-related groups to support coping with global warming. Such a sense of community through a common interest in climate change was altogether expressed by three participants.

Discussion

In the present thesis, social aspects of reading cli-fi have been described by its readers in several contexts and give direction towards a cautious answer to the research question '*What meaningful patterns emerge when discussing the social aspect of reading cli-fi?'*. Firstly, opinions of others, whether public or private recommendations, played a major role in the decision to read cli-fi for the interviewees. Furthermore, participants reported various ways in which they interacted with the storyworld of cli-fi books during reading, mainly by identifying with fictional characters and feeling empathy towards them. In conversation about cli-fi with others, the opportunity to gain new perspectives was pointed out by the participants. Moreover,

interviewees described the educational value of cli-fi, either by expressing that they expect to learn from it, in conversational knowledge exchange with others, or in the form of concrete suggestions for utilising cli-fi as an educational tool. The educational function of cli-fi was linked to its ability to make the topic of global warming a personal, emotional one. Moreover, interviewees described reflections on society and politics of climate change in the context of discussing cli-fi. Predominantly, the responsibility of acting pro-environmentally was attributed to powerful decision makers and the importance of collective social activism to influence them was highlighted. Social activism was furthermore related to coping with global warming and a sense of belongingness by the interviewees.

In addition, the results revealed that participants distinguished reading cli-fi as a uniquely personal and emotional approach to address and deal with climate change. This was directly uttered by interviewees or reflected in expressions of empathy with fictional characters and perceiving cli-fi discussion to be more personal than other public or everyday discourse on climate change. In line with this finding, Lundholm (2019) points out that reading fiction is an emotional way of environmental learning. Learning in the context of cli-fi can on one hand mean the conveyance of factual knowledge, mapping out the possible outcomes of climate fiction in the future. On the other hand, learning is also related to a personal and emotional preparation for such possible outcomes. As some of the interviewees described, cli-fi provided such a preparation of how to act and what to expect emotionally and in relation to society.

Furthermore, some of the ideas found in the analysis of the present thesis reflected a general spirit of political powerlessness to act against climate change and responsibility attributed to powerful decision makers among the interviewees. Moreover, what several participants described as imagining themselves in possible futures with climate change connects to Mar and Oatley's (2008) suggestion that fiction simulates social life and supports comprehension of social complexes. Especially Leo, who reflected on social injustice in his

interview and said it made him more aware of problems in real life, supports this thesis. There are similarities between the attitudes expressed by Leo in the present study and those described by Schneider-Mayerson (2018), whose interviewee noted that the possible power inequalities are caused or reinforced by climate change.

Strengths and Limitations

Several strengths and limitations ought to be considered when interpreting the findings of this study. Firstly, the qualitative nature of the present bachelor thesis takes into account the unique and detailed thoughts and opinions on the social aspect of cli-fi of the interviewees. The method of coding used in the present thesis allowed for a fluid data analysis, as codes and categories were adaptable with the addition of data. Nonetheless, no claims of correlation or effects can be made on the basis of the present qualitative interview study. This means that although participants reported discussing climate change in a more emotive way after reading cli-fi, it can only be assumed about their meaning making, not if there actually is a correlation.

It becomes apparent in Table 1, that there is a wide range of cli-fi literature that was read by the participants. Some interviewees overlapped with what books they have read, for example, *The History of Bees*[6] and *Flight Behaviour*[13] were popular among the participants. Nevertheless, as mentioned previously, there is a broad definition of which books are considered to be cli-fi (Johns-Putra, 2016). Therefore, the different cli-fi books could have triggered dissimilar experiences in the social context. Further, the study design incorporated semi-structured interviews and the extent of probing questions was up to the different interviewers. As a result, the interviewees occasionally varied in the depth of their responses, as the questioning of the interviewers differed in probing. This could have led to a bias in the data collection which directly concerns the participants' meaning-making.

There is an unequal distribution of gender in the sample, as there are far more female respondents than male, and none of them identified as non-binary or diverse. It has previously

been observed that women read more fiction than men (Bennett et al, 2010), which may be an explanation for the sample distribution. Moreover, the existing body of research into gender differences in attitudes on climate change consistently shows that women are more concerned about global warming (Egan & Mullin, 2017; Kvaløy et al., 2012; McCright et al, 2016). Furthermore, all of the participants in this interview study acquired high levels of education or are currently enrolled as university students. As a large body of research has established, higher educated people read more frequently (Lee, 2018; Rhee & Scales, 2001; Smith, 1990) and are more concerned about climate change (Arıkan & Günay, 2020; Lee et al., 2015), on average. These findings suggest that the sample of the present thesis represented the readership of cli-fi. However, it should be specifically looked into other population groups, such as people with lower educational attainment, to investigate various experiences of reading cli-fi.

Implications for Future Research and Practice

Despite these limitations, several implications for future research and practice can be drawn from the present findings. Consistent with the research of Schneider-Mayerson (2018), the participants mainly expressed deciding to read cli-fi due to external, social reasons. This suggests that the promotion of cli-fi to a broader readership may benefit from use of social media, for instance, content creators that focus on books giving cli-fi recommendations or engaging in the discussions on social media platforms such as Goodreads with other readers (Pianzola, 2021). However, it must be noted that the participants were overall familiar with the topic of climate change and perceive it as a major concern in their lives. Hence, it is likely that pro-environmental attitudes go along with a susceptibility to respond positively to recommendations of cli-fi. Thus, further research should investigate whether there is a correlation between these two variables, or if susceptibility to read cli-fi is independent from pro-environmental attitudes.

It is important to note that the participant's attitudes towards climate change overlapped greatly with each other. All participants acknowledged global warming as a real danger and thought that humankind ought to take action to prevent repercussions of it. This finding is in line with Schneider-Mayerson (2018), who found that the cli-fi readership tends to be more concerned about climate change than nonreaders, although there are sceptics of global warming who have read cli-fi that usually perceive the writing as unrealistic to happen in real life. In light of the fact that climate change has relevance and consequences for all humans, it would be worth investigating whether critics of climate change differ in the way they perceive the social aspect of reading cli-fi books, for instance, how they experience discussing cli-fi with people that believe in the reality of climate change.

The question arises, moreover, to what extent the social and digital environment of the climate-interested participants is related to the likelihood of receiving recommendations for cli-fi. Several participants indicated to be a part of friend groups, activist organisations, or working environments that are characterised by shared pro-environmental attitudes, which most likely played a role in receiving recommendations for cli-fi. Similarly, being engaged in a 'green social bubble', like Rebecca, who follows climate activists on Instagram, can influence the extent to which people are exposed to cli-fi content. In future research, it would be important that the choices to read cli-fi made by people with various attitudes and social circles regarding climate change are investigated, to form a more comprehensive conclusion towards the determinants of exposure to cli-fi.

Further, Mar and Oatley (2008) pointed out that empathy can not only be felt toward fictional characters as a result of reading fiction, but also for different social groups. This was also reflected in the present sample, for example by Molly, who indicates that she understood the suffering of social inequality of some groups of people better. In light of climate inequality, reading cli-fi could enhance empathy for climate refugees or other people that are uniquely

affected by global warming due to their location. It is thus recommended to further investigate how empathy for such social groups may be affected by reading cli-fi in particular.

Gaining insight into how participants chose to read cli-fi-fi is valuable if the genre ought to gain a wider readership for its possible educational and psychological benefits that the participants described. For instance, as two participants proposed, reading and discussing cli-fi should be incorporated in school and university curricula, as cli-fi was perceived as being emotionally affecting and thus resulted in more personal conversations about cli-fi. The intersection of the emotional and educational value of cli-fi, as suggested by the participants, provides a unique opportunity that may be attributed to the individualisation of cli-fi. The research results of Skurka et al. (2020) show that individualised narratives are more engaging in terms of empathy and identification toward fictional characters, which is reflected in what the participants described. Thus, cli-fi in educational settings could be utilised to facilitate discourse and verbal exchange about climate change.

Cli-fi can most likely not account for psychological and emotional support on its own due to the complexities of problems that climate change brings with it. However, the participant's positive responses and coping descriptions seem promising for the role that cli-fi can play in people's engagement and coping with climate change. In the social context, cli-fi may be relevant in motivating more personal conversations on climate change, which can support the coping with it. Further research in the genre's potential will reveal its potential on a social level.

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Appendix A

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!

Appendix B

Informed Consent Form

1. I volunteer to participate in a research project concerning climate fiction reading. I understand that the project is designed to gather information about people's experiences and thoughts on climate change -themed fictional books as well as about how people think about climate change.

2. My participation in this project is voluntary. I understand that I will not be paid for my participation. I may withdraw and discontinue participation at any time without any negative consequences. If I decline to participate or withdraw from the study, no one will be told and it will not affect my relationship with University of Twente.

3. I understand that most interviewees will find the discussion interesting and thought-provoking. If, however, I feel uncomfortable in any way during the interview session, I have the right to decline to answer any question or to end the interview.

4. Participation involves being interviewed by a student of psychology from University of Twente, using the Zoom or Teams video call platform. The interview will last approximately 30-60 minutes. Notes will be written during the interview. The interview will be recorded, and the anonymized transcript made on the taped video call will be used for research purposes.

5. I understand that the researcher will not identify me by name in any reports using information obtained from this interview, and that my confidentiality as a participant in this study will remain secure. Subsequent uses of records and data will be subject to standard data use policies which protect the anonymity of individuals and institutions. If requested, I can have access to the transcript of my interview by email. I can also request that the final assignment, thesis and/or research article will be sent to me when it has been accepted/published.

6. The data will be destroyed 10 years after the end of the project (that is, in December 2032), or any time at my request.

7. No one outside of the project or not involved with writing assignments, theses, or papers using this data, will have access to the raw notes, recordings, or transcripts.

8. I have read and understand the explanation provided to me. I have had all my questions answered to my satisfaction, and I give my consent to participate in this study.

9. I have been given a copy of this consent form.

Signature of the participant

………………………………………………….

Signature of the interviewing student

………………………………………………….

Signature of the supervisor, Assistant Professor Heidi Toivonen