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Creatively Confronting the Climate Crisis: Utilizing Graphic Novels in the EFL Classroom

Master's thesis in Primary and Lower Secondary Teacher Education
for Years 5-10

Supervisor: Tom Nurmi

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Abstract

The greatest and most defining crisis of our time is the climate crisis. Rising sea levels, warmer weather, melting glaciers, and intense drought are only some of the changes in climate that impacts life on Earth. Until now, there has been little room for environmental content in the Norwegian national curriculum, except from in natural and social science, as the topic has been reserved to these subjects. The aim of this thesis is twofold. First of all, I aim to examine how the climate crisis is portrayed in young adult graphic novels. Secondly, I attempt to uncover the potentials of utilizing the YA graphic novels in the lower-secondary English as a Foreign Language classroom. To do so, I have chosen four graphic novels that include environmental content which I am going to analyze. Multimodal analysis, an analysis of pedagogical applications, and a qualitative comparative analysis were applied to answer the research questions. The thesis draws on ecocritical theory, theory of environmental education, including environmental literacy and critical visual literacy, and the Norwegian national curriculum (LK20). The findings reveal that even though climate change is portrayed differently in the four graphic novels, each of them are vital when teaching ecocriticism together with language teaching. Furthermore, specifically focusing on the field of environmental education through an ecocritical approach working with environmental texts such as the ones suggested in this thesis enables students to develop environmental literacy across global educational contexts. This can further help students develop into global citizens and acquire language proficiency at the same time.

Keywords: Climate crisis; graphic novel; EFL classroom; YA literature; multimodal analysis; analysis of pedagogical applications; qualitative comparative analysis

Sammendrag

Den største og mest definerende krisen i vår tid er klimakrisen. Stigende havnivå, varmere vær, isbreer som smelter, og intens tørke, er bare noen av klimaforandringene som påvirker livet på jorda. Frem til nå har det vært lite rom for innhold knyttet til miljøet i den norske læreplanen, bortsett fra i naturfag og samfunnsfag, da temaet har vært reservert til disse fagene. Formålet med denne masteroppgaven er todelt. I første del er formålet å undersøke hvordan klimakrisen er framstilt i grafiske romaner for ungdommer. I andre del forsøker jeg å avdekke potensialet ved å bruke grafiske romaner på ungdomstrinnet for studenter med engelsk som fremmedspråk. For å gjennomføre dette, har jeg valgt fire grafiske romaner med klima-relatert innhold, som jeg skal analysere. Multimodal analyse, analyse av pedagogisk anvendelser, og en kvalitativ sammenligningsanalyse er implementert for å svare på studiens problemstillinger. I denne masteroppgaven bruker jeg økokritisk teori, teori om miljøundervisning der jeg også inkluderer teori om 'environmental literacy and kritisk visuell literacy, for å svare på problemstillingene . I tillegg har jeg inkludert deler av læreplanverket (LK20). Funnene avslører at selv om klimakrisen er framstilt ulikt i de fire grafiske romanene, er hver og en viktig i undervisning der økokritikk og språk skal undervises sammen. Videre, dersom man spesifikt retter fokuset mot miljøundervisning gjennom en økokritisk tilnærming ved å arbeide med tekster med miljørelatert innhold, muliggjør utvikling av 'environmental literacy' på tvers av globale utdanningskontekster. Dette kan videre hjelpe elevene med å utvikle seg til å bli globale borgere, samtidig som de utvikler språket.

Nøkkelord: Klimakrisen; grafisk roman; engelsk som fremmedspråk, ungdomslitteratur; multimodal analyse; analyse av pedagogiske anvendelser, kvalitativ sammenligningsanalyse

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List of Abbreviations

EFL	English as a Foreign Language
LK20	Læreplanverket for Kunnskapsløftet 2020
PBL	Project-Based Learning
YA	Young Adult [Literature]
SDG	Sustainable Development Goals

1 Introduction

In this first section, I present the background and context of the thesis. Here, I elaborate on the selected topic, including why it is relevant to discuss the usage of environmental graphic novels in the lower secondary English as a foreign language (EFL) classroom, and why I personally chose the topic. Additionally, I explain and justify the relevance of analyzing and discussing the portrayal of the climate crisis in young adult graphic novels, giving a brief summary of why graphic novels can be a good alternative to use in the EFL classroom according to relevant research and reports. Further, I present the thesis' purpose and research questions. Finally, I will provide an overview of the thesis.

1.1 Background and context

In our contemporary world, both the earth and humanity are suffering in a climate crisis. Climate action has become increasingly urgent, as the climate crisis is humanity's greatest threat. No corner of the planet is safe. The polar ice melts, global sea levels and temperatures rise, and more extreme weather, pollution, resource conflicts, food, and water insecurity multiply. For example, an overlooked consequence of the climate crisis is environmental migration. Environmental migration is:

A movement of persons or groups of persons who, predominantly for reasons of sudden or progressive changes in the environment that adversely affect their lives or living conditions, are forced to leave their places of habitual residence, or choose to do so, either temporarily or permanently, and who move within or outside their country of origin or habitual residence (IOM, 2019, as cited in Global Environment Data Analysis Centre, n.d.).

According to Migration Data Portal, which serves as an access point for comprehensive migration statistics, researchers found "that more than one billion people globally could be exposed to coastal-specific climate hazards by 2050, potentially driving tens to hundreds of millions of people to leave their home in coming decades (IOM, 2022; IPCC, 2022, as cited in Global Environment Data Analysis Centre, n.d.). This report also mentions how people who might not be able to move, referred to as 'trapped populations', because of cultural reasons, disability, social reasons, etc.-, and are among the most vulnerable groups in regard to climate change (MDP, n.d.). This underscores how taking action towards climate change must be a priority, in policy and in education.

One of the primary functions of environmental literature, is to help develop young people into becoming responsible and empathetic adults of tomorrow (Massey & Bradford, 2011, p. 109). The causes of the climate crisis are many: Generating electricity and heat by burning fossil fuels, industrial processes, cutting down forests, and over-consumption, for instance, are only some of the contributors to climate change (United Nations, n.d.). But what these have in common is that they are initiated by humans. This poses risks to all forms of life on Earth (United Nations, n.d.).

I live in Norway that is an area that is not as much affected by the climate crisis compared to other parts of the world. However, Svalbard, which is a populated island in northern Norway, is highly affected as the glaciers melt. We also experience more rainfall, shorter seasons with snow, higher temperatures, floods, and landslides. Research also found that areas in Norway that have about 2-3 months of snow now,

cannot count on having snow at all in 2100, and that we will get more periods of drought in summertime (Hanssen-Bauer et al., 2015). Through having English as one of my teaching subjects, I have been introduced to graphic novels, such as *Persepolis* by Marjane Satrapi (2019), and *Maus* by Art Spiegelman (1986). Through these, I discovered that visual texts are a powerful genre. The genre awakened a joy of reading that I was not aware existed in me. The interaction between text and illustrations, how illustrations can communicate with the reader, and how images are constructed, are some aspects I find intriguing, especially with environmental content.

In addition to being interested in the genre, I argue that graphic novels can be a great replacement for traditional text-based novels because a great deal of younger students are interested in the genre, and graphic literary forms are often easier to read than other literature (Williams, 2008, p. 13). As the educational scholars Berkowitz and Packer write: "[...] comics create opportunities for teachers to engage students in meaningful discussions about visual perception, drawing and design, art history, and content on multiple levels." (Berkowitz & Packer, 2001, as cited in Williams, 2008, p. 13)". This means that topics, such as the environment, can be brought into the EFL classroom, so that visual culture and language can be taught together. Williams (2008) states that graphic novels provide the opportunity to deconstruct the texts in various ways, and that "this layered deconstruction may include examining the story; the creator's intention, characters, and context; as well as the relationship between the design, words, and images" (p. 13).

The graphic text chosen as an approach to discuss the climate crisis, does not have to directly deal with the climate crisis. In fact, the four graphic novels chosen for this study illustrate how texts with different content, motifs, setting and characters can be used to discuss climate-related issues. Moreover, by utilizing graphic novels in the classroom, the teacher is given an opportunity to inspire curiosity, empathy, and action, as well as it allows classroom discussion about relevant social issues (p. 18). In terms of language acquisition, a study about the viability of graphic novels in relation to English speaking fluency for EFL learners, shows that the genre offers many opportunities for EFL learners. More specifically, the findings show that graphic novels are helpful for students when studying more abstract ideas, such as complex global and environmental issues. Additionally, graphic novels are appropriate to acquire new knowledge and to learn about unfamiliar culture (Gultom et al., 2022, pp. 46, 52).

1.2 Purpose and Research Questions

The purpose of this research is to analyze young adult graphic novels, looking at how the climate crisis is presented and exploring their potential in the lower-secondary EFL classroom. Two research questions have been outlined to investigate the field and to help address what the purpose of this study is:

1. How is the climate crisis portrayed in the YA graphic novels?
2. What are the potentials of using YA graphic novels to teach about the climate crisis in the lower-secondary EFL classroom?

The dual focus - how the climate crisis is presented in YA graphic novels and how these texts can be used in the EFL classroom is highly relevant because of the urgency of the crisis. Hence the importance of people being aware, as well as developing values and

attitudes, acquiring knowledge, skills, and motivation to contribute to taking more care of the planet. Additionally, accompanying the Norwegian curriculum renewal in 2020, a greater focus was set on the environment. This mandated that environmental topics should no longer only apply for natural science and social science, but that they should be interdisciplinary topics across a variety of subjects, including EFL.

1.3 Thesis overview

The thesis is divided into six chapters. Following the introductory chapter, chapter two contains a presentation of the theoretical framework that is relevant for this study. The third chapter elaborates on and discusses the methodology, methods, and materials chosen to collect data. This chapter provides a detailed description of why and how I have applied the methods, that are multimodal analysis, analysis of pedagogical applications, and qualitative comparative analysis. Positioning and ethical considerations are also discussed in this chapter. In chapter four, an analysis of the materials and the findings are presented. In chapter five, the findings from chapter four are discussed in relation with the research questions and the theoretical framework presented in chapter one and two. In the sixth chapter, the conclusion is presented along with implications and recommendations for future research.

2 Theoretical framework

The following chapter presents and elaborates on the study's theoretical framework used as a base when analyzing the four graphic texts. Firstly, I have decided to draw from the field of ecocritical theory, specifically focusing on the history and the description of the theory, as well as theory about how nature is represented in literature. Secondly, I have decided to include the theory of environmental education. Here, the focus is on environmental literacy, and why content about environmental issues should be brought into the EFL classroom. I look specifically at introducing ecocriticism to EFL students, and focus on critical visual literacy. Since one of my chosen texts is about Indigenous people, I want to include theories about Indigenous perspectives on the climate crisis. Thirdly, I include the Norwegian core curriculum, focusing on 'Sustainable development' as an interdisciplinary topic and the core value 'Respect for nature and environmental awareness'. Additionally, the English subject competence aims are important to introduce to get a comprehensive vision of the matter. I present and discuss each framework in-depth to uncover how each of them are relevant to my study.

2.1 Ecocriticism

Ecocriticism is a relatively new term and was first coined by William Rueckert in 1978. However, it was not until Cheryl Glotfelty published *The Ecocriticism Reader* that the topic became widely known among scholars. Glotfelty explains that "Ecocriticism is the study of the relationship between literature and the physical environment" (Glotfelty, 1996, p. xviii). She further elaborates that it is equivalent to how "feminist criticism examines language and literature from a gender-conscious perspective, and Marxist criticism brings an awareness of modes of production and economic class to its reading of texts [...]" (p. xviii). Ecocriticism is thus taking an earth centered approach to literary studies (p. xviii). Glotfelty notes that the human species is connected to the physical world, stressing that humans affect it and are affected by it (p. xix). In ecocriticism, questions about literature, culture, and the environment are investigated. Furthermore, the aim of ecocriticism is to accentuate environmental issues, to develop and expand ways of considering environmental issues, but also to motivate to take environmental action (Trexler & Johns-Putra, 2011, p. 192). As formulated by Mishra (2016), an eco-wisdom among readers can be built through the harmonious relation between human and nonhuman (p. 92). Mishra also states that:

In a sense, ecocriticism is a process of self-realization of who we are, where we stand, how we should treat our habitat, how we should behave with the other organisms etc. In short, Ecocriticism is literary criticism that arises from and is oriented towards a concern with human and nonhuman interaction and interrelationship (p. 92).

Ecocriticism can work as a reminder that our environment is at a critical point, in which the future of our planet is threatened. Focusing on valuing nature at a young age is necessary to change our anthropocentric vision. For example, Tamrin (2018) has investigated the representation of ecocriticism and the preservation of nature in children's literature, finding that ecocritical literature can be an efficient approach to raise environmental awareness.

2.1.1 Representation of the environment in illustrations and text

In children and YA literature, representations of nature appear to be filled with flowering gardens, exciting woods, fresh mountain air, vulnerable and courageous animals, and more. Many of these have become an idea of what an ideal world should look like, or of how the environment that is threatened could both be changed or restored (Goga et al., 2018, p. 1). This presentation of nature may influence how young people understand and cope with environmental issues and concerns they have in their immediate surroundings (Massey & Bradford, 2011, as cited in Goga et al., 2018, pp. 1-2).

According to Trexler and Johns-Putra (2011) in their studies of representations of climate change in fiction, literature that deals with climate change and environmental disaster often imagine a future setting in a climate-changed Earth. Furthermore, a majority of fiction about climate change uses climate change as a setting, whereas the minority deals with it through plot and characters (p. 187-188). A lot of literature that involves environmental issues goes beyond only employing climate change as a setting, so “they begin to explore the relationship between climate change and humanity in psychological and social terms, exploring how climate change occurs not just as a meteorological or ecological crisis ‘out there’ but as something filtered through our inner and outer lives.” (Trexler & Johns-Putra, 2011, p.196).

In their study exploring representations of climate change in the public domain, Trexler and Johns-Putra observe how fear is utilized as a tool to get the viewers’ attention by breaking through the everyday life routine. However, using fear as a communication tool with the intention to provoke and motivate the viewer into taking action is a debated topic. For instance, when seeing representations that appeal to fear, many struggle with relating to the issue, viewing it as a distant problem. Climate-related fear appeals is thus hard to sustain in the long term (O’Neill & Nicholson-Cole, 2009, pp. 359-361). Additionally, people find it difficult to imagine the future, having an imagination limit at around 50 years (Drottz-Sjöberg, 2006, as cited in O’Neill & Nicholson-Cole, 2009, p. 361). The study’s findings shows that representations of climate change that are dramatic, fearful, etc., can successfully capture the viewer’s attention, as well as drive a general sense of the issue’s importance. People are, however, likely to feel distanced and disengaged from climate change through such representations, in which they tend to give them overwhelming feelings, or a feeling of being helpless when trying to comprehend their relationship to the issue. The study stresses that it is important that such fearful representations do not stand alone but that they are put in a context in which the students are situated and can relate. Moreover:

[...] dramatic representations must be partnered with those that enable a person to establish a sense of connection with the causes and consequences of climate change in a positive manner—so that they can see the relevance of climate change for their locality and life and see that there are ways in which they (and others) can positively respond (O’Neill & Nicholson-Cole, 2009, p. 376).

2.2 Environmental education

Some argue that aspects of environmental issues belong to natural science or social science. Alter (2015) disagrees and points out that in a EFL classroom that follows a communicative approach when teaching English, the involvement of environmental issues can be beneficial as it allows discussion and reflection, that further offers meaningful

content and authentic material in which the teacher can utilize in the language teaching (p. 64). Cates (2005) discusses the term 'Global education' in his study about global issues and language education. He begins by asking: "How can we prepare our students to cope with these problems?" and "What is our responsibility as language teachers in a world of war, poverty, prejudice, and pollution?" (p. 41). Moreover, he states that a global education approach to English-language teaching attempts to answer the questions. Global education can be defined as "education which promotes the knowledge, attitudes and skills relevant to living responsibly in a multicultural, interdependent world" (Fisher and Hicks, 1985, as cited in Cates, 2005, p. 41).

In other words, global education intends to combine empowering the students with knowledge, skills and commitment to become problem solving citizens, and to effectively acquire foreign language proficiency. The aims of global education are four: knowledge, skills, attitudes, and action. Firstly, the students need to acquire knowledge about global issues, including their causes and possible solutions. Secondly, the students must acquire skills of communication, critical and creative thinking, cooperative problem-solving, to be able to be problem solvers. Thirdly, global education aims to help students acquire global attitudes, including curiosity, empathy, and global awareness. The final aim is action. This involves democratic participation both locally and globally, as this is a necessity to solve global problems (Cates, 2005, p. 41).

Cates lists various reasons for why we should care about and implement world problems within the classroom. One of the major reasons is that "the education profession has always recognized its unique responsibility in promoting peace, justice, and an active concern for the world's problems" (p.42). The four aims of global education as well as global issues must be a part of the language teaching if the students are to become socially responsible world citizens (p. 44). When specifically addressing the climate crisis as part of the issues that should be covered by global education, it can be referred to as 'environmental education.'

During the 1960s, environmental education began to develop as a distinct field. This field has its roots in various related disciplines and draws from all of them by focusing on several basic issues: 1) "The interrelationships between natural and social systems," 2) "The unity of humankind with nature," and 3) "Technology and the making of choices. Developmental learning throughout the human life cycle" (Roth, 1992, pp. 16-17). According to Roth, one of the most important parts of education is to allow and help people live productive and successful lives. Additionally, students are provided the opportunity to become and function as responsible citizens. To do so, education needs to provide them with knowledge and skills. Helping the students to become responsible citizens is important for various reasons. Roth has listed fifteen reasons for why it is important to provide environmental education. Even though Roth's study was carried out three decades ago, it is still immensely relevant today. Four of them are particularly relevant to this project:

1)"All human activities have consequences for the environment both positive and negative," 2) "All sustainable human activities are dependent upon a clean, healthy, and productive environment," 3) The quality of our environment at any given point in time is the net sum of the consequences of individual and group actions, and 4) [The schools] bear a significant responsibility for empowering our citizens with the requisite understandings and skills necessary for routinely making the choices that are part of our individual, personal life styles and citizen action." (Roth, 1992, pp. 10-11).

Roth finishes by stating that a key objective of education must be to develop and foster environmental literacy (p. 11). Deetjen and Ludwig (2021) agree and stress the importance of having environmental education as a universal goal, adding that it should also be included in the EFL classroom (p. 2).

2.2.1 Environmental literacy

The primary objective in environmental education is the development of environmental literacy (Roth, 1992, p. 17). In Deetjen & Ludwig's 2021 article about greening the EFL classroom, a definition of the term environmental literacy is offered: "the ability to recognise and critically evaluate local as well as global environmental practices and problems from various perspectives and across multiple scales of space and time and to react accordingly both as an individual and collectively" (p. 3). Throughout the years, environmental literacy has developed from narratives of solitary encounters and celebration of natural wilderness, to elaborate on species extinction, global climate change, degraded habitats, and so on (Deming & Savoy, 2011, p. 6).

In Roth, for example, environmental literacy is defined as "the capacity to perceive and interpret the relative health of environmental systems and to take appropriate action to maintain, restore, or improve the health of those systems." (p. 17). Roth (1992) stresses that environmental literacy depends on the development of six major areas: environmental sensitivity, knowledge, skills, attitudes and values, personal investments, and responsibility, as well as active involvement (p. 18). In terms of environmental sensitivity, role models, such as the teacher, are one of the most important factors to develop their empathetic perspective on the environment (Barbas et al., 2009, p. 62). According to Mishra (2016), picture books can work effectively towards the promotion of environmental literacy, as "they breathe life into concepts that are perceived to be dead in the textbooks" (p. 93). Children of all ages can better understand the inter-relatedness of their own lives with their surroundings, as well as facets of the environment through the usage of related illustrations in books. Moreover, these books can combine helping readers think about issues and situations along with providing them with a story (p. 93).

2.2.2 Ecocriticism in the EFL classroom

The agenda of including ecocriticism in the classroom is part of a world-wide movement towards global citizenship. According to the United Nations, the term global citizenship "[...] is the umbrella term for social, political, environmental, and economic actions of globally minded individuals and communities on a worldwide scale.". The UN believes that "promoting global citizenship in sustainable development will allow individuals to embrace their social responsibility to act for the benefit of all societies, not just their own. (n.d.)

In their book about children as "ecocitizens", Massey and Bradford (2011) focus on the usage of environmental texts in positioning children in environmental discussions. Although this thesis is about YA literature, I argue that parts of Massey and Bradford's study are just as relevant for YAs as it is for children. One of the most elementary functions of children's environmental texts is to help develop them into empathetic and responsible human beings who acknowledge the importance of a sustainable development (p. 109). Bland (2014) argues that books can be particularly influential, and further potentially be beneficial for lower secondary students (p. 76). Here, the

narratology of environmental texts is identified as a beneficial factor that “[...] allows the readers to create a vivid mental model of what otherwise might be ignored.” (p. 76). In a study about using literature as a way of raising environmental consciousness, Tamrin (2018) found that, by implementing multimodal texts that represent nature, the readers’ curiosity will leave them wanting to explore their surroundings.

A study that researches the effects of climate fiction sums up the influential role of climate arts by stating that they can influence beliefs, behaviors, and attitudes considering climate change (Boykoff, 2019; Gabrys & Yusoff, 2012; Milkoreit, 2016, as cited in Schneider-Mayerson et al., 2023, p. 36). Even though my materials include two graphic novels that fit within the nonfiction genre, I believe the findings are relevant for these graphic novels as well.

For example, Schneider-Mayerson (2018) asks if literature, that explicitly focuses on climate change, succeeds in enabling readers to imagine potential climate futures, as well as persuading them of the urgency of climate change. After carrying out a survey of 161 American readers of 19 works, he suggests that “literature can be quite effective at enabling or compelling readers to imagine potential futures and consider the fragility of human societies and vulnerable ecosystems.” (Schneider-Mayerson, 2018, p. 495). Here, it is also stressed that such texts could effectively remind people of the severity and urgency of the climate change (p. 495). When implementing visual texts in the classroom, it is essential to take a closer look at the theory of critical visual literacy.

2.2.3 Critical visual literacy

Whereas visual literacy can be referred to as viewing and perceiving what has been visually received, critical visual literacy takes the process a step further and refers to the competence of critically and purposefully look at and respond to text and illustrations, through analyzing them and their meaning (Falihi & Wason-Ellam, 2009, p. 412). Duffelmeyer and Ellertson (2005) formulate three fundamental characteristics of a critically literate person:

- 1) understanding that a text is not a transparent window on reality, but is constructed; 2) developing and demonstrating rhetorical awareness both as a composer of text and as a reader of text; and 3) developing agency as a communicator and as a reader, rather than opting for the passivity that our popular media environment makes so easy (p. 1).

Close reading texts and interpreting them is important in the development of critical visual literacy, and thus in becoming a critically literate person. Developing a critical visual learning environment is crucial and empowering as it utilizes the learners’ dialogue and voices as in reflecting and constructing meaning from texts and images (Falihi & Wason-Ellam, 2009, p. 415). Furthermore, developing into a critical literate person involves the development of certain skills that are necessary to interpret the visual images’ content, to examine the social impact of the image, and to unpack and discuss the purpose, the ownership, and the audience. According to Falihi and Wason-Ellam (2009), “critical visual literacy is a pathway that empowers individuals to increase their effectiveness as members of a democratic society.” (p. 415). In this thesis, a visual text that depicts the lives of Indigenous peoples is included. It is thus important to look at indigenous peoples’ perspectives on climate crisis.

2.2.4 Indigenous peoples perspectives on the climate crisis

As many have argued (e.g., the United Nations, the World Health Organization, Gender cc), climate change is a problem produced by the world's wealthiest nations but suffered disproportionately by the world's poorest. Within these distinctions, we can further qualify that it is the production, consumption, and waste of the world's wealthiest that is the problem (Gaard, 2014, p. 7).

An example of a diverse group that suffers from or can suffer from climate change is indigenous peoples. The term 'indigenous peoples' itself, covers a wide set of communities. There are, nevertheless, similarities between groups of indigenous peoples. One example of such similarity is that most indigenous communities have existed as autonomous communities/nations before interaction with other civilizations. Regarding the climate crisis there are also commonalities that exist when considering vulnerability to climate change (Abate & Kronk, 2013, pp. 3, 5). Even though climate change is a global phenomenon, different areas and people are affected differently. However, unlike many other populations, communities of indigenous peoples tend to live in locations that are vulnerable to climate change.

An example of this is in Canada, where indigenous communities experience unpredictable weather and increasing temperatures that have led to the largest insect infestation in North America (Abate & Kronk, 2013, p. 182). The Sámi people of Scandinavia are also affected as their reindeer herds are declining in populations because the reindeers struggle to access food and an increasing number of reindeers fall through melting ice (Abate & Kronk, 2013, p. 183). Many indigenous communities also have strong connections to nature, the Earth, and their land. Climate change may thus lead to both physical and spiritual loss. This implies that not only does climate change threaten to change the environment dramatically, it also threatens culture and tradition. Having addressed and elaborated on several aspects of ecocritical theory and environmental education, it is now necessary to discuss the Norwegian 2020 curriculum renewal, specifically focusing on its environmental content.

2.3 Core curriculum and the English subject curriculum

Within the 2020 curriculum renewal, the Norwegian Directory for Education and Training incorporated three interdisciplinary topics, including 'sustainable development' as one of them (Ministry of Education and Research, 2017a). Two of the main reasons for why sustainable development is included in the curriculum renewal are the United Nations' Sustainable Development Goals (SDGs) of 2015 and the UN's 2030 Agenda (United Nations, 2015b). In 2015, the UN determined the SDGs which are a collection of 17 objectives that shall be achieved within the year 2030. The SDGs number 4.7, emphasizes that:

[...] all learners [shall] acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development." (United Nations, 2015a).

The implementation of 'sustainable development' as an interdisciplinary topic, is an example of a measure that supposedly is going to contribute to achieve the SDGs.

All three interdisciplinary topics that are incorporated in the core curriculum are based on challenges that depend on and demand engagement and efforts individually, locally and globally. The students should be introduced to challenges and dilemmas within these topics. More specifically, it is stressed that the students shall acquire knowledge about different aspects of sustainable development. Here, it is stated that 'Sustainable development' refers to protecting life on earth and providing for the needs of people who live here now without destroying the possibilities for future generations to fill their needs." (Ministry of Education and Research, 2017b). Amongst other things, this topic shall include insight into challenges relating to the environment and climate. Furthermore, the students shall acquire knowledge on different aspects of sustainable development.

In addition to environmental matters being included in an interdisciplinary topic, they are also integrated as one of six core values in Norwegian school systems. The core values: "[...] must be used actively and have importance for each pupil in the school environment through the imparting of knowledge and development of attitudes and competence." (Ministry of Education and Research, 2017c). 'Respect for nature and environmental awareness' are incorporated as a core value, helping students to develop an appreciation and respect of nature (Ministry of Education and Research, 2017d). Similar to 'sustainable development,' 'Respect for nature and environmental awareness' is also a measure that aims to set more focus on environmental matters for the 2030 Agenda, a set of universal goals to achieve sustainable development.

Further, the values highlight the necessity of developing climate and environmental awareness, involving information and insight into how our lifestyles impact the climate and nature. It is thus important to develop a willingness to protect the environment as it is within the children and young people who need to deal with the challenges of tomorrow. Knowledge, ethical awareness, and technological innovations are necessities to protect life on earth through lifestyle changes, including both individual changes and the broader social and political change, involving shifts in corporate obligations, in economics, in transnational politics, and so on (Ministry of Education and Research, 2017d).

In other words, there is a focus on environmental topics in the core curriculum, both included in the core values and in the interdisciplinary topics. However, in the English subject curriculum, both 'Sustainable development' and 'Respect for nature and environmental awareness' are excluded when specifying interdisciplinary topics and core values relevant for the subject. Within the English subject curriculum, there are outlined competence aims for after year 10. Obviously, the English subject's main target is to acquire language proficiency. The students are also expected to: "explore and describe ways of living, ways of thinking, communication patterns and diversity in the English-speaking world", and "explore and reflect on the situation of indigenous peoples in the English-speaking world and in Norway" (The Norwegian Directorate for Education and Training, 2020).

It can be debated, however, whether these competence aims allow the teacher to bring environmental content in the EFL classroom. Other competence aims state that the students are expected to "read, interpret and reflect on English-language fiction, including young people's literature ... read and present content from various types of

texts, including self-chosen texts,” and “ask questions and follow up input when talking about various topics adapted to different purposes, recipients and situations” (The Norwegian Directorate for Education and Training, 2020). These can be discussed in relation to the usage of graphic novels in the EFL classroom, especially in a setting when discussing environmental content, as Bland and Strotman (2014) state that nonfiction is not necessarily more “veracious” than fiction. It is easy to think of fiction only as something made-up and made for the sake of entertainment. However, they stress that there are various benefits of using fiction. Students are provided with 1) the opportunity to slip into characters which give various perspectives, and 2) an opportunity to develop argumentation skills, critical thinking and intercultural competence, which further is important for global citizenship (p. 39).

To summarize, the two main theoretical frameworks: ecocriticism and environmental education, shows that literature, such as graphic novels, is fitting when teaching and discussing environmental content. The English subject competence aims allow the teacher to utilize graphic novels in the classroom. The English subject can be recognized as an appropriate arena to get insight into topics such as the climate and how climate change impact people from different parts of the world, not only in Norway. The following section establishes the methodology, methods and materials selected for this thesis.

3 Research Methodology

3.1 Description of method

In the following section, I will present the methodology and methods chosen for this thesis. Moreover, a description of the materials is going to be provided. I have chosen to conduct a qualitative research study to answer my research questions, which are: 1) How is the climate crisis portrayed in the YA graphic novels? and 2) What are the potentials of using YA graphic novels to teach about the climate crisis in the lower-secondary EFL classroom?

Firstly, I will present and justify the methodologies that I have chosen for this research, which combine qualitative research and critical visual methodology. Secondly, I am going to present the chosen methods which are purposefully applied to help me answer the research questions. The chosen methods are multimodal analysis, analysis of pedagogical applications, and qualitative comparative analysis. Further, I aim to describe the materials and discuss the data collection process. Last, I will present my positioning as a researcher, as well as a description of the validity and reliability in this qualitative study.

3.2 Describing and defining methodology and methods

In the following pages, I will focus on the methodology and the methods applied for this thesis. Including and discussing methods are important as they provide information about the approaches used to reach conclusions. The applied methods work as a strategy that hopefully helps the reader, and me as a researcher, to uncover new information as well as create a better understanding of what the thesis aims to investigate. The methods chosen for this thesis are the ones I believe are the most effective and relevant to answer my research questions. As previously mentioned, I have chosen to do qualitative research to answer my research questions. Qualitative research focuses on collecting non-numeral data, for instance through observation, interview, or textual or visual analysis, to answer an open-ended question (Creswell & Creswell, 2018, p. 3, 16). The main instrument for collecting data and analyzing, is the researcher (Merriam, 2014, p. 16). In a qualitative study, the researcher selects the participants, documents, sites, or visual material purposefully that are helpful and useful in terms of understanding and answering the research question(s) (Creswell & Creswell, 2018, p. 186). With all this in mind, choosing a qualitative research method for this thesis is fitting because quantitative research would not allow me to make interpretations of the meaning of the data (Creswell & Creswell, 2018, p. 4), which is essential to answer my research questions. Moreover, the interpretations of the data are carried out and shaped through an ecocritical lens and in light of theory of environmental education. Viewing the data with these theoretical perspectives in mind, offers a transparent framework for my claims.

I have chosen to use critical visual methodology for my thesis. Images can be taken for granted and understood as neutral and innocent. Berger (1990) states that "every time we look at a photograph, we are aware, however slightly, of the photographer selecting that sight from an infinity of other possible sights" (pp. 4). Rose (2016) highlights that "visual imagery is never innocent; it is always constructed through

various practices” (p. 23). A critical visual methodology helps me uncover what is seen and how images are constructed beyond what the human eye is capable of seeing (Rose, 2016, p. 2). Using a visual critical methodology allows me to investigate how environmental topics are addressed in the selection of multimodal texts, and what role the images play in this depiction.

For example, Rose (2016) differs between vision and visibility. When using the term vision, Rose refers to what the human eye is capable of seeing (p. 2), whereas visibility is referred to as “how vision is constructed in various ways: ‘how we see, how we are able, allowed, or made to see, and how we see this seeing and the unseeing therein’ (Foster, 1988, as cited in Rose, 2016, pp. 2-3). Understanding these terms and the distinction between them allows me to explore the images in consideration to what the viewer actually sees, what the viewer is allowed to see and what the viewer is made to see. In other words, it allows me to interpret the meaning behind the images. For instance, in Figure 12 the reader views characters with radiation suits. However, when viewing the panel when having the context in mind, the reader is allowed, able and made to see the situation in a certain way.

Furthermore, it allows discussing how interpretation and perception depends on the reader and his or her approach, background and understanding. Rose (2016) has sketched a critical approach to images by highlighting three factors. Having a critical approach to images implies firstly that images need to be taken seriously which stresses the necessity of looking carefully at visual images. Secondly, the social conditions and effects of images as well as their mode of distribution needs to be considered. Lastly, a critical approach includes having to consider how the viewer has its own way of looking at images (pp. 22-23). People view images differently because images can be interpreted in different ways. Rose (2016) uses the terms sites and modalities when talking about interpretation of images. When discussing sites, she refers to the production, the images itself, circulation, and the audience (pp. 24-25). Each of the sites has three different aspects, called modalities. These modalities can contribute to understanding images critically: in technological, compositional, and social domains (Rose, 2016, p. 25-26). This allows me to for instance look at the genre, the audience, how different aspects can be interpreted, and the visual effects. The terms mentioned, such as vision, visibility, sites and modalities, are going to be used as instruments for analyzing graphic novels. Moreover, these can be valuable in a classroom setting as new keywords for students’ vocabulary that can be utilized when discussing multimodal texts.

3.2.1 Multimodal analysis

I will conduct a multimodal analysis since a multimodal text creates meaning through combining different modalities. A multimodal text is a combination of several modes of expression, in which the different expressions interact to create meaning (Løvland, 2010, p. 1). The meaning of the text is therefore made through the interaction between the different modalities (Maagerø & Tønnessen, 2014, p. 23). To answer my research questions, I must therefore look at how images and text interact in several ways to make meaning. An example from *Paying the Land* (Figure 1) displays how text and images provide different information and interact to make meaning. For instance, the text says: “And I remember our lives being dictated by the environment by the animals” (p. 6). The images on the page give additional and more specific information which depicts people fishing and cooking meat. There are different ways of combining text and illustrations in a graphic novel. First, there are duo-specific combinations in which the

illustrations and text communicate essentially the same meaning. Secondly, the additive combination in which the illustration amplifies or elaborates on the text or vice versa. Additionally, there are the picture specific combinations in which the text does not do more than add a soundtrack to what is shown (McCloud, 1993, pp. 152-154). Applying a multimodal analysis allows me to investigate how the images and the text interact in light of the research questions.

Bezemer and Carey (2018) have provided a description of the steps in a social semiotic approach to multimodal research. I believe that parts of this are transferable to a multimodal analysis as well. In the first step of a multimodal analysis, I collect and log data. In studies in which static texts, such as books, are in focus, the data can be more readily available than if the focus would be on face-to-face interaction. The process of collecting and logging data, includes a concise description of particular excerpts and provisional analytical notes (pp. 185-186). The next step is about viewing the data that is collected. When conducting a multimodal analysis, I must view the data repeatedly. Bezemer and Carey (2018) states that the procedure involves "individually and jointly engaging with the collected materials, sometimes covering one mode and focusing on the other and asking 'what sense can I make of this text if I can't see the images?' or 'what sense can I make of the text if I change its layout?'" (p. 186). Using the research questions as a foundation when viewing the data and organizing it, is beneficial because it can help develop analytical ideas. The third step concerns sampling data. Choosing examples of focal text and/or page(s) from the book is a part of sampling data. The focal text/or page(s) that is chosen is guided by the research question and what I want to find. The last step involves analyzing data, collected in the previous steps (Bezemer and Carey, 2018, pp. 186- 187). In addition to the previously mentioned steps in a multimodal analysis, I believe terms for analyzing graphic novels are useful supplements in the analysis process. Hintz and Tribunella (2019) discuss graphic novels in their book about reading children's literature. Here, terms to use when analyzing graphic novels are presented. I believe these terms are useful when conducting an analysis, I will thus use them when analyzing the four texts. The terms I aim to use are panel¹, gutter², thought or speech bubble³, caption⁴, motion lines⁵, symbols⁶, sound effects⁷, and closure⁸ (n.p.).

3.2.2 Analysis of pedagogical applications

The analysis of pedagogical applications is based on the theoretical framework of project-based learning (PBL), which highlights disciplinary learning, authentic work,

¹ According to Hintz and Tribunella (2019) "A panel is a basic visual unit comprised of a single image, usually framed by a four-sided outline or border, though some panels are round or lack borders." (n.p.).

² The term gutter refers to the space between panels. For instance, action can be extended into the gutter (Hintz & Tribunella, 2019, n.p.).

³ Thought and speech bubbles are text surrounded by white spaces, that indicate dialogue or thought (Hintz & Tribunella, 2019, n.p.).

⁴ A caption is «Words that appear in boxes inside a panel or gutter constitute a caption" (Hintz & Tribunella, 2019, n.p.).

⁵ Motion lines are used to indicate movement or feeling. This can be utilized to show action or to create impression (Hintz & Tribunella, 2019, n.p.).

⁶ Scott McCloud utilizes the term symbol which he refers to as visual objects that have culturally specific meaning (McCloud, 1994, as cited in Hintz & Tribunella, 2019, p. 12).

⁷ Sound effects are represented by onomatopoeias. Such onomatopoeias can be "boom" or "wow" (Hintz & Tribunella, 2019, n.p.).

⁸ As stated in Hintz and Tribunella (2019), closure is "[...] the process of filling in missing information to form a complete mental picture. Closure usually occurs automatically and unconsciously as the reader looks at a panel and moves between panels." (n.p.)

collaboration, and iterative culture (Grossman et al., 2019). According to Blumenfeld et al. (1991), PBL is an approach designed for student engagement when it comes to exploring authentic issues (p. 369). PBL gives the opportunity to represent knowledge in a variety of ways, for instance by using graphic novels as an approach, as well as the students are given the opportunity to pose and solve real problems (p. 370). Applying an analysis of pedagogical applications allows me to research how the different novels potentially can be used as a tool in the classroom. Grossman et al. (2019) states that PBL “[...] may be suitable for all students, but no single instructional practice is appropriate all of the time” (p. 45). This implies that I have to select instructional practices that are appropriate for the context and purpose of the lesson. In order to conduct a systematic and straightforward analysis of pedagogical application, I believe that it is beneficial to base the analysis on some of the characteristics of PBL. The characteristics guide the analysis, which implies that the same matters are analyzed in each material. The characteristics of the approach are: 1) “Allow students to study a challenging problem”, 2) “engaged in a sustained inquiry”, 3) “find answers to authentic work” 4) “reflect on the process”, and 5) “critique and revise the work” (Grossman et al., 2019, p. 44). Along with PBL, I am also going to have ecocritical theory, environmental education, environmental literacy, and global education in mind when conducting the analysis of the graphic novels.

3.2.3 Qualitative comparative analysis

I am going to use elements of qualitative comparative analysis (QCA) as a part of this thesis. This allows me to look deeply into how the materials differ from one another and what potential they have in a classroom setting. I have chosen to use Mello (2021) as my main source when introducing QCA. This research focuses on QCA in the social sciences, but I do believe that it is transferable to be utilized in this thesis as well. Mello (2021) states that “[...] there are a variety of different approaches and variants to suit all kinds of research aims” (p. xv). QCA was originally developed by Charles Ragin and was first formulated as a case-based method for “comparing wholes as configurations of parts” (Ragin, 1987, as cited in Mello, 2021, p. 2), which captures the essence of what it involves utilizing this method. Applying QCA for this thesis therefore enables analysis of multiple cases, looking at a case in relation to another, as well as distinguishing their similarities and differences. For instance, when looking at how the different materials portray the climate crisis, it can be beneficial comparing them, focusing on their different traits in order to discuss what their potential are in the EFL classroom. Having the chosen methodologies and methods in mind, I will further describe and discuss the materials chosen for this thesis.

3.3 Description of materials

In this thesis, I aim to investigate how graphic novels can be used as teaching materials to discuss the climate crisis as well as to explore their potential in the EFL classroom. I will also examine how environmental issues are addressed in the chosen graphic novels. To find my data, I have chosen to analyze four different young adult graphic novels: *Paying the Land* (2020), *Cormorance* (2018), *Here* (2014), and *A Fire Story: A Graphic Memoir* (2019).

3.3.1 Materials

This study aims to explore how environmental issues are addressed and presented in YA multimodal texts, and more precisely in graphic novels. Graphic novels are “juxtaposed pictorial and other images in deliberate sequence intended to convey information and/or to produce an aesthetic response in the viewer” (McCloud, 1994, p. 20). I have selected to analyze four different materials. The rationale behind choosing several materials is that I believe various samples will provide a broader range of how the climate crisis is portrayed rather than analyzing and discussing only one text. Applying several materials permits me to compare the different texts. The selection will also allow me to investigate what potential the different graphic novels have in the EFL classroom. The selection of graphic novels is based on what I found essential to answer my research questions. First of all, when selecting graphic novels, I had to choose books that are age-appropriate. However, Hintz and Tribunella (2019) stress that most graphic novels can be read by both adults and children. I argue that the chosen material can be read by both YA and adults, due to their content, which thus make them age-appropriate for 8-10 graders. Secondly, the graphic novels have to include some extent of environmental content that potentially can be used as an approach to discuss the climate crisis, which is elaborated in the following chapter. Other graphic novels were considered as well when selecting materials. These are listed below (Appendix 1), and I believe the listed graphic novels are great alternatives in the EFL classroom when the intention is to address and discuss environmental issues.

The graphic novels have different topics, but they all include environmental aspects to different extents. They have significant themes and concepts that can be used in a classroom approach to discuss the climate crisis. For instance, *A Fire Story: A Graphic Memoir* is a visual narrative that addresses the time before, during and after a wildfire, which was provoked by changes in the environment. Whereas the graphic novel *Paying the Land* enables the readers get insight into dilemmas: between “the old way” and the “modern way,” and between protecting the environment and poverty. In other words, the novel surveys the conflicts between job opportunities and resources (such as gas and oil), and the parallels between exploitation of Canadian forests and the extraction of Indigenous culture. *Here* is a graphic novel that shows American life over thousands of years. The novel warns the audience about the stewardship of the planet and highlights the importance of taking responsibility in regard to taking care of the planet. The picture book *Cormorance* is about connecting with the natural world in which the wonderment of the nature is highlighted. Using several materials allows the researcher to compare them and how they potentially can be used in various ways in the classroom.

The diversity of the texts, however, must be addressed as the four novels are written by (three white) men. *Cormorance* is written by the British author Nick Hayes. The American illustrator and author Richard McGuire has written *Here* and Brian Fies, who also is an American illustrator and cartoonist, has written *A Fire Story: A Graphic Memoir*. *Paying the Land* is written by the Maltese-American cartoonist and journalist Joe Sacco. It is important to address and recognize that the selected materials lack authorial diversity. It is however worth mentioning that two of the texts, one memoir and one true story, are based on first-hand testimonies. Moreover, it may be useful to bring different theoretical perspectives on environmental graphic novels into the discourse as part of the methodology. The inclusion of different theoretical perspectives can show how diverse

ways of thinking about these issues emerge from the texts in conjunction with the theory.

3.3.2 Data collection process

With the intention of answering the research questions, I have purposefully selected three different analytical approaches to the materials: multimodal analysis, comparative analysis, and analysis of pedagogical applications. Note that the methods applied in the data collection process are described in more detail above. The methods and the theoretical framework are going to be utilized when collecting data. I found the multimodal analysis suitable for answering my research questions because both text and visuals play a role in conveying meaning (Løvland, 2010, p. 1), and I thus find it important to take a deep dive into how the two factors interact and what impact this has when reading and interpreting the text. Secondly, a comparative analysis was applied because I find it essential to investigate the potential that each text has in the classroom. To do so, I find it interesting to compare them to each other and discover differences or similarities. This may for instance result in finding that one of the texts is better suited in a classroom setting.

Lastly, an analysis of pedagogical applications is suitable because it provides a didactical aspect to the study. Applying this analysis allows me to detect and view how the different texts can be used in the classroom. Using specific methods and by carrying out the analysis having the theoretical perspectives presented in mind, assures me that I am looking at and investigating the same matters when analyzing each material, which is further essential to answer the research questions. In the next chapter, I aim to investigate and acknowledge how my role as a researcher influences and shapes the data collection process.

3.4 Positioning and ethical considerations

3.4.1 Positioning

In this chapter I will address my positioning in this research. It can be challenging to be completely neutral when conducting a study. Creswell & Creswell (2018) refers to Locke, et al. (2013) when discussing the researcher's role. Here it is stated that: "Qualitative research is interpretative research; the inquirer is typically involved in a sustained and intensive experience with participants. This introduces a range of strategic, ethical, and personal issues into the qualitative research process" (p. 183). Moreover, Merriam (2014) agrees by stating that the researchers have shortcomings and biases that may have an impact on the research (p. 16). This implies that my interpretations of the graphic texts might be influenced by my own "subjectivity" to some extent. It is thus important to identify these "subjectivities", instead of trying to eliminate or avoid them. This is necessary in order to address how they might shape the interpretation of data, and further the findings (Merriam, 2014, p. 16).

I am not an expert on the climate crisis. I am, however, concerned with maintaining and protecting the natural environment as I am aware of the importance it has. This importance is shown through UNs facts and findings on climate, including how the climate is linked to economy, social issues, and nature (United Nations, n.d.). It is essential that I, as a future teacher, can pass this engagement and curiosity on to my future students or at least provide knowledge about, and perspectives on, environmental issues. In addition, I live in a rich, small, privileged country (Norway), which is not

immensely influenced by global warming compared to other parts of the world: for instance, people who have been forcibly displaced because of floods or extreme temperatures. However, even though we are not as affected as other countries, we are still affected by it. Also, even though we are a small country, we can still make a difference and pose as a good example by taking environmental choices and action, since climate change affects us all. This emphasizes the importance of highlighting this to the future generation in our classrooms.

3.4.2 Ethical considerations: Validity and reliability

When conducting research, it is important to consider validity and reliability. As stated in Brink (1993), "Meticulous attention to these two aspects can make the difference between good research and poor research and can help to assure that fellow scientists accept findings as credible and trustworthy" (p. 35). Considering validity and reliability are especially important in qualitative studies since the researchers' subjectivity can influence the interpretation of the data. Validity refers to the accuracy or truthfulness of the research and implies that a study that is valid should measure what is supposed to be measured, whereas reliability refers to the consistency, stability and repeatability. In other words, it refers to getting the same results over repeated measurements and that the methods are used in the same way (Brink, 1993, p. 35). When it comes to how reliability and validity are considered in this research, I have first of all explained how I will gather my data through the chapter about methodology and methods and in the data collection process. Secondly, I have given a clear description of what I aim to analyze and look at in the selected materials, which I believe shows consistency, stability, and repeatability. In addition, I refer to the theoretical framework from which I base my analysis. The authors of the theories are experts of the theory, which I am not. Basing my analyzes on a framework shows both where I acquire knowledge from and that I base my analysis on someone who has high proficiency on the subject matter.

As briefly mentioned in the previous section in which I discussed my positioning, I as a qualitative researcher need to be aware of and acknowledge why it is important to be reflexive in regard to the role that I have in the process of collecting, analyzing, and interpreting the data. Moreover, I must recognize how I as a researcher could be subjective when interpreting data and that it is important to be reflexive in what preconceived assumptions I bring into the study (Korstjens & Moser, 2018, p. 123). However, the aim is to be as objective as possible in the interpretations and analyzes that I am going to conduct, which is key to maintain a trustworthy and valid research.

4 Analysis of Research Findings

4.1 Paying the Land

Joe Sacco is the author of the graphic novel *Paying the Land*, and it was published in 2020. The graphic novel's motifs are culture, conflict, nature, and loss. It consists of 260 pages, divided into chapters. The graphic novel is a multimodal text, in which each panel consists of both many illustrations and much text in captions and speech bubbles (Figure 1). It mostly consists of additive combinations between words and images in which they amplify or elaborate on each other (McCloud, 1992, p. 154). The novel consists of sharp and detailed, black and white illustrations (Figure 1).



Figure 1: The Dene in the Mackenzie River Valley (Sacco, 2020, p. 6)

The story is about The Dene, an indigenous group who lives in the Mackenzie River Valley, and their response to the Anthropocene. Although the story is not written by a Dene, it is written from extensive interviews, providing the reader with first-hand testimonies of Denes who were willing to share. According to the Dene, it is the land that owns them, and not the other way around. Nature is fundamental to their livelihood, in which they fish and hunt for food, use moose skin to create boats, make clothes out of

animal skin, and more. This territory also consists of natural resources, such as oil, gas, and diamonds, which are valuable in terms of economy. Corporate interests wanted to take advantage of this in the twentieth century, and in return the Dene were offered a small amount of cash. This exploitation of natural resources, however, led to the landscape being scarred by roads, pipelines, and waste. Many Dene started working in the mines, which resulted in many struggling with debt, alcohol and drugs. Not only does the story portray how the Indigenous people were affected by this, it also portrays other difficulties the people had to face, such as abuse and alcoholism.

In the middle of the story, Sacco writes: "Dear Reader, something has been circling above these stories, in fact, haunting this entire project. Perhaps I should have mentioned it before. All I have described this far are its effects, but now we must look its way" (p. 121). Not only did the economic colonialism involve scarring the landscape, toxic waste, alcohol, drugs, and debt. It also involved what were called residential schools. Sacco discovers that residential schools, which forcibly removed indigenous children from their homes, played a central role in why people were struggling. In residential schools, the aim was to remove all aspects of indigenous culture, including language, clothing, hair, and names. Violations were punished with abuse: psychological, physical, and sexual. Additionally, *Paying the Land* depicts how difficult it was for the people who had to attend residential school later in life. The second half of the book focuses on the residential schools and how the people struggled later in life because of economic colonialism. The environmental changes are also addressed later in the story. Sacco observes:

Victor is a trained monitor and so is Jessica. She says people have been "seeing changes" in the texture of the trout [also other fish]. [...] The water level is lower than it used to be. There's higher winds so the humidity isn't staying in the air, it's being blown so we're getting very dry, hot summers. [...] Global warming is doing the best it can to [ruin] what I'm trying to do (pp. 196-197).

This passage highlights why it is important to also get perspectives of others, for instance indigenous peoples, who *can* be more vulnerable to climate change since some depend on fishing, hunting and cultivating their own food.

The graphic novel has many panels that depict the life of the Dene. As shown in Figure 1, the reader both gets to see how they fish and how they cook. They also depend on the moose, which is illustrated, for clothing and for building boats. Climate change is mostly used as a setting in *Paying the Land* as the story also addresses other topics, such as residential school, alcohol and drug abuse, and so on. The story is a great example of the relationship between climate change and humanity, for instance by showing exploitation of natural resources, and addressing how climate change has affected Dene lives, which I am going to elaborate on afterwards. For Sacco, climate change does not only occur as something abstract and distant but something that applies to and impacts the lives of the Dene (Trexler & Johns-Putra, 2011, p. 196).

Paying the Land portrays various dilemmas that especially the Dene had to encounter in relation to the environment. First of all, the book portrays how they were attempting to find a balance between the traditional way that they have been taught by their ancestors, and the modern world which gave new and more effective opportunities. For instance, the dog sleds could be replaced by skidoos. The difference in the understanding of progress between the Indigenous people and the Western world is highlighted, which further leads to ambivalence, conflict and disagreement. Whereas the Western world views progress as modernization, the Dene views progress as "[...]

becoming a wiser person... It means living with the land and nature as close as possible” (p. 69). And with modernity, such as mining, residential schools, foresting companies, the Dene realize that they cannot protect their land. Secondly, The Dene face the issue of how to preserve a healthy relationship with nature whilst managing financially. Moreover, they encounter the dilemma between protecting the environment versus fighting unemployment and poverty, as for instance the gas and oil industry gives job opportunities to Dene workers.

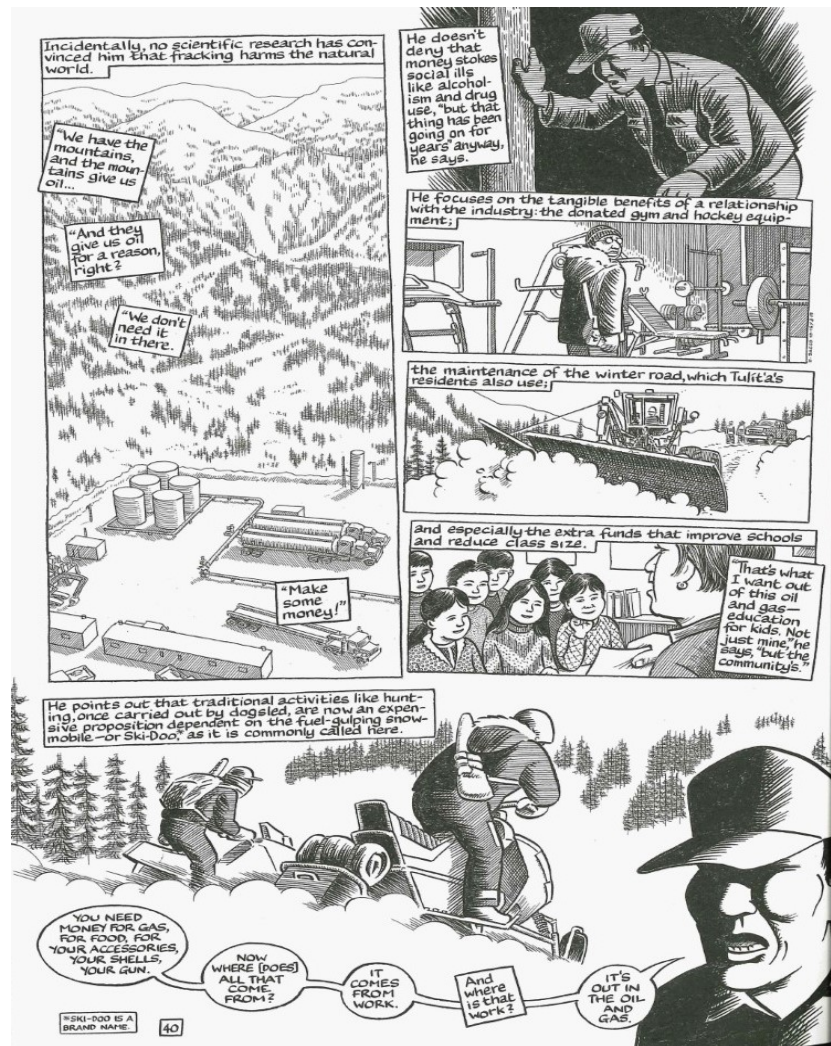


Figure 2: Job opportunities (Sacco, 2020, p. 40)

The story of the Dene describes a known and complex issue, which is the greatest collective action problem of our time. On the one hand, fossil fuels such as gas, oil and coal, are the largest contributors to the climate crisis. On the other hand, fossil fuels are also providing jobs, financial stability, and more. One of the people who agrees with working with fossil fuels observes: “You need money for gas, for food, for your accessories, your shells, your gun. Now where [does] all that come from? It comes from work. And where is that work? It’s out in the oil and gas.” (p. 40, Figure 2). This quote underscores what many find difficult regarding climate change. This section has given an analysis of a graphic text that potentially can be used in the EFL classroom, that primarily provides with the Indigenous peoples’ point of view on climate changes. In the following section, I am going to present and analyze a different graphic text that is a potential alternative to approach the climate crisis.

4.2 Cormorance

Cormorance, written by the British writer and illustrator Nick Hayes, was published in 2016. The motifs in this story are friendship, nature, loss, and grief. The story follows two anonymous protagonists, a girl and a boy, who both suffer from grief: the boy's mother died in an accident and the girl's mother is severely ill. *Cormorance* is a multimodal text, mostly consisting of illustrations. The only text used in this text are onomatopoeias such as "peep," "kreeyah," "raawk," and "caaaawk," which are sound effects that demonstrate the sound of birds (Figure 3). Also, onomatopoeias such as "broom" and "dingadingadinga" are used to indicate sound. This graphic novel is picture specific, in which there are only words in the form of soundtracks added to the visually told sequence (McCloud, 1993, p. 153). The book is divided into three chapters. In the first chapter the reader meets the boy protagonist, whereas the story of the girl is the focus in the second. The last chapter displays their first meeting in the bird reservoir.



Figure 3: The bird reservoir (Hayes, 2018, n.p.)

In chapter one, we meet the boy protagonist. The book starts with the boy and his parents moving to a new house in a new place. Here, he gets his first close meeting with a cormorant which was sitting inside their new house. Starting at a new school does not go well for the boy. When being at school, he often looks sad, and it appears as if he has no friends. Further in the story, he and his mom are counting down days till he turns eight years old. The two have a close bond and he has a lot of love for his mom as she reads for him, hugs him, and sends small notes in his meal box that he looks at throughout the school days. On his birthday, which he has been waiting impatiently for, his mother is hit by a truck and dies. The boy is left with a feeling of anger, frustration, and sadness. After this, the grief gets overwhelming, so he throws the photos of his mother away by tying them to a balloon and throwing it out the window. His father

struggles after losing his wife, and often smokes and drinks, which results in it being more difficult for the boy to feel at home.

After a while, the boy regrets getting rid of the photos, so he starts a trek to retrieve them as he can see the balloon getting stuck in a tree. In his attempt to get it back, the boy walks along a fence. Out of frustration of not finding an opening, he kicks the fence which leaves a hole. This hole leads him into a bird reservoir which is set in the middle of an urban town. In this reservoir there are various birds, trees, insects, and a lake with fish (Figure 4). He can see the balloon across the lake, on a small island. The boy wants to swim and get it, wearing his diving goggles and snorkel. However, he is scared to get into the water because of his swimming skills, and that he does not know what is in there.



Figure 4: The bird reservoir (Hayes, 2018, n.p.)

In the second chapter, the reader is introduced to the girl protagonist. The girl is very interested in swimming, and has been swimming since she was little. She spends a lot of time with her parents at the pool, and she has a dream of becoming a professional swimmer like her mother. In the girl's chapter, the reader realizes that the boy from chapter one, started in her class after moving. When he is having his first day, she looks at him with concern and curiosity. We also get a glimpse of her looking concerned at him when he is taken out of class because of his mother's accident. In one of her swimming competitions, we get a foreshadowing that something is wrong with her mother as she coughs and further leaves. Later, we can see that she coughs blood and has to stay in bed resting. In her next swimming competition, neither of her parents are there. Her mother is now critically ill. One day, the pool is closed. She then finds a map searching for a lake to swim in instead. When attempting to find this lake, she comes across the hole in the fence that was made by the boy. She enters the bird reservoir, and the two protagonists meet.



Figure 5: Human-animal relations (Hayes, 2018, n.p.)



Figure 6: Grief (Hayes, 2018, n.p.)

In the last chapter, the girl jumps right into the lake. Because of this, the boy dares to do the same, and she helps him get to land. Under the water, he sees glimpses of his mother. Together, they find the pictures of his mother that he earlier sent away, nearby a bird mother who is feeding her children (Figure 5). This can be interpreted as a symbol that symbolizes the concept of a mother-child bond, as both protagonists had a close bond with their mother. They look at the pictures together, and they both think of their mothers (Figure 6). At the end, all the birds in the reservoir are making a “caaawk” sound around them. The boy and the girl joyously join them, making the same sound together with the birds.

The bird-filled reservoir becomes their safe place after going through a trauma, in which they seek refuge from sadness together. The boy seeks refuge from the loss of his mother and the difficulties he experiences at home, whereas the girl seeks refuge from a difficult time in relation to her mom being severely ill. It seems as if both protagonists grew up in an urban and denaturalized environment, and that being at the reservoir and in nature is something that brings comfort. Their home in the city and the bird reservoir become a contrast to each other, in which their home in the city is associated with chaos, negative feelings, and trauma, whereas the reservoir is associated with peacefulness, freedom, and a free-space.

In the graphic landscape, the wonderment of the natural world is highlighted by surrounding it with urban and contemporary settings (Figure 3). In the background, there are several skyscrapers and other modern buildings, smoke is coming out of the chimneys, and cranes. Plus, the birds frequently show up throughout *Cormorance*, appearing in several key moments in the protagonists’ lives. Visually, the book has wavy panels that illustrate waves which provide a continuous focus on nature. Also, the book is muted with few colors, mostly different shades of blue, which I believe helps focus on the images and on the environment as they are earth tones.

In this section, an analysis of *Cormorance* has been conducted. This analysis has shown a graphic novel that does not portray climate change directly, but still involves environmental content. In the following section, I am going to present an analysis of a graphic text that, in contrast to *Cormorance*, depicts climate change in a more direct manner.

4.3 Here

Here is a graphic novel written by Richard McGuire, an American illustrator and graphic novelist. The story was originally conceived in RAW Magazine in 1989, as a six-page short comic strip. The graphic novel *Here* is thus a reworking, extending the idea from 1989. The story is set in a single spot, which supposedly illustrates the living room in the author’s childhood home. The motifs in this story are nature, time, and human impacts on the environment. McGuire takes the reader on a journey through time by experimenting with how comics are made, in which various moments of time are overlaid in the same physical space. In addition to illustrations, each page includes text in speech bubbles to different extents.

For instance, on each panel there is a label with the year. Looking at both the visual and the year creates a greater understanding of the panel since time is an important aspect of the story. These moments of time - varying from 3,000,500,000 BCE to 22,175 AD are presented as floating panels on the pages, in which each panel has a label with the specific year. The story jumps back and forth in time, which makes it more demanding for the reader in terms of understanding the gutter and closure. Often, closure occurs automatically as most cartoons have a chronological storyline. *Here* does not, which means that the reader has to be patient in the reading process as the story can seem confusing in the beginning. Throughout the novel, the reader gets to see familiar human experiences, such as conversations, deaths, tv watching, births, and more. More importantly, the story includes various environmental topics.

The story is centered in the Anthropocene, but it also gives insight into the distant past and the distant future. According to Steffen et al. (2007), the term Anthropocene is an epoch that began around the 1800s along with the industrialization (p. 614). They write: "Human activities have become so pervasive and profound that they rival the great forces of Nature and are pushing the Earth into planetary terra incognita. The Earth is rapidly moving into a less biologically diverse, less forested, much warmer, and probably wetter and stormier state." (Steffen et al., 2007, p. 614). Moreover, *Here* illustrates how nature changes over time, both naturally and by human impact (Figure 7, Figure 8, Figure 9). In these examples, one can see that the spot has changed from a swamp (Figure 7) to a forest with only a stream (Figure 8), to a house (Figure 9).



Figure 7: The spot in 8,000 BCE (McGuire, 2014, n.p.)



Figure 8: The spot in 1573 (McGuire, 2014, n.p.)



Figure 9: The spot in 1989 (McGuire, 2014, n.p.)



Figure 10: The spot in 2113 (McGuire, 2014, n.p.)

It is clear that the spot has changed from 5,000 BCE to year 1573, however this is something that has evolved naturally. Whereas between 1573 to 1989, it is clear that there are human activities involved in the changes. For instance, the spot where it used to be a forest and a swamp has become a house where people live. This includes deforestation, mostly carried out by humans. These illustrations, put together, highlight the difference between the time before the Anthropocene and the time during the Anthropocene. In other words, it shows how the spot has changed both naturally and through human impact.

As mentioned, McGuire provides insight into a vividly imagined future, focusing on years 2113, 2213, 2313, 10,175, and 22,175. In year 2113, the house has disappeared, and the spot is under water (Figure 10). The background panel provides the reader with the first glimpse of the author's imagined future. It is a known fact that a consequence of global warming is more extreme weather, and that the ice melts which further can lead to floods. By depicting the future in a realistic form where the focus lays on a known consequence of global warming, the imagined future becomes more imaginable.



Figure 11: The spot in 2213 (McGuire, 2014, n.p.)



Figure 12: The spot in 2313 (McGuire, 2014, n.p.)

The reader is also provided a scene from 2213, which appears as a guide showing tourists how it once was, by using computer technology. Here, the reader gets glimpses of how the room has looked throughout the years (Figure 11). The glimpses that the guide shows the audience only shows the time of the Anthropocene, and the time before is naturally not shown as the humans did not have access to photography. By showing moments from earlier in the Anthropocene, specifically the time in which the spot has become a house, together with how the spot in 2213 which is under water, I believe emphasizes human activity as a cause of the flood.

In year 2313, the main panel visualizes the continuation of the former panel (Figure 11, Figure 12). It is up to the reader to imagine what has led up to this situation. This demonstrates the difference between vision and visibility (Rose, 2016, pp. 2-3). The reader sees people with radiation suits and a person holding a radiation detector showing the number 8,96. However, in this context in which the environmental challenges and human impact on climate change are in focus, the reader is made to see the situation as a consequence of human activity.

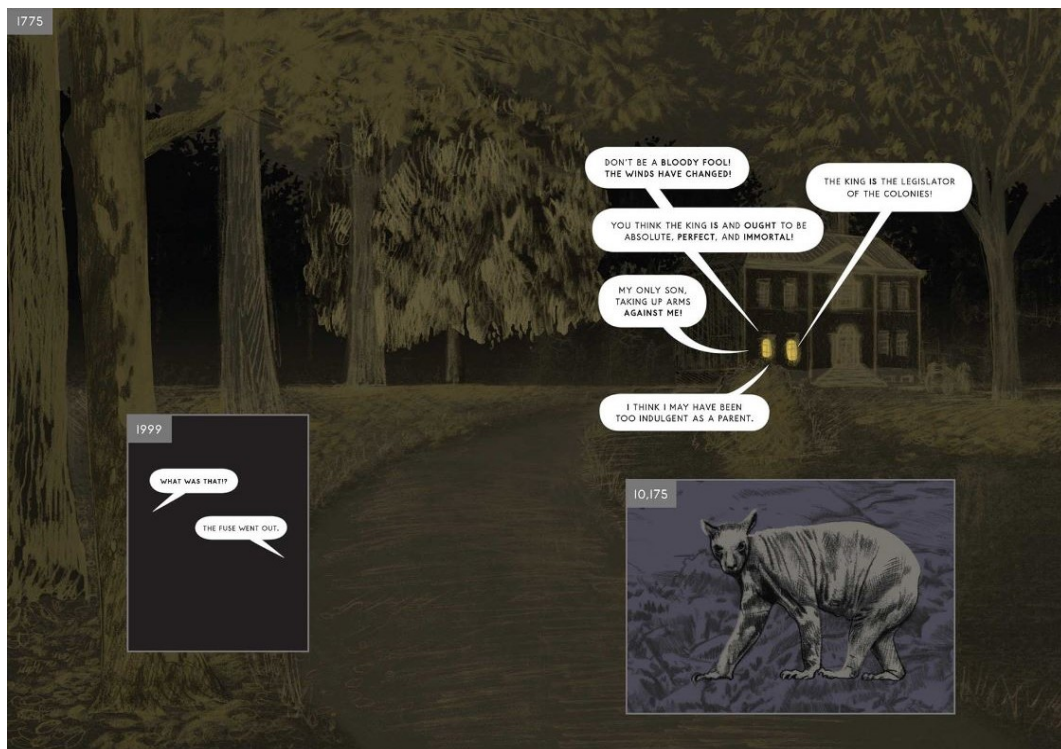


Figure 13: The spot in 1775 (McGuire, 2014, n.p.)



Figure 14: The spot in 22,175 (McGuire, 2014, n.p.)

In year 10,175 the reader gets a glimpse of a strange animal-like creature. The creature does not exist today and looks as if it could be a mix between different species. However, the creature does not seem scared as it stares at the reader which can give a feeling of unfamiliarity and intimidation (Figure 13). In 22,175, there are illustrations of flowers, a dinosaur-like creature and a fish-like creature that can survive on land (Figure 14).

Based on this imagined future, the future of humanity does not look bright. There is no sign of humans or human activity in the panels that represent the distant future after 2313. Rose (2016) points out that imagery is never innocent (p. 23), and in this case, I argue that the panels in *Here* are purposefully arranged in terms of their composition and presentation. For instance, McGuire utilizes the aspect of time as a means to underline how earth has changed, both naturally and by human impact. Using the aspect of time as a tool, makes the story more realistic. Year 22,175 may feel very distant to the reader, especially when it involves dinosaurs and fish that lives on land, which further makes it less realistic. However, since McGuire has chosen to include examples from many different years, both near future and distant future, the story gets both more believable, realistic, and logical. I interpret that year 22,175, which is the chronological end point, shows how nature and the environment finally becomes liberated from humans, and that it is the extinction of humanity which allows the earth to be reborn.

The panels in *Here* demands interaction from the reader. This means that even though the panels are not innocent, the novel still allows the reader to interpret based on their own personal background, knowledge, concerns, and emotions. The concepts of vision and visuality (Rose, 2016, pp. 2-3), and how these differentiates from one another, are something that repeats throughout the graphic novel. When seeing each panel individually, the reader only views what is actually happening in that exact panel.

When viewing it in the context of the novel, which is defined by environmental challenges and humans affecting the environment negatively, the meaning of the panel can change entirely. Instead of seeing the panel in Figure 14 as a natural development of the planet, the reader is made to view it as an unnatural development, strongly affected by the human species, when seeing it in light of the novel's context.

In the beginning of the book, there is another relevant example (McGuire, 2014, pp. 34, 42). The images of keys, a watch and a wallet recur in three different dialogues between the same couple, on three different occasions: in 1958 and 1959. Later in the story, the keys, watch, and wallet are mentioned again, only now the plot is set in 2213 (McGuire, 2014, pp. 129-131). These three panels show a guide explaining to a group of people what these three items are. In the first panel, she says: "In the twentieth century everyone carried a few essential items. First, was a small circular device that could approximate the hour of the day. It was made of metal and glass attached to a strip of animal hide and worn around the wrist. It was called a watch because it was looked at so often." (McGuire, 2014, p. 129). In the next panel, she says: "Another item is a rectangular piece of animal hide which was folded and stitched. [...] It held important papers of identity and what was once called currency." (McGuire, 2014, p. 130). In the last panel, the guide says: "The last item is a key. Made of metal that was cut and filed into a unique shape. These mechanical systems were commonly used to secure homes and property." The key is made of metal which comes from nature, and the home in which it is meant to secure is mostly made of and contains naturalistic materials. The same goes for the watch and the wallet as well.

When specifically thinking about the watch and the aspect of time, there is something human, or at least something very Western about the concept of keeping track of time and being concerned with time. However, as one can see throughout the book concerning human extinction, the concept of time is determined by the environment and that it is humans themselves that has affected the environment to give the human species less time. I further believe that the key, watch and wallet are used as symbols that represent how humans depend on nature and the material world. Also, that our dependence on nature contributed to our own distinction. Furthermore, I argue that the graphic novel can function as a critique to human nature and human activities that have influenced the environment negatively. The reason for this is that the novel includes several aspects that supposedly are consequences of global warming which implicitly communicate to the reader that human actions are the cause of their own extinction.

The interpretative graphic novel *Here*, takes the reader on a journey through time, focusing on aspects of climate change, human impact, and materialism. The next graphic novel that I am going to analyze, also depicts materialistic concepts. *A Fire Story: A Graphic Memoir* gives insight into the climate change-related California wildfires of 2017.

4.4 A Fire Story: A Graphic Memoir

A Fire Story: A Graphic Memoir (2019) is written by Brian Fies, a writer, illustrator, and cartoonist. The book is an expanded version of the original eighteen pages that was published only a short time after the incident. The original version immediately went viral, and because of this, Fies decided to make an expanded version. The motifs in the novel are natural disaster, loss, grief, and unity. It provides a firsthand account of the Northern California wildfires of 2017, that took lives, and destroyed nature, homes and structures. The World Health Organization states that: "A wildfire is an unplanned fire that burnt in a natural area such as a forest, grassland, or prairie. [...]. The risk of wildfires increases in extremely dry conditions, such as drought, and during high winds. [...]. [...] the size and frequency of wildfires are growing due to climate change. Hotter and drier conditions are drying out ecosystems and increasing the risk of wildfires." (n.d.). The story is about Brian himself, written in first person perspective, and his wife Karen. It depicts several aspects of both the time during and after the catastrophic fire, about moving on and starting over. The author takes the reader through the night they only had minutes to flee from their home, the time after, and the years to come.

"On Monday, my house disappeared" Brian says (Fies, 2019, p. 1). The book begins with Brian and Karen waking up during the night by the smell of smoke. They instantly start packing for evacuation, and Brian states that "I grabbed 'this' but left 'that' because 'that' was a foot to one side. [...] Neither of us thought for a moment that all of it might actually be gone in a few hours. [...] This was only a drill. It couldn't be real." (p. 3). Brian and Karen escape physically unharmed. Fies adds a list of things he had time to pack, including some necessities and some things with sentimental value (Figure 15). Later in the book, he also includes a list of things he did not have time to pack and that he thus will never see again (Figure 16). After a while, Brian goes back to his neighborhood to see if his home is damaged. He soon realizes that his whole house is gone, and calls his wife with the unfortunate news: "It burned down. The whole neighborhood burned down. There's nothing left. Anywhere." (p. 21).

In addition to applying a panel with an illustration that displays him standing next to his burnt down house (Figure 17), there is also real-life footage added (Figure 18). After a while, Brian and Karen moves in with their two daughters. After settling down there, they progressively realize what has actually happened. Brian says: "In quiet moments, we inventoried lost treasures, each a sharp stab to the heart, we didn't save the *wrong* stuff, like, the people who risk their lives for a jar of pickles, we just didn't save enough of it." (p. 30) and adds a list of things he will never see again (Figure 16).



Figure 15: A list of things they packed (Fies, 2019, p. 4)

IN QUIET MOMENTS, WE INVENTORIED LOST TREASURES, EACH A SHARP STAB TO THE HEART. WE DIDN'T SAVE THE WRONG STUFF, LIKE THE PEOPLE WHO RISK THEIR LIVES FOR A JAR OF PICKLES. WE JUST DIDN'T SAVE ENOUGH OF IT.



Figure 16: A list of things they lost in the fire (Fies, 2019, p. 30)



Figure 17: Seeing their burnt down house for the first time (Fies, 2019, p. 16)



Figure 18: Authentic photos from the wildfire (Fies, 2019, p. 23)

Further in the story, Brian and his wife meet several difficulties they did not consider: for instance, discussing with their insurance company, finding a place to rent, solving the loss of birth certificates, property records, not getting access to their property because rescue teams were checking bedsprings for human bones, and more. The positive side of the incident was how the community stood together, helping, and supporting each other. Two years and two weeks after their house burned down, another fire breaks out, and yet again they are evacuated. Brian says: "It felt like a chance to fix the mistakes I'd made two years earlier, a do-over. [...] Fleeing disasters isn't a skill anyone wants to get good at, but we'd all become experts." Because of the firefighters'

heroic effort, Karen and Brian are allowed to go home. Their house is safe for now. "On Thursday, my house did not disappear." (p. 175).

Visually, *A Fire Story: A Graphic Memoir* appears as a typical cartoon, with simple, sharp drawings, speech bubbles, and many colors, mostly shades of red, orange, and yellow. In this graphic novel, there are both additive combinations between text and illustrations, as shown in Figure 18, and picture specific combinations, as shown in figure 17. The graphic novel mostly consists of text and drawings, but it also includes authentic photos. Writing a book that portrays personal experiences increases the credibility of the story and message. Authenticity can be constructed in several matters, for instance through photographic images (Ernst, 2015, p. 82). The story's credibility is strengthened as the author has chosen to include several photos that himself and others have taken. By doing this, their value as historical documents increase, it provides authentic strength to the graphic narration, as well as creating verification (Ernst, 2015, pp. 66, 74). In other words, using footage verifies that it actually happened, and that it happened the way it is described in the graphic novels. For instance, instead of only applying illustrations that display his burnt down house (Figure 17), he has also added real footage (Figure 18).

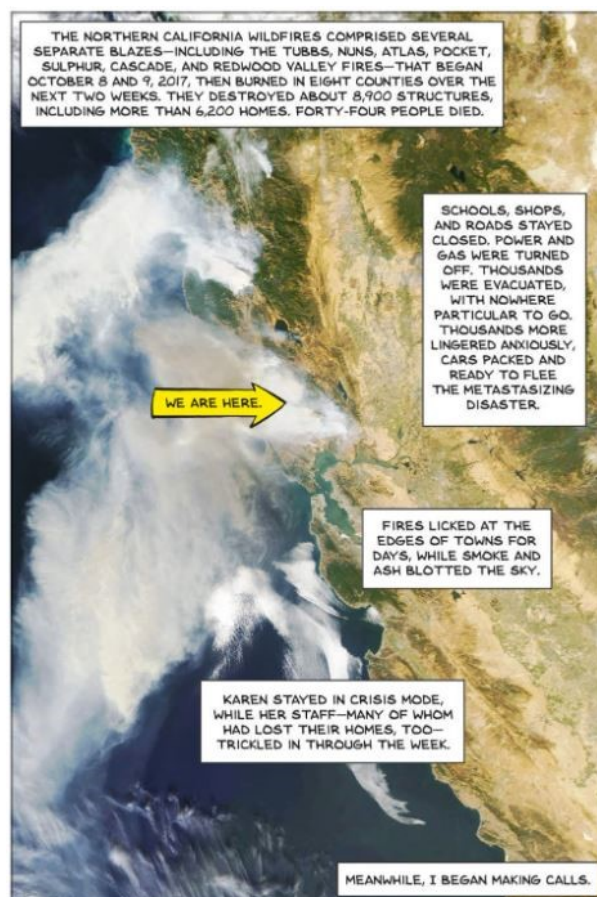


Figure 19: Information about the Northern California wildfires (Fies, 2019, p. 40)

In addition to using real footage to create credibility, Fies has also added facts. For instance, facts about the Northern California wildfires are included. Here it is stated that the wildfire, comprised in several separate blazes, began October 8 and 9, 2017, and burned in eight counties, destroyed about 8,900 structures, in which 6 200 of the incidents were houses. 44 people died (Figure 19). Adding facts about the effects of this specific wildfire, including human casualties, contributes to express the severity of the issue. The author does not only tell his own story, he also brings in others' perspectives by including six other fire stories: Mike's, Dottie's, Mary & Larry's, Jerry's, Sunny's and James'. By doing this, he both creates more credibility, as well as the reader is provided with several different stories, which further gives nuance and perspectives.

Not until late in the book, Fies uses the term climate change. For instance:

There's a necessary policy discussion to be had about individual rights versus public good. Maybe some places are so dangerous that no one should be allowed to build in them. At the same time, climate change is increasing risk in a lot of places that were not especially dangerous before. It's a moving target. (p. 175).

The focus of the story lays on the forced evacuation, the fire destruction, and how the fire has impacted the community, which includes both economic consequences, displacement, and social fragmentation. In other words, the story mostly focuses on the impacts of a fire that is climate change-related. The story displays how the family are forced to respond to a consequence of global warming, which implies that it has gone too far already. In one way, it can be interpreted as damage control, in which the damage of the earth is already done.

As global warming may seem like a distant abstraction, Fies displays a story that feels closer and more urgent. Altogether, *A Fire Story: A Graphic Memoir* depicts how it is to live in a climate changed world. The story also emphasizes the importance of taking care of environmental migrants as stories like Fies' become increasingly common. And even though the consequences of global warming may be distant for many as some places are more exposed than others, I believe that he provides an honest and credible depiction of one of the many consequences of global warming. Fies also touch upon topics that are greatly relevant for inhabitants in countries that are not too affected: for instance, the value and importance of being considerate and to kindly take care of and help environmental migrants. I believe that even though the reality of a wildfire may feel like a distant issue, Fies has successfully included aspects that all people can relate to, for instance the value of having a home and having things, especially things with sentimental value.

5 Discussion of Research Findings

In this chapter, I am discussing the findings from the analyzes in light of this thesis' research questions and theoretical framework, which I have presented in previous chapters. The chapter is divided into three parts. The thesis' research questions were as following:

1. How is the climate crisis portrayed in the YA graphic novels?
2. What are the potentials of using YA graphic novels to teach about the climate crisis in the lower-secondary EFL classroom?

The findings of this research are rich; they reveal much about how environmental issues are portrayed in YA graphic novels. Viewing the analysis in light of the theoretical framework allows me to reflect upon and find how graphic novels potentially can be used when learning about the climate crisis.

5.1 Representation of environmental issues

The four graphic novels I have analyzed all deal with environmental content. However, how these environmental topics are addressed and portrayed varies, in which they feature different content, characters, narratives, and motifs. Another common feature for all the graphic texts in this study, is that they have characters, however, they differ in terms of character perspective and various ways of character development. *Paying the Land* is told through testimonies in which the author draws himself in the background, asking questions to different people who wants to share their story. In *A Fire Story: A Graphic Memoir* the author himself is the main character, where he shares his experiences, thoughts, and feelings. *Cormorance* and *Here*, however, have anonymous characters. They do however differentiate. *Cormorance* has two anonymous protagonists which the readers get to know throughout the story. Whereas *Here* has many different characters where some of them recur, having several narratives playing out alongside. Especially *Paying the Land*, *Cormorance*, and *A Fire Story: A Graphic Memoir* provides the opportunity to slip into characters, giving various perspectives (Bland & Strotman, 2014).

For instance, in *Paying the Land*, environmental issues are introduced through an authentic story of Indigenous people's experiences in Canada. The reader gets Indigenous people's perspectives on the matter, and can further develop their intercultural competence (Bland & Strotman, 2014), which is one of the competence aims in the English subject curriculum (The Norwegian Directorate for Education and Training, 2020). When focusing on environmental content, the story deals with different human actions that damage the environment, such as deforestation, mining, and fracking. What these actions have in common, is that they are driven by people in power, with earning money as their main goal. The graphic text portrays how humans contribute to ruin the planet through over exploitation of natural resources. In other words, Sacco depicts some of the causes of the climate crisis. As for the lives of the Dene, the story shows how climate change is affecting them and their livelihood. Altogether, *Paying the Land* portrays that human action has consequences, and that people are highly affected by climate change. It also gives a voice to indigenous peoples, who are often more affected and vulnerable to environmental change. The same applies for other ethnic groups who live in places that are particularly exposed to climate change, and who may also suffer from poverty, making them even more vulnerable.

Similar to *Paying the Land*, *A Fire Story: A Graphic Memoir* also depicts environmental issues through an authentic story of people who are victims of a climate change related wildfire. There are various characters in *Paying the Land*, many of them having different perspectives on environmental matters such as oil fracking. The communal characteristics of the characters in *A Fire Story: A Graphic Memoir*, are that they are helpful, sympathetic, and kind, as the community unites and support each other after the wildfire. Through telling authentic stories, the author creates credibility, which can make a crisis that feels irrelevant for them, more believable, urgent, and important. Even though global warming impacts people differently and to different extents, the reader still gets to see how it impacts others. This alone can motivate students into wanting to contribute. Both stories are excellent examples of the relationship between climate change and humanity, as *Paying the Land* looks at causes of climate change, whereas *A Fire Story: A Graphic Memoir* examine the consequences of it. It portrays how the climate crisis not only occurs as something abstract and distant, but something that impacts the lives of many people.

Cormorance, on the other hand, deals with environmental issues in a less direct manner, mainly focusing on human-animal relations. Much like *Here*, *Cormorance* mostly consists of illustrations, in which the story is told through these. This leaves much up to the reader to interpret. The focus of the story lays on the gratitude towards nature and animals. Similar to *Paying the land* and *A Fire Story: A Graphic Memoir*, the main focus lies on the characters and the story, in which the environment and climate change is used as the setting (Trexler & Johns-Putra, 2011). Through the story of a boy and a girl, the reader views how nature can be used as comfort and as a safe space. When seeing the bird-reservoir in contrast to the city in the background, human impact is visible. Urbanization has an impact on the environment as it often results in deforestation and habitat loss. An essential aspect of this story is how it stresses the importance of taking care of, preserving, and conserving nature as it is important for the planet and for life on Earth.

In contrast to the three other graphic novels, where the story revolves around the characters and the character's story, *Here* brings up climate change in a more direct matter, having various anonymous characters, each of them leaving their traces on the environment. The message of the story is not directly expressed, and it is up to the reader to interpret it. Yet, I believe it is clear that McGuire wants the reader to interpret it as a warning of what human impact can lead to (Rose, 2016). Through seeing how the spot changes over time, especially when getting a glimpse of an imagined future, the reader is allowed to see how the story connects to the climate crisis. In other words, the author deals with climate change through imagining a future setting in a climate-changed Earth (Trexler & Johns-Putra, 2011).

The story has an apocalyptic viewpoint, in which the reader sees a world without humans. This emphasizes the importance of taking care of the earth, and being aware of what impact humans have, both positive and negative impact. Most people find it difficult to imagine the future (Drottz-Sjöberg, 2006, as cited in O'Neill & Nicholson-Cole, 2009, p. 361). *Here* does a great job imagining for the reader by providing the author's imagined future. Study shows that fear is not an effective approach to sustain motivation in a long-term perspective, and that issues that are built on fear often appear as a distant problem (O'Neill & Nicholson-Cole, 2009). Even though *Here* gives insight into an

imagined future that can be interpreted as a human-free world, it is not given too much attention. Only a few panels are dedicated to the future, and the future is represented in a short but clear way. I do not believe that McGuire intends to scare the reader with his scenarios. Instead, I think he uses exaggeration to make the reader reflect on and be aware about how our choices affect our surroundings. Visualizing how the same spot has changed from before the Anthropocene, during the current epoch, and in the distant future, allows the reader to reflect over the power humans have, affecting the spot to change entirely and more drastically than it changed before the Anthropocene.

Both *Here* and *A Fire Story: A Graphic Memoir* addresses similar questions about time, materials, economy, property, and home. McGuire focuses on time, both in terms of human (especially people living in the Western part of the world) dependence on the ticking clock and how the environment has changed over time. The graphic novel stresses the paradox of time, illustrating how focused humans are on their watch, even though the time is determined by nature. Putting the aspect of time in perspective, humans affect the physical environment in many ways, perhaps reducing Earth's time, or at least decreasing the time of humanity. When considering this in a more short-term perspective, humans are speeding up climate change, threatening the lives of vulnerable people. In other words, by constantly reminding the reader of how fast the environment changes, through jumping back and forth in time, the urgency of change is stressed. This also amplifies the power that the human species possesses in terms of making a change on the environment.

What the two graphic novels have in common is that they both focus on materials. McGuire focuses on the clock, the key, and the wallet, whereas Fies focuses on things he had or did not have time to pack when they had to evacuate. Most materials are made from nature, including our homes, and as particularly shown in *A Fire Story: A Graphic Memoir*, these things are very valuable both because some things are necessities and because other things have sentimental value for humans. It is important to acquire knowledge about, and be aware of the origins of things in our surroundings and in our daily lives. Both novels stress the contrast between what we actually need and what we do not need, but buy anyway. As people tend to buy too much, this is one of the main factors that impacts the environment negatively as overbuying leads to pollution. *Paying the Land* on the other hand, depicts the Dene, and an essential factor in their way of being is that the land owns them, and that they do not own more than necessary.

5.2 Potentials of using YA graphic novels in the EFL classroom

Ecocritical theory uses literature as a tool when teaching environmental content, focusing on expanding ways of thinking about environmental issues, as well as working as a reminder that our environment is at a critical point (Glotfelty, 1996; Trexler & Johns-Putra, 2011; Mishra, 2016). I believe both *Paying the Land*, *Cormorance*, *Here*, and *A Fire Story: A Graphic Memoir* can be effective approaches to discuss the climate crisis, as well as helping expand how students think about it. Since both *A Fire Story: A Graphic Memoir* and *Paying the Land* depicts the lives of someone who is directly affected by climate change, it can be a great alternative to approach environmental migration as this is a challenge that are going to increase in the future. It is important to teach about this both to motivate to take climate action and to give insights into those communities that have to flee their homes, as well as geographic locations that are threatened by environmental changes. Introducing and discussing this in the EFL classroom, would help students identify threats that are climate change-related in different parts of the world.

The challenges of being an environmental migrant, and what challenges a large-scale human migration could cause can also be reflected on, and discussed. This can create an understanding of how fragile human societies are, and help them imagine various potential futures (Schneider-Mayerson, 2018). *Paying the Land* provides perspectives of an Indigenous group, who encounter various issues both in terms of land interference, and how climate change has affected their livelihood and their ways of living. A common issue when teaching about the climate crisis is that many do not feel like such topics apply to them, or that they are too distant to conceptualize. Using a graphic text such as *Paying the Land* can help the students develop into empathetic human beings (Massey & Bradford, 2011), by visualizing that others may be more vulnerable to climate change than themselves, and further, proposing to act for the benefit of all societies, not just their own (United Nations, n.d.). Despite the positive aspects of using this specific graphic novel in the EFL classroom, *Paying the Land* may be challenging for some students due to the amount of illustrations and text in each panel. Because of this, it can be problematic to follow the storyline. This must therefore be considered when choosing to utilize this graphic novel in a classroom.

Cormorance is a rather different approach to discussing the climate crisis, as environmental issues are not addressed as a central topic of the story. This novel confirms that literature must not necessarily directly deal with environmental issues for it to be used as an approach to discuss the climate crisis. The graphic novel depicts the human-nature relation, which further allows the teacher to initiate discussions about this relationship. The storyline is relatively easy to follow, with only illustrations and onomatopoeias. Aspects that can be discussed to develop students' ways of thinking about climate change are animals- and animal extinction, urbanization, and deforestation. As mentioned, this graphic text focuses on the gratitude of nature and the harmonic relationship between human and nonhuman, which is important to communicate to the students to change their anthropocentric vision (Mishra, 2016). Using literature that focuses on gratitude of nature also accommodated the core value: *Respect for nature and environmental awareness*, as it can help students develop appreciation and respect for nature (Ministry of Education and Research, 2017d).

Here approaches climate change by showing the evolution of the Earth, as well as giving an imagined scenario of what the future Earth could look like. The storyline is rather interpretative, which means that teacher involvement is important, whereas the teacher can initiate discussion where students must reflect on different aspects of the text. For instance, the teacher can ask the students to reflect over the situation in Figure 12, by asking questions such as: "What is happening in this panel?" or "What do you think has led up to this situation?" If climate change or environment concerns do not get brought up naturally, the teacher can bring them up as a possible cause to the changes. The aim of this would be to help the students to expand their thinking. Reflecting over the causes of specific situations, can further motivate to take environmental action (Trexler & Johns-Putra, 2011). Through imagining the future, I also believe that *Here* can work as a reminder that the environment is at a critical moment for climate action.

As stated, *A Fire Story: A Graphic Memoir* also directs attention to someone who is a victim of climate change related incidents. The storyline is easy to follow, and its typical cartoon style, I believe, appears as appealing and inviting for YA readers. Moreover, it provides perspectives of people who live in a part of the world that are more exposed to a climate change-related disasters, such as wildfires. Even though the people

in this story, and most of the people who live in the Western part of the world, are lucky enough to still manage after such disaster - having a place to stay, receiving help from the society, rebuilding their houses, etc. - the graphic novel still allows links to be drawn even further, discussing other vulnerable societies that are not as fortunate.

Creating a teaching plan is not a part of my thesis. Still, I want to discuss pedagogical applications in general, specifically thinking about the four graphic novels in a PBL context (Grossman et al., 2019). It is important to acknowledge that the graphic novels alone do not accommodate every aspect that is described in section 3.2.2. However, as mentioned earlier, students achieve little by only reading the novels – it must be a part of a broader learning process together with a teacher. I am going to discuss the first three characteristics of PBL, as these are most relevant for this thesis. The aims of such lessons are to contribute developing environmental literacy and to help them develop into becoming global citizens. All four allow students to study a challenging problem. Obviously, the climate crisis is a challenging and complex problem with many possible solutions, which demand both individual and collective action. Common for all four graphic texts is the depiction of negative human impact on the environment, which is one of the main reasons for why the climate crisis indeed is an intractable problem.

Discussing the different parts of the novels that depict human impact on the environment can be informative, create perspectives, and prompt reflection. It is important that the teacher also guides the students into seeing the texts from different perspectives. For instance, in *Paying the Land*, it is important to address and develop an understanding of the conflict between the Dene and the government, and within the Dene community: seeing the conflict from different perspectives (conflict between costs and benefits, etc.). Discussing and reflecting upon the meaning of different aspects of the texts is essential, as this can be challenging for many. Secondly, I consider graphic novels to be great approaches to discussing climate change. However, the books are not effective if they are not used actively as a process, including initiating discussion, reflection, and inviting the students to a process of asking questions, finding relevant resources and research, and applying other information. Thirdly, it is important that the students both feel relevance to the topic, and that what they learn has relevance not only inside the classroom, but also outside of it. Specifically *Paying the Land* and *A Fire Story: A Graphic Memoir* can be great approaches to discuss relevance as they depict victims of the climate crisis.

Roth (1992) stresses reasons why environmental education is important. In my view, it is important that these reasons are not only seen as opinions but also as arguments that must be communicated to the students. In other words, the reasons must be implemented in what the teacher chooses to teach. In the PBL process, graphic novels can be used to communicate these points. All four graphic novels that are used in this study depict how “all human activities have consequences for the environment both positive and negative” (Roth, 1992, p. 11). If the main goal for environmental education is to develop and foster environmental literacy. Graphic novels can be more beneficial than other literature, as their multimodality can fully engage the reader. To develop environmental literacy, the student must develop six areas.

The first is environmental sensitivity. The teacher plays an important role in this area, and it is essential that the teacher is involved in the process of reading the graphic novel. Next is the development of knowledge and skills, in which for instance *Paying the Land* provides insight knowledge about the Dene and how other communities might be

more vulnerable than one's own. This story also provides other knowledge, such as how oil fracking is carried out. *A Fire Story: A Graphic Memoir* provides information about the Northern California wildfires and how this has affected themselves and the community. *Cormorance* mostly focuses on appreciating nature, which I believe can pass on to the students. In general, all four graphic novels communicate values and attitudes that are beneficial when considering climate action.

Regarding personal investments, responsibility, and active involvement, by reading, focusing on, discussing, and reflecting on the novels and their issues, we can create and motivate the students into becoming invested and responsible citizens that want to act. And as Schneider-Mayerson (2018) notes, literature enables the reader to imagine potential climate futures and to be a reminder of the severity and urgency of climate action.

6 Conclusion

In the following chapter, I am going to present the study's conclusion. First, I am going to present a short summary of the main findings, in which I am going to answer the two research questions from the study.

6.1 Main Findings

As presented in the study's introduction, the aim of this study was twofold. First, the purpose of the current research was to examine how the climate crisis is portrayed in a selection of four graphic novels. Secondly, the thesis explored the potentials of using graphic novels in the EFL classroom to discuss the climate crisis. To do so, I developed two research questions: 1) How is the climate crisis portrayed in the YA graphic novels? and 2) What are the potentials of using YA graphic novels to teach about the climate crisis in the lower-secondary EFL classroom? Establishing these research questions enabled me to analyze the four selected primary texts, focusing on the environmental aspects of them.

The results of this investigation show that despite the ecocritical graphic novels differences in portraying the climate crisis, each of those suggested in this thesis can be used as approaches to address the climate crisis as part of a wider environmental education. There are general trends amongst the graphic novels in terms of how environmental content is portrayed. However, each of them has different strengths, and the teacher can choose based on what the intention of the lesson is. If the intention is to draw attention to different ways of living, the conflict between the costs and benefits of development, or on different areas or people who are affected differently by climate change - for instance through an indigenous perspective - then *Paying the Land* is fitting. If the intention is to give insight into a specific consequence of climate change through the lives of people who are affected by it, and to show the complexity of this type of situation, then *A Fire Story: A Graphic Memoir* is an appropriate approach. *Here* is a great option if the intention is to reflect over the anthropogenic impact of the environment. Also, it can be a good option since people tend to find it difficult to imagine the future, and *Here* imagines *for* the reader. *Cormorance* is an advantageous option if the aim is to develop values and attitudes, as well as discussing other topics related to the climate crisis, such as animal extinction and urbanization.

Findings show that combining language and content, giving them both an equal role in the lesson, proves to be effective both in terms of acquiring language proficiency and, for instance, contributing to raise awareness about the climate crisis. I thus conclude that teaching about the climate crisis can be beneficial for developing language skills and acquiring knowledge, values, skills, and attitudes altogether. Implementing graphic novels with environmental content, such as the four texts suggested for this thesis, can accommodate the guidelines that are stated in the core curriculum and the English subject curriculum, in a classroom setting which is based on PBL (including Roth's six reasons for environmental education). It is essential to give attention to the climate crisis in education to achieve the 17 SDGs for the 2030 Agenda. Including graphic novels as an approach to discuss the climate crisis in the EFL classroom is beneficial because the choice empowers students with knowledge, skills, and commitment to become problem-solving citizens, while at the same time learning and developing proficiency in the global language of English.

To conclude: Specifically focusing on the field of environmental education through an ecocritical approach and working with environmental texts such as the four suggested in this thesis, enables students to develop environmental literacy across global educational context: developing skills, attitudes, values, and knowledge.

6.2 Implications

Today, environmental content has a greater voice in the Norwegian national curriculum. Even though the English classroom is not yet fully acknowledged as a fitting arena to teach about the climate crisis, this study demonstrates that it indeed is a critical component of the curriculum. It is thus important that teachers acknowledge the EFL classroom as an arena where other topics can be taught as well, together with language teaching. Furthermore, it is important that the teacher is aware of the complexity of the climate crisis, especially in the Norwegian classroom where the impact may seem distant. The national curriculum gives little specific guidelines on how different topics should be taught, and leaves much up to the teacher regarding choice of methods that is fitting for the specific classroom. Topics, such as the climate crisis, can be addressed in creative ways, and through analyzing potential graphic texts in light of relevant theory, this is clearly supported by the current findings. I hope this study can inspire teachers to think outside the box, as I believe this is important for many students, in terms of prompting engagement and motivation. Here, it is significantly essential to provide with various perspectives, helping the students understand how the climate crisis influence people differently and how various geographic locations and communities are more vulnerable than other.

6.3 Limitations and Suggestions for Further Research

Due to the limited timeframe, I had to limit the research to a relatively small number of graphic novels. A bigger sample size could give a more representative data. It is also unfortunate that the study lacks authorial diversity. The thesis could benefit from having more authorial diversity, potentially finding a graphic novel written by a person that is not from the Western part of the world or who has experienced other varieties of climate change consequences. Furthermore, this is a qualitative study, in which four materials have been analyzed. This implies that I cannot reliably generalize the findings of this thesis. My intention, however, has not been to establish findings and conclusions that are definitive, but rather to reflect on the possibilities to use the EFL classroom as something more than language teaching, and to reflect on other possible approaches to discuss topics such as the climate crisis. I have suggested that a graphic novel does not have to have environmental issues as its main content for it to be applicable in a classroom setting where the aim is to discuss, and provide knowledge, attitudes, values, and skills.

A natural progression of this work is to investigate, and further suggest, specific lesson plans that could be appropriate when using the graphic novels as an approach to teach the climate crisis. Other theoretical frameworks could be added as well. Here, one could apply a more quantitative approach, to determine how effective, motivational, and successful such approach is in the EFL classroom. Additionally, further research could explore other books and genres, to investigate how the climate crisis (or other environmental topics) is portrayed in these, and how these could be used in the EFL classroom. It would also be interesting to compare traditional text-based novels and

graphic novels with environmental content, specifically focusing on different aspects such as efficiency, portrayal of the environment, student engagement, student motivation, etc. Carrying out further research as suggested, would help guide and inspire EFL classroom teachers in regard to the new Norwegian curriculum and its concepts of core values and interdisciplinary topics.

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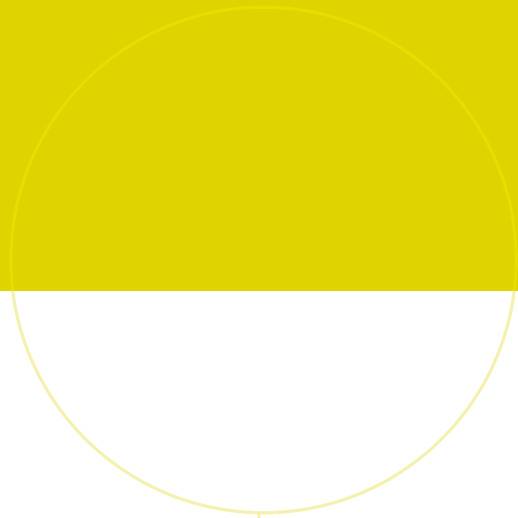
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Appendices

Appendix 1: List of environmental multimodal texts that can be used as a resource in the EFL classroom.

Graphic novel	Publisher (Year)	Author & Illustrator	Keywords
Coral Reefs: Cities of the Ocean	First Second (2016)	Maris Wicks	Educational nature facts, anthropomorphism, conservation, ocean conservation, pollution, plastics, habitat destruction, climate change, coral reef bleaching, animals in danger, environmental activism, fuel extraction or shortages
How to Fake a Moon Landing: Exposing the Myths of Science Denial	New York: Abrams ComicArts (2013)	Darryl Cunningham	Anthropomorphism, climate Change, coral reef bleaching, drought, educational nature facts, extinction, flood, fracking, fuel extraction or shortages, melting ice, pollution, recycling, water conservation
I'm Not a Plastic Bag	JeffCorwinConnect (2012)	Rachel Hope Allison	Plastic pollution, marine pollution, animal deaths, educational nature facts, ocean conservation, anthropomorphism

Nuclear winter vol. 1	BOOM! Box	Cab & Jim Campbell	Apocalypse, extreme weather, animals in danger, nuclear disaster, climate change, mutated organisms
Old Enough to Save the Planet	Magic Cat Publishing (2021)	Loll Kirby & Adelina Lirus	Climate change, climate activism, diversity, nature, pollution, ocean, sustainable development
Sea Turtle Scientist	Houghton Mifflin Harcourt (2015)	Stephen R. Swinburne	Animal extinction, endangered species, hunting, exploitation, nature, sea
Super Sons: The Polarshield Project	DC Comics (2020)	Ridley Pearson & Ile Gonzalez	Climate Change, extreme weather, flood, melting ice caps, pollution
The Rime of the Modern Mariner	Viking Penguin (2012)	Nick Hayes	Compassion for nature, pollution, animals, climate change
We Are All Greta: Be inspired to save this world	Laurence King Publishing Ltd (2019)	Valentina Giannella & Manuela Marazzi	Climate change, global warming, climate activism, biodiversity, sustainable development
World Without Fish	Workman Publishing Company (2014)	Mark Kurlasny & Frank Stockton	Endangered species, extinction, overfishing, pollution, plastics, climate change, ocean conservation, tourism, coral reef bleaching, sustainable living, environmental activism, oil spills, melting ice caps, educational nature facts



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