Viewers' Experiences of Watching the Environmental Science-fiction Film Avatar the Way of Water: Text Mining Analysis of Human Nature Connection Talk

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Abstract

Human-Nature Connection (HNC), the positive relationship between humans and nature, has been associated with the well-being of individuals. Yet, many individuals seem to experience a loss of orientation towards the natural world. Considering both the benefits of HNC and this potential lack of HNC, it is important to know how HNC can be heightened. In theory, environmental films could be a powerful HNC-heightening tool. However, this has not been empirically studied yet.

This study explored the potential HNC-heightening power of environmental films by studying how viewers of the environmental science-fiction film "Avatar: The Way of Water" (ATWoW) describe (HNC-related) subjects when talking about their experience with watching ATWoW in an online community "Tree of Souls" (ToS). A mixed methodology was applied in which both topic modeling and grounded theory were utilized to analyse viewers online textual responses. Viewers discussed four subjects: transportation, awe, relationships, and reflection on ATWoW.

To assess which (aspects) of these subjects were related to HNC, these subjects were compared to five HNC-dimensions: material, experiential, cognitive, emotional, and philosophical HNC. In addition, these subjects were compared to three theorized HNC-heightening pathways: reduced resistance to environmental messages, interactions with audience identity, and meaningful media experiences. Interestingly, this comparison highlighted four factors: transportation, hope, community, and reflection, which seemed to be closely connected with the five HNC-dimensions and with various HNC-heightening mechanisms inherent in the three pathways.

Overall, HNC-heightening mechanisms across the three pathways seemed to be highly interconnected, which seems to suggest that these mechanisms are better represented as elements of one network, rather than as elements inherent in three separate pathways. Further empirical research is needed to elaborate on the potential and specifics of this network vision. If and how do specific HNC-heightening mechanisms across pathways relate to and influence each other? Moreover, which factors (de)activate a range of HNC-heightening mechanisms? This study suggest that transportation, hope, community, and reflection are among these factors. To enhance the design of environmental films, it is recommended to optimally utilize these factors in film design and promotion

Keywords: environmental films, Avatar, the way of water, human-nature connection, narrative persuasion, science-fiction, transportation, awe, community, reflection

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"Nature's not our enemy, it's our sustenance; and we need it - and we need nature healthy for us to be healthy and to survive long term" – James Cameron (AJ, n.d.).

James Cameron, director of the Avatar film franchise, describes humanity and nature as interconnected entities who are reliant upon each other (Taylor, 2013). The academic fundaments of this idea can be led back to Wilson's (1984) biophilia hypothesis, which conveys that humans have an innate tendency to gravitate towards nature, as they derive well-being from being in contact with it. Yet, many individuals seem to experience a loss of orientation to nature, which has been termed "the extinction of experience" (McCormack et al., 2021; Pyle, 1993; Soga & Gaston, 2016). Such an estrangement from nature is theorized to be disastrous for both entities; it has been associated with human behaviours that contribute to the destruction of the natural world, thereby contributing to the environmental crisis that humanity faces (Beery et al., 2023; Pyle, 2003; Soga & Gaston, 2016).

While some researchers claim and focus on the potential contribution of technology to the extinction of experience (e.g., Imai et al., 2019; Miller, 2005), technology could also be utilized to reconnect humanity to nature (Clayton et al., 2017; McCormack et al., 2021). Namely, environmental films might reconnect humanity to nature through the persuasive aspects of the narratives inherent in such films (McCormack et al., 2021). The power of this kind of technology is constructed on a solid theoretical base, but has been understudied in practice (McCormack et al., 2021). Hence, this study takes an exploratory approach to gain insight into the experience that an environmental film offers to its viewers. The specific environmental film that this study focusses upon is the science-fiction film "Avatar: The Way of Water" (ATWoW).

Human-Nature Connection

The term *Human-Nature Connection* (HNC) refers to the description and measurement of the relationship between humanity and nature (Ives et al., 2017; McCormack et al., 2021). It encompasses diverse ways of relating to nature, moving beyond yet including actual contact with nature (Cartwright & Mitten, 2018; Tam, 2013). More specifically, HNC can be divided into five relational dimensions: material, experiential, cognitive, emotional, and philosophical (Ives et al., 2018).

First, the material dimension conveys HNC based on consumption; it addresses the ways in which humans utilize nature to gain access to desired goods (e.g., foods and clothes). Second, the experiential dimension covers the well-known idea of a HNC based on actual human-nature contact (e.g., time spend in nature). Third, the cognitive dimension describes HNC in the form of knowledge, beliefs, and thoughts that individuals have about nature. Fourth, the emotional dimension of HNC represents an emotional attachment to nature. Fifth and last, the philosophical dimension of HNC entails a worldview that revolves around the natural world and the way in which humans connect to it or belong in it (Ives et al., 2018). These dimensions are ordered from a relatively shallow outside-individual HNC (i.e., not integrated into the self-definition) to a relatively deep within-individual HNC in which nature merges with the self (i.e., integrated into self-definition; Ives et al., 2018). This entails that someone who has a high philosophical HNC (i.e., fifth dimension), likely also has high material, experiential, cognitive and emotional HNC (i.e., the preceding dimensions), because they have fully integrated nature within their self-definition.

Building on this idea that high HNC equals an integration of nature within the self, an increase in HNC is hypothesized to influence an individual's thoughts, feelings, and actions, (Mackay & Schmitt, 2019). An individual's self-definition encompasses inner beliefs and convictions about the self; it summarizes how a person views themselves (Clayton, 2003; Mackay & Schmitt, 2019; Sedikides et al., 2011). Such a self-definition influences how a person thinks, feels, and behaves (e.g., Sedikides et al., 2011). In the case of HNC, a person with a high level of integration of the natural world within their self-definition (high HNC) would be likely to think about their placement within nature, to feel connected to nature and to act to protect nature (Clayton, 2003; Capaldi et al., 2014; Mayer & Franz, 2004).

Unsurprisingly, in practice, humans who feel highly connected to nature indeed seem to be more likely to engage in pro-environmental behaviours. (McCormack et al., 2021; Schultz, 2002; Whitburn et al., 2020). Pro-environmental behaviours are actions that are directed at protecting and preserving nature; pro-environmental behaviours foster environmental health (Whitburn et al., 2020). Humans high in HNC are likely to perceive the natural world and its value as an entity on its own, rather than as solely defined by its usefulness for humans (Mayer & Frantz, 2004). When nature is seen as precious in itself and when people empathetically connect to nature, it becomes more likely that threats against the natural environment are perceived and negated in the form of pro-environmental actions (Mackay & Schmitt, 2019; McCormack et al., 2021; Schmitt et al., 2018; Schmitt et al., 2019).

HNC cannot only be advocated from the viewpoint that HNC is highly associated with fostering environmental health, but also from the viewpoint that individuals need it. Individuals high in HNC are likely to experience higher well-being (Cervinka et al., 2012; McMahan & Estes, 2011; Pritchard et al., 2020). Among other things, HNC has been empirically connected with heightened life satisfaction, positive affect, and perceived personal growth (Capaldi et al., 2014; Pritchard et al., 2020)

Concluding, HNC is important as it is associated with human affections, cognitions, and behaviours that foster both human well-being, as well as pro-environmental behaviours. In light of the benefits of HNC, it is important to cultivate HNC. Environmental films could play an essential role in heightening an individuals' HNC.

Fostering HNC: The Potential Role of Environmental Films

There is a sound theoretical basis supporting the HNC-heightening power of environmental films, but the effect of these films on the audience has been understudied (Clayton et al., 2017; McCormack et al., 2021). Environmental films can be conceptualized as films in which the natural world has a central place and is (one of) the major theme(s) that the film addresses (McCormack et al., 2021). The natural world herein is a broad concept that includes various aspects of nature (e.g., from plants to animals to broader ecological systems and climate). These films can be rooted in reality (e.g., documentaries) or can focus on non-existent environments (e.g., fantasy/science-fiction films); the main characters in these films are not necessarily human (e.g., animals or otherworldly fantasy species); these films can show environments that people would otherwise not encounter. Furthermore, environmental films all have a degree of narrativity, but differ to the degree in which they are designed with specific persuasive goals in mind (e.g., heightening HNC vs. creating a highly profitable film; McCormack et al., 2021).

Environmental films are theorized to foster HNC in their audience through three pathways: Reduced Resistance to Persuasion, Interactions with Identity, and Meaningful Media Experiences (McCormack et al., 2021). First, narratives in the film might reduce resistance to the HNC-heightening persuasive message in the film. Individuals seem to be inclined to resist a message if they know that somebody has the aim to persuade them (Ratcliff & Sun, 2020). The narrative can hide persuasive intent, thereby diminishing the audience their automatic resistance to the message (Moyer-Gusé & Nabi, 2010; Ratcliff & Sun, 2020). In addition, openness to the environmental message might be created by the experienced deictic shift: viewers' minds are transported into the plot, the story environment, and the characters (Dal Cin et al., 2004; Duchan et al., 1995; Liu, 2023; Van Laer et al., 2014). This immersion into the

narration takes up cognitive resources, potentially hindering other cognitive processes associated with critique (Ratcliff & Sun, 2020). Furthermore, humour might open people up to hearing the message, as it reduces the perceived need to stay on guard (Nabi et al., 2007). Humour also makes the message more attention grabbing and memorable (Weinberger & Gulas, 1992).

Second, narratives within environmental film might change individuals' identity (i.e., the way they think, feel, and behave), through the process of identification and through empathy. Identification is the idea that an individual can connect with characters in a story; they view the story from the characters perspective (Cohen, 2018; Cohen et al., 2019). Identification entails that people imagine themselves in the shoes of relatable characters, which is a safe way to try out different beliefs, attitudes, and behaviours (Cohen et al., 2019). Subsequently, it fosters the addition of preferred tried-out beliefs, attitudes, and behaviours to the viewers' identity (Cohen et al., 2019). In this way, relatable characters that model desired behaviour can enable and motivate viewers to try the behaviour themselves. Furthermore, the audience can feel closely connected to characters, forming a kind of friendship. Such friendships can spur on viewers to integrate what the character finds important (e.g., protecting nature) into their own identity (Cohen et al., 2019; McCormack et al., 2021).

Similar to identification, feeling empathy fosters the addition of new beliefs, attitudes, and behaviours to the viewers' identity (McCormack et al., 2021). While identification is built on the notion that the viewer and character become one, empathy is built on the notion that the viewer, as a separate entity from the character, can gain understand of the character's feelings and experiences (Eklund & Meranius, 2021). Empathy is not only reserved for humans, but can be felt for the diverse characters and entities in films; empathy can be felt for entities such as nature (e.g., Clayton, 2003; Maguire et al., 2020). The amount of empathy experienced for non-human entities might be influenced by the number of human characteristics that these entities display, called anthropomorphism (Tam et al., 2013; McCormack et al., 2021).

Third, environmental films might foster HNC as they allow an individual to have meaningful experiences. Environmental films can create meaningful experiences in which a person experiences self-transcendence (Oliver et al., 2018). Self-transcendence is associated with cognition and affect directed at something outside the self (Oliver et al., 2018; Raney et al., 2020). Specifically, self-transcendence is a human state in which an individual feels highly connected with others, nature, and the universe (Oliver et al., 2018). It entails an awareness of human and environmental needs, and it highlights associated values. Environmental films can introduce self-transcendence by prompting reflection on the placement of humanity within

nature and HNC (Ives et al., 2018; McCormack et al., 2021). The natural world is known for its capacity to bring about self-transcendence and environmental films can heighten this potential as these films include narratives that can foster self-transcendence (e.g., narrative that ignite feelings of wonder regarding the greater universe; McCormack et al., 2021; Oliver et al., 2018). Moreover, people are attracted to stories, probably because of this potential for self-transcendence hidden in narratives (Slater et al., 2014)

Concluding, environmental films might heighten individuals' HNC as narratives within these films might create openness to HNC-heightening messages, identity interactions, and meaningful media experiences (McCormack et al., 2021). These three theoretical HNC-heightening pathways have not been empirically studied yet. Previous research on environmental films has been limited to studying whether environmental films influence HNC; unaddressed is how exactly environmental films influence HNC (Ratcliff & Sun, 2020; McCormack et a., 2021).

In addition, previous empirical research on environmental films is heavily focused on wildlife documentaries. Such wildlife documentaries are gathering more attraction amongst the general public, but it is unclear in practice how and if they affect their audiences' HNC (Arendt & Matthes, 2016; Aitchison et al., 2021; Janpol & Dilts, 2016). The reach of wildlife documentaries might be limited to an audience that is inclined to watch documentaries. Largely understudied are environmental films covering diverging genres that might attract an audience interested in these genres (e.g., science-fiction fans). Such an audience might not otherwise expose themselves to wildlife documentaries, meaning that these films could reach a less environmentally oriented audience (Zahid et al., 2023). From this view, important environmental films are Avatar and its sequel The way of Water, because they are action-filled science-fiction films that have a broad audience (Mündlein, 2023; Taylor, 2013). Potentially partly due to its popularity, Avatar has ignited many researchers their interests; Avatar has been studied amongst other things regarding the religion inherent in the storytelling and messages on colonialism (Taylor, 2013). It has not been studied yet whether watching Avatar and The Way of Water influences the viewers HNC.

The Avatar Film Franchise

In Avatar, the human main character, Sully, works for a corporation (RDA) from earth that wishes to mine a fictious mineral "unobtanium" on the moon Pandora. Sully needs to convince the inhabitants of Pandora, the Na'vi, to leave their home, so that the corporation can mine this mineral with minimal resistance. If Sully fails, the by Sully gathered intel on the Na'vi will be used to fight the Na'vi. However, this mining entails destroying the natural world

of Pandora. The more Sully learns about the Na'vi and Pandora, the more Sully beliefs that it would be wrong to go ahead with the planned destruction. Sully gains respect for the Na'vi their ideology which revolves around connections between species and nature; a world view that highlights the need to protect the natural world. When a fight breaks out between humanity and the Na'vi, Sully sides with the Na'vi to protect nature. For an in-depth description of diverging interesting elements in Avatar one could consult Taylor (2013).

For this study, it is important that Avatar is an environmental film: the natural world is a central element within Avatar. Not only does nature have a central place within the life of the Na'vi, but it also becomes an important aspect of the main character his life. It is his motivation to side with the Na'vi against the mining corporation. Avatar tells a story, there is a high degree of narrativity, that is not meant to explicitly persuade the audience; it does so implicitly by inviting the audience to think about humanity and nature, potentially fostering HNC (Taylor, 2013). The story that Avatar tells continues in "Avatar: The Way of Water" (ATWOW).

Sully, the main character of Avatar, has become a father figure to three biological children (i.e., Neteyam, Lo'ak and Tuk) and two adopted children (i.e., Kiri and Spider). Due to circumstances, Sully and his family have to move to a different environment; he and his family will have to learn how to adapt themselves to this unfamiliar environment. In this new environment, the connection between species and the ocean is stressed. Interesting regarding HNC, Kiri has a deep connection to nature that differs from the way in which Na'vi usually connect to nature. This connection sets her apart from others, alienates her, but in the end enables her to save her parents (Mündlein, 2023).

This sequel to Avatar was released in 2022, more than ten years after Avatar was released in 2009 (Mündlein, 2023). Like Avatar, ATWoW is also highly successful, breaking records and rising beyond the success of other popular films (Dellatto, 2023; Dorn, 2022; Galuppo, 2023). While Avatar and ATWoW are both highly successful and popular environmental action-filled science-fiction films, this study focused upon ATWoW. Unlike Avatar, ATWoW was recently released, meaning that audience responses are grounded in current society. Moreover, ATWoW utilizes recently developed technologies to enhance the viewer experience, making nature potentially more immersive and meaningful (Dockterman, 2022).

This Study: Viewers' Experience of ATWoW

The aim of this study was to shed light on the way in which environmental science-fiction films are experienced by the audience with a focus on HNC. As discussed, the HNC heightening experience that environmental films could provide to their audience is constructed

on a solid theoretical base, but has been understudied in practice (McCormack et al., 2021). Hence, in this study, an exploratory approach was taken to gain insight into the experience that the well-known environmental film ATWoW provides to the audience focusing on HNC. Specifically, this study explored if and how people discuss HNC-related aspects after watching the environmental film ATWoW.

Text mining was utilized to explore textual audience responses to ATWoW within a forum discussion on a fan website. Text mining can be used to find patterns hidden in textual information, which allows researchers to make meaningful inferences about texts based upon these identified patterns (Feldman & Sanger, 2007; Kostoff & DeMarco, 2001). Text mining is inherently explorative as the aim of text mining is to find patterns within a text, rather than to assess a specific hypothesis (Kostoff & DeMarco, 2001; Iliev et al., 2015; Yu et al., 2011). This fits well with the exploratory nature of this study. Moreover, the use of text mining fostered the timely assessment of a relatively large amount of textual data created by viewers of ATWoW (Kostoff & DeMarco, 2001; Iliev et al., 2015; Lin et al., 2009). The text mining approach taken in this study was supplemented by a grounded theory approach to enhance meaningful text-interpretation (Yu et al., 2011). Lastly, McCormack et al. (2021) and Ives et al. (2018) their theories on HNC were consulted to identify HNC-related talk.

Concluding, this study utilized a text mining approach supplemented by a grounded theory approach and theories on HNC, with the aim of exploring the potential presence of HNC-related talk within textual audience responses to ATWoW. The research question that this study addressed is: What (HNC-related) subjects do people discuss when talking about their experience with watching ATWoW?

Method

Study Design

This study is a mixed methods exploratory case study in which the audience response to the environmental science-fiction film ATWoW was studied within one specific Avatar community called "Tree of Souls" (ToS). This study took both a quantitative and a qualitive research approach, utilizing both text mining and grounded theory to analyse textual responses of the ATWoW audience. The idea behind this approach is that textual data analysis with either text mining or grounded theory each has its merits and limitations; by combining both methods in a way that fosters the benefits and overcomes the limitations of each individual approach, meaningful text interpretation could be enhanced (Yu et al., 2011).

Text mining was utilized in this study as it is a technology-based research method that can be used to analyse vast amounts of textual information in a timely manner (Iliev et al.,

2015; Kostoff & DeMarco, 2001; Lin et al., 2009). Text mining utilizes Natural Language Processing (NLP), which is an algorithm that extracts meaning from textual data based on statistical analyses of patterns within the textual data (Gelbukh, 2006; Goldberg et al., 2020; Yu et al., 2011). Text mining is inherently quantitative, as this pattern recognition is based upon counting words (Yu et al., 2011). However, to optimize the validity of text mining research endeavours, the benefits that technology offers should be combined with the human capacity for meaningful text interpretation (Kostoff et al., 2007; Yu et al., 2011). Hence, this study supplemented initial algorithmic computations within text mining (i.e., quantitative research) with human text-interpretation (i.e., qualitative research; Yu et al., 2011).

This study utilized grounded theory to structure the human text-interpretation. Grounded theory is a qualitative research method that is built upon the assumption that there are themes inherent in textual data, which can be discovered and abstracted from the text by the researcher (Glaser & Strauss, 2017). When adhering to grounded theory, researchers open-mindedly assess textual data in a structured manner and thereby form a theory about the textual data based upon the text itself, rather than upon previous established theory and empirical research (Yu et al., 2011). However, as the empirical researcher does not go into data analysis entirely without pre-conceptions, the themes found by the researcher might be biased by their knowledge base (Yu et al., 2011). In this study, text mining outcomes were used to guide the grounded theory analysis to prevent biased text-interpretation, because the automated algorithms used in text mining are not altered by researchers' pre-conceptions (Yu et al., 2011).

Concluding, through combining text mining iteratively with grounded theory, this study aimed to limit biased interpretations and labour-intensive textual analysis (i.e., limitation of human text interpretation) and to foster meaningful text interpretation (i.e., benefit of human text interpretation). Furthermore, this approach aimed to foster openminded timely textual analysis limit unsubstantial categorization of textual data (i.e., limitation text mining) and to (i.e., benefit text mining; Iliev et al., 2015; Yu et al., 2011).

Data Description

Data was collected from an Avatar fan website called "Tree of Souls" (ToS; Tree of Souls, 2010a). ToS is a community with more than two thousand members, which has been around since 2010 (Tree of Souls, 2022a) and is one of the first Avatar communities which arose after Avatar gained popularity (Tree of Souls, 2022a). The ToS community exists of a group of individuals whose common denominator is a connection to the Avatar franchise. Within the community, individuals discuss diverse life experiences such as being in the military or having ties with indigenous Timorese people. ToS claims to be different from other Avatar

communities: "What sets Tree of Souls apart is a focus on community - we're an Avatar fan website, yes, but moreover we are a community of friends who found each other through a passion for the movie. All are welcome here, and we discuss subjects both related and unrelated to Avatar." (Eltu, 2022).

The focus on the ToS fan website was chosen because it houses a relatively large Avatar community, is open to public viewers, and does not require website visitors to registrate. Furthermore, the ToS members discuss topics in a civilized, grammatically correct, and focused manner which could enhance text-mining outcomes (i.e., easier for algorithms to work with; Iliev et al., 2015). The discussions of ToS members do not contain a lot of cynicism or sarcasm. They are focused on ATWoW itself and not on other potential forum distractions such as showing antagonism towards other community members, name-calling, or self-promotion. By studying how ATWoW is discussed in this community, this study aimed to explore whether and how this specific group of individuals discusses HNC when talking about their watching experience of ATWoW.

On the fan website, there are forums, places in which specific topics are discussed, which can both be related and unrelated to Avatar (e.g., movies, video games, Na'vi language; Tree of Souls, 2010b). As this study focuses upon viewers watching experience of ATWoW, the forum in which ToS members discuss ATWoW was studied (Tree of Souls, 2022b). This forum is called "What did you think of the way of water" and contains 112 messages about viewers' experiences posted by 57 individuals. The length of these messages was on average 205 words, ranging between 3 and 1620 words. In total these messages contained around twenty-three thousand words. Community members who are registered (i.e., have an account on the website) can reply to this question by posting a message. Such a registration is free and available to everyone who would like to actively participate in the forums. When community members post a message, it is visible to everyone visiting the forum (i.e., both to registered community members and website visitors; see Figure 1).

On the right side of a message, the profile picture, account name, and membership status (e.g., member or administrator) of the community member are visible. Above the message, the date on which the message was posted is shown. Bellow the message, other community members can put emoticons (i.e., smileys or thumbs up, but no textual reactions); these non-textual reactions were not studied. If community members want to say something about a message from someone else, they can post a message themselves and refer back to earlier messages. When a community member refers back to another message, the specific part of the original message that is reacted to, as well as the original owner, are shown within the new

message. However, these referrals to an original message will not be directly visible below the original message, because all messages are sorted on date from old to new. There are no different viewing options.

Spoilers can be hidden by a spoiler button on which a person has to click if they want to read the spoiler. However, there are also community members who use the word [SPOILER] to warn others, rather than the button itself.

Figure 1

Lay-out of the Forum What did you Think of the way of Water
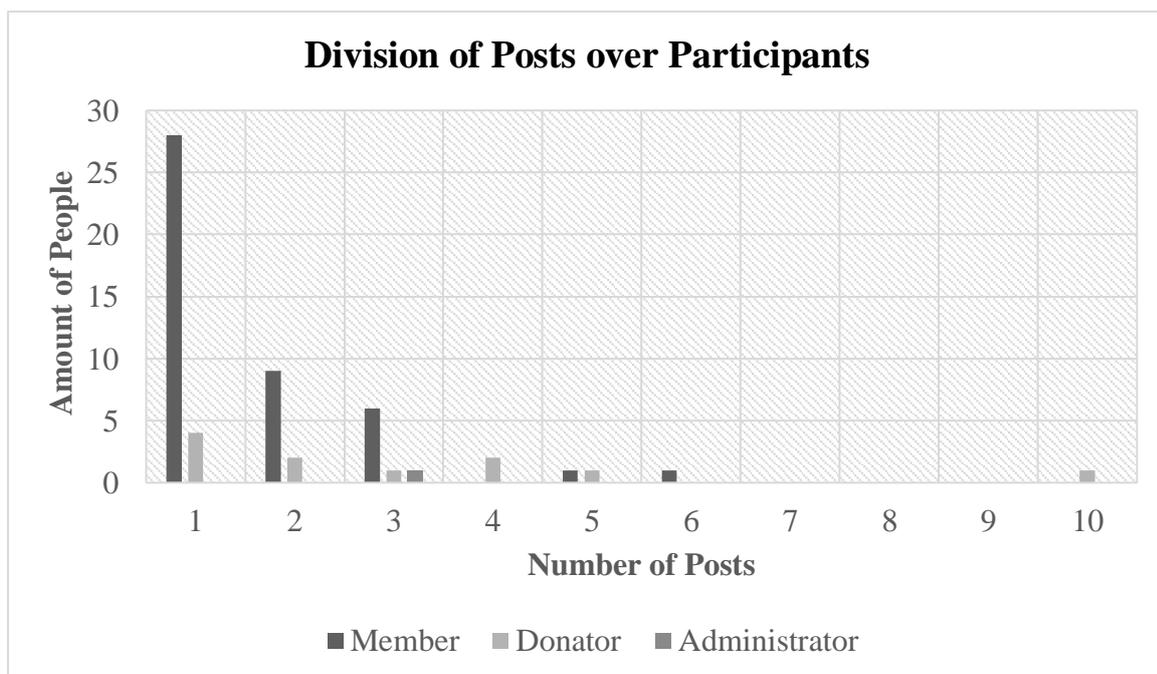

Data Collection

Data was collected from ToS (2022b) with the program Rstudio (RStudio Team, 2020) and stored within Excel format (Microsoft 365, 2024). Specifically, the textual data within the messages was collected, as well as the username and function of the community member who posted the message. This data was collected and stored within two different Excel documents to ensure anonymization of the data. The first document contained the textual data within the messages, labelled from message 1 to message 112. This data was the focus of this study. The second document contained the username and membership status (i.e., "Member", "Donator" and "Administrator"), who posted the message, labelled from post 1 to post 112. The username was exchanged by a number to optimize anonymisation. This data was not the focus of the study, but was gathered to check whether the discussion was balanced (i.e., whether messages are placed by a range of community members; see Participants section).

Participants

The 112 posts were posted by 56 community members and one community administrator (i.e., ToS staff member). Of these 56 community members, 11 members were donators to ToS, meaning that they spend money to assure the continued existence of ToS. The number of posts written per community member ranged between 1 and 10 (see Figure 2). Twenty-five community members posted more than once, of which seven were donators and one was an administrator. Fourteen community members posted more than twice, of which six were donators and one was an administrator. Six community members posted more than thrice, of which four were donators. Four community members posted more than four times, of which two were donators.

Figure 2

Division of Posts over Participants

Division of Posts over Participants

Y-axis: Amount of People (0, 5, 10, 15, 20, 25, 30)
X-axis: Number of Posts (1, 2, 3, 4, 5, 6, 7, 8, 9, 10)
Legend: ■ Member ■ Donator ■ Administrator

Data Cleaning

The textual data was cleaned within Excel (Microsoft 365, 2024), meaning that data constructions that could hinder data analysis were removed (see Appendix A). First, textual data referring to potential forum actions such as "click to expand" and "spoiler" was removed. Second, data was further anonymized by changing references to other ToS members (i.e., usernames used to address other ToS members) within messages to "Referral". Thirdly, when community members copied parts of previous messages of other community members, these

quotes were highlighted as unoriginal pieces of text by adding "ReferralStart" at the beginning of the quote and "ReferralEnd" at the ending of the quote. These quotes were not removed from the data as that would disrupt the fluency and interpretability of the messages. Lastly, to foster pattern recognition and thereby meaningful text-mining analysis, names were standardized. For example, different abbreviations and names for the Avatar film were merged into "Avatar" and different spellings of character names were corrected to the official spelling. Furthermore, character and concept names that were relevant but would be distorted by the pre-processing phase were adapted. For instance, the name Lo'ak was rewritten as Loak to ensure that pre-processing of the textual data would not split the name into the syllables Lo and Ak.

Data Transformation: Pre-processing Data

Pre-processing of the data was done with the aim to ready data for text mining. This entails that the textual data was transformed in such a way that it would be understandable and usable for text analysis algorithms (Anandarajan et al., 2019; Hickman et al., 2022; Vijayarani et al., 2015). The data was pre-processed with the program Orange (version 3.36.2; University of Ljubljana, n.d.). Firstly, capitalization, accents and URLs were removed. Secondly, tokenization was applied with "word punctuation" meaning that the focus was on single words (Orange, n.d.a). Thirdly, lemmatization was used with "UDPipe Lemmatizer", meaning that words within the text were transformed into their lemma. This reduced the number of variations of a singular word that humans can use, making the similarity between for example different forms of one verb recognizable to an algorithm (Orange, n.d.a). Fourthly, stop words, which are common occurring words within text that do not provide meaningful insights into the text (e.g., "the") were removed, as well as punctuation and numbers (Orange, n.d.a). Lastly, as words that are used too frequently or too infrequently can hinder meaningful LDA analysis, the five percent least and most occurring words were also removed (Orange, n.d.a).

At the end of this pre-processing phase, word frequency within the data was assessed. Key words were abstracted from the data and their frequency was visualized within a word cloud. Subsequently, additional meaningless words that occurred often in text but did not contain meaning were added to the stop word list and thereby removed from the data (see Appendix B). For example, "ATWoW" was removed as without this word, the topic coherence (i.e., indicator of how well the topic model aligns with the textual data, see Data Analysis) generally heightened from averaging around 0.3 to 0.5 for different topic models. After these removals, the word frequency across documents was assessed again. Results were visualized with a word cloud to get an initial idea about what kind of words the ToS community often used to describe their experience with watching ATWoW (See Appendix C).

Overall, pre-processing the data in this manner aligned with procedures commonly used when applying LDA topic modeling (i.e., an analysis method applied in this study; see Data Analysis; Maier, 2021).

Data Analysis

Data analysis was once again performed with Orange. Text mining and human text interpretation were used to gain insight into the answer to the research question. Namely, the subjects that the viewer's of ATWoW talk about were studied with both a text mining approach called topic modeling and a human text interpretation approach called grounded theory. Topic modeling was used to identify the topics that are inherent within the textual data (Nikolenko et al., 2017; Iliev et al., 2015). There exist multiple approaches that can be taken to reach the aim of identifying topics within the framework of topic modeling. In this study, the approach Latent Dirichlet Allocation (LDA) was utilized, based upon the popularity it gained in empirical research due to its satisfactory performance (Jelodar et al., 2019; Liu et al., 2011; Tong & Zang, 2016).

LDA is a topic modeling method that assumes that a piece of text, called a document, contains sets of words that fit together to create meaningful text segments; such a meaningful cluster of words is called a topic (Jelodar et al., 2019; Liu et al., 2011; Tong & Zang, 2016). An LDA analysis is a search for such word clusters (i.e., topics) within a corpus (i.e., a set of documents). Subsequently, the presence of the topics in a specific document is signalled by a comparison between the words in the document and the word-clusters that represent the identified topics (Jelodar et al., 2019; Liu et al., 2011; Tong & Zang, 2016). To conclude, in this study, the outcome of the LDA topic modeling analysis on viewers messages (i.e., the corpus of data) contained the identified word clusters (i.e., topics) inherent within the messages, as well as an indication of the amount to which these topics were present within individual messages (Jelodar et al., 2019; Liu et al., 2011; Tong & Zang, 2016; Orange, n.d.b).

Choosing a Fitting Topic Model

The number of topics in the outcome of an LDA analysis is specified by the researcher. Namely, the researcher assesses which number of topics creates the most meaningful alignment between LDA outcomes and the textual data. There are no hard rules with regard to the ideal number of topics the researcher choses; multiple topic models might seem to fit the data well (Weston et al., 2023). In this study, the judgment of the researcher regarding the topic model with the number of topics that meaningfully befitted the textual data was guided by the topic coherence parameters, as well as the notion of exclusivity.

A topic model with a higher topic coherence score compared to the fit of other topic models on a specific data set, will be easier to interpret and is therefore more desirable (Rosner et al., 2013; Zvornicanin, 2021). A high topic coherence score entails that the words that represent the specific topics within the topic model are often found closely together. This is an indicator of the quality and interpretability of the topic model, as it resembles how coherent individual topics within the topic model are (Korenčić et al., 2021; Mimno et al., 2011). However, exclusivity should also be considered. The notion of exclusivity is the idea that individual topics should represent a subject that can be distinguished from the subject of another topic (Weston et al., 2023). When exclusivity is low, the key words of the individual topics will overlap, meaning that the boundaries between topics become less clear and this might hinder meaningful interpretation (Weston et al., 2023). Topic coherence is unrelated to this notion of exclusivity, so for an optimal choice between topics, both should be considered (Weston et al., 2023).

More specifically, in this study, the topic coherence scores of topic models ranging from three to twelve topics were considered. To assess exclusivity, the Marginal Topic Probability scores (MTP) of the individual topics within the topic models were assessed, as well as the overlap between the key words of each topic within the topic models. The MTP scores of the topic models were generated with the Orange function "Multidimensional Scaling" (MDS; Abayomi-Alli, 2022). This function plots the individual topics in the form of circles. The size of these circles represents their MTP score. These MTP scores indicate the extend to which a specific topic is present within the textual data (Sievert and Shirley, 2014). The distance between the circles indicates the overlap between the words that resemble the individual topics, meaning that a small distance between two topics indicates an overlap between words within the topics and thereby a relationship or overlap between the topics (Shrader et al., 2021).

In this study, when assessing topic models with more than ten topics, the width of the circles (i.e., the extend of the presence of the topics in the textual data) and the distance between the circles (i.e., relationships or overlap between the topics) both indicated detrimental low exclusivity as topics formed three to five clusters (see Appendix D). Hence, after noticing this pattern at ten topics, it was decided to assess two more topic models to check the continuation of the pattern, which was indeed the case. Thus, topic models including up until 12 topics were considered.

Human Interpretation of Text Mining Outcomes

To interpret the topics, the text-mining approach was supplemented by human text-interpretation guided by grounded theory. Through text-mining, the number of topics was

already specified. In addition, the text-mining outcome existed of the identified topics, more specifically, the word clusters that signified these topics. However, these word clusters were not labelled: the researcher was responsible for abstracting meaning from the word clusters. This entailed determining what subjects were represented by these word clusters (i.e., labelling the topics).

In the first iteration of the data interpretation, the researcher circulated between topic modeling outcomes and the corpus, studying the documents that were indicated by LDA outcomes to be highly representative of a certain topic (i.e., scoring higher than .80 for the specific topic as indicated by the LDA analysis). The focus in this circulation was on how the key words resembling the topic were present in these documents and in what kind of context these words occurred. Furthermore, the topic key words were further studied by using the LDAvis function in Orange. LDAvis is a tool that visualizes the frequency of key words within a specific topic, compared to the frequency of these key words within the entire corpus (Sievert & Shirley, 2014). Hence, this visualization can be used to consider which key words are highly represented within the specific topic and not within other topics. To create this visualization, a relevance rate of 0.6 was employed, signalling that the key words studied were more relevant regarding the topic than the overall corpus (Noble et al., 2021). In this manner, the researcher gained valuable insight into the common denominator among documents highly representative of specific topics, as well as into the connections between the key words representing a topic. These insights eventually led to the meaningful interpretation of the topic: the subject that was represented by the topic was explored, identified, and labelled.

Secondly, this initial understanding of the topics was deepened by an assessment of the themes present within the found topics based on grounded theory. Again, solely the documents highly representative of the specific topics were considered. Hereby the steps of the grounded theory approach were taken. Firstly, these documents highly representative of a specific topic were coded into potential themes; then themes were revised and named, after which boundary conditions and further revisions of the themes were considered (Strauss & Corbin, 1990). The structured performance of these steps was facilitated by the use of Atlas.ti, (Version 23.2.1.), a program in which researchers can highlight pieces of text and attach (initial) ideas for themes and other notes to pieces of text (Atlas.ti, 2024). After the themes of a specific topic were identified, the topic that these themes represented as well as the themes themselves were further revised based on considerations regarding the connection between the themes and the associated topic.

Thirdly, after a coherent initial understanding of both the topics and the correlating themes was established, the topics and themes were compared to the documents that were not studied previously: documents representative of multiple topics. This entailed that it was considered which parts of these documents represented the separate themes and thereby the separate topics. Based upon this check, topics and corresponding themes were further revised. For instance, the boundaries and overlap between themes across topics was assessed in-depth.

These three phases were iteratively performed, on multiple occasions spread over a period of two months to establish inter- and intra-rater reliability in the sense that both text mining outcomes and human interpretation outcomes aligned, as well as interpretations of the same researcher on separate occasions (i.e., Yu et al., 2011). The end results of this iterative process utilizing both text mining and grounded theory is the identification of topics as well as the identification of themes within these individual topics. These themes can be seen as subtopics.

Comparing Topics and Themes to HNC

Lastly, to answer the research question regarding what (HNC-related) subjects ATWoW viewers discuss, the identified subjects and associated themes were analysed regarding whether they were potentially HNC-related. Two theories were consulted to find (a lack of) connections between the subjects that ATWoW viewers discussed and HNC. First, to assess whether viewers talked about HNC itself, the discussed subjects were compared to five HNC dimensions, as formulated by Ives et al. (2018): material, experiential, cognitive, emotional, and philosophical HNC. Second, to assess whether viewers talk about HNC-heightening factors, the discussed subjects were compared to the three pathways through which environmental films can influence HNC as formulated by McCormack et al. (2021): (1) Reduced Resistance to Persuasion, (2) Interactions with Identity and (3) Meaningful Media Experiences.

Statement of Reflexivity

Before researching ATWoW, the researcher was already well-known with the first Avatar film. Namely, she watched the first Avatar film multiple times while growing up together with her enthusiastic parents. She watched the sequel, ATWoW, in the cinema together with her parents; She does not remember anything she specifically liked or disliked about this film. Before this study, beside watching the films, she did not engage with the Avatar universe, for example by studying Pandora and the culture of the Na'vi. Neither did she join an Avatar community.

To optimize reliability and to limit biased interpretation based on previous personal experiences with Avatar and ATWoW, text mining results were consulted during the human

interpretation of both topics and themes; connections between themes and the overarching topic were closely assessed to ensure alignment and coherency between themes and corresponding topics. Furthermore, iterative revisions of both the topics and themes took place over the course of two months on multiple occasions to optimise intra-rater reliability: the same researcher finds the same themes and topics when assessing the textual data at various occasions. To encourage replicability, the overall methodology used in this study can be viewed in Figure 3. The orange pipeline (chronical order of functions used in orange) can be viewed in Figure 4.

Figure 3

Summary of the Methodology of the Current Study

Figure 4

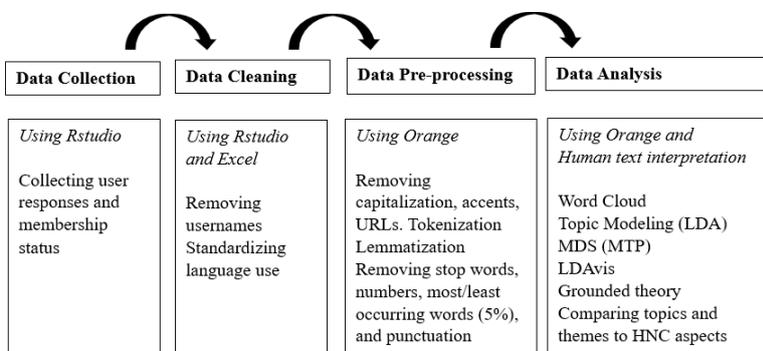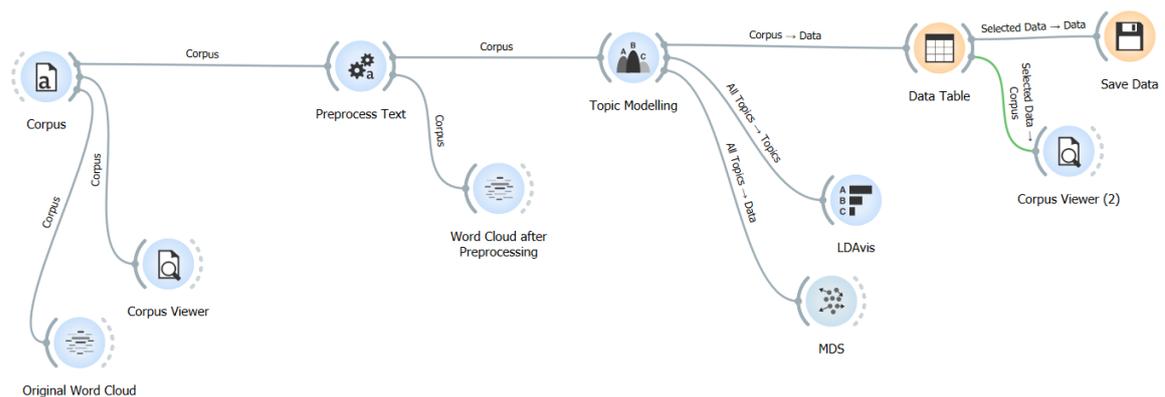*Text Mining Steps Taken in Orange*

Results

A topic model of four topics fitted the textual data best, both quantitatively and qualitatively. When comparing topic models, topics within larger topic models seemed to cluster in three to five groups. The topic coherence of a four-topic model was relatively high, although the topic coherence score of a three-topic model was also considerably high. However,

when assessing exclusivity, the four individual topics within the four-topic model seemed to be sufficiently exclusive to prefer the addition of a fourth topic. Namely, the additional topic covered around 7 percent of the data and the key words resembling this topic seemed to express a different concept than the other three topics. Concluding, a topic model of four topics was deemed preferable based upon a chosen optimal balance between a high topic coherence score and high exclusivity (see Appendix D). These four topics were labelled Transportation, Awe, Relationships, and Reflection on ATWoW respectively (see Table 1). Based on grounded theory, these topics were further under divided into a total of twelve themes (see Table 2, Table 3, Table 4 & Table 5). In the next section these topics and corresponding themes will be discussed in depth. To promote readability of the results, a supporting visualization of the different characters of ATWoW can be found in Appendix E.

Table 1

The Topics Inherent Within the Viewers' Textual Responses to ATWoW

Topics	MTP	Keywords	Label	Description	Example
1	0.24	Spider, Neytiri, Jake, Time, Quaritch, Love, People, Scene, Leave, Family	Transportation	Viewers discuss how diverging aspects of ATWoW influenced the degree to which they entered the world of ATWoW	"… had me at the edge of my seat with goosebumps…" (Post 81)
2	0.07	Love, Wonder, World, Jake, Cut, Moment, New, Action, Scene, Kiri	Awe	Viewers discuss (a lack of) experiencing awe with regard to the Avatar universe	"Kiri's moments were wonderful to watch. That awe and joy she visibly felt from the natural beauty around her… That was what I was hoping to see and feel for myself" (Post 62)
3	0.24	Family, Time, Scene, Neytiri, Neteyam, Metkayina, Kiri, People, Good, Different	Relationships	Viewers discuss characters, relationships between characters, as well as relationships between viewers	"Really liked Lo'ak and Payakan's relationship" (Post 29)
4	0.43	Time, Story, Navi, Pandora, Characters, Human, Quaritch, Good, Plot, Fan	Reflection on ATWoW	Viewers reflect on ATWoW, their watching experience and the placement of ATWoW in the broader context of the Avatar universe and lore	"Avatar was a "discover", Pandora was unknown, mysterious and dangerous for the protagonists and I was engorged by the movie… In ATWoW they look veterans, even if I love ATWoW, Avatar gave me a completely different sensation." (Post 10)

Topic 1: Transportation

The first topic transportation covered around 24 percent of the textual data. The key words of this topic are "Spider", "Neytiri", "Jake", "time", "Quaritch", "love", "people", "scene", "leave" and "family". Specific ATWoW scenes are discussed in terms of disbelief and confusion (e.g., "I am just confused how Neytiri turned on Spider at the end of the movie. […] why did Jake run away from the Omatikaya to be with the Metkayina"; post 6). These scenes exemplify a range of factors that influence whether viewers felt transported into the world of ATWoW. These transportation factors are further illustrated in the four themes that were inherent within the topic of Transportation, namely: Transportation into the Character Arc's, Transportation into the Plot, Visuals and Sounds, and Personal Attachments to ATWoW (see Table 2).

Theme 1: Transportation into Character Arc's

Firstly, within the topic Transportation, viewers express the theme Transportation into Character Arc's: whether they could (not) understand characters and their actions on an affective and cognitive level. Viewers highlight specific scenes due to the (lack of) understanding of the characters actions and talk about the influence that this (lack of) understanding has on their connections to these characters (i.e., identification). Taking Neytiri as example, some viewers expresses that they were not invested into her characterization, as it felt too shallow (e.g., "Some characters were ultimately far too shallow for me to feel very invested, and I disliked Neytiri and Jake's characterization"; post 82). On the other hand, some viewers were able to connect to Neytiri cognitively and affectively; they showed understanding for Neytiri's actions (e.g., "I got goosebumps when Neytiri went into beast mode and took out all of those soldiers. I believe she took Spider because she knew he was tagging along with Quaritch. It was a desperation act to get her kid back"; post 81).

In addition, viewers express transportation into the emotional world of the Tulken, whale like creatures (see Appendix E); this transportation is highlighted by the pain that viewers feel themselves when the Tulkun are hurt by others (e.g., "Tulken hunting was really painful to watch"; post 66). Viewers feel blue, disgust, a sense of hopelessness for humanity, because human's hurt the Tulkun (e.g., "I am left feeling very blue. The whole sequence with the muma whale and calf was awful […] to the point where you feel so lost and hopeless for the human race"; post 60). This blue feeling is also expressed in general: viewers feel a disconnection with the human race (e.g., "Left me feeling a little blue. Like avatar did made me walk out of the cinema hating my own race"; post 1).

Lastly, viewers also seem to treat the Avatar universe and Pandora itself as a lovable main character to which they strongly wish to connect (e.g., "I am once again in LOVE with Avatar and wanting to go back to Pandora. Oh boy here comes the Avatar Blues again…"; post 46). The repeated use of the word love in this context seems to demonstrate a connection or feeling that these viewers cannot express in other words.

Theme 2: Transportation into the Plot

Secondly, within the topic of Transportation, viewers discuss the theme Transportation into the Plot of ATWoW: they seem to stress the idea that their understanding of the plot influenced the extend to which they felt transported into ATWoW. Viewers stress aspects of ATWoW that hindered their understanding of the plot and thereby their transportation into ATWoW, such as plot holes and other plot decisions (e.g., "I think ATWoW suffers from 'middle movie' syndrome. It has to pick up from Avatar and leaves all of its plot threads dangling for Avatarthree and beyond"; post 28). They recommend watching ATWoW multiple times, or watching it back-to-back with Avatar, to enhance understanding of the plot (e.g., "this is a movie that rewards multiple viewings. I was honestly a little overwhelmed the first time around, and I do not think that it was until my third screening that I felt like I had a complete appreciation of everything ATWoW has going on"; post 63). In addition, viewers expressed that transportation was fostered by the freshness and robustness of the plot (e.g., "Avatar has a special place in my heart, but I feel like the story was a little fresher for ATWoW, and did not have as many wonky tropes as Avatar"; post 8).

This theme can be distinguishing from the theme Transportation into Character Arc's by the way in which viewers discuss scenes. Responses focusing on disruptions to the flow of the plot in a scene align with the theme Transportation into the Plot; responses focusing on the flow of character development in a scene align with the theme Transportation into the Character Arc's.

Theme 3: Visuals and Sounds

Thirdly, within the topic of Transportation, viewers discuss the theme Visuals and Sounds: which visual or audio details enhanced or disrupted their viewing experience. Regarding audio, viewers discuss what kind of effect the music within ATWoW had on them (e.g., "when I watched ATWoW, my brain finally agreed that yes, I was hearing proper Avatar music"; post 111). Regarding the visual experience, the viewers discussed watching the movie in 3D, which seemed to enhance the viewing experience (e.g., "I really enjoyed watching ATWoW in IMAX 3D, I almost felt like being a part of that world"; post 56). Furthermore, for some viewers but not all, the inconsistent use of HFR (High Frame Rates) seemed to disturb

their watching experience by interrupting transportation (e.g., "I do not mind higher framerates at all if they are consistently higher. Then your mind just gets used to it and you immerse yourself into the experience pretty quick. What did ruin it in ATWoW for me, was that that kept changing framerates"; post 91). Lastly, viewers also discussed how enhanced use of technologies such as CGI in ATWoW influenced the visual watching experience compared to Avatar (e.g., "the sheer number of foggy clouds that are floating around in Avatar. One would almost be inclined to think they are there to obscure the rendering limitations that they had at the time"; post 111).

Theme 4: Personal Attachment to ATWoW

Fourth and last, within the topic of Transportation, viewers discuss the theme Personal Attachment to ATWoW: how they personally noted specific aspects of ATWoW based upon their previous life experiences and values. Overall, viewers seem to express a sense of personal attachment to the Avatar universe and films as shown by their wish to rewatch the films and by references to previous watching experiences ("I have loved Avatar since the first time I saw it. I have rewatched so many times."; post 60). Viewers also discussed rewatching Avatar and ATWoW in the theme Transportation into the Plot as a way to clarify the plot, but within the theme Personal Attachment to ATWoW the aim of rewatching goes beyond clarification of the story line; viewers express their wish to rewatch the films to connect to the Avatar universe, the language and culture (e.g., "Irayo ma Avatar family for bringing us back to Eyweveng!"; post 21).

Other examples of more unique personal attachments are the way in which a viewer interpreted the medical treatment that Kiri received after an apparent seizure. Based on personal norms and values, this viewer experienced the way in which Kiri was treated, a spiritual process, as dangerously anti-scientific (i.e., "I was quite dismayed by this seeming push towards pseudoscience"; post 39). The same viewer also noted that the military weapons used in ATWoW where similar to his own military weapon, which for them seemed to disrupt their transportation into ATWoW (i.e., "it was definitely a bit odd seeing something so "contemporary" show up on Pandora. It instantly made me think of my own issues weapon"; post 39).

Table 2

Themes Inherent Within the Topic Transportation

Transportation Themes	Description	Example
Transportation into Character Arc's	Viewers discuss aspects of ATWoW that hinder or foster the experience of connections with characters	"Worthington's portrayal of Jake […] really made ATWoW come together for me […] he works to sell some of the films most emotional moments, particularly "I see you son" which was, for me, ATWoW's most moving line" (Post 63)
Transportation into the Plot	Viewers discuss aspects of ATWoW that hinder or foster the experience of transportation into the narrative of ATWoW	"The three plus hours flew by, I love how the first few minutes of the film caught us up to speed on what has happened since we last visited pandora thirteen years ago" (Post 7)
Visuals and Sounds	Viewers express how visuals and sounds enhance or disrupt their viewing experience	"I wish I could have heard the music from the teaser in ATWoW that would have completely transformed me to the world of pandora!" (Post 56)
Personal Attachment to ATWoW	Viewers connect personal life experiences, values, and preferences with how aspects of ATWoW enhanced or disrupted their viewing experience	"Keep in mind that the theatre also had my squad of Marines, who can be pretty rowdy, but most of them are junior PFCs and lance corporals, so they might not have been inclined to be too disruptive when officers (me) and SNCOs were around. Their opinions were quite variable, but the consensus definitely seems to be that the middle part of ATWoW had too much filler, while the action sequences at the end were great. They did get a laugh at Lo'ak's cheesy military lingo" (Post 39).

Topic 2: Awe

The second topic, Awe, covered around seven percent of the textual data. The key words of this topic are "love", "wonder", "world, "Jake", "cut", "moment", "new", "action",

"scene", "Kiri". This topic mainly revolves around the idea of exploration; the Avatar universe is a new world, which might ignite curiosity, a sense of wonder, and awe. Viewers connect wonder to Jake his exploration journey in Avatar (e.g., "there was a sense of wonder about Pandora in Avatar, something especially felt in the more still and quiet moments like Jake's first sight of the bioluminescence"; post 62). However, when discussing ATWoW, viewer's replace Jake by Kiri; in ATWoW Kiri was the explorer, not Jake (e.g., "Kiri's moments were wonderful to watch. That awe and joy she visibly felt from the natural beauty around her… That was what I was hoping to see and feel for myself"; post 62). In addition, viewers contrast the still and quiet moments in Avatar with the seemingly more action packed ATWoW; action seemed to influence viewers' sense of wonder negatively, as they wished for a calmer setting (e.g., "I had hoped that there would be a long, uninterrupted segment of the family getting used to their new home and exploring the sea; post 62). Lastly, it seems that due to a lack of other fitting words, viewers use the word "love" to exclaim their love for ATWoW and the world created within. These Awe aspects are further illustrated in the two themes inherent within the topic of Awe namely: Wish for Exploration and Appreciation of ATWoW (see Table 3).

Theme 1: Wish for Exploration

Firstly, inherent within this topic Awe seems to be the theme Wish for Exploration. Viewers discuss the wish for more materials on the Avatar universe (e.g., "I would have loved a longer cinematic exploration of this"; post 57). They seem to want to explore unknown territory, something new, to ignite feelings of wonder (e.g., "I have come to appreciate that the sense of wonder only came back when they got in the water. JC was absolutely right to go that direction instead of just a forest action flick"; post 112). Another essential element of this wish of exploration and experiencing wonder seems to be calmness and continuity rather than action and cuts (e.g., "what I did not like was the frequent cuts to what Quaritch's squad was doing. I found those cuts jarring, and consequently I could not relax and feel as immersed in the beautiful setting as I did during Avatar"; post 62).

Theme 2: Appreciation of ATWoW

Secondly, inherent within the theme Awe seems to be the theme Appreciation of ATWoW: the use of the word "love" to exclaim love for diverse aspects of ATWoW. This theme distinguishes itself from other themes and topics in which viewers express their (dis)likes by the shortness of these exclamations of love; viewers express their love for ATWoW in a short exclamation without a well explained reason (e.g., "I love avatar 2009 and I love ATWoW too and I am going to love Avatarthree too"; post 110) or with an unspecific and unreflective reason (e.g., "I though ATWoW was great. I really love water, and whales";

post 97). It seems like these viewers cannot find other words to describe their emotional experience.

Table 3

Themes Inherent Within the Topic Awe

Awe Themes	Description	Example
Wish for Exploration	Viewers describe a wish to explore the Avatar universe in order to experience a sense of wonder and awe; potential ways in which this wish can (not) be fulfilled are further discussed	"I also loved all the new characters and world building […] it's just so fascinating to see how the world is evolving" (Post 50).
Appreciation of ATWoW	Viewers shortly express their appreciation for and awe regarding the Avatar universe in the form of short exclamations without going into much depth	"Absolutely adored ATWoW. The visuals were incredible and the action was so fucking cool" (Post 47)

Topic 3: Relationships

The third topic, relationships, covered around 24 percent of the textual data. The keywords of this topic are "family", "time", "scene", "Neytiri", "Neteyam", "Metkayina", "Kiri", "people", "good" and "different". This topic mainly revolves around the members of the Sully family and their struggles (e.g., "I think Neytiri was having the hardest struggle of all the Sully family members, so she was clinging to what she knew and may have come across as compulsive because of it"; post 54). In addition, among other things, viewers stress that the Metkayina culture is not explored deeply enough; consensus seems to be that compared to Avatar, ATWoW has traded a focus on the Avatar universe and culture with a focus on specific characters (e.g., "I agree that the Metkayina culture should have been explored more, maybe it was done the way it was because the focus of ATWoW was more on the individuals themselves and the Sully family"; post 101). Moreover, disturbing parallels between real world situations and ATWoW are discussed. For example, viewers highlight the Tulkun hunt and the Taunui scene which are experienced as disturbing due to their resemblance to real world hunting and war tactics (e.g., "The Tulkun hunt and the destruction of the Taunui village was… difficult. The first time I saw it really upset me and left me feeling pretty traumatised"; post 105). Overall,

three themes were inherent within the topic of Relationships namely: Characters, the Emotional Watching Experience and Community Connectedness (see Table 4).

Theme 1: Characters

Inherent within the topic Relationships seems to be the theme Characters. Viewers discuss characters and connections between characters. The focus of this discussion is on members of the Sully family and their struggles (e.g., "I realized that Neytiri's character did not change all that much compared to Avatar […] I think what ATWoW really showed was her difficulty adapting to the change around her"; post 51). Notable is that Spider is not included by viewers as a member of the Sully family, potentially because viewers make a clear distinction between Na'vi and humans. Firstly, Kiri is often highlighted as a favourite character, because of her spiritual connection with nature (e.g., "Kiri was probably my favourite character […] I felt a bit bummed that we had not gotten to see more of her powers"; post 30). Secondly, Neteyam is highlighted due to the tragedy of his death (e.g., "He looks out for his brother. He wants to grow up to be a warrior like his dad. He makes mistakes and tries to do better. Then he dies before most (if not all) of than can happen…"; post 95). Lastly, Lo'ak is occasionally discussed in de context of his connection to the Payakan, a sea creature in ATWoW (e.g., "Really liked Lo'ak and Payakan's relationship"; post 29).

Interestingly, viewers do not refer to characters who are part of the Metkayina clan. When viewers mention these characters, they discuss Metkayina culture and relationships rather than specific characteristics (e.g., "I believe that "brotherhood/sisterhood" is what the tulkun and the Metkayina people share, as evidence Ronal and Roa's Relationship"; post 29). Overall, viewers express that they would have liked to learn more about the Metkayina people and their culture (e.g., "The biggest point was it superficial telling of the Metkayinas culture compared to Avatar. I get it… but the story developed to be a different one. One more focused on characters"; post 96).

Both within the theme Characters and Transportation in Character Arc's viewers discuss a connection that they have to characters. When talking about transportation, viewers discuss the understandability of a character their action and how this influences whether they can immersive themselves into the cognitive and affective world of the character, becoming one. On the other hand, within the theme characters, viewers discuss their connection with a character, based on likeability and love, in which character and viewer are two separate entities.

Theme 2: The Emotional Watching Experience

Secondly, inherent within this topic Relationships seems to be the theme of the Emotional Watching Experience: viewers discuss how watching ATWoW affected them emotionally. Previous knowledge and experiences seem to influence the emotional impact of ATWoW on viewers (e.g., "left me feeling pretty traumatised […] The scene of the Taunui village seems to have been directly based on the real-world "scorched earth" tactics and ethnic cleansing used by the Indo military against the indigenous Timorese, as it is almost exactly like she [ex] experienced it"; post 105). Emotions also seem to be evoked by real world parallels (e.g., "I nearly cried during the hunting scene, it was really though provoking"; post 104). Unlike the topic Transportation, within the theme The Emotional Watching Experience, viewers do not stress a sense of immersion in which they leave the real-world behind. Instead, they highlight the relationship between reality and ATWoW.

Viewers also highlight a relationship between themselves and characters that evokes emotions, not due to empathy, but due to a strong bond. For example, viewers discuss their grief regarding the death of Neteyam (e.g., "So sad that Neteyam died I am so in denial"; post 58). This grief demonstrates a connection between viewers and ATWoW characters that moves beyond empathy; viewers do not only seem to grief because they feel a shadow of the grief of other characters, but also because they lost someone important themselves (i.e., "Neteyam's death and Neytiri's reaction to his death are the two biggest emotional hits to the gut I took watching the film"; post 35).

Theme 3: Community Connectedness

Thirdly, inherent within this topic Relationships seems to be the theme of Community Connectedness. Viewers stress a sense of "our people", connectedness and "we". Viewers share their emotions and receive acknowledgement from community members. Viewers want to feel like they are in this together, not alone (e.g., "I actually miss Neteyam so much please tell me I am not the only one"; post 83). This theme is not about relationships between ATWoW and the real world or relationships between viewers and characters. Instead, it is about relationships between viewers; it is about what ties them together. More specific, it is about the vision of ATWoW: the intentional message that ATWoW provides to humanity as a whole and that binds community members together (i.e., "shocking scenes like the Taunui and Tulkun ones are totally unexpected and make for us to reflect about what happens her on Earth"; post 106). This sense of community seems to be appreciated by the viewers. (e.g., "I am especially happy I can come here to read reviews like yours and still learn something new or see things a different way"; post 54).

Table 4

Themes Inherent Within the Topic Relationships

Relationships Themes	Description	Example
Characters	Viewers discuss character's, their struggles, and connections between characters with a focus on the Sully family. (Note that Spider is not discussed as part of the Sully family in this theme)	"Sully family members had their own struggles: Jake – the consequences of his choices in the past following him. Kiri – her connection with Eywa and her place in the world. Lo'ak – feeling like an alien and outcast and as the least liked sibling. Neteyam – protecting is sibling and doing his best to please his parents at the cost of himself. Tuk – being the youngest with the least experience skill, or recognition […] Neytiri's struggle was mainly hinted at" (Post 54)
The Emotional Watching Experience	Viewers express their emotional attachment to characters as well as emotions they experienced when watching the film and potential underlying mechanism	"So sad that Neteyam died I am so in denial" (Post 85)
Community Connectedness	Viewers seek input regarding experienced emotions by other forum users and discuss what ties the community together	"I actually miss Neteyam so much please tell me I am not the only one" (Post 83)

Topic 4: Reflecting on ATWoW

The fourth topic, Reflection on ATWoW, covered around 43 percent of the textual data. The keywords of this topic are "time", "story", "Na'vi", "Pandora", "characters", "human", "Quaritch", "good", "plot", "fan". This topic mainly revolves around the broader placement of ATWoW within the Avatar universe. Viewers discuss what changed in the storyline and on Pandora, comparing ATWoW to Avatar and building Avatar lore (e.g., "I think the new reason for being on Pandora is bad, it's because the new reason for being on Pandora

has completely changed in such a short time span […] only 15 years time elapsed for humanity to make a completely altered state of priorities"; post 24). In addition, viewers reflect on the overall quality of ATWoW and criticize aspects of the narrative (e.g., "I felt as though the entire human operation was simply a side story so that Quaritch' return could be justified"; post 24). These reflection aspects are further illustrated in the three themes that were inherent within the topic of Reflection on ATWoW namely: Co-constructing a Shared Understanding of Avatar Lore, Evaluation Narrative Decisions in ATWoW and Processing the Watching Experience (see Table 5).

Theme 1: Co-constructing a Shared Understanding of Avatar lore

Firstly, inherent within this topic Reflecting on ATWoW seems to be the theme of Co-constructing a Shared Understanding of Avatar Lore. Viewers seem driven to expand their knowledge base on Avatar lore and they use each other's expertise to accomplish this aim; they ask for and give clarification regarding Avatar lore and Na'vi culture (e.g., "I always interpreted unobtanium as a superconductor that was needed to fuel everything in the future."; post 24). Furthermore, viewers compare fan fiction to the actual plot in ATWoW to correct non-canonical Avatar lore (e.g., "a lot of the themes and ideas that were collectively part of the Avatar fan fiction community will still be broadly applicable to the Avatar universe"; post 27). Interestingly, viewers attach importance to correct Avatar lore to the point that they feel sad when previously written fan fiction does not align with ATWoW (e.g., "It also is a bit sad that the fanfics I have come to love are no longer cannon in a way"; post 48). The canon story told in ATWoW seems to be the final truth to which fanfictions ideally adhere (e.g., "I recently reached 100.000 words with my most recent story on ffnet and I do think I will be able to let the story segue into the plot of ATWoW with minimal canon deviations."; post 28).

Theme 2: Evaluating Narrative Decisions in ATWoW

Secondly, inherent within the topic Reflecting on ATWoW is the theme Evaluating Narrative Decisions. While viewers co-constructing the shared understanding of the Avatar lore, they encountered aspects of ATWoW that they could not explain; these aspects either went unacknowledged in ATWoW or are not in line with previously established lore. Consequently, the discussion seemed to shift from exploring Avatar lore to criticizing unexplainable aspects of ATWoW (e.g., "I did notice a few plot holes, such as at the end when the Metkayina clan disappeared during the war ship part"; post 40). Viewers discuss the quality of the narrative: if and how can ATWoW be improved?

For example, viewers highlight the use of Translation Convention: characters speak English, even though they should be speaking Na'vi (i.e., "the trope Translation Convention

was in effect here. It came into effect the moment Jake narrated that to him the Na'vi language was now just like hearing English."; post 23). Most viewers seem to understand the decision from the viewpoint of the filmmakers, but they are still dissatisfied (e.g., "This was not done in Avatar, so it felt off. […] That is the point of all these things: immersion. That was another pivotal thing that gave Avatar its magic. It was immersive with virtually everything"; post 24).

Interestingly, although people express the wish to explore new territory in the theme Wish for Exploration, within the theme Evaluating Narrative Decisions in ATWoW they criticize the attention shift from the previously explored Omatikaya clan to the unexplored Metkayina clan (e.g., "That is the equivalent of having an off-book sequel of Lord of the Rings where hobbits live in Gondor now instead of the Shire. It is like… no."; post 24). These viewers seem to align Pandora with the Omatikaya clan and the forest, a vision in which the Metkayina clan and water does not fit (e.g., I was expecting to be returned to Pandora in the sense that I would be returned to a Pandora that I would recognize. This Pandora showed a completely different world that (in my opinion) went way too hard on the water story arcs."; post 22).

Viewers also highlight the quality of the antagonists. They stress that some antagonists, the human's in general, could have been fleshed out more as characters (e.g., "they were there just to be massacred by the protagonists and they have no purpose except being bullies"; post 10). Quaritch on the other hand, is praised as a well-written villain (e.g., "watching Quaritch and his team try to "go na'vi" I hoped that their bonding with Ikrans would change them. […] I looked to see if they would doubt their actions and view pandora in a more positive light, not as a world to be subjugated but one to be appreciated and preserved. But… no such thing happened. […] this newer Quaritch is even more horrifying than he was as a human"; post 94).

Theme 3: Processing the Watching Experience

Thirdly, inherent in the topic of Reflecting on ATWoW is the theme of Processing the Watching Experience. Unlike the short exclamations of love in the theme Appreciation of ATWoW, viewers share their overall experience with ATWoW based upon careful considerations of the watching experience (e.g., "ATWoW is a polished production, and the character development is good. Every moment is made to count, and I do not feel any of the characters were simple drop-ins (unlike culture, which I will come back to). They are well-rounded people. The fundamental message of the violent and exploitative nature of our relationship and balance with Gaia/nature and of the colonialist mentality it both stems from and fosters is very clear and raw"; post 86).

Viewers move beyond describing their emotional watching experience by theorizing which aspects of the film did (not) ignite emotions in the audience. (e.g., "I also just… found myself not really care as much for the newer characters. I do not really know why… I just did not care. Especially when Jake and Neytiri's firstborn dies. I had zero emotional reaction to this"; post 22). In their messages, viewers carefully reason why they experienced watching ATWoW in a certain manner using "I think" or "it might be that" (e.g., "every time I re-watched Avatar it just gave me so much hope to make for a better future and respect the world. ATWoW did not gave me the same effect, Avatar was a "discover, Pandora was unknown, mysterious and dangerous for the protagonists and I was engorged by the movie… in ATWoW they look like veterans"; post 10).

Discussion within the theme Processing of the Watching Experience can be distinguished from other Reflection on ATWoW themes, as the focus is not on giving critique or understanding Avatar lore; rather it is about understanding the watching experience itself. Viewers discuss watching the film again to get a better understanding of why watching ATWoW felt a certain way (e.g., "I just got home from watching it a second time myself, and like others have mentioned, I think I liked it even more than the first time I saw it. I am not sure why, not sure if having knowledge of what things will happen, I could pay attention to more details than I could the first go around?"; post 58). Moreover, viewers do not only attempt to explain their individual viewing experience, but also the general audience experience (e.g., "I think that people connect deeply to ATWoW because it shows an idealized relationship with their planet, their binding spirit (God) and each other. I have heard that some people get depressed after seeing this movie, because they feel such a lack of these connections in their lives – to a living earth, a community with truth and togetherness at its core, and to God that imbues every aspect of nature with spirit that they can interact with."; post 65).

Table 5

Themes Inherent Within the Topic Reflecting on ATWoW

Reflecting on ATWoW Themes	Description	Example
Co-constructing a Shared Understanding of Avatar Lore	Viewers deepen their understanding of the plot of ATWoW and the Avatar universe by sharing their viewpoints on elements of ATWoW, Na'vi culture etc.	"On the question of Unobtanium, I think RDA is still there mining it. We saw pictures of the enormous base they built and then there was the big train that was ambushed early in ATWoW. I suspect that the RDA rebuilt Hell's Gate (on a vastly larger scale) and then finished the rail line to the new mine that they had planned under Hometree. So they are still mining Unobtanium, but they also found other valuable thing they can rape the planet for" (Post 32).
Evaluating Narrative Decisions in ATWoW	Viewers evaluate narrative decisions that JC and other involved filmmakers made with regard to the story in ATWoW and how the story was told	"I think most of us who followed the trailers, news and theories knew in the back of our heads that Neteyam was going to die. Call it a predictable plot point if you want, but I understand why JC did this. Neteyam was the golden son and he had to die to move the story forward. We did not need to care or him personally all that much. His death served another purpose: affecting the lives of those family members left behind" (Post 20).
Processing the Watching Experience	Viewers reflect on how they experienced watching ATWoW and which factors influenced this watching experience	"Saw ATWoW for the first time a few days ago. I enjoyed ATWoW, as just a movie. To answer how I feel about ATWoW in a sense of my wants, feelings, and expectations and how I feel about it is a much longer story. So many things to unpack here" (Post 61)

The Connections Between Discussed Subjects and HNC

Lastly, the found topics and associated themes were compared to five HNC dimensions and three HNC-heightening pathways. These connections are illustrated in Table 6. One can

consult Appendix F for in depth descriptions of each individual connection. In this section, a selection of the most insightful connections will be highlighted.

Firstly, on the surface the three pathways seem each to align with a specific topic. First, Transportation seems to closely align with the pathway Reduced Resistance to Persuasion. Second, Relationships seems to closely align with the pathway Interactions with Identity. Third. Awe seems to closely align with the pathway Meaningful Media Experiences. However, when examining these connections more closely neither HNC dimensions nor the pathways are easily divided into categories: they seem to be highly interconnected. To demonstrate: viewers repeatedly connect Transportation (i.e., HNC-heightening mechanism inherent in the pathway Reduced Resistance to Persuasion) to experiencing Awe (HNC-heightening mechanism inherent in the pathway Meaningful Media experiences).

More specifically, the topics Transportation and Reflection on ATWOW are interesting as discussions within these topics can be connected to all the three pathways. Regarding Transportation, viewers regard transportation as an indication of the quality of the film; they expect it and yearn for it. The viewers who did not feel transported were disappointed. Viewers describe transportation as the ability to be present within Pandorian nature, to travel through the natural world of Pandora. They want to feel able to explore this world with the aim of experiencing awe; when this aim is accomplished viewers expect to (and did) experience a Meaningful Media Experience. Furthermore, viewers highlight that being transported into ATWoW means being able to relate to characters and to understand the actions of characters. Feeling empathy and other emotions due to personal connections with characters and Pandora is regarded as a sign of successful transportation. In this manner, viewers connect transportation to identification with characters and thereby to the HNC-heightening pathway Interactions with Identity.

Regarding reflection on ATWoW, while reflecting, viewers describe gaining insights into HNC-heightening mechanisms inherent in the three pathways. For example, viewers reflect on why watching ATWoW could (not) ignite a feeling of connectedness and awe (i.e., Meaningful Media Experience). Viewers also identify film elements that foster or hinder transportation through reflection (i.e., associated with Reduced Resistance to Persuasion). Likewise, viewers reflect on the beliefs, world vision and actions that characters endorse, thereby figuring out which characters and actions they idealize (i.e., Interaction with Identity). Viewers reflect on many aspects of ATWoW; reflection on the perceived philosophical HNC vision inherent in Avatar is especially noteworthy. Not only is this HNC dimensions the highest dimension (i.e., when this dimension is present, other dimensions are likely present too;

indicating strong HNC), but also interesting, viewers do have many disagreements regarding aspects of ATWoW associated with this HNC dimension.

Namely, viewers their self-proclaimed requirements concerning a desirable amount of focus on a philosophical HNC differed wildly. Some viewers critiqued the action-packed narrative of ATWoW, as they believed that the cuts from peaceful scenes to action hindered the exploration of nature and in-depth exploration of the Metkayina culture (i.e., cultural philosophical HNC vision). Other viewers were convinced that the philosophical vision of the Metkayina culture was overall shallow, regardless of the depth in which it was (not) explored. There were viewers who strongly identified with the philosophical HNC vision spread in the forest environment; they wanted to continue exploring this vision spread in Avatar and were not open to explore the perceived different "water" vision in ATWoW. Yet, there were also viewers who embraced the calmness within the water environment in ATWoW; they believed that the newness of this environment was igniting wonder and awe.

Interesting regarding the material, experiential, and cognitive HNC dimensions, is the lack of discussions on HNC towards earthly nature. Viewers responses convey that HNC towards Pandorian nature might not automatically transfer towards earthly nature. For example, viewers do ask for and share knowledge about Pandorian nature, thereby seemingly enhancing cognitive HNC towards Pandorian nature. Yet, viewers do neither ask for nor share knowledge about Earthly nature. On the other hand, viewers seem to be expressing emotional and philosophical HNC towards both earthly and Pandorian nature. Namely, viewers seem to be highly attached to nature in general and seem to integrate the HNC messages within Avatar and ATWoW within their own philosophical view on life, nature, and the universe. However, people do not talk about specific pro-environmental actions and protecting Earthly nature. Viewers express a sense of hopelessness that seems to get in the way of action-talk.

This hopelessness is a common topic of conversation that emerges when discussions in different topics and themes are compared to material HNC dimensions. Viewers discuss how disgusted they are with humanity. They seem to belief that humanity can only connect to nature through a parasitical material HNC, in which humanity destroys nature for its own benefit. This undesirable HNC seems to be regarded as the unchangeable status quo: viewers do not seem to know how they, as an individual, can change humanities default modus. Viewers feel blue and hopeless when they compare this perceived shallow materialistic connection of humanity to the perceived desirable philosophical HNC of Na'vi. This blueness is described by viewers as "Pandorian depression": a sense of hopelessness that is experienced when they return to the perceived undesirable situation on earth after being transported into ATWoW. It's the wish and

focus on being on Pandora amongst praiseworthy Na'vi, as humanity and earthly nature cannot be saved.

Lastly, the concept of community seems interesting as it is not explicitly present within the pathways, but heavily emphasized by community members. Viewers seem to highly value community interaction. Viewers describe how reading other responses helps them to understand the film and their own watching experience. In this manner, community interaction seems to foster and facilitate reflection. Namely, together, viewers seem to build an understanding of why they experienced ATWoW in a certain manner. Moreover, viewers discuss together if and why they identify with specific characters and receive recognition and validation from other members; which actions and thoughts of these characters are desirable? Viewers also ask for validation of their emotions and watching experience; they want to hear that they are not the only one experiencing ATWoW in a certain manner. Overall, viewers express the idea that people in the community are important as they get "it": people outside the community still need to learn that nature needs to be respected and protected.

Table 6

An Overview of the Presence (Indicated With an 'X') and Absence of Relationships Between Discussed Subjects and HNC Dimensions and Pathways.

Subjects and Themes	HNC Dimensions (Ives et al., 2018)					HNC-heightening pathways (McCormack et al., 2021)		
	Material	Experiential	Cognitive	Emotional	Philosophical	RRtP	IwI	MME
Transportation	X	X		X	X	X	X	X
TiCA	X			X		X	X	X
TitP						X		X
VaS		X				X		X
PAtA						X		X
Awe		X	X	X	X	X		X
WfE		X	X	X	X	X		X
AoA				X				X
Relationships			X	X	X		X	
C					X		X	
tEWE			X	X			X	
CC			X		X		X	
Reflection on ATWoW	X	X	X	X	X	X	X	X
CaSUoAL			X		X		X	
ENDiA	X	X			X	X		X
PtWE	X		X	X	X			X

Note. RRtP = Reduced Resistance to Persuasion, IwI = Interactions with identity, MME = Meaningful Media Experiences, TiCA = Transportation into Character ARC's, TitP = Transportation into the Plot, VaS = Visuals and Sounds, PAtA = Personal Attachment to ATWoW, WfE = Wish for Exploration, AoA = Appreciation of ATWoW, C = Characters, tEWE = the Emotional Watching Experience, CC = Community Connectedness, CaSUoAL = Co-constructing a Shared Understanding of Avatar Lore, ENDiA = Evaluating Narrative Decisions in ATWoW, PtWE = Processing the Watching Experience

Discussion

This study aimed to shed light on the way in which environmental films are experienced by the audience with a focus on Human-Nature Connection (HNC) by exploring what viewers say about watching the environmental action-packed science-fiction film "Avatar: The Way of Water" (ATWoW). More specifically, the textual answers of the "Tree of Souls" (ToS) Avatar community members to the question "What did you think of the way of water?" were studied with topic modeling and grounded theory to gain insight into the subjects that could be inherent within these textual responses. In this manner, four subjects and twelve associated themes were identified. These subjects and associated themes provide insight into what ATWoW viewers highlight after watching ATWoW. However, to answer the research question regarding what (HNC-related) subjects ATWoW viewers discuss, the identified subjects and associated themes needed to be further analysed. Each of the subjects and associated themes were compared to aspects of HNC and HNC-influencing mechanisms to determine if and how they were HNC-related (See Appendix F).

The most interesting outcomes of this comparison can be summarised as followed: (1) HNC-heightening mechanisms seemed to be interconnected across pathways, (2) viewers discussions indicated HNC towards Pandorian nature, not necessarily towards Earthly nature, (3) viewers did not agree regarding the way in which ATWoW should address philosophical HNC, (4) viewers expressed a sense of hopelessness and inaction due to the perceived unchangeable destructive nature of humanity, (5) viewers highlighted transportation and reflection as essential elements that influenced each HNC-heightening pathway, and lastly (6) even though community interaction is not currently present with HNC dimensions and pathways, it did seem to interact with aspects of HNC and HNC-influencing mechanisms. In the next session, each of these outcomes will be elaborated upon.

Connection Between Results and Previous Empirical Research

1. Interconnections between HNC-heightening Pathways

There is no previous empirical research on how the pathways formulated by Cormack et al. (2021) fare in practice; hence, there is also no specific empirical evidence yet regard the separation or potential interactive nature of concepts across pathways. Results of this study suggest HNC-influencing mechanisms might interact across pathways. An especially prominent example of this phenomenon is the HNC-influencing mechanism transportation. Although McCormack et al. (2021), based on theoretical considerations, categorized the concept of transportation beneath the Reduced Resistance to Persuasion pathway, results of this study suggest that transportation is strongly interconnected with HNC-influencing mechanisms

within the pathway Meaningful Media Experiences (e.g., experiencing awe). Previous empirical studies found similar results: transportation was associated with a meaningful watching experience (Hall & Zwarun, 2012; Oliver et al., 2021). (Meta-analyses on) empirical research addressing individual HNC-heightening mechanisms is needed to further address to what extend the pathways are actually distinguishable in practice.

2. The transferability of HNC from Pandorian- to Earthly Nature

The lack of discussed HNC towards earthly nature in the results begs the question whether environmental science-fiction films actually promote HNC towards earthly nature. Theoretically, Pandorian nature provides the audience with a way to explore enhanced and previously unknown aspects of earthly nature. After all, the natural world of Pandora is not entirely fictional; it follows the aesthetic rules that earthly nature adheres to and thereby is not entirely alienated from reality (Jabr, 2010; Wilhelm & Mathison, 2009). When viewers explore this seemingly unknown environment, they are likely to experience a meaningful experience that heightens HNC to nature in general (McCormack et al., 2021; Renowden et al., 2022). More precisely, aesthetics found on earth, highlighted within ATWoW, could influence the viewer, bringing about strong emotions and thereby fostering a connection between viewer and nature (Mulrooney, 2011). In line with this theoretical hypothesis, the Avatar scenes that viewers highlight as meaningful are the scenes in which patterns commonly found within earthly nature are highly prominent (Hwang & Cho, 2021). Concluding, transferring HNC from Pandora to Earth seems theoretically possible, yet the question still remains to what extend connections with Pandorian nature actually transfers towards earthly nature.

3. Viewer Disagreement Regarding Philosophical HNC

Results indicate that viewers hold different opinions regarding the philosophical HNC spread in ATWoW. Some viewers critique ATWoW, as they belief that ATWoW (i.e., Metkayina culture) lacks focus on a philosophical HNC vision compared to Avatar (i.e., Omatikaya culture). Curiously, although the story moved away from the forest, a philosophical HNC vision was inherent within the Metkayina "water" culture. However, within Metkayina culture, the promoted philosophical HNC vision presented itself slightly different than within Omatikaya culture. The water tribe seems to endorse a mindfulness based philosophical HNC vision. Among other mindfulness elements, Metkayina culture stresses breathing techniques, being one with the water, and acceptance (e.g., Siegel et al., 2009). The discrepancies between the philosophical vision within Avatar and ATWoW might partly explain different viewer opinions. For example, viewers who integrated the philosophical HNC vision in Avatar into their identity, might not be perceptive to the new philosophical HNC vision (e.g., due to cognitive dissonance;

Harman-Jones & Mills, 2019). Viewers might prefer one ideology over the other due to personal convictions and history (e.g., western vs. eastern culture; Colbert, 2021).

4. Hopelessness: Pandorian Depression

Viewers share that they feel hopeless after watching ATWoW. This reaction is a well-known audience response to Avatar and is known as post-Pandoran depression. It is described as a feeling of hopelessness that is felt when viewers return to the real-world after identifying with the fictional world in Avatar (Bergthaller, 2012). ATWoW and Avatar were designed to mend the split between humanity and nature, but as they foster transportation into a fictional rather than real-world environment, the split might be enlarged (Bergthaller, 2012). Namely, when viewers idealize the beauty of Pandorian nature and Na'vi culture, they might not like what they see when they look at the real-world and human-nature interactions; reality suddenly seems bleak and depressing (Holtmeier, 2010; Mulrooney, 2011). This experienced sense of hopelessness seems to be associated with inaction: viewers do not discuss pro-environmental actions. McCormack et al. (2021) explain that viewers who identify with characters might copy pro-environmental behaviours performed by these characters. However, ATWoW viewers seem to lack knowledge of potential desirable actions and the believe that these actions can be performed resulting in desirable changes. This is known to hinder environmental film watchers from acting on gained HNC (Howell 2011).

5. The Importance of Transportation and Reflection

ATWoW viewers connect transportation to each HNC-heightening pathway. The idea that transportation is associated with Meaningful Media Experiences seems empirically justifiable (Hall & Zwarun, 2012; Oliver et al., 2021). Based on this notion, it does not seem likely that transportation fits solely well within the Reduced Resistance Pathway of McCormack et al. (2021): it's interaction with other HNC-heightening mechanisms seems much broader than the mechanisms described solely in this pathway.

Like transportation, ATWoW viewers also connect the concept of reflection to each HNC-heightening pathway. Previous research on Avatar aligns with the idea that reflection could be a key aspect in heightening HNC through environmental films. It was theorized that Avatar changed viewers' identities (i.e., thoughts, attitudes, and beliefs) as it inspired self-contradiction and thereby ignited thoughtful reflection (Elsaesser, 2011). Both ATWoW and Avatar narratives address multiple HNC viewpoints and thereby contain different messages that the viewer can pick up on. Through reflection, the viewer unravels which messages they find desirable, after which they incorporate or highlight these messages in their own identity (Elsaesser, 2011; Hwang & Cho, 2021). Although such reflection is regarded as essential,

viewers might differ with regard to how much they engage in this mental exploration based upon, for instance, their ability to reflect (Elsaesser, 2011; Hwang & Cho, 2021; Mulrooney, 2011). Results of this study indicate that some ATWoW viewers might indeed have struggled with reflection: they seemed to be unable to vocalize the reason underlying their emotional attachment to (aspects of) ATWoW.

6. The Importance of Community

Viewers do not only highlight their adoration of the sense of community that is inherent within Na'vi and Tulkun (i.e., whale like creatures) lifestyles; they also highlight the importance of the real-life ToS community. This focus on community is a known reaction to Avatar. Avatar viewers wished for harmonious relationships and interactions with the world, nature, and others; they formed communities that promoted these values (Fu & Ma, 2023; Istoft, 2010; Taylor, 2013). After watching ATWoW, viewers once again seemed to feel this need for community. Community members specifically asked for community interaction; they wanted to know whether others had the same watching experience. Viewers also shared their visions and reflection processes to gain community input; in this manner, viewers seemed to work together to gain insight into, for example, their watching experience and the pro-environmental messages inherent in ATWoW. In this manner, community interaction seems to be a valuable resource that enhances the workings of other HNC-heightening mechanisms (e.g., reflection).

Limitations and Strengths

Firstly, the methodology used in this study (i.e., combining topic modeling with grounded theory) is innovate and thereby is neither criticized nor validated by others. The methodology is theoretically justifiable (i.e., in line with text-mining recommendations; Yu et al., 2011). Although new, the methodology is similar to the methodology used by Sik et al., (2023). However, Sik et al. (2023) identified topics and used deep reading and statistical analyses to accumulate topics into clusters. This study did not take such a bottom-up approach, instead taking a top-down approach (i.e., topics were divided into themes based on grounded theory). Although the end result is similar, Sik et al. (2023) their topic clusters and topics are less reliant on the human coder; the human interpretation for both topic clusters and topics was guided by statistical analyses. In comparison, in this study, the topics were based on statistical analyses, while the themes were identified by the human coder who utilized grounded theory.

Overall, the results of this study were highly dependent on the decisions that the researcher made when analysing the text with text-mining and grounded theory, and when comparing text-analysis outcomes with HNC. For example, the researcher identified "stop words" and removed these from the textual data, thereby directly influencing text mining

outcomes. Measures were taken to limit an unintended biased influence of the researcher. Every decision taken was documented with the aim to create transparency. The reasoning behind such decisions was also reported. Due to this openness, other researchers can scrutinize these decisions and thereby identify any potential inherent biases.

Secondly, the specific community studied might influence the extent to which the results are transferable to the entirety of ATWoW viewers. The studied ATWoW viewers have joined an Avatar community, which is not something all ATWoW viewers have done. Furthermore, these viewers chose to share their watching experience online. Hence, these specific viewers might share some characteristics that are less prominent amongst all ATWoW viewers. For instance, community members who shared their watching experience online might be more reflective than ATWoW viewers who did not. Furthermore, some community members paid to support the community and might therefore be more attached to the Avatar franchise and the idea of community than the average ATWoW viewer.

Lastly, it is unclear how high the HNC of the viewers was before watching ATWoW and whether it changed due to watching ATWoW. Hence, this study cannot provide insights into whether watching ATWoW did actually heighten the viewers HNC. Similarly, this study cannot provide undeniable insights into whether specific HNC-mechanisms were actually at play when the studied individuals watched ATWoW. What this study does provide is a view on what ATWoW watchers themselves noticed regarding HNC and what they highlight about their viewing experience and HNC. This exploratory study can thereby spark and guide the focus of further empirical research on the previously unstudied ways in which environmental films influence HNC. In addition, this study uses a unique combination of a quantitative text-mining approach and a qualitative grounded theory approach to perform meaningful text-analysis. This approach was explained in depth, thereby allowing other researchers to scrutinize and build on this unique text-mining approach.
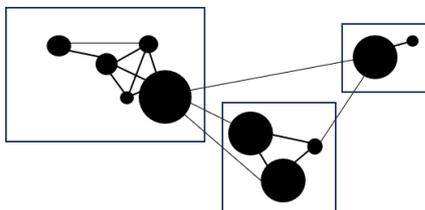
Implications for Future Research

Although the HNC-heightening pathways formulated by McCormack et al. (2021) can be separated in theory, they seem to be highly interconnected in practice. The separations between pathways seem to be a simplification of reality. On the one hand, this simplification might be needed to give future researchers a starting point. On the other hand, this simplification would be detrimental if it is taken at eye-value without further scrutinization. Hence, future research should consider whether the HNC-heightening mechanisms within environmental films are actually well represented by pathways, or whether another type of representation would align better with reality. More precisely, to align theory with reality,

transforming the HNC-heightening pathways into a network is recommended: placing the mechanisms inherent in these pathways within a network (e.g., see Figure 8). It might be that the mechanisms within a specific pathway cluster within such a network; hence, the theoretical frameworks and associated research recommendations made by McCormack et al. (2021) stay relevant. Empirical research should aim to further determine (the strength of) (dis)connections between HNC-heightening mechanisms within and across pathways.

A benefit of such a network approach would be that the factors that influence all HNC-heightening mechanism could be seen as activators or deactivators of the network. This study identified four factors which might support the activation of a range of HNC-heightening mechanisms: transportation, hope, community, and reflection. Future research should further explore how (the absence of) these factors influences changes in HNC when viewers watch an environmental film. In addition, it is important to consider the genre of the studied environmental films. Different films might highlight varied factors that could hinder or promote HNC with regard to the specific genres.

Figure 5

Example of a network vision on HNC-heightening mechanisms

Note. Boxes could represent clusters of HNC-heightening mechanisms that are specifically connected to a theoretical pathway of McCormack et al. (2021). The thickness of lines between circles could represent the strength of the connection and the amount of interaction between the HNC-heightening mechanisms. The sizes of the circles could represent the strengths of the impact of a specific HNC-heightening mechanism on the viewer's HNC.

Implications for Practice

Although the theoretical HNC-heightening power of environmental films still needs to be further explored in empirical research, there are points of caution that can already be considered when crafting environmental films. Based on the results of this study, important pointers for those interested in creating impactful environmental films seem to be (1) creating and spreading a relatable HNC philosophy (2) and enhancing hope.

Firstly, the philosophical HNC promoted within the film should be thoughtfully crafted. ATWoW viewers positively and negatively highlighted the chosen philosophical HNC. The take-away message seems to be that the philosophical HNC message should present a coherent world vision that is relatable and thought-provoking (i.e., not shallow). A cautionary note, some visions might not resonate with specific film genres or cultures (e.g., a mindfulness approach to HNC might not fit within an action film or might not resonate well with western cultures). In conclusion, the philosophical HNC vision inherent in the film requires careful consideration. Interdisciplinary collaboration could improve the formulation of this vision, as those with knowledge about popular and relatable philosophical HNC visions (e.g., dark green ideologies; Taylor, 2013) could collaborate with film makers to build an impactful philosophical HNC vision within the narrative of the film.

Secondly, environmental films should be designed to fosters the transferability of HNC from the film environment towards real-life. Hopelessness hinders this transfer. To enhance hope, film maker should ensure that audience members have (1), a goal, (2) knowledge of how to reach the goal, (3) belief that the goal can be reached, and (4) motivation (e.g., Bannink 2023). Audience responses to ATWoW highlight a goal (e.g., philosophical HNC) and motivation. Knowledge about earthly nature (i.e., cognitive HNC towards earthly nature) and how it can be protected is not shared. Audience members also did not seem to believe that the goal was reachable (i.e., sense of hopelessness). When crafting films, film makers, together with other disciplines, should strive to create a narrative that heightens hope and cognitive HNC regarding protecting earthly nature. To foster hope, it could be helpful to invest in the creation of (online) film communities that are designed to prompt film watchers to share and receive information, as well as support and encouragement.

Conclusion

This study utilizes a unique approach to text analysis in which topic modeling and grounded theory are combined to enhance meaningful textual analysis. Thereby the power of this study does not solely reside in the actual results, but also within the approach taken to reach these results. This approach can potentially provide researchers with a coherent and transparent way to analyse their data; it aims to counter both well-known quantitative and qualitative text-mining limitations. Furthermore, this study laid the foundation of a network theory that connects research on components of HNC and HNC-heightening pathways within environmental films; potential factors contributing to the (de)activation of the network were identified. This network theory and associated contributing factors encourage and guide empirical research on the HNC-heightening power of environmental films. More precisely,

future empirical research can further build this network by studying HNC-influencing mechanisms, connections between these mechanisms and factors contributing to the (de)activation of the network.

Most importantly, this study reiterates the potential HNC-heightening power of environmental films: if designed based on empirical research on HNC, they might have the power to (re)connect humanity to nature and to inspire actions that foster environmental health and human well-being. In the words of James Cameron, the director of ATWoW:

"The movie [Avatar] puts us back into that childlike wonder about nature, and about nature's grandeur and complexity and beauty." – James Cameron (Radish, 2022)

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Appendix A: Data Cleaning

Table A1

Data Cleaning Actions

After Data Cleaning	Before Data Cleaning
Avatar	Avatar, the original film, the first one etc.
ATWoW	Avatar2, Avatar The way of Water, Way of Water etc.
Avatarthree	Next film, A3, Avatar3 etc.
JC	Cameron, James, James Cameron, the director etc.
ReferralSTART/ReferralEND	X (another community member) Said
I agree with Referral	I agree with X
Full form: I am, cannot, fricking, because, do not know, did not, there is, I will, I have, do not, I would, they are, want to, please, minutes	Abbreviations: I'm, can't, frickin', cuz, dunno, didn't, there's, I'll, I've, don't, I'd, they're, wanna, pls, min
Threedimensional, twodimensional	3d, 3D, three D, 2D, 2d
JH	James Horner, Horner
Metkayina	Water people, new Clan, water clan
Omatikaya	Three people, Jake Sully Clan, Omaticaya etc.
Neytiri	She (if referring in a new sentence to Neytiri), Netyri
spider	He (if referring in a new sentence to spider)
Jake	He (if referring in a new sentence to Jake), T-MAK
Ardmore	She (if referring in a new sentence to Ardmore)
Quaritch	He (if referring in a new sentence to Quaritch)
Navi	Na'vi
SF	Simon Franglen, Composer ATWoW
Oloeyktan	Olo'eyktan
Loak	Lo'ak
ffnet	ff.net, fan fiction net
unobtainium	unobtanium
fourdx	4dx
Taunui	Ta'unui
Tsutey	Tsu'tey

Appendix B: Stop Words

referralstart	yes	sure	happen	simply
referralend	probably	find	right	might
movie	kind	show	actually	every
film	like	little	around	anything
avatar	get	never	hard	less
atwow	know	better	something	literally
l	make	though	use	guess
I	thing	almost	big	either
would	go	thought	pretty	post
really	also	especially	completely	mind
much	could	let	try	mean
many	definitely	since	bring	overall
maybe	always	may	move	stuff
first	absolutely	able	rather	hit
one	agree	certainly	tell	entire
quite	least	exactly	hear	whole
bit	yet	put	notice	appreciate
two	watch	enjoy	expect	mention
referral	feel	back	keep	feeling
although	see	point	share	matter
another	think	long	need	nearly
till	still	hat	mostly	%
way	come	already	nah	super
give	say	part	seem	well
look	take	want	lot	even

Appendix C: Word Frequency

A word cloud was created in the program Orange to gain an initial understanding of the data (see Figure C1). In this word cloud, the size of the words represents the frequency with which the words are present within the textual data. The ten most frequently occurring words are "time", "Neytiri", "Jake", "love", "story", "Quaritch", "scene", "people", "Spider" and "family". The most occurring word, "time", seems to be often used to express the idea of rewatching Avatar and ATWoW and frequently occurs in the context of comparing the viewing experience of ATWoW to both previous viewing experiences of ATWoW and Avatar (e.g., "I saw ATWoW a second time. ATWoW was already quite different to me compared to the first time."; post 51). Less often, "time" was used to discuss (dis)likes with the amount of screen time that for example characters and culture receive (e.g., "we do not spend nearly enough time with her [Neytiri] over the course of the film"; post 86).

The frequency with which viewers use the character names "Neytiri", "Jake", "Quaritch", "Spider" and the word "family" in their posts seems to suggest that viewers their discussions of ATWoW revolve around the characters and their connections. The word "people" also seems to refer to characters as it is often used in the form of addressing a group of people within ATWoW, such as "sky people"; which is what humans are called within Avatar. However, it should be noted that infrequently the word "people" is used to refer to the reactions of other people to ATWoW, both within and beyond the ToS community (e.g., "and even if some people do not fully understand it, at least it gives them this discomfort"; post 100). Beside the focus on characters and family, additional frequent use of the words "story" and "scene" seems to suggest that viewers also discuss specific scenes within ATWoW as well as the overall plot. Relatedly, the word "love" seems to be most often used to address a positive emotional connection to both the characters, the plot and ATWoW as a whole (e.g., "I am in love with all the new children and characters."; post 13).
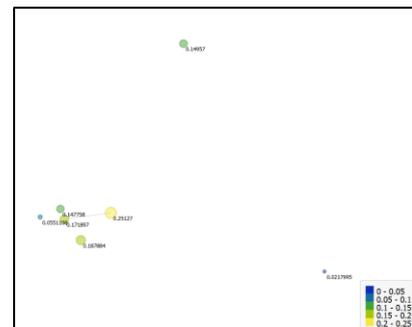
Figure C1

Word Cloud Representing the Frequency of Word use Within the Textual Data

Appendix D: Topic Model Choice

Figure D1

Considerations made Regarding the Topic Choice: Balance Between Topic Coherence and Exclusivity

Number of Topics	Topic Coherence	Exclusivity: the amount of unique key words in a topic compared to other topics	MDS
3	.48	All topics seem to have key words that are specific to the topic. Exclusivity high.	
4	.49	One topic seems to have a limited number of topic specific key words. Exclusivity high enough.	

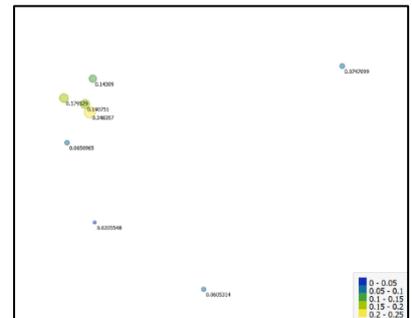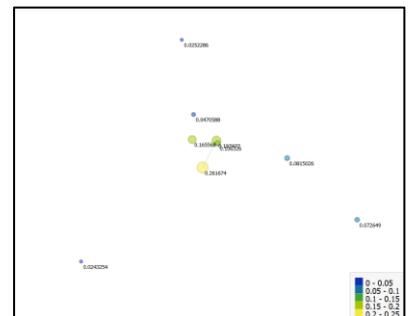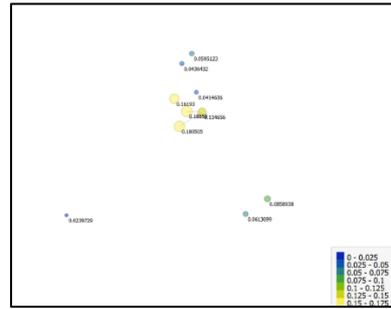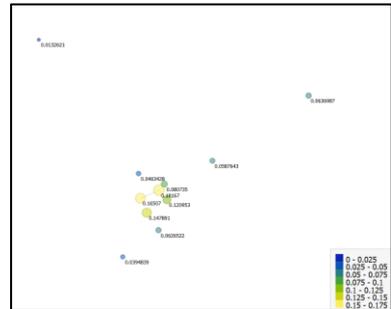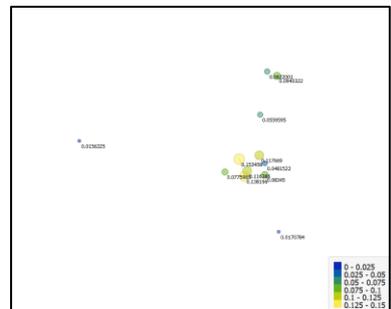| 5 | .47 | One topic seems to have no key words that are specific to this topic. Exclusivity questionable. | |
6	.49	One topic seems to have no key words that are specific to this topic. Another seems to have limited key words that are specific to this topic. Exclusivity low.	
7	.45	Two topics seem to have no key words that are specific to this topic. (two topics and one cluster of 5 topics) Exclusivity low.	
8	.44	Three topics seem to have no key words that are specific to this topic (Three topics and one cluster of 5 topics). Exclusivity low.	
9	.46	In general topics seem to have limited key words that are specific to the topics. Topics seem to be divided over three/four clusters. Exclusivity low.	

10	.46	Most of the topics seem to have limited key words that are specific to the topics. Topics seem to be divided over three/four clusters. Exclusivity low.	
11	.43	Most of the topics seem to have limited key words that are specific to the topics. Topics seem to be divided over four/five clusters. Exclusivity low.	
12	.45	Most of the topics seem to have limited key words that are specific to the topics. Topics seem to be divided over four/five clusters. Exclusivity low.	

Appendix E: Character Names and Visuals

Figure E1

Visualization of important ATWoW characters

Note. Pictures were used from the Instagram page of Avatarfanlover (Avatarfanlover, 2023).

Figure E2

Tulkun Hunt: "Muma Whale and Calf" Surrounded by Hunters on Boats and Shot by Orange Floating Tulkun-capturing Devices

Appendix F: Connections Between HNC and Subjects that Viewer's Discussed Material HNC

Transportation

Transportation into Character Arc´s

When viewer´s discuss the theme Transportation into Character Arc´s, they discuss a connection with Na´vi and Pandora, as well as a disconnection with humanity and earth. Viewers express a sense of hopelessness and disgust towards humanity. The reasoning behind this hopelessness and disgusts seems to be the belief that humanity is selfish and destroys nature. The kind of relationship that viewers perceive between humanity and nature, seems to align closely with a material HNC; namely, viewers describe a relationship in which humanity connects to nature through consumption. Interestingly, viewers solely focus on the kind of material HNC in which human society destroys nature to benefit themselves. Other types of material relationships in which humanity or human individuals do benefit from the products of nature, but do not destroy nature in the process, are not discussed. Overall, viewers seem to attach negative feelings such as disgust towards material HNC, potentially because they solely connect this kind of material HNC to destruction of nature.

Reflection on ATWoW

Evaluating Narrative Decision in ATWoW

While reflecting on ATWoW, viewers seem to further ostracise Material HNC; it is viewed as a villain trait. This negative view on material HNC is most prominent when viewers evaluate the narrative of ATWoW. Namely, viewers highlight that humans are "bad guys" due to their selfish destruction of the natural world. The antagonist Quaritch is praised for being a

well-written villain; even after he bonded deeply with the natural Pandora, he still regards nature as a means to an end. Viewers describe the consumption-based material HNC of the villain's as disgusting and shallow.

Processing the Watching Experience

While Processing the Watching experience, viewers further reflect on why they feel hopeless and why they wish to be transported into the narrative of ATWoW. They call this wish and feeling Pandorian Depression and blueness. Viewers discuss that their loss of faith in humanity seems to be the reason why they wish to transport to Pandora. They describe the perceived default HNC of humanity: a kind of parasitic material HNC driven by human greed and resulting in the destruction of natural environments. As this kind of parasitic material HNC is regarded as an unchangeable norm, viewers express inaction and hopelessness: they do not seem to belief that they can change this undesirable status-quo. Viewers praise the way in which Na'vi engage with Pandorian nature; they want to life among Na'vi as they believe that Na'vi behave in a desirable manner, while humanity cannot.

Experiential HNC

In general, when viewers discuss experiential HNC, they highlight their connection to Pandorian nature, rather than to Earth.

Transportation

Visuals and Sounds

Within the theme Visuals and Sounds, viewers discuss factors that influenced whether they felt emerged into ATWoW; they discuss the extend to which they felt present within the natural world of Pandora. Viewers criticize and praise different aspects of technology use as it does (not) allow them to interact with and be present in Pandorian nature; they want to experience this experiential HNC with Pandorian nature.

Awe

Wish for Exploration

Within the theme Wish for Exploration, viewers discuss that they would like to see more of the natural world of Pandora. They seem to believe that feeling present in Pandorian nature and exploring Pandorian nature will ignite desired feelings of wonder and awe. Herein, experiencing an experiential HNC through transportation seems to be regarded as the means to experience a meaningful experience.

Reflection on ATWoW

Evaluating Narrative Decisions in ATWoW

Within the theme Evaluating Narrative Decisions in ATWoW, viewers further elaborate on the connections that they perceive between transportation and experiencing awe. Viewers express that they want to wander through Pandorian nature themselves; to see Pandorian nature through the eyes of ATWoW characters (i.e., Transportation). Transportation seems to be regarded as a resource that allows viewers to be in and explore Pandorian nature (i.e., fostering experiential HNC towards Pandorian nature), which subsequently allows a sense of awe towards Pandorian nature to arise. Viewers also evaluate which natural environments ignite their wish for transportation. Some viewers wish to be present within the water environment of ATWoW, as it is new and different; calmer, compared to the forest environment in Avatar. Others find this environment boring due to its resemblance to earthly nature; they long for the magical forest environment after watching the first Avatar film. The consensus among these viewers is that the experiential HNC is experienced towards Pandorian Nature: viewers want to spend time in and explore Pandorian nature, earthly nature is not mentioned in this context.

Cognitive HNC

Awe

Wish for Exploration

Within the theme Wish for Exploration, viewers focus solely on Pandorian nature. They do not only want to see more of Pandorian nature (i.e., experiential HNC), but they also want to know more about it (i.e., cognitive HNC). They express positive thoughts and attitudes towards Pandorian nature and talk about engaging in information gathering behaviours, such as consulting numerous Avatar resources to learn more about Pandora.

Relationships

The Emotional Watching Experience

Within the theme The Emotional Watching Experience, viewers address how previous knowledge influenced the ATWoW watching experience. Namely, due to knowledge about earthly matters, viewers could perceive parallels between the real world and ATWoW, which ignited the experience of emotions. Viewers do for example connect real-life hunting and war tactics to hunting and war tactics shown in ATWoW. Thus, viewers do discuss aspects of knowledge about earthly nature (i.e., cognitive HNC) when drawing parallels between real-life and Pandora. However, this knowledge about earthly nature seems to be limited to knowing actions and atrocities that humanity performs to destroy each other, other life forms, and nature.

Community Connectedness

Within the theme Community Connectedness, viewers highlight the message of ATWoW: what kind of knowledge should the viewer gain when watching ATWoW? What binds

Avatar fans together? What do they stand for? Viewers share the belief that nature is important, and that humanity should respect and treat nature well. However, no specific pro-environmental actions are discussed. Once again, the knowledge spread about earthly nature seems to be limited to knowing actions and atrocities that humanity performs to destroy each other, other life forms, and nature. Community members talk about "we", the people who know that humanity needs to respect nature and "them"; humanity as a whole is perceived as unreceptive to this message.

Reflecting on ATWoW

Co-constructing a Shared Understanding of Avatar Lore

Viewers further built their knowledge base about Pandorian nature when discussing the theme Co-constructing a Shared Understanding of Avatar Lore. They ask and share knowledge about Pandorian nature, thereby building their knowledge base on Pandorian nature together (i.e., building cognitive HNC towards Pandorian nature).

Evaluating Narrative Decisions in ATWoW

Processing the Watching Experience

Within the theme Processing the Watching Experience, viewers further distinguish Pandorian nature from earthly nature. Unlike Pandorian nature, when viewers discuss earthly nature, they share their pessimistic thoughts and attitudes. Viewers highlight the perceived fact that humanity is and will always be harming nature; barely any other information about earthly nature is asked for or shared. The hopelessness that viewers feel due to their conviction that humanity and their destruction of natural environments cannot be stopped seems to ignite disinterest regarding earthly nature: viewers do not seem to feel inclined to discuss information about real-world nature and how it can be protected.

Emotional HNC

Transportation

Transportation into Character Arc's

Within the theme Transportation into Character Arc's, viewers discuss the desire to return to Pandora. An emotional attachment to Pandorian nature seems to ignite viewers wish to be transported to Pandora. Pandorian nature almost seems to be regarded as an old friend, a character in its own right. Viewers want to meet with this friend and feel outrage when this friend is hurt. Viewers also discuss merging emotionally with ATWoW characters and other species. In particular, viewers seem highly empathetic towards the Tulkun, a whale like species. For example, viewers discuss feeling pain when the Tulkun feel pain. Thus, not only do viewers

discuss feeling empathy towards Na'vi (humanlike species), but also towards Pandorian nature and more animalistic species.

Awe

Wish for Exploration

Within the theme Wish for Exploration, viewers further highlight their emotional connection towards Pandorian nature. They want to be present in it, as they believe that exploring Pandorian nature will foster positive emotional experiences in which they feel wonder and awe.

Appreciation of ATWoW

Within the theme Appreciation of ATWoW, viewers exclaim their love for aspects of Pandora and Pandorian nature, without many varieties in phrasing or in-depth explanations. This attachment to Pandorian nature seems to further ignite viewers' desire to return to Pandora: they love Pandora and want to transport to Pandora. Within this theme, this strong emotional connection is not elaborated upon or explained. It is stated in short exclamatory statement as a matter of fact. It seems like viewers have a high positive emotional attachment to Pandorian nature, which some cannot vocalize well.

Relationships

The Emotional Watching Experience

When discussing the theme The Emotional Watching Experience, viewers once again highlight how important Pandorian nature is to them, it is an old friend with whom they want to have contact. The destruction of Pandorian nature is regarded with the same emotional outrage as the death of other characters. Curiously, within this theme, viewers do not explain why destroying Pandorian nature is bad. Just as a gut feeling tells individuals that killing is wrong, viewers seem to feel in their gut that destroying Pandorian nature is equally wrong. Viewers draw parallels between how Pandorian nature is destroyed and how earthly nature is destroyed. Viewers also express an emotional HNC to earthly nature: they discuss feeling negative emotions regarding the destruction of earth (e.g., disgust). Herein they also solely discuss that the destructing of nature is bad, without explaining why it is bad. Overall, it seems like viewers have a high positive emotional attachment to earthly and Pandorian nature, which some cannot explain well by using words.

Reflecting on ATWoW

Processing the Watching Experience

Within the theme Processing the watching experience, viewers elaborate upon their attachment to Pandorian nature. Why is Pandora so important to them? Among other things,

viewers highlight the experience of awe and wonder due to being transported to Pandora, as well as the perceived desirable connection that Na'vi have with each other, other species, and nature.

Philosophical HNC

Awe

Wish for Exploration

Within the theme Wish for Exploration, viewers discuss that they want to explore the Na'vi culture in more depth. More specifically, viewers seem to want to know more about Na'vi their vision on engaging with nature (i.e., Na'vi philosophical HNC towards Pandorian nature).

Relationships

Characters

When viewers discuss the theme Characters, they highlight Kiri, a character who embodies high philosophical HNC: she understands her place in nature and has her own vision on what nature is and how you should interact with it. Kiri seems to be a fan favourite because of the way Kiri interact with Pandorian nature (i.e., thoughts, behaviours and attitudes aligning with high philosophical HNC).

Community Connectedness

Within the theme Community Connectedness, viewers seem to express a kind of self-transcendence: they think in terms of we, community, and connectedness rather than in terms of I and individuals. Viewers discuss which message they picked up upon within ATWoW. Most of these messages relate to aspects of philosophical HNC: what place does humanity have in nature and how should humanity ideally engage with nature? Viewers discuss the Na'vi worldview, a nature based and overarching world view in which there is a clear perspective on how Na'vi should ideally interact with nature. This entails that Na'vi both understand what nature is, as well as a belief in the importance of nature as an entity in itself (i.e., unrelated from what it can provide to Na'vi). Viewers praise this world vision that aligns with high philosophical HNC and seem to adopt and belief in this vision themselves: they transfer this vision to earthly matters.

Reflecting on ATWoW

Co-constructing a Shared Understanding of Avatar Lore

Within the theme Co-constructing a Shared Understanding of Avatar Lore, viewers together deepen their understanding of the philosophical HNC vision portrayed in Avatar and ATWoW. They ask for and share details about this vision and co-create an understanding of

what this vision exactly entails and how different characters act or do not act in line with this vision.

Evaluating Narrative Decisions in ATWoW

Within the theme Evaluating Narrative Decisions in ATWoW, viewers critique the difference between Avatar and ATWoW. Compared to Avatar, viewers seem to regard ATWoW as lacking in focus on philosophical HNC. Viewers mention that ATWoW is more character focused than Avatar, thereby exchanging a focus on culture (i.e., philosophical HNC visions) with a focus on character arcs. According to viewers, culture and nature were exchanged for character development and action. The natural world is not directly at stake; the main fight and challenge is not preserving nature. The focus is instead on members of the Sully family. Messages are spread about sticking together as a family; messages about respecting nature are perceived to be less prominent than in Avatar. Viewers critique the perceived shallow Metkayina clan culture; they wished that this new culture and associated philosophical HNC ideology would have been elaborated upon within ATWoW.

Processing the Watching Experience

Within the theme Processing the Watching Experience, some viewers discuss they did not feel connected to Pandorian nature because the story seemed to skip between action and exploration. Some viewers describe that due to this discrepancy between calmness and action, the desired exploration, feelings of wonder, awe, and connectedness with the greater universe (i.e., philosophical HNC vision) were absent.

Resistance to Persuasion

Viewers highlight transportation, an HNC-influencing mechanism inherent in the Resistance to Persuasion pathway. In general, other concepts within the Resistance to Persuasion pathway are barely touched upon.

Transportation

The concept of transportation is discussed throughout all themes inherent in the topic transportation. ATWoW viewers highlight transportation as a necessary part of the watching experience, regardless of persuasive intent. They want to feel like they are present in and can explore Pandorian nature (i.e., experiential HNC). On the other hand, they wish to be transported to Pandora to get away from real-life and the perceived parasitic material HNC of humanity.

Awe

Wish for Exploration

Within the theme Wish for exploration, ATWoW viewers do occasionally mention that they are well aware of James Cameron's persuasive intent. Due to this awareness, viewers express the expectation that James Cameron's will show them something that will enlighten them. They expect that James Cameron will reach his goal and look forward to the expected thought evoking experience.

However, the main focus within the theme Wish for Exploration is transportation with the aim to experience awe and wonder. The consensus among ATWoW viewers seems to be that transportation is the means through which they can experience pleasant feelings. They believe that if they can feel like they are truly present within Pandorian nature (i.e., experiential HNC), then they will experience wonder and awe, which will give them the desired sensation that the natural world is meaningful and that they are intertwined with it (i.e., emotional/philosophical HNC).

Reflection on ATWoW

Evaluating Narrative Decisions in ATWoW

Due to the belief than transportation fosters the experience of wonder and awe, transportation is seen by viewers as an indicator of great story telling; its absence is seen as problematic. In this vision, transportation seems to transcend the Reduced Resistance to Persuasion pathway. It does not solely serve as a cognitive distraction that limits critical assessment of the persuasive message in environmental films. According to ATWoW viewers, it might also in itself be a vehicle towards heightening HNC.

Interactions with Identity

This pathway revolves around the idea that viewers integrate characteristics, attitudes, and beliefs of characters with whom they highly identify, into their self-identity (Cohen, 2018; Cohen et al., 2019). This entails that if viewers closely identify with a character high in HNC, then viewers would likely integrate the characters' worldview into their identity, thereby copying the high HNC onto themselves. Viewers reactions do seem to align with this pathway.

Transportation

Transportation into Character Arc's

Some viewers express lacking emotional attachments to characters due to a lack of transportation. Namely, when viewers discussed transportation, they highlighted that the understandability of characters' actions in terms of their character development influenced whether they could place themselves into the shoes of this character. Hence, it seems like viewer's identification with characters (e.g., feeling empathy for character) was also partly enabled by the extent to which they were transported into ATWoW and into character Arc's.

Relationships

Characters

On a positive note, when discussing relationships, ATWoW viewers share that they actually do relate with characters high in HNC (e.g., Kiri), rather than with antagonists in ATWoW who are low in HNC (e.g., Quaritch). Furthermore, ATWoW viewers do express the same worldviews as these characters. Yet, they do not clarify why they felt inclined to identify with one character as opposed to another. Thus, it remains unclear to what extend the identification itself is based on viewers' pre-watching identity (e.g., HNC). One possibility is that viewers' identification with characters preceded an increase in HNC, but another is that viewers were already high in HNC and thereby identified with characters who where similarly high in HNC.

Interestingly, although viewers do highly identify with Na'vi, and although they wish to protect natural environments, they do not discuss pro-environmental actions that could protect nature; they seem to express inactivity due to a sense of hopelessness. In general, viewers draw a distinction between the Na'vi who model desired HNC and humanity, a greedy race that destroys nature. They seem to believe that similar to the antagonistic human's in ATWoW, humanity is unable to act in line with a high HNC. Viewers discuss feeling hopeless as they do not know how a few individuals can counteract the unchangeable greed and destructiveness of humanity. They feel disgusted by their own race and wish to escape to Pandora, to be among Na'vi who have the capability to appreciate and protect nature.

The Emotional Watching Experience

Viewers discuss that they experience emotions due to parasocial relationships they form with ATWoW characters: a kind of friendship between a real-life person and a fictional character (Cohen et al., 2019). For example, viewers discuss the grief that they experience due to the death of Neteyam; they felt like they lost someone important to them. Curiously, some viewers explain that they were not emotionally invested in Neteyam; they perceived his character as shallow and his death as predictable. Viewers who expected Neteyam's death or who where shocked by previous brutal scenes (e.g., Tulkun hunting) might have emotionally distanced themselves from an otherwise painful experience (Young et al., 2018).

Community Connectedness

Within the theme Community Connectedness, viewers ask for validation and recognition regarding their watching experience. Identification with characters high in HNC seemed to be further reinforced by community interaction as those who shared their emotional

attachment with desirable characters received validation; viewers shared their love for characters and other community members with similar opinions reinforced this love.

Reflection on ATWoW

Co-constructing a Shared Understanding of Avatar Lore

Viewers reflect together on the vision that they have of specific characters (note, viewers also discuss this in the topic Relationships). This reflection on ATWoW characters seemed to allow viewers to gain insight into characters (e.g., which actions and worldviews are desirable). Furthermore, this gained understanding seemed to allow them to identify with characters that they previously could not connect with. For example, at first, viewers did not understand Neytiri her actions, but through community interaction, viewers formulated relatable reasons for her actions. Overall, it seems like community interaction could be essential as it might facilitate reflection: when some community members can make explicit why they identify with a character, others can gain further insight into why they themselves identify with this character.

Meaningful Media Experiences

This pathway was built upon the idea that people engage with stories to experience self-transcendence, which is a state in which people feel connected to themselves, others, and the world (Oliver et al., 2018; Slater et al., 2014). This state of connectedness is associated with high HNC (i.e., philosophical HNC), as HNC elicits self-transcendence and visa versa (McCormack et al., 2021). Interestingly, viewers closely connect this state of self-transcendence to transportation.

Transportation

Throughout the themes inherent in the subject transportation, viewers continuously highlight that transportation is a means to an end: through transportation, they can emerge themselves in Pandorian nature which will enable positive feelings such as wonder, awe and connectedness.

Awe

Wish for Exploration

Within the theme Wish for Exploration, ATWoW viewers express a wish for self-transcendence: they want to feel like they are connected to Pandorian nature, they want to explore it and feel wonder and awe (Oliver et al., 2018). Overall, viewers seem to agree with the theoretical idea that being in nature can elicit self-transcendence, which is inherent in their wish to explore the natural world of Pandora in more depth and their fixation on transportation (Williams & Harvey, 2001; Yaden et al., 2017).

Appreciation of ATWOW

Some viewers seem to be at a loss of words to express why they loved (aspects of) ATWoW as much as they did, and they simply exclaim their love in the theme Appreciation of ATWoW. They might have experienced some kind of peak experience that left them unable to address in words what they felt. Other viewers seem to have a clear idea with regard to why they did (not) have a meaningful media experience while watching ATWoW and they discuss this in the subject Reflection on ATWoW. Concluding, similar to viewers ability to explain identification, viewers also seem to differ with regard to how well they can verbalize a (lack of) a meaningful watching experience. Hence, reflection also seems to be an interesting factor within the pathway meaningful media experiences.

Reflecting on ATWoW

Evaluating Narrative Decisions in ATWoW

Within the theme Evaluating Narrative Decisions in ATWoW, viewers express expecting experiencing self-transcendence, and they discuss why they did (not) experience it. Herein viewers connect self-transcendence to transportation: feeling present within and exploring nature is seen as a requirement for self-transcendence.

Processing the Watching Experience

Whether viewers were familiar with reflection might have influenced how viewers discussed their watching experience in terms of eudemonic and hedonic in the theme Processing the Watching Experience. McCormack et al. (2021) connects meaningful media experience and self-transcendence to the eudemonic watching experience in which the focus is on experiencing meaning and connectedness. Yet, there is a subset of ATWoW viewers who do not stress meaning and connectedness. This subset of viewers seems to have experienced a hedonic watching experience in which they experienced pleasure and enjoyment. Interesting, although these hedonic focused viewers' do not discuss aspects of self-transcendence, they do seem to pick up on HNC promoting messages (e.g., a viewer highlighted the similarity between weapons on Pandora and earth, which did not feel good, although they could not explain why). Community interaction that fosters reflection might be an essential element here, as other community members might help verbalize the implicitly perceived message.