Espousing the Role of Different Kinds of Movies in the Understanding of Climate Change: An empirical review

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A R T I C L E I N F O   ABSTRACT

Effective climate change communication has remained a challenge due to the complexities of climate change science. However, in recent years, the role of movies in communicating climate change science has been recognised. This study reviewed the use of movies in the understanding of climate change. Different climate change films were theoretically and empirically reviewed as well as literature on the subject matter. The study shows that movies (both documentary and fictions) are powerful revolutionary means of bridging the gap between science and human understanding of climate change. By removing the complexities in climate change communications using vivid, concrete, affect and emotional laden animations dramatized with humour and suspense, climate change movies can trigger pro-environmental attitudes, behaviour modifications, and climate change responsive actions.

Introduction

According to Manzo (2017), the usefulness of climate change movies/films is hinged on their capacity to convey messages, perspectives and values through visual strategies. Climate change movies can also serve as awareness-building tools and change agents in fostering action by the general public as well as influencing individual behaviour (Onyekuru et al., 2020). While the role of movies in climate change communication is increasingly being acknowledged, relatively little is known about how effective they have been in simplifying the complex science of climate change communication in order to move people beyond climate change knowledge/awareness to actual behavioural modification and action.

Therefore, to achieve effective climate change communication, there is a need to use vivid, concrete, affect-laden, emotional laden, dramatic, special effect and anecdotes sceneries, as against pallid ones. also to ameliorate inadequate knowledge and lack of scientific consensus on climate change, scholars agree that the use of films will break these barriers, raise

concerns about climate change and bring about behavioural change (Onyekuru et al., 2020; Carmichael et al., 2017). This study, therefore, aims to ascertain the effectiveness of climate change movies in modifying public attitudes and behaviour towards climate change.

Theoretically, this paper is hinged on the reinforcing spirals model. This model offers an understanding of the media – audience relationship (Slater, 2007). It posits that the audience is selective in media content and in turn the media has an effect on the audience. "It acknowledges both the media's potential to influence and the audience's potential autonomy in seeking or avoiding such influence" (Zhao, 2009, p. 699). According to the theory, the media affects both the social and personal attributes of the audience (Bryant and Zillmann, 2002), influence public agenda (McCombs and Shaw, 1972), shapes perceptions of social reality (Gerbner, et al., 2002), encourage the learning of behaviour (Bandura, 1977), and accelerate

the spread of innovation (Rogers, 2003). Underpinning the theory is the symbiotic and mutually exclusive association between audience characteristics that dictate their choice and the shaping of attitudes and behaviours by the media. Concerning climate change communication, this theory is pivoted on the notion of the media as an information provider about climate change and the understanding of the level of scientific agreement about the facts on the issue.

Methodology
This study adopted the method of a review of empirical literature on the subject matter; the use of films in climate change communication. The researchers started by looking at the theoretical literature on film as a medium of communication, the use of films in climate change communication and other sectors of society. Furthermore, a review of different climate change films was done,

Results and Discussion

A Review of the Different Climate Change Movies
Different climate change movies were reviewed with a focus on their messages and comments from different scholars about them. The movies analysed are *Beast of The Southern Wild (2010), An Inconvenient Truth (2006), The Day After Tomorrow (2004),* and *The Age Of Stupid (2009).*

Beast of the Southern Wild (A fiction)
Directed by Benh Zeitlin, *Beast of the Southern Wild (BTSW)* (2010) is a thrilling apocalyptic film about a happy, vibrant, but obscure poor rural community in a small disaster-prone Island of Mexico – the Bathtub, that is semi-permanently flooded and devoid of any sign of civilization, and lacking in basic infrastructures like roads and electricity. For no fault of theirs, they live like outlaws, like animals among pigs, dogs and chicken in shacks and dirt, without caring for comfort, possessions, status, age, gender, colour or beauty and feeding on raw animals like crabs, but they are content and joyous, with great zeal to preserve, maintain and defend the status quo at any cost. They detest and scorn the industrialized city across the levee for their lack of holidays and for eating canned food.

BTSW has had mixed success. In terms of climate change communication, it tried to convey the message with chains of flood disasters caused by man's inhumanity to man, driven by the quest for comfort by the city dwellers who erected the levee to hold back the water, which torments the Bathubians; a negative externality characteristic of the present-day North-South divide, developed and underdeveloped countries, where the vast proportion of GHG is emitted by the former, but the greatest negative impact will be borne by the poor nations around the world. Yet the developed countries, especially the US are not doing enough to make a change. Rather they are engaged in extreme capitalism and consumerism, a trait the Bathubians criticize.

Theoretically, like most fictional films, the film has been less successful in terms of issue salience and emotional cognition. Thus Marshal (2012) opines that although the film's beautiful imagery makes it attractive, the characters won't last long in one's memory. This is because the emotional force behind the film is not as strong as its visual and audible power. This goes to show that smart cinematography is not enough to connect with a character in a movie. Marshal's stance was also confirmed by Hornaday (2012) who perceived the film as an amateur piece of cultural tourism rather than a well-grounded, human-scaled story. These perceptions are true of the film, as most of its plots are less motivating and stand on the lower rungs of the realism scale.

The BTSW film has been criticized for being alarmist and glamorizing or aestheticizing poverty (Hornaday, 2012; Marshal, 2012). Marshal (2012) noted that celebratory energy in the film is misleading. However, Hornaday (2012) commends the film for possessing all the hallmarks of an art film- lush, imaginative visuals, great fiction with a memorable protagonist. The film is recommended for those that have not watched it to do so for its entertaining spirit. In essence, the reviewers agree that despite the flaws in the film, it has effectively achieved its purpose of communicating global warming to its audience and giving them a sense of entertainment and fulfilment.

The Day After Tomorrow (A fiction)
The Day After Tomorrow TDAT (2004) is a climate change catastrophic fictional film featuring paleoclimatologist - Jack Hall (acted by Dennis Quaid) of the National Oceanic and Atmospheric Administration. The film opens with a splendid first one minute showing a hypnotizing beauty of a vast area of Antarctica with scientists studying the ice core and paleoclimatologist Jack Hall (Dennis Quaid), who was the melodramatic hero of the film. His bravery was introduced when a huge fracture suddenly forms in the ice enclosing the drilled ice cores and he had to jump to save them. What followed was the dramatic breaking off of a magnificent ice shelf which introduces the disaster that followed. This scene perfectly depicts the captivating emotions of the film, leaving the audience sympathising and empathising with the level of vulnerability and breath-taking threat of climate change to the awesome beauty of nature.

Hall returns to become a climate change ambassador, warning mankind about the impending danger of global warming. He presented his views to the United Nations conference, warning that the world was at the brink of collapse, also warning the US government to take action. The chains of catastrophic events (high temperature, which causes the release of GHG, new ice age occurs, hail in Tokyo, tornadoes devastated Los Angeles, sea-level rise over-ran Manhattan, flooded London) finally led to the evacuation of US citizens to Mexico for safety and in return, the US government cancelled their debts.

Analysis of the film is somewhat tricky, as it lies between science communication of facts and extreme entertainment fantasy. Von Burg (2012) noted that while the film's underlying message has scientific merit, its cinematic depictions of such dangers push the boundaries of scientific credibility. As such some scientists dismissed it for exaggerations, doubting the possibility of a "quick-freeze", storm surge-driven tidal wave of such magnitude (Leiserowitz, 2004). Also Howell (2011) describes it as "… a scientifically inaccurate Hollywood disaster movie" (p. 178).

On the other hand, the movie has been commended for making it clear that carbon emission is the cause of the melting of polar ice sheets (Livesey, 2014). So, in terms of achieving climate change communication von Mossner (2012) commends the film for transforming abstract scientific scenarios into a concrete story about real people and place, while at the same time turning current perceptions of risk—anticipated catastrophes into audio-visual spectacles that have a direct visceral effect on the viewer. Lowe at al. (2006) noted that the film succeeded in changing people's attitudes; by raising viewers' concerns not only about climate change but also about other environmental risks. This attribute of the film therefore conforms to the theory of the reinforcing spiral of the media, whereby the media affects people's behaviour due to heightened issue salience (Zhao, 2009).

Theoretically, it is a film that "aptly combines features of the melodrama and the disaster narrative to engage its viewers cognitively and emotionally" (von Mossner, 2012, p. 97). In the United State, the film was credited with the first film that turned public awareness to the issue of climate change.

Concerning quantity of coverage and media effect theories, Leiserowitz (2004) shows that the film resulted in "more than 10 times the news coverage of the 2001 IPCC report," (p. 34). This infers that films are more effective in climate change communication

than the presentation of hard scientific evidence as is exemplified by the IPCC report.

Overall, the movie generated several controversies in the US and around the globe with endorsements and counter endorsements, such that von Burg (2012) worries that "this stretching of scientific fidelity risks destabilizing the metaphoric relationship between the cataclysmic weather depicted in *TDAT* and the actual manifestations of climate change" (p. 14). Due to this heightened controversy, von Burg reports that the controversy gave impetus to global warming sceptics, offering a chance to deride global warming claims as farfetched, reflecting a broader failure in climate science and dismissing climate change science as fundamentally flawed.

Greenpeace International (2004) submit that the weakness of the film is based on its exaggerations, not on the validity of its climate change facts, thus even if the fictional content is dismissed, we can't deny the problems it conveys. Also, the Union of Concerned Scientists (2004) asserts that though fictionalized, the film is based on valid scientific facts. A climatologist at the Hadley Centre for Climate Prediction and Research (Geoff Jenkins), was rather comical in his assertion, that there is no need of being 'too po-faced' with *TDAT* since it is just a movie after all Hollywood will never be able to make any money from a bunch of scientists discussing climate uncertainties' (Von Burg, 2012, p.. quoted in Kirby, 2004). Overall, the rhetorics surrounding *TDAT* demonstrates that a fictional film can help shape public scientific discourses productively.

An Inconvenient Truth (A documentary)
An Inconvenient Truth (2006), as the name depicts, showcases the hard options humanity need to take to address climate change impacts. It presents a character-driven movie of climate change, illustrating how individuals can cooperate with neighbours, relatives, friends and policymakers to make a difference; making a very complex issue seem simple and realistic. Produced by a one-time US vice president Al Gore, it is a thrilling documentary of Al Gore's lectures on climate change, delivered at different fora. The lectures use different charts, graphs and maps of various levels of CO_2 and temperature rise at different times and captivating visuals of climate change extreme events and postulations of impending and terrifying catastrophe, thereby simplifying the issues of climate change science and make it comprehensible. It also depicts the urgency of the matter that we have no much time left to act.

The Inconvenient Truth is very successful, despite some of the criticism of the film for making only a

little effort at the end of the film to call for action and for being too apocalyptic (Nordhaus and Shellenberger, 2007; Johnson, 2009). Thus, tends to compromise the essence of the message and making the audience feel powerless in their effort to avert the catastrophe (Johnson, 2009).

Nevertheless, concerning climate change communication, the documentary has been highly applauded by Meyer (2006), with regards to the clarity and captivating nature of the presentation, which "… can propel viewers to the conclusion that climate change is a present and fast-paced reality, rather than a far-off and slowly evolving possibility" (p. 95).

In relation to cognitive theory, the movie has been commended by Aufderheide (2006) who opined that the movie offers viewers an emotionally rich, visually entertaining story that addresses climate change politically. According to Aufderheide (2006), it is a flawless media performance, with eyes focused on the audience, presenting the case of climate change as a global problem. This is beautifully depicted with graphs of different temperature and corresponding CO_2 levels over time, vivid images of melting ice, sea-level rise in different major cities of the world, drowning polar bears due to the lack of ice to habit, changing ocean current and the chains of impacts they result to, thus arousing empathy and gut-wrenching emotion. Often Gore went emotive as he appealed to the audience in his assertion that climate change mitigation is not political but "a moral issue.", including his mournful lamentation about his inability to win political support for global warming as a legislature and the failure of his presidential bid; a lost opportunity to reposition America to be 'green'. Johnson (2009) posits that the movie is very persuasive and positions global warming as a personal and emotional issue. In essence, as has earlier been pointed out about the power of documentaries in bringing about issue salience, *An Inconvenient Truth* has delivered on its mandate, by using every form of emotion and facts, with savoury entertainment to awaken the sensibility of the public to support and initiate action against climate change. Building upon the work of Waugh (1984), von Mossner (2013) describes An inconvenient Truth as "committed documentaries that rely on a combination of visual information, scientific knowledge, and emotional appeal to get [its] … message across" (p. 109).

With respect to the quantity of coverage theory (the frequency and prominence given to the issue by the media) and the agenda-setting theory (which states that public opinion about an issue is directly proportional to the level of attention given by the media), Brulle et al. (2012) adjudged the film to be very successful. He noted that "wide release of the movie, and the subsequent Academy Award and Nobel Prize awarded to Vice President Gore, should be expected to confer legitimacy on the seriousness of the issue of climate change to the public and thereby increase aggregate issue salience" (p. 181). Also, the New York Times publication on the film significantly boosted the public's perception of the urgency of climate change, which translated into an increase in the Climate Change Threat Index. In this regard, Antilla (2005) affirm that the construction of social problems, especially climate change is the primary duty of the media.

The Age of Stupid (A fictional documentary)
The *Age of Stupid* (2009) feature actor Pete Postlethwaite as an old man who lives in the year 2055, when climate change has destroyed the world; watching footage of 2008 he wonders why people did not act to save the earth when they had the opportunity to do so. In the beginning, it shows climate change extreme events of a flooded London, Sydney Opera's House on fire and several millions of people in refugee camps. The film combines fictions and some documentaries to present facts about the dangers of global warming. Howell (2011) describes the film as "one of several attempts to harness the advantages of visual communications to raise a concern about climate change through film" (p. 178).

The Age of Stupid is a documentary about ecological risk and environmental injustice in different geographical regions, while at the same time appealing strongly to our emotions by showing us something we are not yet able to see- the possibly catastrophic future consequences of our present behaviour. Through the use of spatial and temporal framing, the film creates a strong cognitive and affective link between the documentation of current social and environmental practices and the imagination of future ecological devastation (von Mosner, 2013).

In terms of climate change representation, the film did a classical work by presenting six documentaries of what von Mossner (2013) called the "happier" time, which is this present consumerist and capitalist generation, "a time in which mindless consumption and wasteful practices seemed to make sense, and in which one seemed to be able to ignore the writing on the wall" (p. 108).

Theoretically, the film is a perfect example of a drama-documentary hybrid (von Mosner, 2013). It represents an interesting fusion of realism and human interest (entertainment), objectivity and subjectivity, the climax of a collision between fiction and

documentary genres, an admixture of borrowings, or the representation of the poles of different genres in a docu-drama continuum. The result, however, can be very deceptive but also very revealing (Chanan, Undated, p. 5). To achieve emotional cognition, "the film uses images of actually existing geographical spaces in the present with those of an imaginary and dystopian ecological space in a speculative future, to evoke feelings of compassion and a sense of loss and remorse in viewers, to remind them of their carbon emissions and their ethical responsibility for the cultural and ecological spaces that are not yet of the past" (von Mossner, 2013, p, 1068). These emotional feeling that these scenes portray are quite vivid and according to Eitzen's (2005, p. 191) are quite similar to the responses experienced in real life. The film reveals emotional wrenching scenes of devastated beautiful landscapes, bare mountain once covered with ice core and barren lands that were once vegetated and littered with decaying human remains; these are situations in 2055 and the Archivist inviting us to ponder "Why didn't we save ourselves when we could?" – very emotional.

The foregoing suggests that watching climate change movies is an effective tool to convince individuals to action concerning climate change and is vital in informing individuals on the different kinds of positive actions required of them to mitigate and adapt to climate change. Therefore, as has been advocated by different scholars, it has become very pertinent to adopt a multidimensional approach in the fight against climate change by using movies *inter alia* as a potent weapon.

It is, therefore, possible to build climate change information around visuals and individuals watch, understand them and act without actually knowing that they are already being influenced in their habits. Lay people and illiterates understand real-life science better when they are depicted with fictions. On the other hand, despite the conceptual variation in opinion among scholars concerning realism and objectivity, communication scholars still believe that documentary movies are taken more seriously and believable because they seem to represent real-life events (Corner, 2008; Jeffery, 2014). For example, relating to cognitive theory, documentaries arouse more empathy and emotion, thus, " can be particularly powerful precisely because viewers know that it is not acted in the professional sense, that it is not following the script of a fictional story" (von Mossner, 2013, p. 110). Thus "their power to arouse a pleasurable or engaged response is closely tied to an implied entreaty for special attention and concern" (Eitzen. 2005. p. 184). This is because they are real-life events that are put together with little or no alterations.

Documentaries are therefore very powerful and convincing as they show what is happening or what has happened, so people do not doubt them. This is why Gore's *Inconvenient Truth, The Age of Stupid* and *The Triumph of Evil* have been adjudged to be very successful in communicating the science of climate change and triggering behaviour modifications. This, according to Mossner (2013), is because, they satisfy the four core attributes of rhetorical forms: (1) openly addresses the viewers, moving them to a new intellectual conviction, to a new emotional attitude, or action. (2) deals with beliefs and arguments, and expression of ideology. (3) appeals to emotions, rather than presenting only factual evidence, and (4) attempts to persuade the viewer to make a choice that will affect his or her everyday life. However, regardless of the genre of movies used, what is important are the messages and the ways they are packaged to make them effective in convincing the audience to act.

Conclusion

This study set out to determine the effectiveness of films in climate change communication. Methodologically, the study critically reviewed the theoretical and empirical literature on climate change communication to draw an inference based on the findings of renowned scholars on the subject. Analysis of the different kinds of climate change movies watched was done, empirical finding on the topic and their influence on the perceptions, attitude and actions of the public towards the environment and climate change, in particular, indicate that watching of climate change movies have been very effective in raising people's awareness about the concept and consequence of global warming, create the consciousness about the need to protect the environment, reduce carbon footprints, understand the need to protect the environment, and a host of changes in the habit by different individuals. The study shows that movies (both documentary and fictions) are powerful revolutionary means of bridging the gap between science and human understanding of climate change, by removing the complexities in its communications, and with animations dramatized with humour and suspense can permeate the deepest parts of the human mind; while entertaining him can break the barrier of his conceptualization of climate change and engender in him the quest for action to protect the environment.

The finding of this study has therefore shown that "if the ultimate goal of communicating to the public about global warming is to bring about a change in behaviour, then simply making people aware of the facts surrounding the issue will not be enough

(Beattie, 2011). Lessons have shown that it is not enough to give information because there is a lot of other less rational but emotional drivers of human understanding and action or inaction. Therefore, by humanizing the impacts of climate change, with vivid, concrete, emotional images, we can make a difference in appealing to the minds of the audience, triggering pro-environmental attitudes, behaviour modifications, and climate change responsive actions.

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