

Urgency and Warning in Duncan Macmillan's and Chris Rapley's play 2071: An Eco-critical Reading

By

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Abstract:

In an era of increased technological advancements, there is a crucial need to raise the consciousness concerning the surrounding environment. Drama plays an important role in delivering such environmental issues. Thus, the main objective of this study is to provide an eco-critical reading to Duncan Macmillan's and Chris Rapley's play 2071 by applying the principles of eco-criticism. The play is a solo performance play where the climate scientist Chris Rapley provides a scientific representation to the global environmental issue of climate Change. In the provided eco-critical reading the literary techniques are interwoven with the linguistic features in order to deliver the message of the play. The study depends on Belsey's (2002) categories of declarative, imperative, and interrogative models in analyzing the linguistic features. Furthermore, the study is divided into two schemas, the cause and effect schema which represent Urgency towards taking actions of the crisis, and the schema of solving and predicting particular reactions towards the matter of climate change. The first schema depends on presenting the causes and effects of climate change globally and it represents itself through the use of physical-geographical and geological aspects. The second schema puts prediction of future solutions concerning climate change. Moreover, Foreshadowing is depicted in the play as a warning technique in predicting how the world will look like in 2071.

Key Words: eco-critical reading, eco-criticism, 2071, climate change, Belsey, foreshadowing.

المخلص

في عصر التقدم التكنولوجي المتزايد ، هناك حاجة ماسة لرفع الوعي فيما يتعلق بالبيئة المحيطة، إذ تلعب الدراما دورًا مهمًا في تقديم مثل هذه القضايا البيئية، وبالتالي ، فإن الهدف الرئيسي من هذه الدراسة هو تقديم قراءة نقدية بيئية لمسرحية دنكان ماكميلان وكريس رابلي ٢٠٧١ من خلال تطبيق مبادئ النقد البيئي. المسرحية عبارة عن مسرحية أداء منفرد حيث يقدم عالم المناخ كريس رابلي تمثيلًا علميًا للقضية البيئية العالمية لتغير المناخ. في القراءة النقدية البيئية المقدمة ، تتشابك التقنيات الأدبية مع السمات اللغوية من أجل إيصال رسالة المسرحية. تعتمد الدراسة على نموذج بيلسي (٢٠٠٢) للنماذج التصريحية والإلزامية والاستفهام في تحليل السمات اللغوية. علاوة على ذلك ، تنقسم الدراسة إلى مخططين ، مخطط السبب والنتيجة الذي يمثل الحاجة الملحة لاتخاذ إجراءات الأزمة ، ومخطط حل وتوقع ردود فعل معينة تجاه مسألة تغير المناخ. يعتمد المخطط الأول على تقديم أسباب وآثار تغير المناخ على مستوى العالم ويتمثل في استخدام الجوانب المادية والجغرافية والجيولوجية. يضع المخطط الثاني التنبؤ بالحلول المستقبلية المتعلقة بتغير المناخ. علاوة على ذلك ، تم تصوير الإنذار في المسرحية كأسلوب للتنبؤ بالشكل الذي سيبدو عليه العالم في عام ٢٠٧١.

الكلمات المفتاحية: القراءة النقدية البيئية ، النقد البيئي ، ٢٠٧١ ، تغير المناخ ، بيلسي ، النذير.

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Introduction

Climate change is considered as the most widespread global phenomenon. It is defined as the transformation and change in the usual climate of the planet over a long period of time. This transformation includes many forms of change such as change in temperature, rainfall, and wind. All these changes are caused by the human activities and maltreatment of the environment. As a consequence of these changes, the ecosystem faces a state of unbalance and destruction which threatens the earth and impacts the future of the mankind. (*Overview*).

However, according to Mishra, not only changes in temperature, rainfall, and wind are forms of transformation of climate but also, there are some other forms such as season disorders, the rapid decrease of fossil fuels, and the cut down of rainforests. All these forms are caused by the extensive misuse of the human beings towards nature and the surrounding environment. As a reaction, there arose a new theory of reading nature and environment during the last decade of the previous century that is called *ecocriticism* (168).

Climate change becomes one of the subjects of literary studies as an ecological threat. According to Johns-Putra and Trexler, literary discussions about climate have been done under the approach of *ecocriticism* or *environmental criticism*. Ecocriticism is considered as an interdisciplinary or hybrid discipline that attempts to investigate some questions. These questions are to do with literature, environment, and culture. Moreover, ecocriticism involves some sub-disciplines such as gender studies, race-based studies, and post-colonialism. Furthermore, ecocriticism plays a crucial role in criticizing the current environmental ideas in an attempt to draw on the environmental issues. This is done in order to develop new ways and ideologies towards the environment (192).

However, Kerridge states that, environmental problems are developed rapidly. This rapid development calls for a realist representation of these problems in order to explore the various instances of damage which cause human and ecological consequences. Furthermore, such arising environmental problems combine not only

representing the problem but also, it involves social, economic, and individual perspectives that show the costs and consequences of the different choices. In this respect, many literary forms adopt the theme of ecology to explore people's current reactions and the emotional and behavioral shifts that would happen if change happens (373).

In Ecocriticism, the task of an ecocritic is to give an evaluation of the text from an environmental concern. This evaluation is provided in order to introduce environmental criteria into the general cultural debate (Kerridge 361). Thus, the main concern of this study is to provide an ecocritical reading to Duncan Macmillan's and Chris Rapley's play *2071*. The play *2071* attempts to make the scientific data dramatic. The play *2071*'s main task can be summarized in *examining the future*. In the play, Chris Rapley sits on a chair in front of the audience and starts talking for 75 minutes with an astonishing calm and command of scientific facts that involve the causes and effects of climate change on the future generations. In his speech, Rapley admits that the issue of climate change is emotive and he relies on hard scientific evidence in order to make his point of view (Billington 1).

This research paper starts with an overview about the theory of ecocriticism and climate change criticism which shape the main theoretical framework of the study. In addition, the study depicts how ecology is represented in theatre concentrating on the global issue of climate change. Furthermore, it provides an overview about the play and its authors. An eco-critical reading of the play will be provided and a concentration will be directed to the techniques and the strategies of the narrative that are used in the play in order to convey the message. The focus will be on some elements such as urgency and depth of the global issue of climate change and its effect on the future generations. Also, temporality and provisionality will be illustrated as discursive strategies of reflecting on the issue.

In order to explore the play, the study investigates the following questions:

- 1- What role does the physical-geographical setting play in the structure of the play?
- 2- What are the most dominant strategies that help in representing the environment in the play?
- 3- How does the narrative strategy help in shaping the incidents of the play?

1- Ecocriticism: An Overview

Ecocriticism is defined as the study of literature and the environment from an interdisciplinary viewpoint. This means that, all types of sciences are interconnected to analyze the environment and to find a suitable solution that helps in correcting the contemporary environmental situation. Furthermore, ecocriticism plays a crucial role in investigating the relationship between man and the natural world in literature. Its role can be highlighted in exploring how environmental and cultural environmental issues are presented and analyzed in a specific piece of work. Moreover, one of the main objectives of ecocriticism is " to study how individuals in society behave and react in relation to nature and ecological aspects". Moreover, ecocriticism becomes one of the most highlighted approaches during the recent years because of the increased environmental destructions and technologies that affect the surrounded environment (Mambrol). The approach has been identified by different names such as "environmental criticism", "literary environmental studies", "literary ecology", and " green cultural studies" (Heise 506).

In addition, Mishra states that, the term *ecocriticism* was first introduced by William Rueckert in his critical writing entitled "Literature and Ecology: An Experiment in Ecocriticism" in 1978. Also, the word ecocriticism is divided into two parts "eco" which originated from the Greek root "oikos" which means household or earth. On the other hand, the syllable "logy" comes from the Greek root word " logos" which means logical discourse. When the two syllables are put together, they mean criticism of the environment as it is represented in discourse. Thus, for Rueckert, ecocriticism plays a role in applying the principles of ecology in the study of literature. Furthermore, Mishra adds that, ecocriticism is characterized by eco-consciousness. It directs its concerns to the earth which promotes a comprehension of some questions of who we are, where we stand, and how humans should behave towards nature (168- 169).

Giving meaning and ecological perceptions of the environment, Fenn claims that, ecocriticism provides meaning to environment, setting, and place. In addition, in their study of nature, eco-critics attempt to propose an ecological perception to environment in order to try to make a difference in the behavior of humans towards the earth. Furthermore, eco-critics investigate the global and local, material or physical, natural or artificial environmental history in the context of the work of art. Moreover, ecocriticism is applied to works in which landscape is the central character and there is a significant interaction between the place

and the characters. Thus, ecocriticism offers a significant ecological interpretation to texts which represent the relationship between man and environment (105-108). So, the role of ecocriticism and eco-critics is to spread awareness of the environment and how human beings understand and react towards it.

Climate change fiction (cl-fi) is considered as a subfield of literary studies. Parallel to this consideration, literary scholars give a special attention to the study of this sub-field in order to investigate texts related to this sub-field and to explore it as a cultural phenomenon. Furthermore, in the first decade of this century, climate change has attracted the attention of many dramatists who take climate change as their major theme of their plays. Earlier works include *The Weather* (2004) which is written by the British poet Clare Pollard. The play is his first play and it is a study of character psychology and climate in action; *The Ice-Breaker* by the American playwright David Rambo. The play is first performed in 2006, which represents two major themes; anxiety and sexual tension between two climatologists; *We Turned on the Light*, a choral work by Orlando Gough with a libretto by British dramatist Caryl Churchill. The play was performed at the BBC Proms in 2006; Stephen Sewell's *It Just Stopped*, a play first performed in 2006, about two couples and their contrasting attitudes to global crises such as climate change. All these plays constitute a distinguished and significant stand point in climate change and theatre among other dramatic works (Johns-Putra 273).

2- Ecology and Performance

Theatre plays an important and vital role in representing and addressing the ecological global concerns. Slagle states the potential impact of eco-theatre claiming that "Eco theater has altered our perceptions, our assumptions, and our culture. We understand that we live in a finite and mortal ecosystem, knowledge of human impact on the environment and global climate change have become hallmarks of even a marginally informed and aware person, and eco theater is becoming a more powerful force in our theatrical practice" (2013). Ecological concerns have taken many forms over centuries. Dramatizing the environment or the ecological concerns traces back to Shakespeare in the 16th century who is thought to be "a chronicler of climate change disaster" (Gardner).

Climate-change-themed theatre has two main features that distinguish it from any other sub-field. According to Johns-Putra, the main characteristics of climate-change-themed theater are:

First, it usually refers to a disastrous climatic event, either depicting such an event dramatically or setting the action in its dystopian

aftermath. Second, it often deals with the psychological implications of climate change, from the ethical and political challenges faced by climate scientists to the anxieties experienced by scientists and nonscientists alike as they consider the impact on their loved ones. (273)

It is observed that, eco-criticism gives a special attention to the topics that are related to the environment and the contemporary environmental global ecological phenomenon such as climate change. This is to find suitable solutions to the contemporary environmental situations. Moreover, the contemporary environmental issues are represented in dramatic works that traced back to the 16th century and there are still other representations on the contemporary theatre. Moreover, the theme of climate change dominates the dramatic works in the eco-theatre. Representations of climate change involve the relationship between man and the environment. Also, eco-theatre plays an important role in representing the increased misuse and maltreatment of the environment which results in the destruction of the environment and as a consequence, it affects the future generations. Thus, eco-criticism motivates humans to care for the surrounding environment to prohibit future consequences that impact the future generations.

Taking into account the principles of eco-criticism, the present study provides an eco-critical reading to Duncan Macmillan's and Chris Rapley's play *2071*. This is to investigate the techniques and strategies used to convey the message of the play.

3-About the Authors of the Play:

The play *2071* is co-written by the English playwright Duncan Macmillan and the climate change scientist Chris Rapley. According to Macmillan, Duncan Macmillan is a playwright and director whose works focus on modern socio-political issues (1). Macmillan is known as "the playwright of his generation" (Hunt 1). As for Chris Rapley, he is professor of climate science at University College London (UCL) and the chair of European Space Agency and Director General's High Level Science Policy Advisory Committee and of London Climate Change Partnership (Professor Christopher Rapley 1).

4- About the Play 2071:

The play *2071* is written by Chris Rapley the climate change scientist and Duncan Macmillan the playwright in 2014. It is a seventy-five-minute solo performance that is first performed at the Royal Court Theatre. In the solo performance play, Chris Rapley addresses the science

behind the global phenomenon of climate change. He speaks about the technological perspectives such as the use of rockets and satellites as instruments to study the universe, the sun, and the polar regions. In addition, he mentions about the developing programs such as the Geosphere-Biosphere program which include activities of about 10.000 scientists from 75 nations. Moreover, Rapley mentions that there is a relationship between climate change and the economic consideration, political implication, and the ethical questions.

In the play, the importance of using technological instruments such as satellites in discovering the planet and the Antarctic areas, the polar, and the places which are unknown to man, are highlighted too. In addition, in his solo performance, Rapley concentrates on the scientific evidence in supporting his narrative asserting on the dynamic balance of the components of the earth's system. According to Billington, Professor Rapley's talk is compelling and forensic in its approach and it is based on scientific data rather than emotions (1). In the solo performance, Rapley asserts that the earth's system behaves in a complex and counterintuitive way.

Rapley opens the play saying "I'm here to communicate the results of the science, their implications, and the options we have before us" (Macmillan and Rapley 15). Khalil states that, the solo performance play *2071* addresses some questions about the future and the consequences of climate change in the year 2071. These questions involve: How the world will look like in 2071? What are the consequences of climate change crisis? Moreover, Chris Rapley chooses the year 2071 in particular because his eldest granddaughter will be 67 years old which is his age in the present (67). Thus, Rapley integrates and visualizes a future perspective with a present perspective to shape his point of view concerning the crisis and its consequences in the future.

5- Procedure:

The study suggested the application of Belsey's (2002) methodology of examining texts. Belsey distinguishes between three modes of sentences; the declarative mode, the imperative mode, and the interrogative mode as follows:

| | |
|-----------------------------|---|
| The Declarative mode | Implementing knowledge to the reader of the text. |
| The Imperative mode | Belsey suggests the imperative texts are not usually fiction and they are labeled as "propaganda" to refer to the actual world outside the world of the text. Besides, imperative texts play an important role in assuming that the |

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| | reader is a crucial part or subject of what happens outside the world of the text. Thus, the imperative mode orders the reader to be part of the conflict in the world. |
| The Interrogative mode | Interrogative modes are far more complex. They invite the reader to find answers to questions provided by the author implicitly or explicitly. |

Modes of texts (Belsey 75-84)

6- 2071: An Eco-critical Reading:

The following part provides an eco-critical reading to Duncan Macmillan's and Chris Rapley's play *2071*. In this part a schema of how *2071* provides a trajectory of cause and effect of climate change is illustrated. Also, warnings of the impact of climate change is highlighted. Furthermore, the play presents the human reactions towards the crisis. Moreover, it shows the individual, collective and global efforts to face the crisis of climate change. Besides, predictions concerning the issue and how it affects future generations are investigated. In addition, the role that science plays in preventing the consequences of climate change is explained. Thus, the following part is divided into three schemas; causes of climate change, effects of climate change, solutions of climate change.

6.1- Relatability and connectedness in 2071:

Relatability plays an important role in shaping the narrative of the play. As the play opens, Chris Rapley, a climate change scientist, introduces himself to the audience as "climate scientist" who "develops rocket and satellite instruments" and he is running "the International Geosphere-Biosphere Programme," "British Antarctic Survey", "President of the international scientific body that coordinates research in the Antarctic," and the "Director of the Science Museum" (2014). It is observed that, the choice of a real scientist to present the incidents of the play gives credibility to the message that is conveyed by the dramatic work and persuades the audience of the presented information. Moreover, the presentation of a real scientist gives weight and significance and adds more authority and expertise to the dramatic work and engages the audience to follow the dramatic actions. To assure on this observation, the speaker Rapley starts his talk by using the first personal pronoun "I", the adverb of place "here" in reference to Royal Court Theatre, and the adverbial phrase of reason "to talk about the future". Then, he moves on to mention his charges as a climate change scientist. So, Rapley gives a

credible scientific evidence about himself. Furthermore, Rapley moves on to address the issue of climate change describing it as an "emotive issue", "complex", and "controversial". To assert on the seriousness of the issue, Rapley uses some adjectival phrases such as "extremely emotive issue", and "the most complex and controversial subject". Then, he moves to explain the other perspective concerning the issue. He says "And we are all susceptible to bias and irrationality when confronting it".

In delivering such perspective, he uses the inclusive pronoun "we" that involves him and the audience. This is to put himself and the audience in the same situation of bias and irrationality concerning the issue. However, although Rapley describes the issue of climate change as a complex matter, he attempts to simplify the topic. He says "the issues are oversimplified" (2014). In addition, there is a purposive juxtaposition of ideal and problematic categories represented through the use of the antonyms "oversimplified", and "very complex". After that, he attempts to narrow the gap by asserting that there is just few knowledge about the issue and more knowledge should be implemented in order to get a full comprehension about the global issue of climate change. Rapley states "This makes it extremely difficult to predict precisely what the future holds and to determine exactly what, if anything, we should do" (2014). Then, he asserts on the idea that, man and environment are interconnected and he calls people to unite with each other to face the issue of climate change. He says "... we all need to be part of that process" (2014). This is by the use of the inclusive pronoun "we" that involves Rapley, the reader, and the audience.

As a theatrical performance, the play is a lecture-based dramatic structure that helps in delivering and communicating the issue of climate change to the audience. This is done through Rapley's authority as a climate change scientist to deliver the message to the audience. Gregory and Miller differentiate between the popularity of scientific spread. They claim that, in the recent past scientists believe that popularizing science may cause damage to their career as scientists. On the contrary, nowadays, scientists believe that popularizing science should be presented to the public (1). So, there is a development in views and new directions in the delivering of the science to the public, depicted. This is obvious in the play *2071* in which the scientist becomes a theatrical actor where he sits on a chair in front of the audience delivering his science concerning a global issue. This provides connectedness to the public with the increase presence of scientist in art and media. In addition, this is reflected in *2071* by the co-operation between Chris Rapley, the climate change scientist, and Duncan Macmillan, the dramatist.

6.2- Urgency and Depth in 2071:

Urgency and depth in Duncan Macmillan's and Chris Rapley's play 2071 can be extracted from the cause and effect trajectories in the play. Starting with *urgency*, it is represented through showing the causes of climate change in the play. Chris Rapley states that "to understand the implications of this imbalance, we have to put it in the context of geological time" (2014). In this quotation, Rapley asserts on the idea of understanding and comprehending the causes and implications of the imbalance that happen in climate. In order to put the audience in a state of engagement with the following scientific information, he uses the expressive modal verb "have to" to assert on the obligatory state of the situation..

Rapley lists the causes why there is a change in climate. He presents the sequential order of the geological time with the changes that happened in climate along the course of the time beginning from the formation of the planet, the age of mammals, up till now. Chris Rapley illustrates that there is a gradual variation in the world's climate change. He talks about the early history of the planet after its formation 4.5 billion years ago. In addition, he refers to the " the great Oxidation" that started about 2.3 billion year ago. Moreover, he asserts that, in the great Oxidation, organisms started to produce oxygen in substantial quantities by the process of photosynthesis that the whole planet breathes today. Rapley concludes his speech about the sequential changes in climate concluding that "Live is gradually recovered" (2014). He uses this declarative sentence to summarize his idea that the process of change is not momentary but it has gone through a lot of changes.

It is observed that, Chris Rapley moves from talking about the formation of the plant, or talking about the past, he starts to reflect on the contemporary issues of climate change. He claims "There have been small climate variations which have had human consequences" (2014). In this quotation, Rapley summarizes his idea following it with an illustration of which variations do climate has gone through. Rapley depends on providing examples of climate change during the 10th and the 19th century when regional warmings increased during that time. So, Rapley depends on a historical scientific evidence to support his point of view. He states" over the northern hemisphere, between the 10th Century and 13th Century, regional warmings of up to a degree Centigrade took place.... It was followed by a cooling from the 16th Century to 19th Century, known as the Little Ice age, when the Thames was repeatedly frozen and the Viking settlements in Greenland were abandoned" (2014).

As a consequence, Rapley claims that the changes that happen during the period from the 10th to the 19th century have significant human impacts. He explains that the sea level has increased 1.8 mm per year which was observed during the last century in addition to a 3.3 mm per year that is observed currently which have a geological significance. Rapley states "In the context of this, the 1.8 mm per year observed last century, and the 3.3 mm per year we observe today are geological significance" (2014). In this quotation, Rapley depends on the exclusive pronoun "we" that refers to climate change scientists who are aware of the changes that happen in climate and are responsible for addressing these changes. This echoes Rapley's role as a scientist and dramatic actor.

Along the course of Raply's dramatized lecture, he lectures his audience about the issue of climate change explaining all the ecological facts that are depicted along the course of history. He remarks that "Apart from a small contribution from human use of aquifers, the rest of the sea level rise is due to thermal expansion" (2014). Then, he supports his scientific view saying that:

Water vapour, methane and carbon dioxide obstruct the loss of heat from the surface as it passes upwards.

This effect, referred to as the "Greenhouse Effect", causes the Earth's surface to have an average temperature of 15 degrees.

Without it, the surface would be 15 degrees below freezing.

Life as we know it would be impossible. (2014)

In this quotation, Rapley lists the causes why there is a thermal change on the earth and there is the consequence of this change. It is observed that, Raply moves from discussing a specific point to illustrate another one. He moves from explaining the history of climate change over centuries to narrow the scope and reach the point of thermal change. Then, he summarizes his idea by using a declarative sentence that makes his idea clear and he uses it as a starting point to move on and explain another point. Borowicz comments that, in the solo performance play *2071*, Rapley provides scientific facts about climate change in a clear easy manner. He provides an analysis to each and every climate change scientific details then he follows it with a summary of the overall scientific idea. This is to be sure that the audience is following him and to engage them in the provided illustrations (31). This is obvious in using the declarative sentence in the previous quotation "Life as we know it would be impossible". Also, the use of a summary-sentence is structure in that it captures the attention of the audiences as they belong to different backgrounds so, variation in delivering the message is a must.

Rapley moves on to explain the causes of climate change from a technological point of view. Rapley explains that the invention of the Steam Engine and the spread of science and technology affects the world and has an economic consequence. Rapley remarks "In 1712, the invention of the Newcomen Steam Engine started a chain reaction of innovation, technology and science that spread across the globe, driven by a desire for profit and the pursuit of a better life" (2014). From this quotation, it is noticed that, climate change not only has an ecological dimension but also, an economic one. Thus, there is an interdisciplinary view point concerning the spread of this global phenomenon. However, in order to raise the awareness of the audience concerning the climate change, Rapley follows his perspective concerning the economic consequences of the matter under discussion by shocking the audience that human beings are the first to breathe the air with a huge amount of Carbon CO₂. He presents the scientific evidence that the concentration of CO₂ has risen by 40% and as a consequence, he states:

Last year, the carbon dioxide concentration of the Atmosphere passed 400 parts per million.

Take a deep breath.

We're the first human beings to breathe air with that level of CO₂.

It is unprecedented in the recent record (2014).

In this quotation, Rapley uses an historical ecological evidence to provide a scientific evidence. Moreover, he uses the inclusive pronoun "we" in reference to himself and the audience. After that, he uses the imperative verb "take" in order to capture the attention of the audience and to engage them as participants in the outer world of the play. After that, Rapley moves to explore the human impact on climate change. He asserts that " Human impact on the planetary system has been so profound that many feel we have irreversibly brought the climatic stability of the Holocene to an end and entered a new epoch: The 'Anthropocene'" (2014). In this quotation, he attributes the imbalance that happens in temperature and the melting of ice to human activities. He uses some textual features in his attribution through the use of the objective pronoun "us" and he describes the human impact on climate as "unwitting" due to the increased use of fossil fuels when he states: " The energy imbalance revealed by the ocean, confirmed by rising temperatures and loss of ice, is being driven by us. It is the unwitting result of our use of fossil fuels" (2014).

It is noticed that, along the course of this illustrated schema of cause and effect, urgency can be depicted in Duncan Macmillan's and Chris Rapley's play 2071 as follows:

- a- The use of the trajectory of cause and effect along the course of the narrative.
- b- Causes and effects are represented through Rapley's explanation of the historical eco scientific evidence that helps in causing climate change in temperature and the rising in sea level.
- c- Variation in the use of the scientific evidence shows that a rapid action must be taken in order to control the issue.
- d- Textual features play an important role in supporting Rapley's scientific evidence. He depends on the use of declarative and imperative sentences. Declarative sentences are used in order to add knowledge to the audience. As for the imperative sentences, they are used to engage to audience with the outer world of the play.
- e- In delivering the message, the speaker depends on an organized stages beginning with providing scientific explanations and ending with a summary of his evidence.

In 2071 depth can be observed in Rapley's observations on the future of climate change. Rapley uses the Intergovernmental Panel on Climate Change (IPCC) statement of climate change report quoting that:

The report states that: "Warming of the climate system is unequivocal, and, since the 1950s, many of the observed changes are unprecedented over decades to millennia.

The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, and sea level has risen."

It observes that "In recent decades, changes in the climate have caused impacts on natural and human systems on all continents and across the oceans.

Impacts are due to observed climate change, irrespective of its cause, indicating the sensitivity of natural and human systems to the changing climate" (qtd. Rapley 2014).

Intertextuality is obvious in Rapley's use of the exact words published by the Intergovernmental Panel on Climate Change (IPCC). In this situation, direct quotation is used by the speaker to illustrate the case in reality rather than negating it. This supports and gives weight to the message that is delivered by the speaker. Rapley emphasizes his idea saying that "... there is evidence that ALL the warmings that has occurred since 1950 is due to human actions- due to us". In this quotation, Rapley uses the capitalized word "ALL" in order to emphasize the human impact

on climate change. He stresses the fact that humans are responsible for the technological and industrial advancements that happened along the course of the history.

Furthermore, Rapley emphasizes his idea of the responsibility of humans in causing changes in climate through the use of intertextuality. He quotes John Kerry's exact speech of the crisis quoting that " Boil down the IPCC report and here's what you find: Climate change is real, it's happening now, human beings are the cause of the transformation, and early action by human beings can save the world from its worst impacts" (2014). So, intertextuality plays a crucial role in delivering the message rather than negating it.

After defining the problem and its causes and effects, the stage of finding solutions is presented by Rapley on the stage of the theatre. Rapley asserts that, in order to limit the problem of the global phenomenon of climate change reductions of greenhouse emissions should be sustained in order to limit the change risks. However, in order to reduce emissions, Rapley claims: " So reducing carbon emissions to zero won't lower temperature, it will just prevent the temperature rising beyond the 2 degree Centigrade level" (2014). So, Rapley is predicting the impact of reducing carbon emissions on temperature. He uses the expressive modal verb "will" that refers to real possibility of reduction. Thus, Rapley calls of the unification of efforts in order to face the problem globally. He uses the declarative sentence to emphasize his point of view claiming that " It will require the Greatest Collective Action in history". He uses the adjective "collective" to emphasize that the task of reducing the danger is not an individual duty but it is collective and a duty of individuals and collectives.

Moreover, Depth is observed in Rapley's call for a human reactions concerning the issue of climate change. He enumerates the reaction taken around the world in order face the crisis. He describes these reactions by the use of the adjectival phrase "hopeful signs". He mentions:

However, there are hopeful signs from world leaders and governments and a growing pressure on them from an increasingly informed populace.

Last year, a million people around the world marched in various capital cities to demonstrate their concern.

In the lead up to Paris 2015, and prior to the recent talks in Lima, President Obama and Chinese President Xi Jinping announced joint measures to fight climate change (2014).

By indicating some of the global reactions concerning climate change, Rapley sends a message of hope to the audience that there is a way to find a solution of the crisis globally aiming of a hope in the future.

In addition, Rapley highlights the role of individuals as part of the process of preventing climate change. He lists the different alternatives that individuals depend on in order to limit the phenomenon of climate change. The list includes "installing solar panels", and "increasing the energy efficiency of their home". Also, he emphasizes the role of educating people of the danger of climate change. He claims "they thought to educate themselves about the issue and to talk about it with their friends, families, and communities. So, Rapley emphasizes the role of collective eco-literacy in order to face the problem.

However, although Rapley highlights some of the reactions that humans can produce in order to face the climate changes, he predicts some of the complications of the change. He asserts that his prediction by using IPCC scientific prediction that there will be an increase of about a rise in centigrade in temperature which will result in a great impact on climate. He emphasizes his prediction by the use of some adjectival phrases such as "unprecedented heat waves", "severe draught", "major floods in many regions", and "serious impacts on ecosystems and food and water supplies". So, danger is still on the peak.

At the end of the play, Rapley starts to put solutions to solve the problem. He remarks that the solution lies in transforming the world's energy system. In addition, he uses the declarative sentence "At the same time we need to ensure Energy Security, Equity, Sustainability and Growth". Moreover, he calls for putting obvious legislations in order to face the problem. He states "The economy can become more energy efficient and less wasteful. This can be achieved through energy standards, legislations, and by changes in behaviour at a personal and societal level". So, Rapley calls for the cooperation between individuals and societies in order to change behaviors on the personal and societal levels.

After that, Rapley explains the role the science plays in controlling climate change. He uses the declarative sentence "science can't say what is right and what is wrong". He emphasizes the role of individuals in facing the crisis. However, it is observed that, Raply is foreshadowing future events. He predicts what will happen in the future in the years 2071 and 4071. He states: "I try to imagine 2071, and then I find myself thinking of 4071 will look like or 10071". In this quotation, the audience is provided by imagination and visualization of future events. Besides, the speaker uses this foreshadowing as an element of tension and emotion to

attract the attention of the audience. Furthermore, Rapley chooses the year 2071 in particular because his granddaughter will be his same age during that year. She will be 67. So, he is predicting how the future will look like. This proves that the matter of climate change is not momentary but it has impacts on the long run.

Rapley ends the play with a list of questions for the audience to answer. He asks "Do we care about the world's poor?", "Do we care about future generations", "Do we see environment as part of the economy or economy as part of the environment?", and "what kind of future do we want to create" (2014). The use of the interrogative mode invites the audience to discover the seriousness of the problem and search for answers in order satisfy their need of living in a safe environment.

The previous eco-critical reading passes by two stages; the stage of illustrating the urgency that climate change causes and the stage of depth the invites activities to be done in order to face the problem. Depth can be summarized as follows:

- a- Rapley depends on scientific evidence represented through the use scientific statements and declarations.
- b- Intertextuality plays a crucial role in negotiating the case in reality rather than negating it.
- c- Providing solutions that depend on the awareness of individuals and societies.
- d- providing examples of reactions towards the crisis around the globe.
- e- Providing an eco-critical literacy model to control the problem.
- f- Highlighting the role of science.
- g- Foreshadowing plays an important role in predicting the future and it is considered as a warning sign.
- h- Ending the play with a list of questions to invite the audience to find solutions to the current situation.

Conclusion

2071 is a solo performance play that is considered as a good example of eco-performance. The play is co-written by Duncan Macmillan the playwright and Charis Raply the climate change scientist. The play is presented by Chris Raply on the Royal Court Theatre. Recognizing storytelling need, it is observed that Duncan Macmillan the playwright helps in taking the science based information and shaping it into a narrative guide to the audience along a specific trajectory.

The play is divided into two schemas the; the cause and effect schema which represents the urgency of the matter of climate change, and the solution based schema. As for the Urgency schema, cause and effect are depicted through the use of some techniques that reflect the problem through the use a physical-geological setting. Along the course of the narrative, Rapley depends on providing scientific evidences in order to support his idea. He depends on eco-historical events that cause climate change in various types of climate such as temperature, and the risen sea level. Moreover, textual structures help in providing such scientific evidence such as the use of declarative sentences and the imperative verbs. Declarative sentences are used in order to add knowledge to the audience because they are of different backgrounds.

On the other hand, Depth and warning can be observed in Rapley's speech concerning the future of climate change. In this schema, intertextuality plays an important role in emphasizing the idea rather than negating it. Besides, Rapley concentrates on the awareness of the individuals and societies in order to create an eco-literacy that will help in facing this crisis. Rapley depends on presenting global reactions towards the crisis from many countries around the world such as China, India, and the US. Furthermore, foreshadowing as a narrative technique plays an important role in predicting the future and it is used as a warning sign in the play. Moreover, the play ends with a list of open questions to invite the audience to find suitable solutions in order to face the problem.

Finally, the previous two schemas are derived from the eco-critical perspective that there is a relationship between man and the environment. Also, the two schemas are derived from the base that the role of an eco-critic is to provide an evaluation from an environmental concern. In addition, recently, eco-criticism becomes one of the most important approaches in criticizing the environmental concerns because of the seriousness of the technological advancements that cause destruction in the surrounding environment.

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