A Cognitive Linguistic Analysis of Anti-Plastic Digital Discourse

*Dalia M. Hamed**

1. Problem Statement

Rapid extension of technology has made the gap between offline and online discourse unclear, but it has presented new forms and uses of language referred to as digital language (Jones, Chik &, Hafner, 2015). Digital communication simply means transferring all data signals- whether they are numbers, words or images- into a digital from. Every signal is given a number in a certain design. Crystal (2004) considered the Internet to be an outlet where massive numbers of persons can communicate through Facebook, Twitter and e-mails. Online communication is mainly digital. Living in a world that mostly depends on the Internet as a means of communication, many consider it safe to consider digital communication a mark of our world.

Discourse is considered to be a form of a social practice (Fairclough, 1992, 1995a, 1995b, 2003; Wodak, 2006). A social practice is any social activity such as job interviews, online communication, and group discussions. In all social activities, discourse is a constant component. Discourse analysis has been concerned with the manner in which knowledge is established in social settings (Gee& Green, 1998). Social activities/interactions help to develop people's awareness concerning language and social crises (Lier, 1998, 2004). Ecological threats have received increasing attention amongst communicative and scientific forums (Waddell, 2000).I n this concern, this paper addresses online communication via four Egyptian Facebook pages which aim to enhance people's knowledge about ecological threats.

Single-use plastics, or disposable plastics, refer to items that are thrown away after being used for only one time. Plastic cups, containers, straws, grocery bags, food packaging, soda bottles, water bottles, spoons, knives, and forks are just instances of many products that are used once before being cast aside. Accordingly, about 8 million tons of plastics end up in seas and oceans every year with the result of littering them and threatening the lives of marine creatures. Nowadays, the amount of harmful plastic waste in water is becoming ever greater. World communities have started to apply different measures in order to use eco-friendly products, when available, and pan single-use plastic

* Lecturer in Linguistics, Faculty of Education, Tanta University, Egypt.

products. This step has to be accompanied with a growing awareness of the harmful/negative impact of plastic pollution. In an effort to combat the rise of plastic waste, digital media have taken some measures to aid anti-single-use plastic campaigns.

Cognitive Linguistics is a field which describes language-cognition interaction. Considering language a mental phenomenon, Cognitive Linguistics attempts to describe the manner by which language shapes thoughts. Language, in this concern, is a window into cognitive functions as it provides insights into the properties, structuring and organization of ideas (Evans& Green, 2006). A conceptual/cognitive metaphor is a significant talking point in Cognitive Linguistics.

A conceptual metaphor (Lakoff & Johnson, 1980, 2003) is an understanding of an entity in terms of another. It is a cross-domain mapping: the source and the target domain. Expressions are recalled from the source domain so as to understand the target domain. Understanding a conceptual metaphor is dependent on an understanding of sets of correspondences appertaining to source-target pairings.

A visual (pictorial) metaphor (Forceville, 1994, 1996) is a representation of an idea in an image form that invokes certain associations. In an age mostly relying on digital communication, visual designs are vital means to present, suggest and spread ideas. In digital discourses, data are usually presented in a multimodal mode of communication involving the verbal and the visual forms. That is why examining anti-plastic visual discourse is as important as the verbal.

Being environment-focused, this paper is an eco-critical analysis of digital discourse on plastic pollution. Eco-linguistics is about language in ecological contexts. Discourse analytical tools, in this regard, are employed to examine discourse about the environment- green discourse. Interest in green discourse is a tunnel to affect the ideas and attitudes of all those involved in it. Spreading green discourse that has a positive environmental focus will increase people's realization of ecological threats. That is why this paper is about green digital-discourse in awareness campaigns against single-use plastics.

Multimodality is the combination of different modes of communication such as language and music (Van Leeuwen, 2005). This paper is multimodal in the sense that it examines verbal discourse and its accompanying visual representation. Consequently, conceptual metaphor and visual metaphor are selected to investigate the verbal texts and the visual designs of a group of green digital-discourses.

2. Aim and Significance

This study aims to analyze digital green discourse from an eco-critical perspective. It approaches four Facebook pages that have an environmental focus directed against single-use plastic products. Analysis is multimodal as the digital language in these pages is composed of verbal and visual modes of communication. Theoretical framework for verbal discourse is based on the Conceptual Metaphor, which pertains to the domain of Cognitive Linguistics (Lakoff & Johnson, 1980, 2003). Visual digital discourse is examined via investigating the visual metaphor (Forceville, 1994, 1996). This study is significant in that it considers both verbal and visual modes of discourse to approach the digital campaigns which have an ecological interest. This is crucial nowadays because the ecological system is under threat because of people's ecological misconduct. Hence, this paper sheds light on positive digital practices in an attempt to evaluate them and offer more suggestions concerning the use of digital discourse so as to improve ecological culture and practices towards the environment.

3. Research Questions

What are the discourse tools employed in anti-plastic digital campaigns?

What are the conceptual metaphors associated with the verbal discourses associated with each digital campaign?

What are the visual metaphors evoked in the pictorial designs represented by each campaign?

What are the meanings delivered by the conceptual and visual metaphors in the digital discourses under analysis?

4. Literature Review

4.1. Digital Discourse

Being a social practice form, discourse analysis is about recognizing how people set the social world through linguistic systems, verbal or visual. Discourse analysis pays attention to texts (written or spoken conversations, images, videos, websites and digital texts), the social situations of texts which are referred to as contexts, the actions and interactions people engage in using texts and the resulting power relation (Jones et al., 2015). A social practice is any physical acts performed through a medium such as a computer, a mobile or a text so that social communications with other social actors may be supported (Barton, 2006; Gee 2012; Scollon, 2001). Critical discourse analysis does not focus on language acts as such; it rather attempts to explain social acts and events

(Wodak & Meyer, 2008). It studies "how texts represent and construct reality" (Heros, 2009, P. 173).

Because of their rapid availability and low cost, digital communication supplies have become the favorable choice among people (Nassar, 2001). Thanks to diverse methods of digital communication, people are given a chance to have a quicker access of information regardless of their location. Technological advancement facilitates people's interactive practices via digital resources as the social network service. Hence, it is not surprising to define discourse analysis as the study of the way by which technology can affect people's beliefs and actions (Jones, 2009).

Digital discourse, computer-mediated discourse, digital communication-all refer to the current multimodal resources offered by the new digital technology and used to create identities and activities in the digital sphere (Gee, 2005). Digital practices are thought to be forms of activities which involve some apparatus pertaining to digital technology in order to achieve social goals, create social changes in behaviors and enhance social relations (Jones et al, 2015). According to Schmied (2012), social digital discourse is the process of communication between diverse participants through a certain technological platform.

4.2. Eco-linguistics/Eco-Discourse

Haugen was the first to create the concept "language ecology" (1972). He defined it as the interactive relation between the environment and language and he indicated that the society using a certain language was part of the environment. Haugen's metaphor "language ecology" was reflected in Halliday's emphasis on the significant role of language towards environmental problems (1992). The environment refers to all social and physical affordances that lead to a certain act (Van Lier, 2004). Halliday (2001) declared his belief that pollution crisis and other critical issues such as the extinction of species pertain not only to physicists but to linguists as well. Halliday (2003) considered language to be multi-dimensional. In this concern, the investigation of language and ecology should pay attention to verbal and visual modes on communication.

Eco-discourse, or green discourse, is any form of language that has an environmental focus. In consequence, eco-discourse or eco-linguistics is an interdisciplinary field of study as it integrates ecology and discourse or linguistics. The relation between language and the ecological system is evident because language in interconnected with the world as it creates, and is created by, the world (Muhlhausler, 1996). Halliday (1990a) supported a linguistic trend related to the environmental problems. Crystal (2008) considered eco-discourse

to be the interaction between language and the environment. The relation of human beings to the environment and the related impact of language are the core of eco-discourse (Alexander & Stibbe, 2011).

Ecological discourse is mainly about people's comprehension of environmental problems and their relation to these problems (Cox & Pezzullo, 2015) and the ways they use language to discuss ecological issues (Alexander & Stibbe, 2014). The very first roots of discourse focusing on environmental problems were put forth by Haugen (1972) who was considered to be the founding father of ecological language. *New Ways of Meaning* (Halliday, 1990b) marked the birth of eco-discourse. Stibbe (2014) compared eco-linguistics to critical discourse analysis as he asserted that both were concerned with discourse revealing social issues. Critical discourse analysis, he added, was more interested in power relations as revealed by discourse while eco-linguistics considered ecologically-oriented discourse as its main concern.

4.3. Cognitive Linguistics/Conceptual Metaphor

The study of online social interaction is mainly dependent on language-based frameworks including discourse analysis (Herring, 2004, Myers, 2010 as cited in Sindoni, 2019). Critical discourse analysis is an analytical approach by which meanings encoded in texts are negotiated so that power relations may be unveiled (Van Dijk, 2001; Fairclough, 1989) or social changes may be accomplished (Fairclough, 1992). Cognitive Linguistics is an interdisciplinary field that connects language to conceptualization (Talmy, 2000). It considers language to be a product of cognitive abilities and, consequently, considers imagination to be of due importance as a human cognitive ability. Incorporating Cognitive Linguistics and Critical Discourse Analysis is thought to provide deeper interpretations of the cognitive processes leading to a certain social change.

Metaphors- which are an imaginative cognitive technique- are more than words or rhetorical devices. Metaphors have the ability to create realities and "be a guide for future actions" which "fit the metaphor" (Lakoff & Johnson, 1980, P. 156). A metaphor is a mental mapping/projection of experience from one domain onto another (Barcelona & Valenzuela , 2011). A case in point is THE PATH OF SUCCESS in which the source domain "path" is used to illustrate the target domain "success". This projection may be based on verbal or visual communicative tools which lead to its structuring. Accordingly, this paper considers both the cognitive metaphor, dependent on verbal discourses, and visual metaphor, dependent on pictorial designs, in order that digital campaigns

which have an anti-plastic focus may be investigated. Full explanation of both modes of metaphors is presented in the methodology section.

4.4. Some Related Studies

Alexander and Stibbe (2014) conducted a theoretical investigation of ecolinguistics. They distinguished between two notions in the discipline of ecoloinguistics. These were "the analysis of ecological discourse" and "language ecology". They concluded that ecolinguistics was more than an analysis of discourses which have an ecological focus. Moreover, ecolinguistics was broader than a metaphorical way of considering linguistic issues. It was concluded that ecolinguistics is an analysis of linguistic elements in a manner that mirrors the relative impact on nature and on the ecological system.

Xingo (2014) examined environmentalism and its representation in school textbooks. The study presented an eco-critical discourse analysis of English textbooks in China. Analysis focused on shallow environtmentalism, which is exploiting nature for the sake of satisfying human desires, and its representation in these textbooks. Results proved that the data of analysis failed to support an active participation to solve ecological problems. Steffensen and Fill (2014) presented a descriptive study containing two parts. The first part traced the field of eco-linguistics since 1970. The second part was related to the future of the field.

Stibbe (2014) explored ecolinguistics as a form of critical discourse analysis. Analysis of eco-discourse posed a criticism against those who misused the environment. It also supported any act that care for the ecological system. Poole (2016) used a corpus linguistic approach to present an ecological discourse analysis. Texts analyzed were from a mining company and an environmental group. The problem had to do with the debates regarding a suggestion to build a large mine in Arizona. The grammatical and the semantic clusters were analyzed regarding the way they represented differing values in the debates. Results showed the clusters of linguistic features which empower humans over the environment in the texts related to the company. On the contrary, texts related to the environmental group employed clusters which emphasized the value of the nature.

Yuniawan et al. (2017) conducted a descriptive study aiming to characterize green discourse. They defined eco-critical linguistics as being a combination of eco-linguistic analysis and critical discourse analysis. The study was based on green data taken from two news papers. The lingual units in the data were thought to influence the writers and the readers. Consequently, green discourse

which was presented in a constructive manner leading to positive actions towards the ecological system.

Yang (2018) presented an analysis of news reports, in The Guardian, from a systemic functional framework. Appraisal Theory framework was used as the basic analytical tool so that ideologies impeded in texts may be uncovered. The paper tackled ten news reports about Climate Change. Analysis proved that reporters had concerns about the ecological system. Attitudes of reporters were thought to be in favor of organizing a collaborative human effort to solve environmental crisis.

Gong and Liu (2018) investigated an empirical study on the transitivity analysis of a story from the United Nation Environment Programme. The story was *Our Way of Life Is Piling Pressure on Ecosystems*. Material and verbal processes outnumbered other processes. The analysis of this story was thought to be helpful to raise people's ecological awareness and environmental concerns.

Wu (2018) considered ecology to be the essence of modern research studies. In this concern, he presented an interdisciplinary study focusing on both linguistic and ecology. The study followed a descriptive approach and distinguished between differing ecological concepts. It was concluded that ecolinguistics was much more than a mere study of texts which had an environmental concern. Rather, ecolinguistics was explained as being the analysis of any discourse within an ecological consideration. This denoted that all discourses should be analyzed within a framework which took into consideration the impact of these discourses on nature. Alexander and Stibbe (2014) reached a similar conclusion.

Zuo (2019) conducted an ecological analysis of Emily Dickinson's "The Grass". The poem was related to nature and environment. Taking Systemic Functional Linguistics as a method of analysis, the poem was analyzed critically in order to reflect the writer's attitude towards nature and the ecological system. Findings illustrated that Emily Dickinson's choice of linguistic items served the meaning of the poem with its environmental focus.

5. Methodology
Data selected for this study are four online Facebook campaigns against single-use plastic in a period of time from July to August 2019. These two months are considered because they reflect an updated attention against single use plastic. In Egypt, these two months are the summer holiday seasons when people usually gather in resorts and on beaches. Consequently, plastic wastes are expected to multiply. Online accounts which have an environmental focus

include the following Facebook pages: Drumstick Designs, Go Clean, Banlastic Egypt and BelaPlastic.

"Drumstick Designs" focuses on creating metaphors that encourage people to act in an eco-friendly manner. It is concerned with persuading people that though plastic pollution is a riddle, a chemical experience and a captor, it can be managed through cooperation and disciplined efforts. "Go clean" Facebook page focuses on scientific evidences and influential designs to make people more cautious about plastic pollution. "Banlastic Egypt" relies on showing the positive side of anti-plastic digital campaigns. It is interested in convincing people of plastic disadvantages by showing the clean beach and the team work helping to end plastic pollution. "BelaPlastic" depends more on arousing people's emotions and fears so that they may change their behaviors which are harming the ecological system.

Moving images are not considered in the current analysis. Only static visual designs accompanying verbal texts are examined. This study has examined a total of thirteen examples of digital discourse; each example is a combination of verbal-visual components showing ecological concerns .The verbal text is examined from a cognitive angle considering the conceptual metaphor. The visual text is analyzed according to the visual metaphor depicted. Each example is followed by its date and site of online publication and a description of its story. After that, an analysis of the verbal and the visual data is presented. The coming part presents an illustration of the theoretical framework.

Conceptual Metaphor Theory (CMT) was theorized by Lakoff and Johnson's *Metaphors We Live By* (1980, 2003). According to Lakoff and Johnson (1980, 2003), a metaphor was a matter of thought and language was a window to our conceptual system which was metaphorical in nature and which was also responsible for structuring everyday activities. They explained that the essence of metaphor was to understand one thing in terms of understanding/experiencing another thing. In the past, this metaphorical meaning was expressed using two main terms: tenor and vehicle. The tenor was the topic or the primary subject while the vehicle was the figurative expression (Richards, 1965; Black, 1979). At the present time and due to the influence of Lakoff and Johnson (1980), "the source" domain and "the target" domain are used to express metaphorical meanings (Forceville, 2016).

"The target domain" was the entity described by "the source domain". In metaphors, the relation "TARGET IS SOURCE" should be detected (Forceville, 2016). Moon and Knowles (2006) discussed the two metaphorical domains saying that conceptual metaphors corresponded between two conceptual areas: the source and the target. The metaphor was drawn from "the source" area and

was applied to "the target" area. For example, in "READING IS A PICNIC", the "target" domain is "reading" while the "source" domain is "picnic". Forceville (2016) explained the need for the word "domain" saying that each "the source" and 'the target "evoked diverse feelings, views and reactions.

A Metaphor was considered "central to cognition, since human beings are claimed systematically to understand abstract concepts in terms of concrete phenomena" (Forceville, 2009, P. 56). Many of our actions and reactions, Lakoff &Johnson (1980) explained, were metaphorical and these metaphors can change reality. These metaphors helped to highlight certain aspects of experience and alter/create realities. Many examples of conceptual metaphors were listed by Lakoff and Johnson (1980, 2003) such as "LIFE IS A CONTAINER, LIFE IS A GAME, LOVE IS A COLLABORATIVE WORK, ARGUMENT IS WAR". Another kind of metaphors is that of orientational ones, a kind that depended on spatial relations such as "love is up, sadness is down".

Visual communication became a fundamental component in everyday news/digital discourse. We can hardly find a text without an image related to its content. According to Nickerson (1965) and Shepard's (1967), using visual designs helped in a better retrieval of information. This visualization of discourse encouraged researchers to examine texts through a multimodal analysis which considered the verbal text as well as the visual text (Machin, 2013).

According to Caroll (1996), a visual metaphor was the fusion of two visual elements with the result that one visual entity comes to the fore. The visual metaphor can be represented in various forms. Forceville (1994, 1996) presented the following taxonomy of visual metaphors based on how the target and the source were depicted:

1) A pictorial simile: it is the metaphor in which the source and the target domains are designed separately. Source-target similarity is visually communicated through the designer's choice of color, size and positioning.

2) A hybrid metaphor: it is the metaphor in which the source and the target are merged in one design, a design containing components that are impossible to be juxtaposed. The target and the source are conflated in a single gestalt (two - pictorially present element metaphor).

3) A contextual metaphor: it is the metaphor in which the target is depicted while the source is implicated in the visual design. The source is contextually evoked by the visual target (one-pictorially present element metaphor).

4) An integrated metaphor: it is the metaphor that is communicated verbally and visually (verbo-pictorial metaphors). The target conveys the source visually

and the visual design of the target structures the metaphor and suggests the source.

In this paper, Lakoff and Johnson's conceptual metaphor (1980, 2003) along with Forceville's taxonomy of visual metaphor (1994, 1996) are utilized. These two types of metaphors work together to render a comprehensive interpretation based on both the verbal and the visual resources. Using Cognitive Linguistics toolkit to analyze eco-digital discourse is believed to deliver meanings intended by the digital media more effectively.

6. Analysis

Discourse analysis is the product of technological change (Scollon & Le Vine, 2004). The texts investigated in this paper are some social networking websites which have an ecological orientation. Being digital texts, these social websites usually contain more than one mode of communication: verbal discourse accompanying visual designs. Hence, analysis of eco-digital discourse in this paper is multimodal.

The following part discusses each digital example from an eco-critical perspective. The context of each Facebook page is first defined. An explanation of the elements involved in each example follows. After that, the verbal and the visual discourses are analyzed from an eco-critical framework including the cognitive metaphor and the visual metaphor.

This design (Figure 1), posted on July 11, is from "Drumstick Designs" Facebook page. Drumstick is an Egyptian company that offers furniture items of different designs. The company is internationally available at Japan, Lebanon, UAE and Morocco. The example is directed towards people's summer habits causing environmental harms in Alexandria. Freska, a kind of Egyptian dessert usually sold at coastal areas, is usually sold in plastic bags. These

Figure (1)

plastic bags fall behind on the land and may end up in seas or oceans giving rise to marine life damages. Consequently, this publication aims to encourage people to take paper bags from certain distribution points and give these paper bags to Freska sellers for free.

The verbal text reads "IT'S YOUR TURN TO BE PART OF THE SOLUTION THIS SUMMER. JOIN THE PLASTIC FREE FRESKA CAMPAIGN". The word "solution" may be interpreted as "an answer to a problem" or "a chemical homogenous mixture of two or more substances". These two interpretations give rise to two metaphorical expressions: "PLASTIC

POLLUTION IS A DILEMMA" and "PLASTIC POLLUTION IS A CHEMICAL EXPERIMENT" respectively. The first cognitive metaphor, "plastic pollution is a dilemma" gives new meanings to the threats posed by plastic products. Plastic products, the target domain, are understood as being an enigma. The source domain, an enigma or a dilemma, evokes many entailments as it implies the following beliefs:

Plastic pollution requires cooperative endeavors.
Plastic pollution requires reasoning and conclusion.
Plastic pollution requires deep thinking and patience as well.
Plastic pollution requires practical steps based on logical inferences.
Plastic pollution can be terminated.

As far as the understanding plastic pollution (the target) in terms of the domain of chemistry (the source domain), new entailments are created as follows:

Plastic pollution will not disappear forever or at once.
Plastic pollution needs catalysts that may dissolve its urgent problematic effects.
Plastic pollution needs working teams.
Plastic pollution requires continuing attempts to be dealt with.
Plastic pollution may be dangerous.
Plastic pollution requires cautious treatment.

A third metaphor is detected on likening plastics to a captor enslaving an entity and that captor must be conquered so that the captive may be freed. The metaphor "PLASTIC IS A CAPTOR" is triggered by the sentence "join the plastic free Freska". Accordingly, the following meanings are evoked:

Plastic is a threat.
Plastic must be fought against.
Plastic pollution requires collaborative work.
Plastic is a menace requiring new strategies and techniques.
Plastic pollution must not be tolerated.
Plastic pollution prevents happiness.
Plastic pollution is against life.
Plastic pollution ends up with losing life.

A fourth metaphor, which is about likening the Facebook campaign to a political one, is elicited by the word "campaign". "FACEBOOK CAMPAIGN IS A POLITICAL CAMPAIGN" is an influential metaphor as it inspires the following meanings:

Facebook campaigns are serious.
Facebook campaigns are active.
Facebook campaigns require hard work and cooperation.
Facebook campaigns require social participation.
Facebook campaigns result in either success or loss.

All previous connotations are invoked by two sentences. People's understanding of plastics as being a dilemma, a chemical experiment and a captor justifies considering the Facebook campaign against plastics to be as critically important as a political campaign. This, in its turn, implicates that defeating that enemy is not an option, but a must.

The visual design is mainly composed of two parts: a piece of Freska wrapped in a paper bag put on a piece of a colorful umbrella. A sentence is written in Arabic on the paper bag. The sentence is an Arabic translation of the substantial theme related to this publication: Plastic-free Freska:

<div dir="rtl">"فرسكا فرسكا من غير بلاستيك"</div>

As far as the visual discourse is concerned, a pictorial simile is detected on seeing two visual elements juxtaposed in a manner evoking their resemblance. The contiguity of the plastic -free Freska and the colorful umbrella elicits the pictorial simile "PLASTIC-FREE FRESKA IS LIKE A COLORFUL STRUCTURE". In this concern, plastic-free Freska is visually described as being lovely, desirable and advantageous.

This design (Figure 2), posted on July 18, is also from "Drumstick Designs" Facebook page. It is a continuation of the previous endeavor to insinuate people to take paper bags and deliver them for free to Freska sellers so that plastic bags may be substituted.

Figure (2)

The verbal text is "BE PART OF THE SHIFT TO A WORLD WITH LESS PLASTIC". The word "shift" implies the metaphor that "THE WORLD IS A COMPASS", which evokes the following inferences:

The world is a dynamic entity.
The world can be changed/shifted.
The world can be changed if people change their activities.
The world direction leads to either life or death.
The world must be handled with accuracy.

The previous metaphor is significant in that people's recognition or loss of orientation depends on their ability to set the desired position and put it into practice. This means that humans, due to the wrong path taken, are responsible for their losing way in life. The verbal discourse at the end of the publication is nearly the same as the one explained in the first example: "JOIN THE PLASTIC FREE FRESKA CAMPAIGN".

The visual design is mainly a half piece of Freska, as the Freska piece is bitten off, in its paper bag against an aquamarine blue color- background. The juxtaposition of plastic-free Freska and the purely aquamarine background suggests the pictorial simile "PLASTIC-FREE FRESKA IS LIKE AQUAMARINE" regarding beauty, purity and cleanness.

This design (Figure 3), posted on July 19, is the third one from "Drumstick Designs" Facebook page. It motivates people to get the plastic-free Freska bags. This is a continuation of the ongoing efforts to exchange plastic bags with paper bags. The verbal text reads: "GET YOUR PLASTIC FREE FRESKA BAGS TODAY". It again creates the metaphor that "PLASTIC IS A CAPTOR", which is explained in the first example.

Figure (3)

The visual design is the image of Freska wrapped in a paper bag against a purely blue background of the sky connected to the sea. Consequently, a pictorial simile is enhanced by the visual relation between plastic-free Freska and pure nature: "PLASTIC-FREE FRESKA IS LIKE FRESH NATURE". As a result, an aspect of similarity is activated to show the correspondence between the eco-friendly Freska and the cleanliness and pureness of fresh nature.

This figure (Figure 4), posted on July 23, is the fourth one from "Drumstick Designs" Facebook page. It acts as a consequence of the previous trials to use eco-friendly paper bags. This publication is proof of the success of the anti-plastic campaign as it presents

Figure (4)

a Freska seller, called Ahmed, using paper bags instead of plastic bags.

The verbal text reads: "BE PART OF THE CHANGE JUST LIKE AHMED. PICK UP YOUR PLASTIC FREE FRESKA BAGS AND GIVE IT TO YOUR FAVOURITE FRESKA SELLER". The first sentence- "BE PART OF THE CHANGE JUST LIKE AHMED"- elicits the concept "CHANGE IS A DIVISION" and invokes the undermentioned ideas:

Change is a concrete division.
Change needs collaboration.
Change needs forbearance.
Change is possible.
Change requires shared values.
Change is a worthy merit.

This may stimulate people to behave in a manner that secures the environment. For example, they may start to use eco-friendly products instead of plastic ones. The visual text is Ahmed's image with his smiling face, his Freska box and his Freska paper bags – are all portrayed as being part and parcel of a blue background representing the sky-sea connection. This visual design encodes a hybrid metaphor inasmuch as the Fresks seller, Ahmed, is integrated with the sky-sea connection to reflect the similarity between them in terms of their being eco-friendly creatures.

This example (Figure 5), posted on July 4, is from "Go Clean" Facebook page. "Go Clean" is a recycling company in Egypt which aims to raise awareness towards the harmful effects of non-degrading material. This page has the same environmental focus regarding warning people against the threats brought about by plastic pollution.

Figure (5)

The verbal text is appalling as it reads: "NEW STUDY: HUMANS SWALLOW 1 CREDIT CARD'S WORTH OF PLASTIC EACH WEEK". It seems that this publication is interested in activating people's logic as it depends on scientific facts. The first metaphor, implied in "NEW STUDY", is that of studies as being a fashion "STUDIES ARE FASHIONS". The resulting notions are:

Studies may be old or new.
Old studies are worthless.
New studies are deserving.

New studies must replace old studies.
New studies must be considered by the people.

This metaphorical representation of "studies" paves the way for the next serious metaphorical illustration of plastics as being water swallowed by people. The metaphor "PLASTICS ARE WATER" leads to the following outcomes:

Plastics are part of people's bodies.
Plastics run in people's blood.
Plastics surround people's organs.
Plastics enclose human muscles and veins.
Plastics will terminate the human body.

The metaphor "PLASTICS ARE WATER" refers to the devastating effects of plastic pollution because water is the essence of life. When plastics cause water pollution, life is at stake.

The visual text is more threatening than the verbal as it shows a human drinking microplastics from the plastic water bottle. Microplastics are likened to water because both are swallowed by humans. The pictorial simile resulting from likening microplastics to water creates a gloomy image of a polluted ecological system. The aspect of similarity between microplastics and water is that both are drunk and both become part of human body. This is a terrifying image as it predicts ecological decay and human termination.

This figure (Figure 6), posted on August 11, is also from "Go Clean" Facebook page. The figure is thought to be a dark description of the future if plastic pollution is not terminated. The release is about a baby blinded by plastic, enchained by plastic and drowning in a sea where plastic garbage spreads. This reflects the most pessimistic vision of the future as it symbolizes the death of humans and the expansion of plastic waste.

Figure (6)

The verbal text reads: "NEVERMIND THE FUTURE". Though the verbal discourse is concise, it elicits the metaphor "FUTURE IS AN IMPORTANT ENTITY", with the resulting sense that the future is to be taken care of. Depicting future as an important entity entails the following connotations:

The future needs careful treatment.
The future must have its due consideration.

The future may deteriorate if it is not taken care of.
The future may die if it is neglected.
The future may be lost forever without a chance to be recovered.

The visual text is so terrifying that it depicts a naked baby drowning amidst plastic rubbish shackling his hands and legs and blinding his eyes. The dead baby is merged with plastic waste in a manner encoding a hybrid metaphor predicting the ending of life. The image of the dead baby with plastics chaining his limbs and blinding his eyes delivers the metaphor "PLASTICS ARE DEATH".

This figure (Figure 7), posted on August 15, is another one from "Go Clean" Facebook page. It is about a fish sculpture filled with plastic waste. This figure aims to raise awareness about the damage done by plastic trash to marine life. The verbal text reads "Go Clean" signaling that plastic waste will be collected and recycled. Though the verbal discourse is brief, it implicates that plastic is garbage/dirt that must be cleaned. The metaphor "PLASTICS ARE DIRT" has the following implications:

Figure (7)

Plastics are so harmful.
Plastics are detestable.
Plastics are disgusting.
Plastics are the source of fatal diseases.
Plastics are a sign of backwardness.
Plastics are a serious crisis.
Plastics must be removed.

"Go clean" page is interested in providing evidences to convince people that plastic pollution is a severe crisis, a case in point is the fifth example. Example number six addresses people's emotions so that they may be scared and more interested in ecological balance. Example number seven also addresses people's emotion through the metaphorical similarity between plastics and dirt, a thing abhorred by all people.

The visual text is a sculpture of a fish opening its mouth and swallowing plastic waste. The metaphor "RUBBISH IS FOOD" is evoked. The target, garbage, is visually illustrated. The source, food, is understood/suggested. This visual design results in a contextual metaphor as viewers are invited to infer the source.

This figure (Figure 8), posted on July 3, is from "Banlastic Egypt" Facebook page. "Banlastic Egypt" is a social enterprise which aims at banning single-use plastic in Egypt by increasing online contents on plastic-pollution and offering eco-friendly alternatives.

Figure (8)

The verbal text reads: "BANLASTIC-Ban the Plastic Bag".
Another text, translated as " new alternatives", is written in Arabic asking about the new alternatives that may replace plastics: "بدائل جديدة؟"

"Ban the plastic bag" delivers the metaphor "PLASTIC IS UNLAWFUL", which conveys the following notions:

Plastic is against the law.
Plastic must be forbidden by law.
Plastic is a source of apprehension.
Plastic requires decisive acts to be under control.
Plastic poses a threat to citizens.
Plastic intimidates human beings.

The Arabic text elicits another metaphor, that of "PLASTICS ARE A COMMODITY" with the coming entailments:

Plastic is an item.
Plastic can be substituted.
Plastic can be dispensed with.
Plastic can be replaced by other articles.
Plastic is not important.

The visual design includes instances of plastic products with a straight line across all of them symbolizing that all these products must be replaced. The image depicts plastic forks, straws, bottles, covers, bags and utensils. The horizontal line drawn across plastic products lead to the relation "PLASTIC PRODUCTS ARE WRONG". This visual relation is a pictorial simile likening plastic products to inappropriate choices. The aspect of similarity has to do with the fact that wrong choices are to be replaced and so are plastic products.

This is another figure (Figure 9), posted on July 20, from "Banlastic Egypt" Facebook account. This example is ambiguous as it presents an ancient pharaonic word referring to the termination of something: "بح"

Figure (9)

The verbal text presents the ancient Egyptian word signifying the ending of an unspecified condition. Some other unclear words are written. That word refers to the fact that something has already been ended. The metaphor "SOMETHING IS TERMINATD" has the following meanings:

Something is dangerous.
Something causes fear.
Something is fought hard.
Something requires a confrontation by cooperative efforts.
Something no longer exists.

The visual text is a flat background with no identification of any item. It is an ambiguous design. This ambiguity is deliberate so that spectators may think about the meaning of this design.

This is yet another example (Figure 10), posted twice on July 23 and August 2, from "Banlastic Egypt" Facebook page. It explains the ambiguity intended in the previous example. This publication presents people spending their summer holiday at Al-Dekhelah beach. The vacationers help gather plastic waste and clean the beach. As a result, the beach is plastic-free.

Figure (10)

The verbal text is a mixture of an English word "Plastic" and the pharaonic word signifying termination of something "بح". This verbal text conveys the metaphor "PLASTICS ARE A BURDEN". The reason for this interpretation may be people's habit to celebrate when they finish heavy tasks. The following entailments result:

Plastic is a crisis.
Plastic causes fear and worry.
Plastic requires sincere efforts so that we may be able to end its pollution.
Plastic is not a simple problem.
Plastic must not be tolerated.

The previous figure contains some Arabic words at the bottom of the publication. These words refer to the location of the event, which is Al-Dekhelah beach, and its timing, which is on Saturday, the twenty-seventh of June.

The visual design is that of some vacationers on a plastic-free beach and others in a plastic-free sea. Vacationers are safe and happy because the beach and the water are safe from waste. The outcome is the pictorial simile that "PLASTIC-FREE NATURE MEANS SAFETY AND HAPPINESS".

This example (Figure 11), posted on August 21, is from "Banlastic Egypt" Facebook account. It attempts to induce people to have ecological interests and join the Banlastic team. It prompts whoever has a skill in social media to contribute to ban single-use plastic. The verbal text reads "CALL FOR MEDIA". The sentence "Banlastic-Ban the Plastic Bag" is also presented and it is explained in example number eight.

Figure (11)

The sentence "CALL FOR MEDIA" conveys the metaphor "MEDIA ARE THE POLICE" with the resulting ideas as:

Media serve the people.
Media are at people's disposal.
Media help people to overcome any critical situations.
Media make life a safe place.
Media solve people's problems.
Media must be trusted.
Media must be supported.
Media must be cooperated with.
Media ensure citizens' security.

The previous beliefs about the media aim to make people believe in social media as an information source and, accordingly, share/follow media campaigns and instructions.

The visual text is that of a microphone, a newspaper and a laptop. The target, media, is visually represented through the newspaper and the laptop. The source, the police, is inferred by spectators through the microphone. The outcome is a contextual metaphor likening the media to the police "media are the police". Similarity has to do with the role played by both in watching negative conducts, trying to change them and working for a safer life.

This example (Figure 12), posted on July 7, is also from "BelaPlastic" Facebook page. It is an initiative presented by a group of students at the faculty of Mass Communication in Pharos University in Egypt. The initiative aims to raise awareness against the danger posed by plastics. The label "BelaPlastic" signifies the disposal of plastics.

Figure (12)

The publication is horrifying as it predicts the future of marine life in case that plastic pollution continues.

The verbal text is a piece of news in a paper reading "WATER FOUND ON MARS" and a fish asking the following question: "HOW DO WE GET TO MARS?". The news text elicits the metaphor "WATER IS ABSENT" with the following entailments:

Water is no longer available.
Water is badly needed for living.
Water must be searched for.
Water -absence ends marine life on earth.
Water-absence ends animal life on earth.
Water-absence ends human life on earth.
Water-absence forces living-creatures to abandon life on earth.

The logical consequence of the previous entailments is the metaphor triggered by the question of the fish that "MARS IS AN ALTERNATIVE PLANET" and its related ideas as:

Mars replaces the Earth as a planet for living creatures.
Mars is a destination for all living creatures.
Mars may also be polluted by plastic waste.
Mars may also be damaged by plastic pollution.
Mars may also be abandoned.

The visual text is shocking. It depicts polluted water. It also portrays tons of plastic waste in the sea water, two dying fishes trying to escape to Mars and two skeletons of fishes. The effect is a pictorial simile which makes plastic waste related to the death of marine life "PLASTICS ARE DEATH".

This final example (figure 13), posted on July 10, is also from "BelaPlastic" Facebook account. It summarizes the plastic pollution effect on human beings: that people will be eating plastic trash instead of fish. The verbal text reads: "2015, when you order a fish burger". This text is made clear by the visual representation so that it implicates the metaphor "PLASTICS ARE FOOD" and leads to the following notions:

Figure (13)

Plastic is eaten.
Plastic is part of human body.
Plastic breaks through human cells.
Plastic destroys human cells.
Plastic kills human beings.

The visual text is a sandwich filled with plastic waste: a plastic bottle, a bag and food wrappers. This image encodes a hybrid metaphor because food is fused with plastic products creating the relation "plastics are food".

7. Discussion

Van Dijk (2006) indicated that many discourse studies shows little interest in the mental aspects of discourse. He added that studies on discourse production and comprehension did not focus on the social context of language use. This paper attempts to relate between discourse analysis and Cognitive Linguistics so that analysis may be more comprehensive. Being interdisciplinary, this study is based on cognitive linguistics notions of conceptual metaphors in order to investigate eco-digital discourses in their situational contexts. This implies that these discourses should have an effect on changing people's eco-practices. The study interprets the cognitive meanings in these discourses in an attempt to participate in spreading eco-friendly awareness and behavior.

This study is prompted by an environmental interest regarding plastic pollution. Plastic products are commonly used in daily human life, yet they critically harm nature and its ecological balance. Though plastic pollution is a dangerous crisis, studies which are concerned with this issue are not enough. The review of literature indicates that eco-discourses have dealt with issues as Climate Change and the United Nations Programme. More studies have been theoretical in their descriptive framework. Media coverage of plastic pollution is neither sufficient nor widespread. This is justified on the basis of the difficulty met in order to find research articles or discourses addressing plastic pollution.

This paper takes anti-plastic digital media to be the focal point of interest. Examples of anti-plastic discourses are investigated via a cognitive linguistics analytical framework so that the negotiated meanings underlying each example may be attained. Analysis uncovers the danger surrounding the environment in case that plastic pollution continues. The only solution suggested is to replace plastics with eco-friendly material. This paper has focused on the serious consequences of plastic pollution. It also attempts to spread more awareness regarding this substantial crisis. This awareness is a preliminary step preceding the recommended eco-friendly practices.

Analyzing digital discourses relevant to "Drumstick Designs", "Go Clean", "Banlastic Egypt" and "BelaPlastic" Facebook pages clarifies shocking outcomes resulting from plastic pollution. These outcomes can be summarized as the termination of human life on Earth. The only way out of this dark end is to put an end to that pollution. For this reason, this paper tries to shed light on the ecological issues negotiated by each discourse. Communicating threats posed by plastics and the consequent fatal effects may induce people to think of alternative materials that do not distort the ecosystems. The conceptual and the visual metaphors effectively render meanings attached to the data of analysis. In each example, verbal and visual modes cohere together in order to deliver a message. The message is directed towards one aim, which is replacing plastics with clean materials.

8. Conclusion

This paper examined thirteen examples of digital discourses having an ecological concern about the harms of single-use plastic. Examples from number one to four were selected from "Drumstick Designs" Facebook account, an account that has a focus on Egypt and its ecological state. Verbally, plastic pollution is metaphorically paralleled to a dilemma, a chemical experiment and a captor. The world is compared to a compass. Change is compared to a segmentation so that people may be convinced that alternating the ecological imbalance is possible if all participate in using eco-friendly products. Visually, plastic-free Freska is metaphorically analogous to a brilliant umbrella, an aquamarine and fresh nature. Both verbal and visual metaphors address logical thinking so that people may be motivated to use eco-friendly material in place of plastics.

Examples from number five to number seven were selected from "Go Clean" Facebook account, an account interested in plastic pollution in Egypt. Verbally, scientific studies are compared to fashions, plastics are metaphorically equivalent to water and dirt and the future is corresponding to a living creature.

Visually, microplastics are drawn as being water; plastics are likened to death and to food for marine creatures. This account has an emotional strain as it stirs feelings and fears through the verbal and visual metaphors employed.

Examples from number eight to number eleven were from "Banlastic Egypt" Facebook page. Verbally, plastics are comparable to forbidden material, a commodity and a burden. An unknown entity is likened to something ended and the media are identical to the police. Visually, plastics are depicted as being a wrong choice, plastic-free nature is portrayed as pleasure and media are compared to the police. This page addresses logic so that people may be persuaded to stop using single-use plastic products.

Examples number twelve and thirteen were from "BelaPlastic" Facebook account, which focuses on Egypt. Verbally, water is compared to an absent person, Mars to an alternative planet and plastics to food. Visually, plastics are likened to death and food. This account makes use of metaphors to influence people's emotions and induce them to stop using plastics because future is in danger.

Though the four Facebook accounts focused on Egypt, English was used in almost all examples instead of Arabic. This may be due to the desire to address many people, other than Egyptians, because plastic pollution has become a world crisis. Verbal and visual metaphors represented the drear future in case that plastic pollution continues. They also offered an alternative future depending on people's cooperative efforts.

It is suggested that digital campaigns should try to address the two modes of communication, the logical and the emotional modes, in every instance of discourse. Each example analyzed in the digital campaigns is oriented towards one mode: either reason or emotion. For better effects, it is recommended to involve both modes by influencing the mind through the verbal discourse, and inspiring the emotions through the visual discourse. This means that using multimodal discourse which has an impact on both the mind and the feelings is proposed to make digital campaigns more successful.

9. Limitations of the Study

Limitations of this research have to do with the size of the database of the study. Samples of digital discourses which have an ecological concern against plastics are not numerous. Accurate studies depend on large samples so that results may be more precise. Though plastic pollution is a critical crisis, discourses related to its fatal effects are not sufficient.

10. Suggestions for Further Research

This research suggests that the media, printed or digital, should spread more awareness concerning plastic pollution. This may be achieved via paying more attention to issue articles, reports, campaigns and programs which focus on the devastating effects of plastics and the alternative eco-friendly products. Printed and digital media are required to work together in order to raise people's realization concerning the ecological system. Linguists, in their own turn, should examine more samples of eco-discourses in order that eco- awareness becomes enacted. In consequence, eco-friendly products/practices may replace eco-unfriendly ones.

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