Analysis of Students' Reflections and Ideation in an Online Graduate Ecology Course

Consuelo dL. Habito[1], Joane V. Serrano[2] and Susan Janette G. Ealdama[3]
[1]consuelo.habito@upou.edu.ph, [2]joane.serrano@upou.edu.ph, [3]susan.ealdama@upou.edu.ph
Faculty of Management and Development Studies
University of the Philippines Open University

Abstract

Plastics have become one of the biggest environmental and societal problems that affect land, oceans, waterways, living organisms, and humans. The three countries that have the largest contributions to plastic wastes in the oceans are China, Indonesia, and the Philippines. (Jambeck et al., 2015). These countries are identified as rapidly developing countries that are engaging in investments from wealthier foreign investors. "Megacities" in these developing countries have populations exceeding 10 million (Tibbetts, 2015). Among the factors for the continued use of plastics despite the advocacies of various sectors are the mindset and knowledge gap that plastics are easily recycled (Miller, Soulliere, Sawyer-Beaulieu, Tseng, and Tam, 2014) and the need for education, awareness, sharing of educational resources on reducing plastics, and working closely with industries producing plastics (Jambeck et al., 2017). Hence, educational institutions all over the world must integrate in their lessons and in their class activities various ways on how to help stop the worldwide problem of plastic pollution. Students and their generation at large are seen as having the greatest capacity of enacting environmental advocacies. The aim of this study was to explore a teaching approach using the reflections and ideation of the ENRM 223 students about the plastic pollution-solution issue. This study also examined how reflexive practice can bring out ideas and possible strategies and practical actions for environmental advocacy. The study focused on two major questions: 1) How did the students apply concepts from the course in their reflections on the video in terms of authorship, purpose, economics, impact, response, content, techniques, interpretation, and context? and 2) How did the video's message influence the students' ideations and turn these into practical applications? The analysis of the responses was intended to contribute toward theory-building on effective long-term approaches to strengthening environmental advocacy strategies in online teaching and learning. Recommendations include identifying the mix of individual and contextual factors that best address the need; evaluating the intervention and verifying the strategy; and tightening the link in strategic environmental advocacy planning, program design, and program implementation in order to achieve long-term sustainable environmental outcomes.

Keywords: *environmental advocacy, media literacy, quality assurance*

Introduction

Plastics have become one of the biggest environmental problems that modern society faces. They affect not just land, oceans, and waterways but also living organisms. Among the negative effects of plastics is the impact on the environment, water contamination, flooding due to blocked drainage, and pollution. There has been increasing evidence that the growing problem on plastic pollution can have negative effects on human health. These include risks from physical injury, infection, transmission of diseases, and other effects on psychological and emotional health (Yukalang, Clarke, and Ross, 2017). Particularly, toxic waste from landfills are known to increase the risks of respiratory diseases, reproductive disorders, birth defects, and cancer (Porta, Milani, Lazzarino, Perucci, and Forastiere, 2009). Moreover, poor solid waste management systems significantly increase the costs of waste management and disposal (Klundert and Anschütz, 2001).

Some developed countries, such as the UK, Germany, as well as Scandinavian countries, have put in place measures to regulate the use of petrochemicals and plastics by the business sector. However, these countries are among the least contributors to the global plastic mismanagement. On the other hand, the Philippines, although a very small country, has been named as one of the major contributors to plastic waste. This, despite the passage of the Ecological Solid Waste Management Act, which was enacted in December 2000 almost two decades ago. According to a study by the Ocean Conservancy and McKinsey Center for Business and Environment, only five Asian countries account for 60% of the plastic displaced in the world's oceans: China, Indonesia, the Philippines, Thailand, and Vietnam (Chow, 2015). Another study by Jambeck and colleagues (2015) cited three Asian countries to have the largest contributions to plastic wastes in the oceans -- China, Indonesia, and the Philippines. These rapidly developing countries are engaging in expansive growth and investments from wealthier foreign investors. "Megacities" in these developing countries have populations exceeding 10 million with about 75% of megacity growth estimated to "occur outside the formal planning process," and about a third of these constitute slums or informal settlements (Tibbetts, 2015). These conditions, matched with poor and uninformed waste management practices, together with the absence of waste management infrastructure, have abetted large-scale plastic pollution. The rising consumer population has fueled the demand for small-volume goods packed in more plastic. According to Jambeck and colleagues (2015), the population density within 50 kilometers of the coast of a country is a main basis of its contribution to plastic pollution in the oceans. For instance, the 2014 country populations by the World Population Review in 2015 estimated that about 83% of the Philippines' population is located in coastal regions. Sadly, the dire situation is likely to get worse. According to an estimate by Tibbetts (2015), the volume of plastic pollutants dumped into the world's oceans could increase by more than 100% by 2025, that is, if current trends in plastics use would continue.

Despite the alarming global trends on plastic pollution in land and in the oceans, the response of governments have been dwarfed by the magnitude of the problem. National laws and international agreements and treaties have not been effectively implemented and as a result, the plastics problem continues to grow unabated in countries around the world. This is compounded by the lack of media literacy awareness about the plastics problem among government and non-government organizations as well as in the general population. However, some advocacy initiatives appear to have gained some momentum. For instance, in January 2010, the city government of Muntinlupa was the first to enact a policy on regulating the use of plastic bags and styrofoam in business establishments through City Ordinance 10-109. Since then, other large cities including Manila, Quezon City, Caloocan, Pasig, Makati, Marikina, Las Pinas, Pasay, and Pasig have also passed ordinances that prohibit most plastic, styrofoam, or polystyrene packaging materials in business and retail outlets. Another example is "The Plastic Solution" environmental advocacy where used plastic bottles compacted with other types of plastic waste are made into "eco-bricks" for schools and other uses.

Among the factors for the continued use of plastics despite the advocacies of various sectors is the knowledge gap and the mindset that plastics are easily recycled (Miller et al., 2014). The need for education, awareness, and dissemination of educational resources on reducing the use of plastics thus becomes highly obvious. Moreover, efforts to promote understanding and closer work with industries that produce plastics must be pursued (Jambeck et al., 2017). In this regard, educational institutions all over the world have a prominent role to play. Schools and learning institutions are well-placed to provide a conducive environment for the study and practice of evidence-based environmental advocacy. Specifically, there is a need to integrate lessons and class activities

that improve knowledge on various ways that can help stop the world-wide problem of plastic pollution. Students and young and middle-level professionals have a large potential for enacting environmental advocacies.

The UP Open University, through the Faculty of Management and Development Studies (FMDS), is among these educational institutions that have vigorously pushed for environmental advocacy through its research, partnerships, and extension programs. Since 1999, FMDS has administered the Master of Environment and Natural Resources Management (MENRM) program. To date, the postgraduate program has attracted approximately 1,142 online students from the Philippines and abroad. Enrollees are predominantly environment professionals and those involved in environment-related responsibilities in government agencies or non-government organizations.

A core course in the degree program is ENRM 223: Ecosystem Structure and Dynamics. This course deals with the fundamental tenets of ecology and environmental biology --- considered the core in the interdisciplinary study of the environment and natural resource management. A compilation of 242 students' responses over a period of four years (2013-2017) provided an opportunity to retrospectively evaluate perceptions on environmental advocacy in relation to the global plastics problem. Specifically, this study focused on one module of ENRM 223 - Module 13: The World as an Ecosystem. Two of Module 13's goals are for the students to identify major global problems and to explain the concept of sustainable development. One of the activities in this module was to view a video and undertake a Home Quiz. The video discussed production and consumption patterns and the connections between social and environmental issues. It touched on the untold story behind the global plastic problem.

The aim of this study was to explore a teaching approach using the reflections and ideation of the ENRM 223 students about the plastic pollution-solution issue. This study also examined how reflexive practice can bring out ideas and possible strategies and practical actions for environmental advocacy. The study focused on two major questions: 1) How did the students apply concepts from the course in their reflections on the video in terms of authorship, purpose, economics, impact, response, content, techniques, interpretation and context? and 2) How did the video's message influence the students' ideations and turn these into practical applications? The analysis of the responses was intended to contribute toward theory-building on effective long-term approaches to strengthening environmental advocacy strategies in online teaching and learning.

Review of Related Studies

Media Literacy

Media Literacy Framework

Potter's Theory of Media Literacy (Potter, 2004) was used as a primary theoretical framework in drafting the Home Quiz, which was also used in this study to guide the researchers in evaluating data. The theory laid out the structure for the Home Quiz upon which the researchers gauged the depth of each student's understanding of the plastic pollution-solution issue. This adheres to the recommendation of the National Association for Media Literacy Education (NAMLE) that teachers and trainers in the environmental fields should train students in considering the following key questions when analyzing media messages (NAMLE, 2017).

Who made these messages? ***(Authorship)***
Why was this made? Who is the target audience (and how do you know)? ***(Purpose)***
Who paid for this? ***(Economics)***
Who might benefit from this message? Who might be harmed by it? Why might this message matter to me? ***(Impact)***
What kinds of actions might I take in response to this message? ***(Response)***
What ideas, values, information, and/or points of view are overt? Implied? What is left out of this message that might be important to know? ***(Content)***
What techniques are used? Why were those techniques used? How do they communicate the message? ***(Techniques)***
How might different people understand this message differently? What is my interpretation of this and what do I learn about myself from my reaction or interpretation? ***(Interpretations)***
When was this made? Where or how was it shared with the public? ***(Context)***

An example that shows how the Theory of Media Literacy is relevant to this study is how the theory may be used in deconstructing media messages, especially those proliferated by plastic bottled water producers who mask as pro-health/environment advocates (Potter, 2004). According to Kupersmidt, Scull, and Austin (2010), educators would agree that education must be intended to help students develop critical thinking skills. They added that media literacy education encourages pedagogical practices that facilitate the practices that allow the development of critical thinking abilities because they provide students with critical filters that help them interpret media messages and images. Kupersmidt, Scull, and Austin (2010) also mentioned one particular set of critical thinking abilities that must be emphasized when teaching media literacy - deconstruction.

According to Fisher as cited in Kupersmidt, Scull, and Austin (2010), teachers must challenge students to question the target text since media literacy education is largely about developing media skepticism. Moreover, teachers must also motivate students to reflect upon the skills and theories they learn and participate in "thinking about thinking," also called as metacognition (Burke, Williams, and Skinner in Kupersmidt, Scull, and Austin, 2010).

Indeed, media literacy is an important component that must be incorporated in education. Hence, students need to be equipped with knowledge on geopolitical trends and how these trends influence media content as part of a political economy. This also traces the explanations behind the representation and framing of realities through the media; why the use of plastic water bottles are always rendered harmless and ubiquitous and why the destructive effects of plastic on the environment are never depicted through the mainstream media (Lim and Nekmat, 2008).

Media messages always have commercial and economic implications. Thus, media literacy is essential in controlling not only how viewers interpret media messages but also in how they respond to these messages, mainly by consuming. Sramova (2014) asserted that in today's increasingly consumerist society, the target age groups of media messages become younger and younger. Hence, it is important that media literacy is taught to children from the years leading to the formation of consumer behavior (Sramova, 2014).

Global consumerism behavior and the plastics industry has largely contributed to various environmental problems such as plastic pollution. This is compounded by the ease, portability and reduced cost of single use packaging materials versus cumbersome, more expensive and

reusable materials such as glass. Geyer, Jambeck, and Law (2017) estimates that of about 8300 million metric tons (MT) of plastics produced, 76% are now plastic waste. Consumers often fail to calculate or even consider the long-term costs of plastic use (Rochman et al., 2013) in their purchases.

Lewis (2013) cited that corporate media conglomerates have produced an intense consumer culture by saturating viewers with marketing and advertising techniques that draw consumers into overconsumption whilst diverting them from political issues. Lewis (2013) traced the beginnings of consumer capitalism as the advertising industry developed in the United States during the 1920s, leading to the commodity capitalism seen during the corporate era that started around the 1950s. He further argued that since then, promotional culture has intensified and the public sphere was hollowed out and unable to face up to the environmental issues of today. Thus, media literacy programs should take a critical look at media producers' financial and political motives, reasons, and paradigms (Rosenbaum, Beentjes, and Konig, 2008). The deconstruction of media messages -- in this case, those about plastic water bottles -- must consider how messages are influenced by money, power, space and time exigencies, as well as ability, class, gender, mobility, racial, and sexual differences (Lewis and Jhally, 1998).

Ideation for Behavior Change

Ideation pertains to the way new attitudes or behaviors are dispersed through a community using communication and social interaction. Behavior is shaped by several psychological and social factors, in addition to environmental conditions and skills that facilitate the formation of behavior.

Ideation is the "process of generating fresh ideas that can be transformed into innovative solutions" ("What is Ideation", 2018). It is useful in predicting behavior change, especially in environmental advocacy. It is divided into three (3) categories: cognitive, emotional, and social ideation. According to Kincaid (2000), instructive communication is effective in teaching skills and knowledge. Directive communication (one-way influence) and nondirective communication (entertainment, counseling and interpersonal) mainly affect ideational factors. Lastly, Public communication (such as advocacy) are seen to affect environmental factors the most. Kincaid (2000) added that the effect of communication on ideation and environment consequently determine change in behavior.

There are three categories of ideational factors: cognitive, emotional and social. Cognitive ideation refers to an individual's beliefs, values, perceived risks, subjective norms, and self-image (Kincaid, 2000). Cognitive ideation, when applied to environmental advocacy, refers to the campaigning that either resonates with the target audience's beliefs, values, perceived risk, subjective norms, and self-image, or make them doubt dominant media (deconstruction). Emotional ideation on the other hand include emotional response, empathy, and self-efficacy (Kincaid, 2000). Techniques used in environmental advocacy deal with appeal to human emotion. Positively, it can motivate a person towards a good action step. Negatively, it can also manipulate an audience towards something they are not aware of. Lastly, social ideation includes social interactions (such as support and influence) as well as the behavioral effect of persuading others to adopt one's behavior (personal advocacy) (Kincaid, 2000). Social ideation variables such as support and influence of trusted family and friends affect the quality of environmental advocacy. Personal advocacy uses testimonials of family-like, friendly endorsers.

Methodology

The focus of this study was the critical reflections of graduate ecology students in an online class setting on the plastic pollution-solution issue. As part of the class requirements, the students were given a Home Quiz activity wherein they were required to watch a video about the less known facts surrounding the plastic bottled water industry. After watching the video, the students were asked to write their reflections about the plastic pollution-solution issue.

With inspiration from the frameworks on media literacy and ideation for behaviour change, the reflections of the students were analyzed. Through archival analysis, the 242 reflection outputs of 242 students from seven (7) semesters (from Academic Year 2013-2014 to 2017-2018) were analyzed. Two major questions were considered in the analysis: 1) How did the students apply concepts from the course in their reflections of the media or video in terms of authorship, purpose, economics, impact, response, content, techniques, interpretation and context? and 2) How did the video's message influence the students' ideations? The reflections were categorized based on the three categories of ideation. These categories served as the basis for selecting exact quotations from students' reflections to support empirical assertions. In selecting quotations to support the theme, researchers also looked for points of conflict, tension and contradiction, those that do not quite fit and out of the ordinary (Janesick, 2004).

Results and Discussions

Analyses of the online reflections of the students resulted in several themes. The themes that emerged were categorized into the following: cognitive ideation (beliefs, values, perceived risk, subjective norms, self-image); emotional ideation (emotional response, empathy, self-efficacy); and social ideation (support and influence, personal advocacy). The reflections of the students reflected how an assessment in an online environment supported reflexive practice encouraging creative and critical reflections and ideation as can be seen in their posts.

Cognitive Ideation

Cognitive ideation in this study resonated with the students' perceived risk brought about by the use of plastics in their lives. As students of an environmental program, they are equipped with the scientific knowledge about the risks in using plastics. The topic on plastic is discussed in the online course wherein it is explained how the problem on plastic affects the whole ecosystem. In analysing the understanding about certain concepts such as the plastic pollution issue, it is important to consider their contexts as this influence their interpretation of the issue. This is in line with the basic tenet of the media literacy framework. This excerpt shows the student's reflection on the plastic waste generated:

> *"As a mining engineer, I know that all of these products/gadgets are made of minerals found in the earth's surface. Different minerals and chemicals are being combined to produce a single product. Most businessmen/industrialists only focus on the profit, as per the video they produced a product that is easily broken and the lifespan is very short while chemicals that are being used are very dangerous to human health. Moreover, minerals that are being mined are also increasing."* Student 20 (2017)

Another reflection was very much grounded on the student's personal experiences. This reflection shows the broader understanding that plastic has indirect negative effects on food production which eventually affects health of families. One of the greatest risks connected to use of plastic is the contamination of soils and groundwaters which are needed for food production. He said:

> *"As a family of having a kid, when we buy food in malls or markets we make sure that it is toxic free (sic), we preferred to buy organic vegetables and avoid processed foods."* Student 3 (2017)

Cognitive ideation also resonated on values and subjective norms. In the reflections of the students, they surfaced the need for people with common ideas and values to work together in order to achieve the change that they desire. Environmental movements play an important role in making more people aware about the perils and hazard of plastics and eventually change how people behave about plastic. As Cooper and Ternes (2016) noted, environmental movements are necessary for global environmental progress. Students need to be trained "in the activist and alternative media movements that seek to challenge mainstream media norms" (Duran, Yousman, Walsh, and Longhore, 2008: 51). Even in online setting, students are able to issue a call to come together to instill environmental awareness. This excerpt shows the realization that change will not come from government or non-government organizations alone but from the people themselves who are affected by plastic problems:

> *"Right now we also need a movement that will create change. With common idea and values, and commitment to work together, we can start with instilling environmental knowledge and awareness to people. Making real change takes all kinds of citizens, not just protesters. And if they hear what we want, they will provide it."* Student 1 (2015)

Cognitive ideation also reflects on the self-image as a result of using plastic. Oftentimes, people's understanding about plastic is limited to its negative effects to the environment as well as health-related issues, but based on the reflections of the students in this study, plastic also reflect on one's self-image. It is important to note that even in an online environment, students are able to reflect on the concept of self-image. The reflection also shows the personal action taken on by the student in terms of not using plastic in the workplace. One student wrote:

> *"Beauty-wise, repeated sipping up from the straw causes the risk of having lip lines and wrinkles. So ditch the bottled water and straw and gulp more on water from your own water bottle. I personally have a water bottle and coffee mugs in the office that I use everyday."* Student 2 (2015)

Cognitive ideation also resonated in the student's beliefs. Students' reflections also shows tensions and conflicts in their beliefs. As we are living in a developing country where there exists a "tingi" (buying in sachets) culture or system mostly because of poverty and people living on subsistence. Sy-Chanco, Pornpitakpan, Singh, and Bonilla (2011) noted that the three factors for low-income families favoring the use of sachets are: affordability or minimal cash-out; portability or convenience of smaller packs; and control over the dosage or content. This is one of the major reasons that hinder most people from choosing more environmentally friendly options. An excerpt from the student's reflections stated:

> "Individuals who are living with a daily budget need to allocate money for *daily supplies such as food and toiletries. Goods in sachet packets are easily accessible and within the budget of low-income families." Student 19 (2017)*

Social Ideation

Social ideation has been described as those that "include insights, sentiments, and imaginations about the social world, self, and social life" and originates from the conscious reactions of social agents as they interact with social structures and events (Hosseini, 2012). Information is acquired and processed through the process of learning, and together with the insights gained through introspection and reflection, social ideation is formed. Through the meanings and sentiments that take shape, a better understanding of daily experiences and social systems emerges.

Social ideation, as exemplified by the narrator of the video about plastic bottled water, used personal advocacy through the testimonials of family or friendly endorsers. This is consistent with other studies that cited social support, social influence, interpersonal communication (e.g. communication with a spouse, friends, or relatives), personal advocacy, and social networks are strong influences in social ideation (Kincaid, 2000). The following statements were extracted from the responses of the ENRM 233 students from different semesters. Themes related to the aforementioned social elements manifested in the responses and introspective inputs from the students.

When it comes to social ideation's personal advocacy, an online learner mentioned:

> *"proper waste handling in my workplace, help in saving forests by not leaving any trash when I join my friends in visiting forest areas, cleaner production (in the case of industrial firms), conscious consuming for myself and educating my family as well, supporting government efforts to reduce, reuse and recycle waste, do and promote Zero Waste where feasible, close-loop production (businesses), and most of all practice simple living in order to avoid contributing to voluminous thrash typical of today's consumer society."* Student 3, 2015

Another graduate student affirmed personal advocacy and said:

> *"I realized the 'externalize cost' are not counted from the extraction of resources and to the workers you really work hard for it, and because its too cheap and not of good quality it is easy for disposal 'design for the dump'."* Student 4, 2015

Moreover, personal advocacy rang strong in another reflection:

> *"My knowledge about plastics has broadened and I pledge to begin to get rid of plastics. I'm not sure if it will be possible to completely end my use of plastics, but I'll definitely reduce my plastic usage especially those related to food and personal care products. Being a conscious consumer is the key. It'll definitely save our health and the environment."* Student 5, 2015

An infographic was included by a student who agreed about the need to change the approach:

Student 14, 2016 showed an illustration that shows how dangerous chemicals from toxic waste can seep into the soil, affect rainwater, vegetation, livestock, and in turn, human health:

Figure 1. Infographics posted by student 14 showing the negative effects of plastic

Furthermore, in line with Social Ideation's support and influence factor, a practical list was itemized by one of the students:

> *"As a person and family:*
> *Create a sustainable lifestyle*
> *1.1 For Store Shopping:*
> *1.1.1 Prepare a list of what you really need prior to buying*
> *1.1.2 Choose a store that sells in bulk like S&R, etc. Go for bulk purchases*
> *1.1.3 Bring your own "recyclable or eco-friendly" bags instead of using plastic bags*
> *1.1.4 Go for beverages in reusable glass bottles*
> *1.1.5 Give up bottled water*
> *1.1.6 Use reusable bottles and cups"*
>
> Student 7, 2015

This excerpt from a student's reflections shows how the video influenced her understanding of the plastic problem. As the video showed the complexity of the problem, it has achieved its intended effect of allowing the student see her contribution to the problem. This shows that online environment allows for this kind of engagement and reflexive thinking on the part of the students.

> *"I have not suspected that pollution, natural resources degradation and the 'system' that makes it happen is such a complicated thing and has a complicated effects as well. All the information presented has a point. I have somehow realized that I am a great contributor of pollution without actually knowing it."* Student 10, 2016

Media literacy is defined as the "ability to understand, analyze, evaluate, and create media messages". Media literacy training increases the individuals' doubt about media content (Austin, Chen, Pinkleton, and Quintero, 2006). After all, existence of the individuals with high media literacy leads to increase in the media quality because such individuals require more realistic messages of higher quality (Ulaş, Epçaçan, and Koçak et al., 2012).

> *"I do think I may be part of a brainwashed culture that finds significance and meaning in having or buying more things. I agree that in a materialist culture, the value of a person does get judged by how much he buys or consumes. I find it reprehensible that firms may manufacture things which do not really last and there are firms which find ways of forcing people to buy their new products especially when it comes to computers and cellphones. While the green solutions are appealing, my personal opinion is that these relatively remain drowned by a materialist culture which remains strong even with the urgent problems and issues in the environment at hand."* Student 11, 2016

Thackeray (2010) argued that although personal advocacy efforts do help, collective action by a group of more individuals is generally more effective. He suggested that creating a network of individuals is one of the first steps for people who intend to forward environmental advocacy. This is also seen in some of the students' responses.

Student 3, 2017 also mentioned:

> *"As a community, business establishments today already practice green operation such as in fast food or restaurants, using of straw, plastic spoon fork are regulated. Instead,, they allowed only their customers to use recyclable cups and reusable spoon and forks. Coffee cups now are made of abaca, instead of using styrofoam, because it is only natural materials that can resist high temperatures and decompose."*

Student 4, 2017 re-established the role of the family as a basic social unit. She said,

> *"Culture and attitude always start within a family. What the family customarily do will be instilled in the mind of an individual person."*

The influence of family on behavior is seen in the response of Student 18, 2016, in which she stated:

> *"I now passed on to my daughter the habit of bringing our own filled water bottle whenever going out. Aside from reducing trash, it will definitely save me some money if we do not buy bottled water and it will leave me at peace assured that she is drinking clean water. I also encouraged the students from her school in an IEC to have their own water bottle and likewise discouraged buying juices and other bottled drinks. An MRF was also placed in the school and it was reported that plastic bottle wastes significantly declined. The project expansion to the whole town site is set in 2017 wherein we will also be banning the use of plastics."*

Student 9, 2017 offered simple solutions that supposedly aims to start the change from within every individual. The suggested process was slow yet easier. This reflection shows that even in an online environment, students are able to come up with specific doable actions to solve the plastic pollution issue and share these with the online classmates. He offered specifics steps such as:

> Doable actions as a person:
>
> a. Saying no to bottled water and other drinks
> b. Using re-usable bottles
> c. Saying to plastic bags
> d. Being organized and planning
> e. Making a list

Doable actions as a family:

a. Buying food in bulk
b. Planning food for the week
c. Selling in bulk
d. Making a shopping list
e. Bringing containers and bags

Doable as a community:

a. Growing your own food

Student 3, 2017 discussed that:

> *"Definitely, the linear configuration of the materials economy is a problem at first glance. Annie Leotard is right in saying that 'one cannot run a linear system on a finite planet,' since its resources will certainly run out. The process of extraction, production, distribution, consumption, and disposal is a flawed system developed under the context of pleasing the one-percenters. In an ideal state, governments should be 'of the people, by the people, and for the people.' It should be the one to protect, regulate, and oversee that the materials economy is beneficial not just to the extremely rich and powerful, but to all. However, in reality, the government acts more as a henchman, ensuring specific corporations to stay in supremacy."*

In summary, the social ideation of graduate students highlighted a strong influence of human agency within social structures and events. Despite the physical constraints for socialization and face-to-face interaction in an e-learning environment, the exercise demonstrated that reflexive processes can change and influence social behavior among a group of students and the social networks.

Emotional Ideation

Affect is the experience of feeling or emotion, and its role as a key mediating factor in the ideation process has been cited (Kollman and Lomberg, 2014). Affect can be positive or negative, but in response to the video that the students watched, most emotional responses included sadness, anger, and guilt. With regard to taking action, there are studies that suggest that negative emotions and past behaviour can influence the desire to engage in pro-environmental action (Carrus, Passafaro, and Bonnes, 2008). Examples of negative emotions are illustrated from three of the students:

> *"I felt a little guilt because I promote buying bottled water over soft drinks since the later can cause blood sugar related diseases but now after I watch the video; neither of them is good because they are totally bad for our health and environment."* Student 3, 2017

> *"Sadly, because of a very strong marketing crusade to boost sales, bottled water eventually outdid tap water for drinking especially in the United States as the nation is currently consuming half a billion bottled water in a week and as stated in the video, this is enough to circle the globe five times."* Student 15, 2016

> *"I hate that so many people don't even think twice about them, particularly in conferences and events where they come in tiny bottles with the most plastic packaging. In my field events, I always tell participants to bring their own bottle, and that refills will be made available. But I cannot control events I do not organize, and I feel there have already been enough awareness campaigns going on. It saddens me to think that the bottomline is, people just don't care."* Student 10, 2017

Visser and Kouprie (2009) defined empathy as "a person's ability to identify with and understand another person's feelings, ideas and circumstances" (Visser and Kouprie, 2009). Empathy was also promoted in the video documentary through dramatic visual images of innocent aquatic animals who perished due to plastic ingestion or entanglement.

Although Student 1, 2017 introduced her accounts with pieces of logical reasoning, it was evident from her tone that her opinions were driven by emotion and how she, as a person, was affected by the documentary. It became fully explicit that her response was more emotional than logical as she became wrapped up her reflection, in which she said:

> "All of these thoughts made me think of wishing to see the p*ast and wished that all problems in our environment will not come. If I am going to be asked if what particular thing I wish not be invented, I will not say it's a thing but, I would rather wish that heartless people doesn't exist."* Student 1, 2017

Her emotional ideation continued as she presented her proposed action where she wrote:

> "I think one of the best ways to resolve problems in the *environment is through Information Education Campaign or IEC for the youth because I believe that educating the youth will make them realize the importance of protecting and conserving the environment at their young age so that everything will not be too late for them to help because we already planted seeds of environmentalism in their hearts and minds."* Student 1, 2017

Student 2, 2017 cited that:

> "What is important is family, friend*s and leisure time. These things make us happy. However, in real life, this is not the case. We tire ourselves to work and since we are already tired, our only leisure is to watch television and 'shop.' Then, we work again to pay for what we shopped. This never-ending process makes us unhappy* and tired. It is draining the life out of us."

Student 24, 2017's reflection resonated mostly from self-efficacy. He stated that:

> "The video directly explains everythi*ng what's really happening in the business sector. From the unearthing of every gadget's raw materials, to the factory, to the designs, intentional life span designs, to the consumer, to disposal, to shipping, to the merging countries for disposal. Everything is very well explained. This is where also I realized that buying gadgets of inferior quality makes me one of the culprits in the destruction of the mother earth."*

Furthermore, this study found a striking viewpoint that has not yet found mass appeal in the country. Research participants shared a common newfound desire to begin getting rid of or minimize plastics in their food consumption (like plastic water bottles) and personal care products, with the hope of totally ending their use of plastics someday. This came with the realization that

they, as students and professionals, are in a position to make a contribution to finding viable solutions to the immense plastics problem. Through personal integrity, professional competence, and strong media literacy, there was a perception that there is a role for them for protecting the environment by helping to discern anti-environment information and actions and to mobilize positive actions within their social networks.

Although many environmental advocacy organizations exist in the Philippines, dubious members of these groups are rarely scrutinized before and during their membership for their hidden agenda behind so-called "corporate social responsibility" (CSR) campaigns to lessen pollution. While they propose seemingly safer habits such as drinking from plastic bottled water, a few may actually be benefiting from this new income stream and worsening the worldwide pollution problem.

Quality Assessment

The particular Home Quiz mentioned is an important kind of assessment in terms of quality assurance (QA) for the course. As there are already formative, interim and summative types of assessment in the course, the Home Quiz assures that the offering is complete. Assessment is not limited to a tool for measuring student's know-how, but as an ongoing exchange between teacher and student in the wider scope of the learning process. Having a wide menu of assessment types allows students to be holistically evaluated. It minimizes unnecessary penalizing of students whose strengths may not be in the 1-2 teacher-preferred assessments. Through the Home Quiz, students are given a chance to speak from their own viewpoint, deconstruct and reconstruct environmental issues in the way that is meaningful to them. To ensure that this strategy is implemented effectively, there is a Discussion Forum solely dedicated to it.

Conclusion

Graduate students of environmental management are at the forefront of successful planning, implementation, and evaluation of future-friendly environmental advocacies such as resolving the world-wide plastic problem. However, they must be given opportunities and spaces for reflexivity. This puts the online students of a graduate ecology course in a unique position that allows them to make critical reflections and come up with practical solutions since they are situated in various locations and exposed to various situations. This study analyzed the reflections and ideation of the ENRM 223 students about the plastic pollution-solution issue. This study also examined how reflexive practice can bring out ideas and possible strategies and practical actions for environmental advocacy. Ecosystem structure and dynamics should not be limited to dialogues about ecology and biology, but include the sociology and psychology of various stakeholders involved. Critical reflections of research participants in this study showed that many of them learned about this trap of inauthentic advocates only for the first time.

Mainstreaming environmental advocacy entails effectively embedding it in online courses. Audio-visual advocacy materials have consistently shown better learning outcomes than mere print materials due to their multi-sensory dynamics. Through a reflective-reflexive online course requirement, deconstruction of false information about the plastic problem-plastic solution issue was addressed. Ideation is a good starting point for personal action plans of students, and its ripple effect extends beyond what the instructor aimed for. Thus, quality assurance is promoted and expanded.

Recommendations

Based on the findings, this study recommends the following quality assurance assessment requirements of online environmental courses. First, it is suggested that a mix of individual and contextual factors of ideation be identified. This pertains to those that best address the need for demystifying multi-layered media paraphernalia of public relations departments of giant business enterprises. This will involve psychological and sociological approaches in ideation deconstruction, construction, and reconstruction.

Second, tightening the link in strategic environmental advocacy planning, program design, and program implementation is proposed in order to achieve long-term sustainable environmental outcomes in online courses.

Third and most importantly, the most significant recommendation that can be gleaned from this study is the call for a 21st century approach to environmental advocacy in teaching and learning. Environmental advocacy, as summed up in United Nations Environment Assembly (UNEA)'s mission, is the provision of leadership and encouragement of partnership in taking care of the environment by "inspiring, informing, and enabling nations and peoples to improve their quality of life without compromising that of future generations" ("U.S. Legal", 2017). UNEA is the world's highest-level decision-making body focused on the environment. Last May 23-27, 2016, UNEA's 2nd Session came up with 24 resolutions on critical environmental issues faced by the planet at present, which includes a resolve to deliver the 2030 Agenda for Sustainable Development ("U.S. Legal", 2017). The 2030 Agenda acts as a paradigm shift from unsustainable economic profit models to equitable economies. It promotes increased public participation in making decisions, consistent with the Rio Declaration on Environment and Development - Principle 10.

Traditional top-down approaches in environmental advocacy rely heavily on experts who are expected to do most of the planning and implementing. On the contrary, bottom-up approaches begin at the individual level, where meaning-making and action-taking is made personally relevant to non-experts. The slogan, "the personal is political," (popularized by second wave feminism of the 1960s) underscores the link between personal experience and bigger socio-political structures.

Furthermore, it would be helpful if there is a systematic intervention evaluation of assessments, and a strategy verification of the teaching-learning process when it comes to personalized environmental advocacy among online graduate students. Doing this will aid in authentic internalization of environmental principles and assured hands-on practice of sustainable day-to-day habits. Instilling this kind of paradigm among graduate students will foster in them the same kind of groundedness when it comes to applying ecological policies in their fieldwork with different strata of society.

Consequently, creativity plays an important role in conducting environmental advocacy in online courses. Convergent thinking alone tries to resolve environmental problems using a singularly identified correct solution or "answer." Its opposite, divergent thinking, solves problems using a wide variety of possibilities. Creativity is the inspiration behind divergent thinking which leads to fresh, original, unique, and effective solutions to environmental problems like those arising from the improper disposal and accumulation of plastics from large-scale production and consumption of bottled water.

References

Austin, E. W, Chen, Y.C., Pinkleton, B.E., Quintero, J. J. (2006). Benefits and Costs of Channel One in a Middle School Setting and the Role of Media-Literacy Training. *Pediatrics, 117*(3). doi:10.1542/peds.2005-0953.

Babalola, S., John, N., Ajao, B., & Speizer, I. (2015). Ideation and intention to use contraceptives in Kenya and Nigeria. *Demographic Research, 33*, 211-238. doi:10.4054/demres.2015.33.8.

Baker, F. W. (2016). *Media literacy in the K-12 classroom*. Retrieved from http://frankwbaker.com/?page_id=7910.

Carrus, G., Passafaro, P. & Bonnes, M. (2008). Emotions, habits and rational choices in ecological behaviours: the case of recycling and use of public transportation. *Journal of Environmental Pscyhology, 28*(1): 51-62. https://doi.org/10.1016/j.jenvp.2007.09.003.

Chow, L. (2015). *These 5 Countries Account for 60% of Plastic Pollution in Oceans.* Retrieved from https://www.ecowatch.com/these-5-countries-account-for-60-of-plastic-pollution-in-oceans-1882107531.html.

Cooper, D. and Ternes, B. (2016). *Neoliberalism, Social Movements, and Climate Change: Global Civil Society's Role in Emerging Environmentalism.* Paper presented at the Annual Meeting of the American Sociological Association Annual Meeting, Washington State Convention Center, Seattle. 2017-11-01.

Duran, R. L., Yousman, B. , Walsh, K. M. , and Longshore, M. A. (2008). Holistic media education: An assessment of the effectiveness of a college course in media literacy. *Communication Quarterly, 56* (1), 49-68. doi: https://doi.org/10.1080/01463370701839198.

Geyer, R., Jambeck, J., Law, K.L. (2017). Production, use and fate of all plastics ever made. *Science Advances*, *3*(7). doi: 10.1126/sciadv.1700782.

Hosseini, S. A. H. H. (2012). Theorizing Social Ideation: Beyond the divide between Humanities and Social Sciences. *The International Journal of the Humanities, 9*(5), 53-68. Available at SSRN: https://ssrn.com/abstract=2015482.

Jacobsen, E., & Dulsrud, A. (2007). Will Consumers Save The World? The Framing of Political Consumerism. *Journal of Agricultural and Environmental Ethics, 20*(5), 469-482. doi:10.1007/s10806-007-9043-z.

Jambeck, J., Hardesty, B. D., Brooks, A. L., Friend, T., Teleki, K., Fabres, J., et al. (2017). Challenges emerging solutions to the land-based plastic waste. *Africa. Mar. Policy.* doi: 10.1016/j.marpol.2017.10.041.

Jambeck, J. R., Geyer, R., Wilcox, C., Siegler, T. R., Perryman, M., Andrady, A., Law, K. L. (2015). Marine pollution. Plastic waste inputs from land into the ocean. *Science*, *347*(6223), 768-771. doi:10.1126/science.1260352.

Janesick, V. (2004). **"Stretching" Exercises for Qualitative Research**. 2nd Ed. California: Sage Publications.

Kincaid, D. L. (2000). Mass Media, Ideation, and Behavior. *Communication Research*, *27*(6), 723-763. doi:10.1177/009365000027006003.

Klundert, A. V., & Anschütz, J. (2001). **Integrated sustainable waste management: The concept**. Gouda: WASTE.

Kollmann, T. and Lomberg, C. (2014) Chapter 3 Emotional Regulation and Ideation (2014), in Zerbe, W. J., Ashkanasy, N. M., Härtel, C. E. J. (eds.) **Individual Sources, Dynamics, and Expressions of Emotion (Research on Emotion and Organizations).** (1st ed). Individual Resources, Dynamics, and Expressions of Emotion (Research on Emotion in Organizations, volume 9) UK: Emerald Group Publishing Limited.

Kott, A. (2016). Using Ideation to Predict Behavior Change and Prevent Malaria's Spread. Retrieved from https://ccp.jhu.edu/2016/04/25/using-ideation-to-predict-behavior-change-and-prevent-malarias-spread/.

Kupersmidt, J. B., Scull, T. M., & Austin, E. W. (2010). Media Literacy Education for Elementary School Substance Use Prevention: Study of Media Detective. *Pediatrics, 126*(3), 525-531. doi:10.1542/peds.2010-0068.

Lewis, J. (2013). **Beyond Consumer Capitalism: Media and the Limits to Imagination.** Cambridge, UK: Polity Press.

Lewis, J., and S. Jhally. (1998). The struggle over media literacy. *The Journal of Communication, 48* (1), 109-120. doi: 10.1111/j.1460-2466.1998.tb02741.x.

Lim, S. S., and Nekmat, E. (2008). Learning through 'prosuming': Insights from media literacy programmes in Asia. *Science Technology & Society, 13*(2), 259-278. https://doi.org/10.1177/097172180801300205.

Martens, H. (2010). In Evaluating Media Literacy Education: Concepts, Theories and Future Directions. *Journal of Media Literacy Education, 2*(1), 1-22. Available at http://digitalcommons.uri.edu/cgi/viewcontent.cgi?article=1023&context=jmle.

Miller, L., Soulliere, K., Sawyer-Beaulieu, S., Tseng S., and Tam, E. (2014). Challenges and Alternatives fo Plastics Recyling in the Automotive Sector. *Materials (Basel), 7*(8) 5883-5902. doi:10.3390/ma7085883.

NAMLE. (2007). *Key Questions to Ask when Analyzing Media Messages.* [Pamphlet]. Retrieved from www.namle.net/coreprinciples.

Porta, D., Milani, S., Lazzarino, A. I., Perucci, C. A., & Forastiere, F. (2009). Systematic review of epidemiological studies on health effects associated with management of solid waste. *Environmental Health, 8*(60). doi:10.1186/1476-069x-8-60.

Potsiou, C., Doytsher, Y., Kelly, P., Khouri, R., McLaren, R., & Mueller, H. (2010). Rapid Urbanization and Mega Cities: The Need for Spatial Information Management. *International Federation of Surveyors (FIG), 48*. Retrieved from http://www.fig.net/resources/publications/figpub/pub48/figpub48.pdf.

Potter, W. J. (2004). **Theory of media literacy: A cognitive approach**. Thousand Oaks, Ca.: Sage.

Problem and Solution. (2017). Retrieved from https://paperwaterbottle.com/problem-solution/.

Rochman C.M., Browne M.A., Halpern B., Hentschel B.T., Hoh E., Karapanagioti, H.K., Rios, L.M., Takada, H., Teh, S., Thompson, R.C. (2013). Policy: Classify plastic waste as hazardous. *Nature, 494*(7436), 169–171. doi: 10.1038/494169a.

Rosenbaum, J. E., Beentjes, J. W., & Konig, R. P. (2008). Mapping media literacy: Key concepts and future directions. *Communication Yearbook*, *32*, 312-353. doi:https://doi.org/10.1080/23808985.2008.11679081.

Sramova, B. (2014). Media Literacy and Marketing Consumerism Focused on Children. *Procedia - Social and Behavioral Sciences, 141*. doi: 10.1016/j.sbspro.2014.05.172.

Sy-Changco, J. A., Pornpitakpan, C., Singh, R., & Bonilla, C. M. (2011). Managerial insights into sachet marketing strategies and popularity in the Philippines. *Asia Pacific Journal of Marketing and Logistics, 23*(5), 755-772. doi:10.1108/13555851111183129.

Thackeray, R. (2010). Empowering Youth: Use of Technology in Advocacy to Affect Social Change. *Journal of Computer-Mediated Communication*, *15*(4), 575–591. doi.org/10.1111/j.1083-6101.2009.01503.x.

Tibbetts, J. H. (2015). Managing Marine Plastic Pollution: Policy Initiatives to Address Wayward Waste. *Environmental Health Perspectives*, *123*(4), A90-A93. doi:10.1289/ehp.123-A90.

Total Population by Country. (2015). Retrieved from http://worldpopulationreview.com/countries/.

Ulaş, A. H., Epçaçan, C., & Koçak, B. (2012). The Concept Of "Media Literacy" And An Evaluation On The Necessity Of Media Literacy Education In Creating Awareness Towards Turkish Language. *Procedia - Social and Behavioral Sciences, 31*,376-382. doi:10.1016/j.sbspro.2011.12.070.

United Nations Environment Assembly of UNEP. (2017). Retrieved from https://sustainabledevelopment.un.org/index.php?page=view&type=30022&nr=243&men.

US Legal (2017). Retrieved from https://definitions.uslegal.com/u/united-nations-environment-programme/.

Veblen, T., & Hobson, J. A. (2004). **Veblen and the theory of the leisure class**. London: Routledge/Thoemmes.

Visser, F. S. & Kouprie, M., (2009). A framework for empathy in design: Stepping into and out of the users life. *Journal of Engineering Design, 20*(5), 437-448. doi:10.1080/09544820902875033.

Wendling, Z., Emerson, J., & Esty, D., & Levy, M.A., de Sherbinin, A. (2018). *2018 Environmental Performance Index (EPI)*. doi: 10.13140/RG.2.2.34995.12328.

What is Ideation? (2018). Retrieved from August 6, 2018, from https://www.fusingcreativity.com/ideation/what-is-ideation/.

World Population Review (2018). Retrieved from http://worldpopulationreview.com/.

Wright, E. O., & Rogers, J. (2015). **American society: How it really works**. New York, NY: Norton.

Yukalang, N., Clarke, B., & Ross, K. (2017). Barriers to Effective Municipal Solid Waste Management in a Rapidly Urbanizing Area in Thailand. *International Journal of Environmental Research and Public Health,14*(9), 1013. doi:10.3390/ijerph14091013.