How Plastic is our Plastic Culture?
Reducing our Consumption of Single-Use Plastics
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2023 Anthropology Capstone Reader
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On February 6, 2019, it was Green Day at UNBC. The halls were lined with information booths explaining water use on campus and local vendors sold their locally produced goods. The purpose of this event was to bring student awareness to all of the green initiatives taking place around campus and to encourage students to participate. I thought that it would be a good place to observe student interactions with single-use plastics. Even though it was Green Day, plastic commodities were not hard to find. Many vendors handed out samples in tiny plastic cups, accompanied by tiny plastic spoons. Of course, these foods were at least locally produced and Green Day only happens once a year. I was more interested in the everyday habits of students and their interactions with single-use plastics. There is one location on campus where single-use plastics are readily available on any given day: Tim Hortons.

At 9:40am I sat outside the Tim Horton's on campus to take field notes, with the goal of counting disposable cup use against reusable cup use. I had seen posters promoting the use of reusable mugs on Green Day. One such poster was taped to a concrete pillar next to the cash register. The poster advertised that vendors were giving out free coffee to people with reusable mugs and that Tim Hortons was hosting a prize draw for people who brought their own mugs. I hypothesized that with such high incentives, I would likely see a significant number of students bring their own mugs — this was not the case.

I sat at my rickety wooden table for 20 minutes watching student after student walk away with a disposable coffee cup. During the time I observed the line, only five individuals brought their own mug while 31 others took their double doubles in plastic lined paper to go. The next day, Tim Hortons annual Roll-up-the-Rim campaign began across the country. During this campaign, thousands of Canadians will purchase Tim Hortons hot beverages in disposable cups

with the hopes that one of those cups may win them a Jeep Compass, or at the very least, another cup of coffee.

While my twenty-minute study of disposable cup use is not scientific, it illustrates an important point: On *Green Day*, at the *Green University*, only a handful of students opted out of single-use plastics, even though significant incentives existed for doing so. The very next day, the Roll-Up-the-Rim campaign began encouraging consumers to purchase single-use plastics in excess. It is for this reason that I think our culture of single-use plastics requires further examination.

Our deep attachment to plastics exists within a complex set of relationships between manufacturers, consumers, markets, and environmental forces. In this paper, I question the reasons behind these relationships and seek to discover why we have become so attached to plastics, and why it is so hard to break this attachment. The effects of plastics extend far beyond the issue of litter, but relate to our construction of identity and our sense of social justice. In this paper, I will argue that plastic is reflective of who we are, and also reflective of the global inequalities we have created and is thus an important social justice issue. I will employ the theory of political ecology to analyze the consumption of single-use plastics within industrialized countries and to untangle these complex relationships. This theory will highlight the influence of finance and power and help to unravel the role of industry and institutions in the seemingly agential decisions we make as consumers. I will then discuss why the plastics problem is so pressing, and why we need to change our culture of single-use plastics. The issue of single-use plastics has widespread global effects, and thus solving the plastics problem is a matter of social justice. I will then apply a political ecological framework to argue that single-use plastics are an

integral part of consumer culture, and lie at the core of our identity as a society. Finally, I will turn to the question of how and if our plastic culture is capable of changing.

THEORY: POLITICAL ECOLOGY

Paul Robbins defines political ecology as "a field that seeks to unravel the political forces at work in environmental access, management, and transformation" (Robbins 2012:3). Put simply, political ecology examines the systems of power which influence the way we perceive and construct our environment. Robbins further explains that this holistic approach includes recognizing that people are part of the environment (Robbins 2012:12-13). Although we have constructed a vision of humans as being separate from our environment, humans do exist within this environment in the physical world. We depend upon our environment for resources like food, shelter, and water like any other organism. Our environment determines the physical limitations of our existence. While our environment influences us, we also influence our environment. We can construct buildings and houses to create our own environments, change the course of rivers, and tunnel through mountains. We can affect the physical and chemical formation of the environment which surrounds us. Humans are inextricably intertwined with their environment and each symbiotically affects the other. Political ecology recognizes this connection between humans and the environment (Robbins 2012:12-13).

Of course, where there are humans there are relations of power. Human interactions are characterized by inequality and power dynamics. The same systems of power which govern our interpersonal relationships also govern our interactions with our environment. One of the goals of political ecology is to understand how environments function within systems of power (Robbins 2012:13). Operating within these systems of power, even small-scale actions can have

global impact (Robbins 2012:13). To illustrate this point, I will return to our earlier mentioned antagonist, a Tim Hortons Roll-Up-the-Rim cup. Imagine that you have just purchased a cup of coffee at our campus Tim Hortons. When you have finished your coffee, you roll the paper rim up to reveal that you have once again lost the Tim Hortons game — Please Play Again. You deposit your spent cup in one of the helpfully labelled recycling bins on campus and your cup begins a journey of its own. From the recycling bin, the cup is collected with other recyclable materials and put on a truck. Perhaps your cup makes its way to a recycling facility. Or, if the shipment is found to be too contaminated to be recycled, your cup may find its way to an ocean barge and be shipped across the Pacific Ocean to Malaysia where it is illegally burned in an open garbage heap — this is the true fate of some "recycled" materials in Canada (Chung 2018; Sadler 2019: 5:55). A report commissioned by the Canadian Plastics Industry Association estimates that in 2016 12% of post-consumer plastic materials, or 39 million kilograms, were sold to overseas markets (More Recycling 2018:4). Once materials are overseas, it is much more difficult to know what happens to these materials.

While appalling from an environmental standpoint, our small Tim Hortons cup illustrates an important point about how something as small and insignificant as a single disposable cup can have an impact on a global scale. The cup is manufactured by Canada's favourite coffee shop, Tim Hortons, and passes from storefront to consumer and then through a series of other systems of power: recycling collectors, transportation companies, and illegal dumping grounds. While a cup of coffee purchased on a university campus may seem to have a very localized effect, the reality is that this cup will pass through a number of other organizations and travel globally before reaching its final destination. Political ecology recognizes that even small-scale decisions have global impact (Robbins 2012:13).

Each of the features of political ecology described here contribute to the holistic nature of political ecology. By studying each of these components, one can construct a more detailed and complete image of an issue. Furthermore, the goal of political ecology is to find *causes*, not *symptoms* (Robbins 2012:20). Put simply, political ecology is about not just describing social issues, but investigating *why* things are the way they are. By describing each of the above-mentioned components, one can begin to get to the root of the problem. By utilizing an holistic, political ecological framework in this paper, I seek to investigate our use of single-use plastics to not only describe how we use them, but *why* we use them.

THE PRODUCTION AND CONSUMPTION OF SINGLE-USE PLASTICS

The production and consumption of single-use plastics has steadily increased over recent years. A large portion of our single-use plastics stems from the food industry. The market share of single-use plastics by the food industry has increased greatly in recent times (Saint-Pierre 1998:9). One only has to visit the local supermarket to see how pervasive the use of plastic packaging by the food industry has become.

The consumption of single-use plastic packaging is not distributed equally throughout the world. Industrialized countries consume far higher quantities of plastic packaging, as higher income is associated with increased waste production (Gwada et al. 2019:83-84). A report from the Central Pollution Control Board of India in 1998 estimated that per capita plastic consumption rates were 3.8 kg per person in India, 10 kg per person in China, and 40-60 kg of waste per person in industrialized, Western countries (Gill 2012:12). Individuals in developing countries are far more likely to re-use old plastic containers for storage, and are also more likely to repair broken plastics (Gill 2012:15; Gwada et al. 2019:89). The re-use and repair practices in

developing countries contributes to the greatly reduced consumption of plastics, and also allows for increased rates of recycling. It is estimated that between 60-80% of post-consumer plastic waste is recycled in India, making it one of the highest plastic recyclers in the world (Gill 2012:13). While the developing world may have a much larger population than the industrialized world, the plastic problem is created and perpetuated by the wealthiest, industrialized countries of the world.

Why is Plastics Consumption a Problem?

The high consumption of plastic by industrialized countries is an important issue because of the specific qualities of plastic. Plastic is incredibly difficult to recycle because of its compositional complexity and cannot be recycled if it has been contaminated with other materials (Thoden van Velzen et al. 2017:1). The contamination of plastic is a particular problem as one of the largest consumers of plastic packaging is the food industry (Saint-Pierre 1998:9). As a result, many of the plastic packages that we consume every day cannot be recycled.

In Canada, only 11% of plastics are recycled. Even if plastic packaging is placed in municipally provided recycling bins, it may not be recycled because of contamination. A single dollop of leftover food in a container can contaminate an entire shipment and result in the recyclable materials being dumped in a landfill (Chung 2018). In addition, some of our plastic waste is shipped overseas and illegally dumped in developing countries (Sadler 2019). This has a number of social and environmental global impacts.

Positive Social Impacts of Plastic

The plastics industry is tremendously successful, generating $300 billion a year in sales (Freinkel 2011:7-8). As plastics are so economically successful, the manufacturing of plastics provides many jobs to people globally. The material qualities of plastic also provide substantial benefit to society. Plastic materials make possible dentures or joint replacements and help people to regain mobility, and increase range of motion (Freinkel 2011:81-85; Andrady and Neal 2009:1980). There is no question that plastic materials used in medicine are important and beneficial to society. But what are the implications of the plastic packaging which surrounds the products we purchase every day? Does plastic packaging itself have any benefits?

Some scholars argue that plastic packaging is a marvel of modern engineering which contributes to a more efficient and less wasteful society. Because plastic materials are so light-weight they only account for a tiny fraction of the total weight of the product being packaged. This means plastic is often a more efficient method of packaging than other materials. In addition, the reduced weight of the packaged product means that less fuel is consumed during transport of the product. Thus, plastic packaging, although produced from fossil fuels, reduces fossil fuel emissions during the process of transport compared to other, heavier types of packaging (Andrady and Neal 2009:1981-1982). It is also worth noting that disposable plastic products such as our previously mentioned Roll-Up-the-Rim cup take significantly less energy to produce than reusable options such as ceramic mugs. A ceramic mug, which uses additional energy over its lifespan because it needs to be washed, will need to be used hundreds of times to offset the energy cost of producing it (Andrady and Neal 2009:1981). Finally, plastic packaging materials are beneficial because they store energy which can be reclaimed through recycling and

incineration (Andrady and Neal 2009:1982). Plastic packaging offers many benefits in terms of energy efficiency compared to other packaging materials.

However, I argue that Andrady and Neal's (2009) argument is too focused on the quantitative data concerning energy consumption. Andrady and Neal (2009) fail to examine the issue of plastics holistically and how plastic packaging affects the world on a broader scale. Just because plastic packaging may seem more energy efficient on paper does not mean that it is the best option for packaging consumer goods as there are other factors to take into account. Remembering Robbin's (2012:13) assertion that local actions have global consequences, I will now investigate the negative impacts of plastic packaging to provide a more holistic image of the plastic problem.

Environmental Impacts of Plastic

The dumping of plastics in landfills and open waste dumps is hazardous to the environment. Plastics are non-degradable and can take hundreds of years to decompose. The durability and longevity which makes plastic useful also makes it dangerous to the environment (Ryan et al. 2009:1999). Because plastics do not degrade, they continue to take up space in landfills and persist as pollution in the open environment. Even so called "biodegradable" plastics are a problem, as these plastics break down into microplastics (Ryan et al. 2009:1999).

Plastic waste pollution can be found everywhere on the planet, but is a particular concern in aquatic environments. Because plastic is so lightweight, it easily floats on water and can be transported great distances from its original deposition point. As a result, plastic congregates in massive waste "sinks" in the world's oceans (Ryan et al. 2009:2000). A recent estimate places the size of the "Great Pacific Garbage Patch," a debris field of floating plastic in the middle of

the Pacific Ocean, at 1.6 million km^2. The size of the garbage patch is rapidly increasing (Lebreton et al. 2018). The Great Pacific Garbage Patch nearly covers the same area of the Earth as the Province of Québec.

Aside from the aesthetic impacts of massive islands of garbage, plastic litter in the natural environment can be directly hazardous to the health of wildlife. Sea birds and other animals have been observed to ingest pieces of plastic debris with increasing regularity since the 1960s. The ingestion of plastic by animals is a problem because it can block the digestive tract of the animal, causing illness or even death. Animals can also become entangled in plastic debris (Gregory 2009:2014-2016).

Plastic waste can also be hazardous to wildlife in a number of more discrete ways by affecting the chemistry of marine environments. There is concern over pieces of plastic film which sink and cover the ocean floor in a layer of plastic sheeting. This can interfere with gas exchange and create a hypoxic environment underneath the plastic, effectively smothering the organisms which live under the plastic on the ocean floor (Gregory 2009:2017). In addition, various chemical additives found within plastic wastes can leach into the water. There is research to suggest that these additives affect the reproduction and development of aquatic organisms (Oehlmann et al. 2009:2057).

Plastic pollution affects the environment and the health of wildlife in a number of ways. However, recalling Robbins' (2012:12-13) assertion that humans are a part of the environment, it follows that impacts to wildlife and the environment also impact humans. It is easy to imagine that the decreasing health of wildlife would impact people who depend on wildlife for subsistence, but we must also remember that we breathe the same air and drink the same water as other animals. Affects to wildlife health do not just impact the people who consume the wildlife,

but affect human populations as a whole. For the purpose of this paper, I have separated the environmental impacts of plastic from the social impacts of plastic. However, it is important to note that these categories necessarily affect one another.

Negative Social Impacts of Plastic

Many of the negative socio-economic impacts of plastic relate to the polluting nature of plastic waste. Gwada et al. (2019) argue that plastic waste has negative effects on economic activities in areas dependent on tourism-generated income. In places where the "pristine" wilderness draws in tourists, the pollution of that place with plastic waste poses a risk to the attraction of tourists (Gwada et al. 2019:84-85). Few tourists wish to spend thousands of dollars to travel to white sandy beaches covered in plastic shopping bags. If a location becomes so polluted with plastic waste that tourists no longer go there, this can have a negative impact on the generation of tourist-based revenue and by extension, the communities which depend on this revenue (Gwada et al. 2019). Thus, plastic waste pollution can have profound negative impacts not just to local environments but also to local economies.

In addition, plastics and plastic waste pollution can also have negative effects to the health of local populations. While plastic itself is inert, there are a number of chemicals added to plastics called plasticizers which pose risks to human health. Plasticizers such as phthalates and bisphenol A (BPA) are added to plastics to make brittle plastics more flexible. However, these chemicals are also endocrine disruptors and can interfere with the reproductive systems of both men and women. Plasticizers have been associated with increased risk of testicular, prostate, and other reproductive cancers, impaired ovarian function, recurring miscarriages, decreased production of sex hormones, increased adiposity, and insulin resistance (Meeker et al.

2009:2097-2108; Rustagi et al. 2011:100). As a result, the use of phthalates in consumer products has been restricted by government agencies in Australia, Canada, the United States, and the European Union (Rustagi et al. 2011:100). However, the presence of plasticizers is still widespread throughout the environment (Meeker et al. 2009:2107). People can be exposed to plasticizers through contact with consumer products, including through food containers. Plastic bottles made from polyethylene terephthalate (PET) can leach phthalates into the contents of the container, which is then ingested by consumers. Products which have a low pH, such as vinegar or pop, are particularly vulnerable to the leaching of phthalates. Higher temperatures also contribute to phthalate leaching (Rustagi et al. 2011:100-101). The plastic packaging which encases our food could have negative impacts to our health.

Ambivalent Social Impacts of Plastic

A more complex, ambivalent relationship between humans and plastic exists in developing countries where waste picking has become an important economic activity. In developing countries such as India, many individuals take part in and depend on work in the informal sector as waste recyclers (Gill 2012:2). The effects of plastic pollution have an uncertain and ambivalent relationship with these plastics workers. On the one hand, the work of these individuals provides a much-needed service that underfunded municipal governmental structures are unable to organize. These workers divert plastics from landfills and move them back into the global supply chain, helping to decrease plastic pollution while simultaneously benefitting the economy (Gill 2012:2) Informal waste recycling is also beneficial to the waste pickers themselves, as it provides an opportunity for employment that is more desirable and profitable than other forms of informal sector work. Informal sector recycling also provides

workers independence and the ability to exert agency and participate in global markets (Gill 2012:26-28).

However, this work can be incredibly dangerous. Profitable informal sector work only exists and thrives in locales where no welfare or social security exists. Thus, waste picking is undertaken by some of the most vulnerable individuals in society. Furthermore, there is often stigma attached to work in informal recycling and other jobs associated with waste management. This has the effect of further marginalizing individuals who work as waste pickers (Gill 2012:26-28). Beyond the lack of social security provided by waste recycling, it can also be physically dangerous to the health of workers. Work in the informal sector is not regulated, and thus measures to protect workers from hazards do not exist. Workers who melt materials for extraction can be exposed to chemical fumes with no protection (Robbins 2012:1-2).

The informal recycling of plastics by workers in the developing world is a complex and multifaceted issue. While many individuals depend on informal work and this work does have positive impacts, that does not absolve the informal recycling industry of exploitation. It is important to remember that due to political forces, illegal dumping grounds are generally located in developing countries near vulnerable populations (Gwada et al. 2019:84). Although most of the plastic waste in the world is produced by industrialized countries, the problem of plastic waste and pollution disproportionately affects impoverished populations in developing countries.

Weighing the Evidence - Are Plastics a Problem?

I would like to briefly return to Andrady and Neal's (2009) assertion that plastic packaging is beneficial to society because it is more energy efficient to produce than other forms of packaging. While energy efficiency is an important quality of plastics, energy efficiency alone

does not define their entire cost. I think it is necessary to incorporate a more qualitative approach to evaluate the implications of plastic on a global scale. The true cost of plastic packaging does not end with a mere calculation of the cost of the raw materials and the energy required for production. The true cost of plastic packaging must be continually measured by assessing the impact of plastic to the consumer's reproductive health, the impact of plastic to the health, safety, and economic well-being of waste pickers in the developing world, the impact of plastic to wildlife and the environment, and the impact of plastic to tourism and other industries. Each of these impacts and others must be taken into account when calculating the true cost of single-use plastic packaging.

The issue of plastic packaging ultimately raises the question for those of us in the industrialized world: is it ethical for us to produce and consume astronomical amounts of plastic waste, only to ship this waste to the developing world to be "dealt with" by vulnerable, impoverished populations of people? Is this the kind of world we wish to perpetuate, where the mess of western consumers is left to be cleaned up by stigmatized workers on the other side of the planet? If we wish to create an ethical and equal world, our waste management practices must become more responsible and sustainable. Given that plastic is so difficult to recycle, the plastic waste problem can only be effectively dealt with through the reduction and eventual elimination of single-use plastic.

We have known about the problems with plastic for quite some time now. Yet here we are into the 2020s, and the problem of plastic waste has only grown. How have we come to be so dependent on plastics, and why is it so difficult for us to change our ways? In the next sections, I seek to answer these questions and to propose solutions to the growing problem of plastic waste.

PLASTIC AND CONSUMER IDENTITY – WHY ARE WE SO DEPENDENT ON SINGLE-USE PLASTICS?

I argue that we have become so dependent upon single-use plastics as a result of both conscious and unconscious efforts which have ingrained plastics into Western consumer identity. To take a truly political ecological view of the subject, I will examine both the larger political forces and the smaller scale and local decisions which influence our plastic consumption.

Politics and Plastic

The petrochemical industry is perhaps one of the largest and most powerful industries in the world and is inextricably intertwined to our consumption of plastic. Plastics are composed of polymers which are derived from petrochemical byproducts. This gives plastic great economic viability to both petrochemical refineries who profit from their waste and plastic producers who purchase cheap, waste materials as raw materials (Freinkel 2011:6-7). Although only a very small percentage of the global oil supply goes into producing plastic, the production of plastic is still important to the petrochemical industry (Freinkel 2011:7) This is because plastic is immensely profitable. We each consume 300 pounds of plastic each year, generating $300 billion in sales (Freinkel 2011:7-8). Approximately one third of all plastic produced is plastic packaging, making packaging incredibly important to the plastic economy (Andrady and Neal 2009:1980).

While many industries use plastic packaging for the transport of their products, the food and beverage industries are particularly reliant on plastic packaging. The food and beverage industries hold the largest market share of plastic packaging within Canada. In fact, plastic container use has increased to become the most commonly used type of packaging within these

industries, overtaking metal and glass containers (Saint-Pierre 1998:7-9). Andrady and Neal (2009:1979) argue that plastic bottles will likely completely replace glass bottles in the coming years.

Another industry with a stake in our consumption of plastic is of course, the recycling industry. As has been discussed, many individuals in developing countries depend on informal work as waste pickers (Gill 2012). The recycling industry as a whole has pushed back against moves to decrease plastic use. In the late 1980s, the detrimental effects of plastic to the environment coupled with concerns over decreasing landfill space spurred a movement to reduce plastic waste and to develop degradable plastics. However, the move towards degradable plastics was criticized as the plastics recycling industry was just beginning to take hold. It was thought that creating degradable plastics would discourage individuals from recycling and harm the profitable recycling industry (Crawford 1988:411-412). With so many industries invested in plastic packaging it is easy to see why plastic packaging has been so ingrained into our everyday lives.

Consumer Culture and Plastic Identity

Plastic packaging waste is such a pervasive issue not just because of its widespread use, but because plastic has become a central component of consumer identity. Our relationship with plastics has developed in tandem with the development of new plastic materials over the course of the 20th century.

The production of plastic consumer goods became particularly popular after World War Two. Initially, the new and widespread use of plastics marked a transition into the age of modernity. Science publications extolled the wonders and versatility of plastics and the promise

these materials held for packaging. The new synthetic materials could be made clear so one could see the contents in a container, but could be made flexible or firm depending on packaging needs (Davis 1940; Davis 1941).

Over the latter half of the 20th century, public opinion concerning plastics swung back and forth from one extreme to the other. Plastic was hygienic and a symbol of the future, but it was also perceived as inauthentic. The ability of plastic to mimic other materials, coupled with its low production cost, landed plastic a reputation as cheap, fake, and merely imitative (Freinkel 2011:8-9; Meikle 1995:7-8). Today, Hawkins (2006:22) argues that plastic holds a dichotomous identity as simultaneously useful and destructive. While plastic's identity is complex and shifting, throughout its history it has been admired for its durability and disposability (Meikle 1995:189-190). It is this disposability which has become ingrained into consumer culture to be a part of consumer identity itself.

To understand how plastic packaging informs consumer identity, one must first understand the process through which waste forms identity. Hawkins (2006:2) explains that the term waste does not refer to a fixed category but to a set of relations in which we engage with ourselves, objects, and the environment which surrounds us. That is to say, defining what waste is requires ordering the world around us (Reno 2015:558). Let us take for example, our faithful Roll-Up-the-Rim cup. When you have finished your coffee and the cup has asked you to "Please play again," the cup becomes waste. The physical properties of the cup have not changed, only your relationship to the cup. The cup no longer serves a purpose to you and can thus be be discarded. The process of waste-making is not one of expending resources, but of changing your relationships to those resources.

By evaluating what is waste, one also evaluates what does not count as waste. While a losing Roll-Up-the-Rim cup is waste, a ceramic mug is not. Thus, the act of throwing out waste is a cultural performance because it signifies your relationship to an object, and consequently the value which you place in that object (Hawkins 2006:4; Reno 2015:559). By placing the Roll-Up-the-Rim cup into the garbage can, we signify that it has little value to us. By washing and carefully placing the ceramic mug back in our kitchen cupboard, we signify that it does have value to us.

This system of ordering the world does not just serve to separate waste from not waste, but also serves as a mechanism through which we construct our identities. As Reno (2015:558) puts, "waste is a mirror of humanity." The act of throwing out, by telling us which items we value and do not value, tells us more about ourselves than it does about waste. Creating a category of "waste" allows us a category which we can define ourselves against. Roll-Up-the-Rim cups belong in the trash can because they are dirty and worthless. People do not belong in the trash can because we are valued. Instead, people are the ones who get to put garbage in its proper place, far away from ourselves. The plastic walls of the garbage can create a physical barrier between your body and the cup, further separating the cup as diametrically opposed to your concept of self. Thus, people are not waste, but are defined by, and in opposition to, waste. Putting the cup into the garbage can signifies that the cup is not you, and that you are everything that the cup is not.

By placing waste into the category of "other," we define waste as disposable. It is the quality of disposability which makes waste morally and ethically insignificant (Hawkins 2006:29). We do not offer much thought to waste once we have "disposed" of it. This is a core component of our consumer identity. Our perception of waste as "disposable" feeds a mentality

which encourages consumption. As Hawkins (2006:viii) states, the freedom to consume allows us the freedom to waste. Our consumer culture and the need for all things to be new must consequently allow us to discard the "old" (Hawkins 2006:27). The problem of single-use plastics can be traced to the consumer need to constantly define against new products and old waste.

An example of how waste informs identity can be found in Machado-Borges (2017) examination of the performance of "middle class-ness" in Brazil. Machado-Borges (2017) observes that middle class Brazilians will attempt to limit the amount of time that they interact with waste on a daily basis. Machado-Borges (2017) connects this behaviour to patterns of consumption and the performance of middle class-ness. Amongst individuals in the middle class in Brazil, the consumption of goods is seen as a mark of affluence. By purchasing and consuming luxury goods, middle-class Brazilians can display their wealth while simultaneously distinguishing themselves from the working class (Machado-Borges 2017:303). In Brazil, waste is perceived as dirty and those who handle waste are perceived belonging to the working class. By extension, the correct disposal of waste is associated with being educated and belonging to the middle class (Machado-Borges 2017:307). Machado-Borges' (2017) study on waste serves as a perfect example to show how it is precisely through how we distance ourselves form waste that the waste comes to define who we are.

IS OUR PLASTIC CULTURE PLASTIC ENOUGH TO CHANGE?

In this section, I seek to examine if and how we can change our plastic culture to be more sustainable. In order to reduce our consumption of single-use plastic packaging, we must instead shift our focus to promoting more sustainable, pro-environmental behaviour. Some examples of

such behaviour include encouraging reusable cup and grocery bag use. After reviewing the literature and presenting a case study, I argue that changing our plastic culture is possible, but will require conscious effort at the individual level, aided by institutional and infrastructural support.

Promoting Reusable Cups - A Case Study

A recent study by Poortinga and Whitaker (2018) measured the number of reusable cups being used by customers in 12 cafe locations within the U.K. The purpose of the study was to determine if actively promoting reusable cup use affected the number of reusable cups being used. All of the cafes in the study used environmental messaging in the form of posters advertising reusable cups. Each individual cafe was then given the choice of which additional reusable cup promotion methods they wished to implement, including giving away free reusable cups to customers and providing various financial incentives for bringing one's own reusable cup. After recording reusable cup use at each location for a number of weeks, it was observed that reusable cup use increased at each location. The increase in reusable cup use was modest but significant (Poortinga and Whitaker 2018).

The study finds that the most successful methods of promoting reusable cup use are providing free reusable cups and also providing financial incentive to use these cups. However, the type of financial incentive being offered for bringing a reusable cup had a substantial impact on customer behaviour. Offering a discount for bringing one's own cup had no effect on reusable cup use, while charging additional money for the use of a disposable cup increased reusable cup use (Poortinga and Whitaker 2018:7).

While giving out reusable cups and providing financial incentives for cups were the most successful, all of the methods tested did have an impact on reusable cup use. Furthermore, each method had an additive effect when used in combination with other methods of promoting reusable cups. Put simply, while implementing one method increases reusable cup use, implementing all of the methods in a cafe location increased the reusable cup use even more (Poortinga and Whitaker 2018:7).

Perhaps one of the most important findings of this study is that the implementation of these methods did not decrease the hot drink sales at any of the cafe locations included in this study (Poortinga and Whitaker 2018:7). Not only were these methods successful in promoting more sustainable behaviour, but they did not cost business or profit to the locations which participated. This is an important point for future studies or for planning campaigns to promote sustainable behaviour. Overall, Poortinga and Whitaker (2018) show that simple and low-cost programming can increase reusable cup use, and that institutional changes and commitment are crucial to facilitating change in individual behaviour.

Institutional infrastructure plays an important role in promoting or discouraging pro-environmental behaviours. Many studies have been conducted on the effect of such infrastructure on recycling behaviours. These studies find that institutions, such as municipal waste collection systems, do influence individual behaviour. For example, one's proximity to a recycling centre, the design of recycling bins, and the efficiency and accessibility of recycling services all impact the likelihood that an individual will recycle (Byrne and O'Regan 2014:94; Andrews et al. 2013; Stoeva and Alriksson 2017:733). As discussed throughout this paper, institutions and political forces play a considerable role in influencing our daily lives, including our decisions regarding plastic packaging.

Individual and Social Influences to Sustainable Behaviour

At the local level, individual beliefs and social relations also play a part in influencing our environmental (or not environmental) behaviour. A number of psychological studies have examined the role of worldview and internally and externally motivating factors in influencing recycling behaviour. While many of the studies here are focused on recycling in particular, I postulate that many of the findings may extend to other pro-environmental behaviours, such as choosing a reusable cup over our much-maligned Roll-Up-the-Rim cup. A study by Huffman et al. (2014:268) finds that individuals who hold anthropocentric (or human-centric) worldviews are much less likely to recycle than individuals who hold non-anthropocentric worldviews. In fact, another study claims that the desire to contribute to a better environment is the strongest factor in determining whether an individual will recycle or not (Halvorsen 2012:21).

Personal perceptions concerning the efficacy of one's actions also influence individual behaviour. Some people will not recycle or engage in other pro-environmental behaviours because they view the process of creating sustainable change to be the responsibility of corporations (Huffman et al. 2014:269). Other studies have observed a kind of "recycling ceiling," wherein the act of recycling absolves you of any responsibility to engage in other pro-environmental behaviours (Thomas and Sharp 2013:17-18). People must believe that their action will have an impact in order to engage in a particular behaviour.

In addition to personal beliefs, social pressures and norms also influence the behaviour of individuals. One of the reasons that many of us recycle is because it has become a socially accepted norm. It makes us feel good about ourselves to recycle, and by extension, not recycling is seen as anti-social behaviour which makes us feel guilty (Halvorsen 2012:19; Thomas and

Sharp 2013:14). Social pressure to recycle is particularly important if an individual's personal beliefs, as discussed above, do not promote recycling (Huffman et al. 2014:268).

Changing Behaviour - Institutional or Individual Responsibility?

Encouraging more sustainable behaviour and reducing our consumption of single-use plastics is not an issue of pitting consumer responsibility against corporate responsibility. Changing our plastic culture requires change at both the institutional and individual levels. Individuals will only change their behaviour if alternative behaviours are supported and accessible (Poortinga and Whitaker 2017:7; Stoeve and Alriksson 2017:733). However, implementing institutional frameworks alone will not solve the plastic problem. Reducing our single-use plastic consumption will require more action than simply handing out reusable cups in cafes. A behaviour will only become habit if it is internally motivated (Thomas and Sharp 2013:15). Changing single-use plastic consumption requires changing the way we relate to waste, and therefore the restructuring of our own identities. This is a difficult process. Part of the reason that even recycling is looked upon with disdain by some is that it breaks our perception of waste as worthless garbage. The process of sorting through recycling forces us to handle our waste, thereby disrupting our ability to separate ourselves from waste. By re-evaluating waste as a potential resource, this changes the way we must identify ourselves. Introducing new waste management practices necessarily changes how we construct our identities (Hawkins 2006:35). There is also the problem that institutionally ordered change will always bring about resistance (Hawkins 2006:35). This has been observed in studies regarding recycling and identity, as individuals will construct their identity as non-recyclers, in direct opposition to the socially expected norm of recycling (Thomas and Sharp 2013:15). Therefore, both institutional and

individual changes of systems and behaviour are required to reduce our consumption of single-use plastics.

CONCLUSION

In this paper I have examined the holistic effects of single-use plastics at both local and global levels. My objective in writing this paper has been to highlight the complex nature of our relationship with plastics, and to go beyond the isolated description of social and environmental issues to provide a more clear picture of what is at stake. Our relationships with single-use plastics are complex, and have become integrated into our construction of consumer identity over the course of decades. While plastics serve useful and convenient functions in our daily lives, they also have much more ambivalent and negative impacts to wildlife, pollution, health, and global inequality. Thus, the issue of plastics is not just one of identity, but of social justice. Our consumption of single-use plastics is an unsustainable practice which will require intensive work to create institutional level changes to infrastructure and individual beliefs and practices. Future research should seek to identify the specific areas of institutional policy which would most efficiently provide sustainable solutions, such as implementing legislation to encourage manufacturers to reduce single-use plastic packaging in their products. Research should also be undertaken at the local level to assess individual perceptions of plastic-packaging and to identify barriers to sustainable use options. Through careful attention to the causes and holistic, interwoven complexities of single-use plastics, changing our culture to be more sustainable is possible.

ACKNOWLEDGEMENTS

I would like to thank each of the professors in the Department of Anthropology for guiding me through my undergraduate degree, and for encouraging me to inquire more deeply about the world around me. This paper would not have been possible without the solid foundation in anthropological thought which I have received over the course of my degree. In particular, I would like to express my gratitude to Dr. Angèle Smith for all of the time and support she has given me in developing the concepts within this paper. I would also like to thank each of my Capstone classmates for their input in developing this paper. I thoroughly enjoyed our discussions, and your feedback was of great help in refining my research topic. I would also like to thank the Capstone class for humouring me by drinking their coffee in reusable cups during class. Your conscious effort to engage in more environmentally-friendly behaviour does not go unnoticed, and I applaud you for helping to create a more sustainable world! Finally, I would like to thank the friends and family who have supported me over the last four years. Your kindness and encouraging words have played no small part in helping me to achieve my goals.

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