

Plastic Perception

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Introduction

Initial Thoughts

Plastic is currently seen as a problematic material. Its destroying our oceans, its killing wildlife and its leaving a permanent scar on our landscape. However, false martyrs can only be so useful in denying that an artificial material, that by definition, needs our hands to exist. We are the route of the problem and although in many ways that seems blatantly obvious, the blame is not put on the companies that use the material for: single use items, cheap overproduced products and many other damaging ways of making money in appealing to our demand to consume. The blame is instead shifted to a material that has such a valuable place in our society beyond the concept of consumerism. It can be an amazing tool in creating long lasting meaning and purposeful products. Coming in a range of colours and an amazing variety of properties across its types.

These are my initial thoughts, based on past research and work. I recognize my own bias, primarily against corporations and I plan to directly counter that with opinions from others and researching neutrally.

However, I understand that it is one thing to say this and another to accomplish it. I am looking to change my opinion, not remain in the same mindset. However, this is not my primary goal. I wish to compile information, both facts and opinions, to create an

overview of the perception of plastic overtime and in different mediums; to highlight the flaws that cause plastic's negative perception and discuss their meaning.

Plastic the Material

Plastic as defined by Oxford (2018),

A synthetic material made from a wide range of organic polymers such as polyethylene, PVC, nylon, etc. that can be moulded into shape while soft, and then set into a rigid or slightly elastic form.

Plastic in comparison to other materials has been around for a relatively short period of time. However, plastic is arguably the most important material of the modern world. Its uses are endless and are so wide spread, that the materials presence in our society is solidified for the coming future, despite its catastrophic effects on the environment.

Plastics use in early Jewelry and its popularity gained from its initial scarcity eventually led to its explosive popularity as a material. "1909 - Casein plastics, derived from milk, developed by Erinoid" (British Plastic Federation, 2013). The material, in different interactions, became part of our daily lives slowly. But, plastic's environmental effects, although not completely understood, were starting to show.

Early into the awakening of plastic's environmental effects, plastic was stated as "Rasputin of modern materials ... [that] stubbornly refuses to die" (Fenichell, 1996 p3).

The material, although growing out of its many fad applications, gradually stuck around. As its use spread, its environmental effects became an issue. Like a plague, plastic's disposability played on the disposable nature of our society and in many ways nurtured this mentality.

The way we handle all types of waste is a large issue. The lack of recycling and regulation is the crux of the matter. With plastic however, the issue is exponential because of one key factor: single use products. Tie this with the issue of plastic's lack of biodegradation and the world has issues like these. "It's possible that humans may be consuming anywhere from 39,000 to 52,000 microplastic particles a year." (Gibbens. 2019).

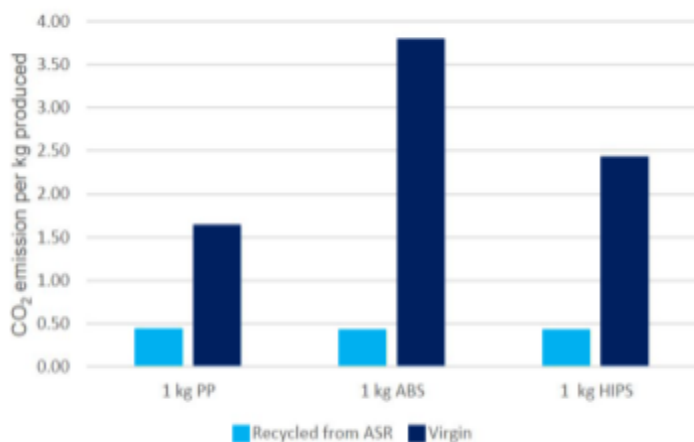


Fig 1:BPF

Plastic's effect per 1kg of virgin product at its maximum is 3.75kg of CO₂ (BPF, 2017).

However, in comparison to Plastic, aluminium produces closer to 7kg of

CO₂ per 1kg of virgin product (Hammond and Jones, 2008). Taking into account discrepancies like density and uses, aluminium is still much more damaging to produce than plastic. Plastic is still harmful to the environment in many ways other than production. However, this misinformation is not made clear when people report on

plastic. To argue this, plastic is produced on a slightly larger scale than aluminium. So yearly it is likely that plastic could match aluminium's production of CO₂ or even surpass it.

Plastic as a material has endless uses to me as a designer. Its versatility as a material makes it a top pick for a lot of my projects. When I started learning and practicing design, my opinion of plastic changed

from what I believed was the standard;

it's cheap, weak and bad for the

environment. I learned a lot about the

material and saw how it could and has

contributed to the success of many

products. For example its use in the

Apple G3. The transparency and range in

colour of the product is only made

possible with plastic. Although it is achievable with other materials like glass, plastic

facilitated its use on a wide market. The design is even credited with saving Apple. The

personalization made its appeal as a personal product and most certainly added to the

boom of home computers in the early 2000s.



Fig 2: Apple™

Rational

The goal of this work is to discover and discuss the reasons for plastic's current perception, what it means for the future of the material. From my own knowledge I have broken this task into three different chapters, each will be discussed in depth. At the end of this work I will draw upon my own reason and research to define plastic's perception and what is needed to change, as well as what is likely to change in the future. Each chapter is defined as follows:

Chapter 1; people, people's personal beliefs are a big part of plastics perception. Despite the issues of plastic being a much more complicated topic for most to fully grasp. The truth remains however, the majority decide perception. Not only this, people are also the reason for plastic's negative effects. Most people may disagree with plastic's overuse, but most people are the reason for it.

Chapter 2; Industry, the people in charge. The designers, manufactures and legislation that allow for plastic to be used in all its purposes. As the people who make the decisions they tend to get a large part of the blame from those who do a little research. However, industry is designed around meeting the needs of the people. Although single use should never have come about, it solved a massive issue within our society; adjusting to our exponential growth. However, industry contributes the massive majority of both waste and pollution. Also despite the dire situation and individuals

changing their way of life for the planet, industry operates majorly in the same way it has done the past 50 years.

Chapter 3; Media, 'voice of the people'. Most if not all media in the modern world is designed around viewer retention. The more viewers you have, the more of a voice you have. When it comes to news this should not be the case, people should listen to the information. News media should provide that information unbiasedly. However, this is not a perfect world and media uses narratives and misleading information which in the best of cases is to pander to an audience.

Chapter 1: People

In this chapter I will be discovering, and discussing the contribution that the general population have on plastic's negative representation. The impact of consumerism, popular opinion, contradiction with real data and an us vs them mentality. Any and all issues involving plastic come down to humans, the inventors. Questioning those who use it, and those who facilitate the use are where the answers to plastic's negative representation lie. I have conducted a survey in which I have covered people's understanding of plastic's perception and their view on it. Which will be used to gain a deeper understanding of these issues.

People tend to view plastic as a problem material which is an agreeable statement.

From the survey no one rated plastic's impact on the environment below a 7. People

who rated anything below a 10 worked in less social jobs such as IT or worked in

professions less

involved with plastic

such as carpentry. It's

important that the

connection be made

between an

understanding from social interaction and one made from an individual perspective. Not

to claim that those in social jobs base their opinions off of others. But people who

On a scale, rate the severity of plastics effect on the environment
19 responses

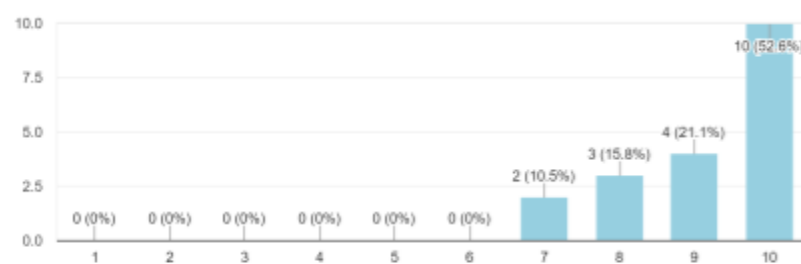


Fig 3: Primary Research

socially interact as a profession tend to not only change their opinions regularly but also adapt their opinions to an extreme. "The adapted Child is the one who modifies his behavior under the Parental influence." (Berne, 2011, P9). Many people act in a manner of parent and child subconsciously. In this situation of adopting opinion this subconscious habit shines through. Although in this case plastics, as single use products and also how we manage plastic waste, impact the environment in extreme ways. But noticing this correlation may explain further answers.

To quote one of the participants answering a question on plastic's negative representation "from what we have seen, the disadvantages outweigh the advantages." Plastic's usefulness as a material is limitless we need only look to our day to day lives to see this. Every product we use most likely contains plastic parts to allow it to function and/or be produced on such a large scale. Yet many people agree with the statement that the disadvantages of plastic outweigh the positives. Although It could be argued that this is incorrect, it is not so simple to just call people's opinion false when it is based in truth. Not every person can give every ounce of detail about their argument and to assume that they only think on the surface level is ignorant and won't provide accurate data to tackle the issue at heart. The disagreement lies in the solution to the problem.

The individual is understanding and the crowd is ruthless. This is where the issue lies in people when tackling the issue of plastic perception. We live in a world where the loud

minority dictate what the majority believe on the large social scale. In a crowd, detailed and reasonable arguments get lost the larger the crowd. So popular opinion loses the facts of waste management issues and the harm of single use products and we are left without solutions to the issues that we preach.

To say that plastic popped into existence in everyday life without reason is to ignore and even greater underlying issue within the individual: consumerism. Wanting nice things is something that everyone craves on some scale. The issue lies when this craving goes unchecked.

“What we do now echoes in eternity.” (AURELIUS, ~145AD). What separates us from animals is our ability to have discipline. We can farm fruits from a tree and only take what we need and allow that tree to flourish. An animal will take until the tree dies. However, discipline is a learned skill and must be constantly monitored. In the modern world these cravings for possession are facilitated by people who prey on those cravings. However, it must be recognised that the individual is not a victim but a participant.

Permanence is the future, devices and products that will last a lifetime like they needed to in the past. To replace generational products with upgradable and valued products. In society this is a growing movement with more people actively trying to keep products repairable through the use of the internet. For example, popular electronics

repair site IFIXIT. Despite manufactures, especially in consumer electronics, moving toward irreparable proprietary devices. IFIXIT releases full instructional PDFs days after a new phone launch. However, IFIXIT although a step in the right direction as a society. There are many people who don't have time or, with recent developments, the skill to fix their products. Manufacturers and companies take advantage of this to sell more products as planned obsolescence is much easier when your user base doesn't know what broke or how to fix it.

As we evolve as a society our new technology must also. The rapid development of the virtual world does not align with the rules of our physical world. As technology develops rapidly hardware must also be rapidly replaced. "processor speeds, or overall processing power for computers will double every two years." (Moore, 1965). As we run out of resources we need more and more of throwing away a valuable material much as plastic in single use products seems self destructive. Without a doubt this is true but to laugh at our stupidity without understanding it is just as self destructive. The issue of not understanding and lack significant action being taken by the individual is caused by information overload. The individual is expected to tackle every issue while also contributing to society by spending. To dissect and discuss every small constriction in our day to day lives would be exhausting and pointless. But within everyone's values lies contradictions caused by conflicting interests.

54% of people in the United States believe that global warming is an issue (Ballew, 2019). The reason for such a low majority is more of a political issue than an individual one, as comparatively 61% of liberals believe and 48% of Republicans believe. This points at political targeting and the growing extreme in beliefs on both sides. This split representation for global warming doesn't directly translate to the issue of plastic perception because issues to do with a material that doesn't biodegrade are clearly visible. However, the second section of this study conducted by Yale, talks specifically about the individual's belief in the general population. The data says that people who believe that global warming is an issue (54%) believe that 85% of people think the same. Now this discrepancy is interesting as it shows a clear misinterpretation of popular opinion. Relating this to the issue of plastic perception may mean that the issue may need to be tackled differently. This variation of opinion on what seems like a clear issue to 54% of the population, may mean that plastic and its problems could also be seen in just as a diverse way. The study also touches on “self silencing” caused by lack of knowledge on the subject. The discrepancy in people's belief in others understanding points to this. “ Americans who perceive a greater social consensus on global warming discuss global warming with their own friends and family more frequently than those who perceive less social consensus.” (Ballew, 2019). Communication and discussion is the solution. Self silencing comes into play when a group of people are left out of a conversation. Their beliefs are left the same and not expanded through discussion. This is not only detrimental to the silenced side but also the active side. This is because what is effectively created through separation is an echochamber on both sides. Discussion

leads to understanding and everyone needs to understand when the issue is something as serious as global warming.

Plastic is a material that is but a tool for the modern world that is being misused. The world has exploded in population and people's expectations for what is necessary gets higher everyday. From the need to be connected through online devices, to the need to have meat everyday. Most people don't make the connection that meat used to be a small part of our diet. However, through industrialization it has become possible, and has even become the norm to have meat everyday. The impact of this on the environment has been catastrophic, as the amount of resources it takes to raise cattle and poultry is extremely high. This is an ever growing argument against meat, and just like plastic the issue is to do with consumption. Supply and demand rule over our morals and even common sense. Just like with meat, as a society we let our wants decide our needs and those with power use it to feed their greed.

So another large issue with plastic's perception amongst people is its future. Plastic undoubtedly has a future in our products, whether that's seen positively or not however, it is a massive issue.

Do you think plastic has a place in the future of products?
19 responses

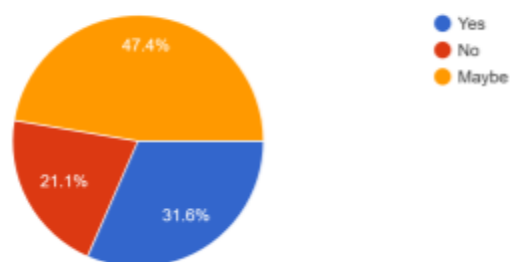


Fig 4: Primary Research

Currently people doubt plastic's future in our products, with around 70% of people being sceptical 21% of which outright deny its place. Although the opinions of the mass won't have much say in its use they do in perception which can retroactively affect its use.

To be clear, people's views will not get rid of plastic but they may hold it back as a material, trapping it in a constant cycle of being viewed as unsustainable and being restricted. Causing its limelight to indirectly degrade its use in other products and adding to its negative representation. This could, overtime, kill plastic as a material in the consumer market. Whether this will have a positive effect on society and the world is down to plastic's replacement. Most likely it will be a similar material with similar effects on the environment starting the cycle of martyrdom a new.

Perception is plastic's biggest issue as a material. It is not innocent and it is not guilty, it is a victim of its usefulness. The way people see plastic in the following years will define its place in a new age. Whether it dies out due to our overuse and misuse or continues as a material in a sustainable world, is up to the people.

Chapter 2: Industry

Industry plays a large role in plastic's perception. The manufacturing, designing of all plastic products, and how the material is both processed and disposed of once the products have met the end of their life cycle, is primarily determined at this stage. The problematic areas with plastic when it comes to industry are as follows:

Overproduction, design philosophy, waste management and lack of regulation. In this chapter I will evaluate each of these areas and their effect on plastic perception.

“We are producing over 300 million tons of plastic every year. 50% of which is for single-use purposes” (Plastic Oceans International, 2019). Looking past the single use portion, ‘permanent’ plastic products are overproduced around the world. Cheap methods of production caused by plastic's mass production potential. These high volume products, usually cheap alternatives, are stored in mass for long periods and when they become obsolete are usually disposed of with lack of regulation. Using Alibaba as an example, it is clear that they host a large variety of manufacturers for a large variety of goods. Although it is not all they produce and sell, a large portion of their stock is plastic products. Alibaba is a China based company, a country with a very weak recycling rules and very little infrastructure for it “China has only recently taken steps to sort and categorize waste” (Lianzhang, 2019). When the advantages of plastic is so effective that overproduction isn't a critical issue to the manufacturer, regulation becomes necessary. This new age of self control for the sake of something other than

profit is a hard adjustment for industries based on maximizing profits. Having to adjust and support a business while also not contributing to global warming is something that should be not only expected but mandated, however it is a new concept with little development and small history of application.

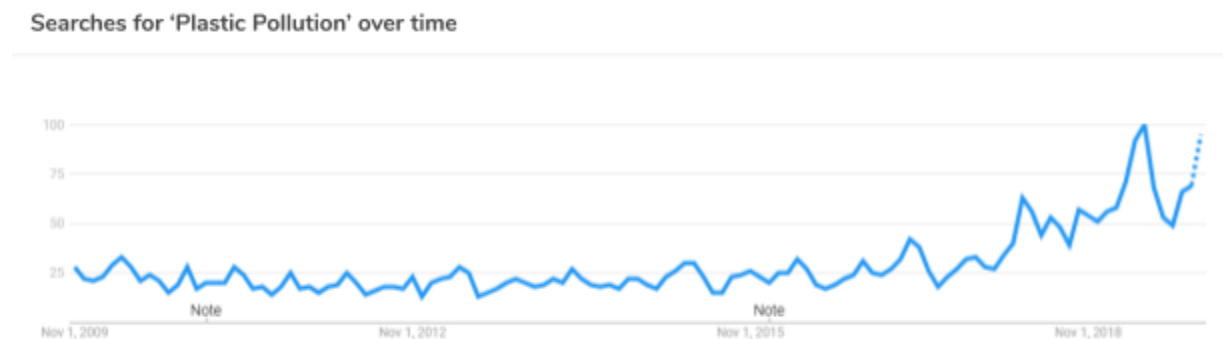


Fig 5: Google Trends

How does a company or entire industry avoid making large, counterintuitive and real changes to the way it produces its products while also remaining a positive brand representation? Brand campaigns with farcical data and small amounts of investment in green projects and methods that don't even come close to the companies net worth or annual earnings. **When the pressure of global warming and plastic waste is breathing down societies neck** (see fig 5), why do the companies and industries that produce close to 100% of plastic products have a choice in whether they help? In most western countries individuals are expected to do their part. Yet the companies based in these regions are allowed to circumvent these standards by outsourcing manufacturing or with little regulation compared to the laws and social pressures the average person has to deal with.

“Experts say Cainiao’s [Alibaba’s logistics department] promotion of such ‘green’ materials is misleading to consumers. [These materials] will only biodegrade under specific conditions” (Lianzhang, 2019). This change is insubstantial even if it was to be effective, the fact that this change was completely useless other than a marketing campaign reveals the laziness and unproportional effort of industry. Until sustainability is considered as strongly as functionality and marketability instead of a tool for publicity or a political statement, the change to industries contribution to our global crisis and plastic’s negative perception will remain.

The installation of low emission bulbs in company buildings, “green” products and regulations put on staff, do very little when most electronic products are moving closer to planned obsolescence and actively trying to stop customers from fixing their own devices, through the use of permanent fixtures and proprietary tools of assembly.

“Some companies have this planned obsolescence mentality of selling you stuff thats going to break soon” - Kyle Wiens IFIXIT Founder (How iFixit Became the World's Best iPhone Teardown Team, 2018). The greed of milking a market, keeping company secrets and minimizing employment to actively ignore environmental effect to be able to compete with competition is substantial proof that sustainability is actively ignored due to conflict of interest. This issue of “if we don't do it, they will” is a clear sign for regulation to be forcefully and competently enacted. However, the government of western countries has trouble getting companies to pay basic taxes. For example,

Amazon which is notorious for underpaying its taxes. An article from the Guardian by Butler (2019) said:

£14m UK current tax bill did not compare well with the Fair Tax Mark company Lush, which paid only about £1m less in tax on profits of £23.4m, less than a third of that made by the Amazon division.

The direct comparison to another company with a considerably lower profit than Amazon shows how little they pay in the UK. In other markets around the world, especially those with less infrastructure and regulation, this problem could be even worse. Enacting meaningful regulation is something that most people would consider extreme despite its prevalence of government intervention in the past. In 1911 Standard Oil a company which held close to 100% of the oil market was broken up into different companies to remove the current monopoly. “in 1911 the New Jersey company was ordered to divest itself of its major holdings—33 companies in all.” (Encyclopedia Britannica, 2019). Yet in today's world government intervention with private and public companies is seen as an intervention of freedom.

“In 2010 alone, between 4.8-12.7 million metric tons of plastic found their way into our oceans” (Plastic Oceans International, 2019). This level of pollution increases yearly and minimal efforts are made by governments to clean it. To deal with a problem that when the winds change will be another countries issue is hard to take responsibility for. As the world tackles the issue of global warming, cleaning the ocean is going to be high on the list. The reliance on the ocean as a food source and the growing presence of plastic

in that food source is evidence of poisoning. Once plastic is exposed to the elements it breaks down into microplastics, this is especially evident in the ocean where plastic mimics sand. Microplastics complicate the issue of cleanup even further, it is everywhere. Special methods for removal have been proposed but due to the scope of issue, multiple methods will be needed for all the environments microplastics are present in.



Fig 6: Bo Eide

Single use is still 91% unrecycled (Plastic Oceans International, 2019) and industry knows this yet has no replacement and the R&D of one would not benefit a bottom line so what's the point? Plastics are a reusable material and should be treated as such. Plastic products should be considered permanent. As mentioned in chapter one “permanence is the future of products” and plastic is capable of fitting that roll. However, the separation of plastic’s representation from decades of neglect seems like an almost impossible task.

Single use is not the only use of plastic in industry that is causing massive amounts of damage. In Ghana there is the world's largest electronic graveyard, the valuable metals

in electronics are extracted by people in need of money. The copper in copper wiring is extracted by burning off the plastic insulation. This is extremely harmful to the environment but is relatively small compared to the large scale burning of plastic throughout the world. The main issue is the harm it causes to the people who extract the metals. "Conditions are so brutal, many people die in their 20s" (Yates, 2019). Technology is constantly upgraded and the topic of supply and demand can easily be argued by manufacturers. However, manufactures like Lenovo generate a large portion of their revenue from leasing units to businesses on mass. Once the lease is up most devices are disposed of and a large portion end up in these mass electronic graveyards.

Plastic value is extremely low especially as non virgin material. This is evident even in permanent products as the recycled material has limited uses unlike precious metals. Which can be reused indefinitely. However, plastic's prevalence in single use is a major contributor to its lack of value. Plastic and other single use material is mainly used to enhance advertising on products. Its overuse in this area leads to a large amount of waste material that isn't even used to package the product effectively. For example, plastic sleeves on food items. A food product is properly stored in vacuum sealed plastic and then a plastic/cardboard sleeve is put over the top to hold advertising and nutritional information. This is done despite the fact that the information could be put on a sticker or directly to the sealing plastic. It's a cosmetic choice for the sake of profit. This generates a large amount of plastic waste yearly. Also when the consumer buys this product it becomes their responsibility to recycle despite most people having no

hand in the choice to have that sleeve on the product. Industry is an area where choices are made for profit, not for the sake of the planet. In recent years environmental efforts have become little more than a trend used for advertising. Actual change comes from government and most of the changes made have been brought on individuals and not the industry that creates the waste.

Chapter 3: Media

Media is a mirror of what we think, it reflects our values and in the best of cases challenges them. The news however, should be a reflection of reality not of our values. Despite this in the modern world where everything is political the news picks a side. In this chapter three main issues will be discussed in relation to plastic: the Politicization of global warming, the rise of headline media and narrative based news.

Plastic in relation to politicization of global warming may seem as simple as the right undermining the problem of plastic pollution. Therefore facilitating the continued use of single use plastic. Or it may seem as if the left demonizes plastic to the point that plastic's future in permanent products is impossible because no matter its use its a "bad" material. In reality the issue is much more or, depending on your perspective, much less complicated. The problem comes down to the politicization of the issue on both sides.to put it simply, the issue of plastic waste, global warming and other environmental issues are not political. They are proven through a vast amount of studies in multiple areas backed by multiple groups of people. The world seems to have a problem were everyone needs to pick a side, and the other side doesn't have anything good or valuable to say or do. The more this mentality grows the bigger the separation between groups becomes, and plastic and global warming seem to be sinking with this sociological issue.

Media does not help this divide between people as media companies also seem to be picking sides as well. For example, Vox, “Why conservatives keep gaslighting the nation about climate change” (Roberts, 2019). They instantly create a divide by labeling an entire group as the root cause of a problem. Although that may be the average as was discovered in the peoples chapter. It does not define the whole but it does separate the whole conservative group from the left. Not only that the chosen language like “gaslighting” creates the sense of toxic and manipulative behaviour creating villain out of an entire group of people. The growing separation is exacerbated by media as news is seen as a guide for opinions by many people. This is not to say that people will follow blindly but when issues are not directly tied to one's life or interests people tend to follow opinions they respect. Politics is a battle of opinions, and depending on how, where and by who you were raised as well as a multitude of other factors your opinions are going to differ. But facts are not to be argued or believed they are outside the human psych. They can be investigated further and broader to find a more accurate truth but they cannot be dismissed.

Facts take time to understand, to do this fully you have to know the variables. Also contextually, in a human world you have to have an understanding of studies and who and how they were conducted. However, this isn't a process everyone follows, at least not for every aspect of our lives. As has been stated before, people's lives are much more complex than they used to be and time and money runs most people's lives. When problems that affect the world arise the individual doesn't feel as if they are

responsible. So problems they don't know much about that are still present in the mainstream need to be condensed into bite sized pieces of information. Most people use headlines as a way to get an instant opinion or facts about a current trend or issue. Plastic is no different, most people make their judgments on the material from what they see in headlines and snippets of information from other sources. This provides the viewer with an instant opinion they feel is informed.

The main problem with headline media is the lack of context communicated. The information in a headline can be greatly misleading to the actual truth. This can range from the information being specific to a place or other factor, to a complete lie published by an untrustworthy news source. The creation of a headline such as: 'Plastic waste at all time low' maybe accurate on a small scale such as in Wales, "Wales had the highest UK recycling rate in 2017 at 57.6%" (Mayor, 2019) which is 13% higher than England and Scotland. However, the headline is misleading as it does not explicitly say any region. Some people may take this headline as pure fact and use it to form an incorrect opinion. However, the made up headline has one explicit flaw that does not align with most headline based media. The headline does not align with current trends, it goes against the grain and although that maybe successful for more contrarian media. The most dangerous form of headline media is that which aligns with public opinion but does not fully align with the truth.

Using The Daily Mail as an example “Plastic is infecting your gut: Average person accidentally ingests more than 73,000 pieces of microplastics every year, damning study reveals” (Fernandez, 2019). This headline, for the most part is accurate. It is true that the average person will ingest that amount of plastic yearly. However, the issues come from the lack of information. ‘Pieces’ does not properly quantify the amount at all. A more accurate statement would be: the average person ingests 260g of plastic a year primarily through water ingestion. (Plastic Oceans International, 2019). In the example they not only misinform through lack of information, they purposefully use large numbers and words like ‘infecting’ to inflate the problem to be more dramatic. This provides the site with more clicks through a shocking headline and therefore more revenue. However, we live in a world that runs on money, and expecting a business to be more accurate with its statements and therefore sacrificing review is unlikely to happen. What is the most practical solution however, is not involving issues like plastic and other serious problems with headline media. The use of facts to add to the dramatic nature of news only causes misinformation and quantifiable statements. The issue of handling plastic is a large one and facts and figures need to ring clear. Every person should cross reference their sources but few actually will. So information on plastic should try to remain accurate and not be used to generate drama for a companies profit. The truth is the most important thing when tackling the issues of plastic or another major problem. But when media skews facts to create a good headline, or a good story, progress can be misdirected or even complete stopped.

A good story captivates its audience and causes a strong emotional reaction. Stories are a representation of beliefs, culture and are a time capsule of ideas. They represent everything human. Human nature however, should not have a place in dealing with plastic as a material. Personification through narrative based media is one of the main causes of plastic's negative representation. For example, this article by The Daily Mail: "Prince William wages war on plastic bottles and brands them 'the enemy' in the fight against pollution as he views piles of litter collected from beach in Kuwait" (English, 2019). This headline tells a story, it has a hero, a villain and it amplifies intensity. The words "wages war on plastic bottles" personifies plastic, it changes it from a material into the villain of the story. When a story is created facts become a side piece, plastic is a dangerous material but it also just a material. To tackle plastic we must tackle its problems, personification provides readers with an easy out. When a villain is created you blame the villain, you don't look in self reflection about your personal overuse. You demonize a material and thirst for a resolution to the narrative. When the material is the villain the only solution is complete removal or in narrative form to kill it. The world that we live in will never complete remove plastic. So this narrative based personification of a material will only lead to creating larger gaps between people with differing opinions and plays further into the politicization of the material.

Conclusion

New concepts seem to follow the same pattern of acceptance in the world, that is caused by human nature. This pattern with plastic has been looping because of a multitude of factors. Whenever a new technology, material, ect comes about there is the initial shock and awe. If the idea is viable, it is widely implemented on a large scale. This then increases to a point of criticality where other factors unknown about the idea arise. This then leads to the gradual down scaling and settling at a safe level (depending on the idea). With plastic this process is stuck as the material is implemented on such a large scale, and feeds societies need for consumption. We rely on plastic for everyday needs and many of those needs involve disposability to lower the maintenance of our own life. As we continue to consume and remain in a consumerist based culture, industry will continue to meet those needs and in some cases exploit them. Even if reduction is reduced to an acceptable level, media's depiction of plastic may result in the material being completely phased out. Media also contributes to plastic current view as a disposable material by constantly reporting on its uses in said area, this may cause plastic to never grow out of its disposable nature.

As individuals we must grow out of our need for everything to be disposable so it can be easily replaced with something new. We must live with an awareness of our world and what we do to it. Single use is a product of our desires and is ultimately unsustainable. Its use in day to day life and its prevalence in everything around us is but

a representation of our greed and the damage it causes. Meaning in what we buy and what we have is the future as it was our past. Love for one's possessions means maintaining them. Not everyone has time to fix their possessions but, there are people that make livings doing so. Plastic's role in our world is misplaced as are most materials due to our current nature. The future of products is permanent and fulfillment, not disposable and empty.

Industry needs regulation, people will change in their own time but industry can force stagnation. Regulation of plastic and other materials and their use in single use products, as well as how goods are disposed of is a necessity of the future. Industry's focus will always be on profit as that is its nature, but intervention by government and forced change by global warming will cause greater change. Industry is hard to control on a global scale but it must be done before nature does it for us.

Media requires great change, not just for plastic and environmental issues but for society as a whole. Its dividing nature causes greater problems in the long run. In society arguments are no longer about disagreements but they seem to be for the sake of everything that is right. Discussion is removed from media now more than ever, and biases are ever present. Plastic and global warming are only caught up in this, yet their importance is so much greater. Politics and most of human nature should not play a part in our trackling of global warming. Plastic pollution and other environmental issues should not be used to fear monger for more clicks and sales. The issue of plastic

pollution is serious and awareness should be spread. But facts and real data should be the basis of awareness to avoid misdirected effort and funds.

Plastic may be considered a saviour, it brings our crimes and negaction of nature to the surface in grandiose ways; the 5 great garbage patches, E dumps, ect... we are facing it, partly because of plastic. We may look back on this and see plastic as a warning sign for what was to come. The damage finally had a face. Plastic became an enemy, it gave us something to fight. But is plastic worth sacrificing? Is its benefits as a material disposable to us as a people? If the world was perfect the logical answer would be no. Plastic has a place in our world as a material if only our uses for it weren't so disposable. But plastic is a martyr, its lack of degradation acts as warning light for every person, everywhere they go. The only issue is will people see plastic as a warning sign in the end, or will they see it as the cause? Will we ignore our shortcomings and blame plastic? or will the plastic be the thing that humbles us?

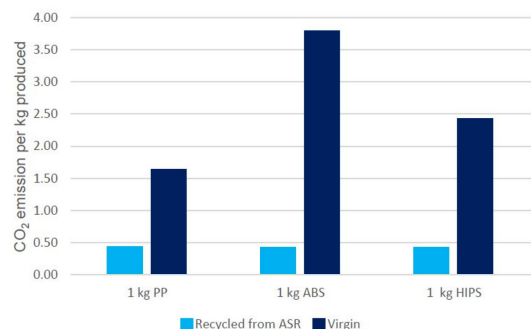
Bibliography

Source Number	Source Type	Harvard Ref	Usefulness
1	Website	Lexico Dictionaries English. (n.d.). <i>Plastic Definition of Plastic by Lexico (Oxford)</i> . [online] Available at: https://www.lexico.com/en/definition/plastic	Used in introduction
2	Website	BRITISH PLASTIC FEDERATION. (2013). [Online] Available at: http://www.bpf.co.uk/	Used in introduction
3	Book	FENICHELL, S (1996). <i>Plastic: The Making of a Synthetic Century</i> . Place of Publication: HarperBusiness	Used in Introduction
4	Website	Hammond, J. and Jones, C. (2019). <i>Nanocem - Sustainability & Emissions</i> . [online] Nanocem.org. Available at: https://www.nanocem.org/cement-concrete/sustainability-emissions	Used in Introduction
5	Website	Gibbens, S. (2019). <i>You eat thousands of bits of plastic every year</i> . [online] National Geographic. Available at: https://www.nationalgeographic.co.uk/environment/2019/06/you-eat-thousands-bits-plastic-every-year	Used in introduction
6	Website	Schleeter, R. (2019). <i>These 10 companies are flooding the planet with throwaway plastic - Greenpeace International</i> . [online] Greenpeace International. Available at: https://www.greenpeace.org/international/story/18876/these-10-companies-are-flooding-the-planet-with-throwaway-plastic/ [Accessed 22 Nov. 2019].	Used in Introduction
7	Book	Berne, E. (2011). <i>Games people play</i> . [Place of publication not identified]: Grove Press.	Used in people chapter
8	Book	AURELIUS, M. (n.d.). <i>MEDITATIONS</i> . [S.l.]: COLLECTORS LIBRARY.	Used in people chapter
9	website	Moore, G. (2019). <i>Moore's Law</i> . [online] Mooreslaw.org. Available at: http://www.mooreslaw.org/	Used in people chapter
10	Research Paper	Ballew, M. (2019). <i>Americans Underestimate How Many Others in the U.S. Think Global Warming is Happening</i> . [online] Yale Program on Climate Change Communication. Available at: https://climatecommunication.yale.edu/publications/americans-underestimate-how-many-others-in-the-u-s-think-global-warming-is-happening/	Used in people chapter

11	Book	Foer, J. (2009). <i>Eating animals</i> . Little, Brown and Company.	Used in all chapters
12	Website (research papers)	Plastic Oceans International. (2019). <i>Plastic Pollution Research Papers</i> <i>Plastic Oceans International</i> . [online] Available at: https://plasticoceans.org/plastic-pollution-research-papers/	Used in all chapters
13	Website	Lianzhang, W. (2019). <i>Environmentalists Criticize Alibaba's 'Green' Packaging</i> . [online] Sixth Tone. Available at: https://www.sixthtone.com/news/1001165/environmentalists-criticize-alibabas-green-packaging	Used in industry chapter
14	Website	Google Trends. (2019). <i>Google Trends: Plastic Waste</i> . [online] Available at: https://trends.google.com/trends/explore?date=2009-10-28%202019-11-28&geo=US&q=plastic%20waste	Used in industry chapter (Illustration)
15	Video	<i>How iFixit Became the World's Best iPhone Teardown Team</i> . (2018). [video] https://www.youtube.com/watch?v=tx-9LkVldz0&ab_channel=Motherboard : Motherboard.	Used in industry chapter
16	Website	Butler, S. (2019). Amazon accused of handing over 'diddy-squat' in corporation tax. [online] the Guardian. Available at: https://www.theguardian.com/technology/2019/sep/03/amazon-accused-of-handing-over-diddy-squat-in-corporation-tax-despite-tripling-payment	Used in industry chapter
17	Website	Encyclopedia Britannica. (2019). <i>Standard Oil</i> <i>History, Monopoly, & Breakup</i> . [online] Available at: https://www.britannica.com/topic/Standard-Oil	Used in industry chapter
18	Video	<i>A Week In A Toxic Dump</i> . (2019). [film] Directed by R. Yates. BBC. Available at: https://www.youtube.com/watch?v=3IPqgy2K8RI&ab_channel=Redddocs	Used in industry chapter
19	Website	ENGLISH, R. (2019). <i>Prince William wages war on plastic bottles as he visits Kuwait</i> . [online] Mail Online. Available at: https://www.dailymail.co.uk/news/article-7748191/Prince-William-wages-war-plastic-bottles-views-piles-litter-Kuwait.html	Used in media chapter
20	Website	Fernandez, C. (2019). <i>Average person ingests more than 73,000 pieces of plastic a year</i> . [online] Mail Online. Available at: https://www.dailymail.co.uk/sciencetech/article-7419733/Plastic-gut-average-person-accidentally-ingests-73-000-pieces-year.html	Used in media chapter

21	Website	Roberts, D. (2019). <i>Why conservatives keep gaslighting the nation about climate change</i> . [online] Vox. Available at: https://www.vox.com/energy-and-environment/2018/10/22/18007922/climate-change-republicans-denial-marco-rubio-trump	Used in media chapter
22	Website	Mayor, L. (2019). <i>Why do we recycle in different ways?</i> . [online] BBC News. Available at: https://www.bbc.co.uk/news/uk-wales-50262067	Used in media chapter

Illustrations

Source Number	Link	Description	Image												
1	https://www.bpf.co.uk/sustainability/plastics_recycling.aspx	Graph on virgin plastic production of CO2 vs recycled	 A bar chart comparing the CO₂ emissions per kg produced for three types of plastic: 1 kg PP, 1 kg ABS, and 1 kg HIPS. For each type, two bars are shown: 'Recycled from ASR' (light blue) and 'Virgin' (dark blue). The y-axis represents 'CO₂ emission per kg produced' ranging from 0.00 to 4.00. The chart shows that virgin plastic production has significantly higher CO₂ emissions than recycled plastic for all three materials. <table><thead><tr><th>Material</th><th>Recycled from ASR (kg CO₂/kg)</th><th>Virgin (kg CO₂/kg)</th></tr></thead><tbody><tr><td>1 kg PP</td><td>~0.4</td><td>~1.6</td></tr><tr><td>1 kg ABS</td><td>~0.4</td><td>~3.8</td></tr><tr><td>1 kg HIPS</td><td>~0.4</td><td>~2.4</td></tr></tbody></table>	Material	Recycled from ASR (kg CO ₂ /kg)	Virgin (kg CO ₂ /kg)	1 kg PP	~0.4	~1.6	1 kg ABS	~0.4	~3.8	1 kg HIPS	~0.4	~2.4
Material	Recycled from ASR (kg CO ₂ /kg)	Virgin (kg CO ₂ /kg)													
1 kg PP	~0.4	~1.6													
1 kg ABS	~0.4	~3.8													
1 kg HIPS	~0.4	~2.4													
2	https://512pixels.net/2012/12/imac/	Promotional image of Apple's G3	 A promotional image for Apple's G3 iMac, featuring five translucent plastic cases in different colors: orange, green, purple, red, and blue. Each case is shaped like the G3 iMac and has the Apple logo on the front. They are arranged in a circular pattern, with one case at the bottom center and the others surrounding it.												

3	See: Primary Research	Graph on people's views of plastics effect on the environment (1-10)	On a scale, rate the severity of plastics effect on the environment 19 responses Fig 3: Primary Research
4	See: Primary Research	Pie chart on people's opinion on plastic's future in products	Do you think plastic has a place in the future of products? 19 responses Fig 4: Primary Research
5	https://trends.google.com/trends/explore?date=2009-10-28%202019-11-28&geo=US&q=plastic%20waste	Google trends screenshot of searches for plastic waste over the past 5 years	
6	https://www.flickr.com/photos/snemann2/14241090617	Macro shot of sand with micro plastics present	

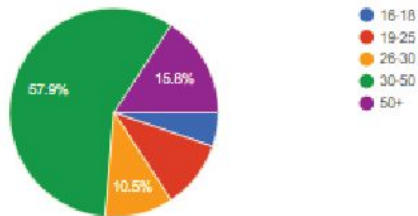
7	https://www.freepik.com/premium-photo/plastic-waste_2143661.htm	Image of plastic landfill	
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Primary Research

About you...

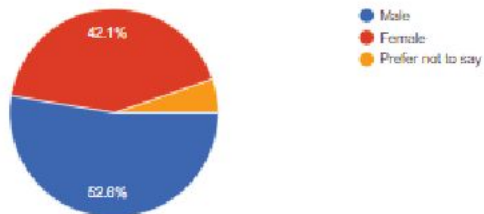
How old are you?

19 responses



What is your gender?

19 responses



What is your profession?

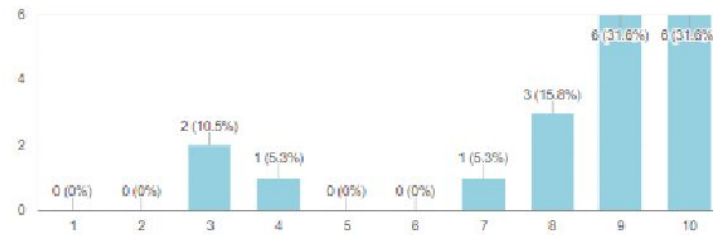
19 responses



Plastic Perception

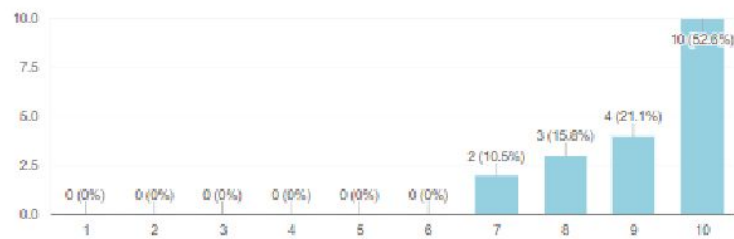
On a scale, rate plastics prevalence in products

19 responses



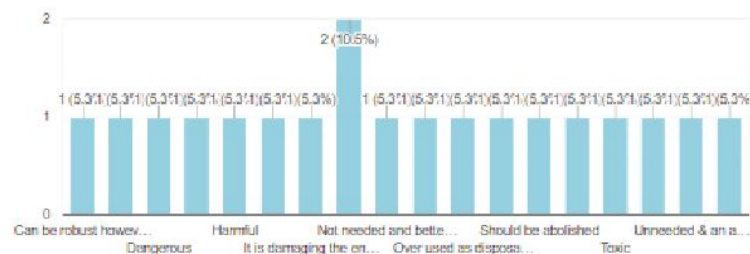
On a scale, rate the severity of plastics effect on the environment

19 responses



Describe your opinion on plastic in as few words as possible

19 responses



What do you think is the main cause for plastics negative representation?

19 responses

I don't think it's a representation, but more of what we have seen ourselves and our current and urgent need for a change in our environment.
The media shows us the disadvantages of plastic more than the advantages. But from what we have seen, the disadvantages outweigh the advantages.
The negative effects of plastic varies from the pollution it's causes and also the danger it causes to sea and marine life.

Waste

Media representation and social media.

Unresponsible use and media coverage

unresponsible use and disposal

Large companys

Big company

Dumps

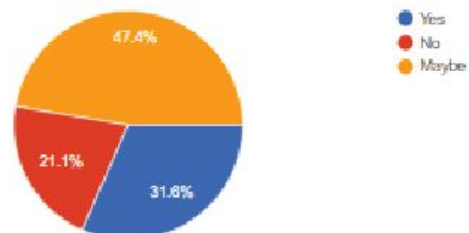
Inappropriate use and inadequate recycling

Large retailers

Plastic Future

Do you think plastic has a place in the future of products?

19 responses



Please give a reason for your answer of the above question

17 responses

Maybe because, although we are trying to reduce plastic use as much as possible due to the negative effects it has, plastic plays a vital role in almost a lot of products, and unless an alternative that is as easily accessible and useable as plastic is found, then we will need to continue to use plastic in the future.

It's serves a purpose

Limited options for some plastic items to be made in different materials.

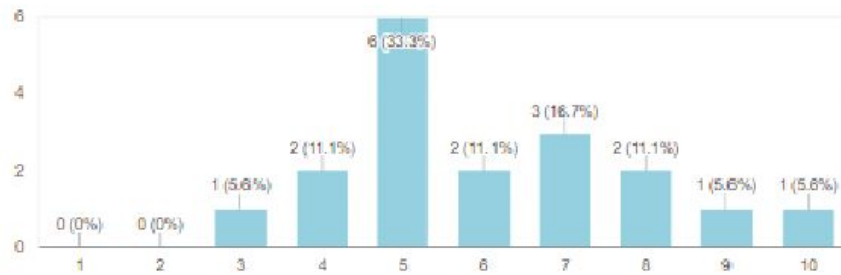
Plastic will continue to be used until an cost effective alternative is found

It can be robust however correct disposal is essential.

Plastic experience

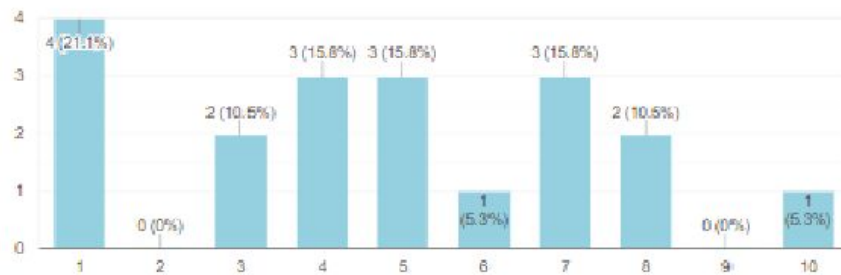
Rate the quality of NON-SINGLE use plastic based products you have used

18 responses



Rate the quality of SINGLE use plastic based products you have used

19 responses



List some of the best things about plastic products

17 responses

They are cheaper than other materials.
Easily accessible.
We can use it to freeze food or reheat food.
Not heavy.
Isn't fragile.

Clean

easy to wash, can re-use, safe for younger children to use

Durable, keeps things fresh, easy to clean, easy to transport, easy to store

it keeps food fresh (tupperware), it can protect things from getting damaged

Easy to make

List some of the worst things about plastic products

19 responses

All the plastic waste in the oceans,
Takes 1000 years to biodegrade,
It's harmful to the planet!

Non recycled products

Too many items are covered in Plastic, can have a chemical risk when using them

hard to recycle, limited life,

hard to recycle (local authorities guidelines), they end up in the ocean/countryside/cities harming animals

Bad for environmental

Bad for environ

Non biodegradable

Poor recycling availability

Disposal of used plastics

None degradable