

A report from
GPOV / UFSCar



plasticized childhood

The impact of plastic toy
advertising to children on their
health and the environment

Commissioned by
Alana Institute
Child and Consumerism Program

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June 2020

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PREFACE

Advertising to children, or child advertising, in addition to its unethical, unjust and illegal dimensions, contributes to exacerbating serious social and environmental issues. From the onset, the **Child and Consumerism** program has warned about the negative impacts of targeting advertising and marketing communication to audiences under 12 years of age. The main harm caused includes the following: childhood obesity, chronic noncommunicable diseases, family stress due to parental authority interference, less creative games, symbolic and material violence, and environmental impacts. Encouraging consumerist behavior leads to massive consumption of products and services without duly reflecting on their real use value and on all the negative dynamics and violations of rights involved in production chains.

In 2008, in the thematic series *Child and Consumerism - interviews*¹, the theme of Sustainability was addressed by a series of experts. They highlighted, among other important topics, the fact that child advertising prompts children not to be concerned about the environment because the more consumerism is stimulated, the greater the amount of discard and waste generation, including plastic, one of the most revolutionary materials discovered by humans, but which has one of the

1 Available at: <http://criancaeconsumo.org.br/wp-content/uploads/2014/02/Crian%C3%A7a-e-Consumo-Entrevistas-Vol-1.pdf>

longest decomposition times, and is therefore a heavy environmental burden.

As Isabella Henriques, current executive director of the Alana Institute and the first coordinator of **Child and Consumerism**, has always pointed out, confronting the complex and negative impacts of child advertising, including encouraging unrestrained consumerism of plastic by children and their families, is a fundamental step in solving our urgent environmental challenges today. As a way of contributing to such discussions, especially in schools, **Child and Consumerism** developed the EcoAtivos Project over two years, which, among other topics, addressed the impact of plastic on human and environmental health².

This theme became even more relevant when we found that, currently both on television and on Internet video platforms, the most common advertisements for children are those of toys, which are mostly made of plastic.

A clear example of this are the collectible dolls called “L.O.L. Surprise!” wrapped in layers and layers of plastic, which, from 2016 to 2018, sold 800 million units worldwide. After receiving numerous complaints and finding an aggressive strategy for disseminating the dolls by child digital influencers, mostly undercover, **Child and Consumerism** sent a complaint to the Espírito Santo Public Ministry requesting the accountability of the company called *Candide* for the illegal practice of child advertising, as well as to finance audiovisual material production concerning the relationship between consumerism and impacts on the environment, and to implement a reverse logistics system of the product and plastic packaging as a measure to minimize the environmental impacts caused.

As the **Child and Consumerism** lawyer, Lívia Cattaruzzi, pointed out in the complaint “the L.O.L. Surprise! collectible dolls, both in the packaging and in the product itself, are a

2 EcoAtivos Project website: <https://ecoativos.org.br/>

dreadful concentration of plastic, more plastic and more plastic. (...) Currently, at a time when environmental issues need to be addressed as an urgent problem that affects the present and future of humanity, the market still seeks to create consumerist, dissatisfied and competitive children. In a scenario such as this, of frequent stimulus to consumerism, how can we talk to children about citizenship, empathy, education for consumption, cooperation and caring for the environment?"³

Along the same lines, JP Amaral, **Child and Consumerism** mobilizer, issued a much-needed warning about child advertising of plastic toys and its socio-environmental consequences: "If we are really considering our children's well-being and the guarantee of a healthy and sustainable future for them, we need to consider the environmental impacts of consumption stimuli provided by toy manufacturers".⁴

However, despite empirical evidence, there is still very little data or research that addresses the relationship of child advertising with mass consumption of plastic toys, including assessing environmental impacts and the health of children and their families.

Thus, the research entitled *Plasticized childhood - The impact of plastic toy advertising to children on their health and the environment*, carried out by the respected Federal University of São Carlos (UFSCar) Green Chemistry, Sustainability and Education Research Group, originally had the following aim: to collect scientific data and to widen this important debate at length for the present time of our children and the future of all of us.

It should be mentioned that we are not against using plastic toys, but what is sought is to restrict their marketing communication and safe use, so that children are not exposed

3 Retrieved from: http://criancaeconsumo.org.br/wp-content/uploads/2019/03/Representa%C3%A7%C3%A3o_siteCeC.pdf

4 Retrieved from: <http://criancaeconsumo.org.br/noticias/a-vila-do-plastico/>

to both toxic substances and consumerist stimuli that generate non-recyclable mountains of plastic.

As Frei Betto pointed out in 2016, in the book celebrating the 10th anniversary of **Child and Consumerism**, “the plague of consumerism is today also an environmental and political issue. Mountains of plastic accumulate in oceans, and the incontinence of desire makes it even more difficult to have a sustainable society with goods and fruits of human labor shared among all”⁵.

Therefore, by sharing this research, we hope to raise awareness, including of people in all companies, to promote a childhood free from child advertising and consumerism, in which toys, that are so important for children’s expression and development, are also symbols of a more sustainable society and less plasticized games.

Happy reading!

Pedro Hartung

Coordinator of the Child and Consumerism Program

ABOUT CHILD AND CONSUMERISM

5 Retrieved from: http://criancaeconsumo.org.br/wp-content/uploads/2014/02/Crianca-e-Consumo_10-anos-de-transformacao.pdf

CHILD AND CONSUMERISM is a program from the Alana Institute to increase awareness of the impacts and damage of children's commercial exploitation in Brazil and worldwide, especially by advertising and marketing aimed at children under 12 years old in all kinds of media, including the digital environment.

Established in 2006, this multidisciplinary program aims to promote the debate of the topic and the enforcement of children's and consumer's rights, notably through advocacy, including legal strategies, policy monitoring, campaigns, research and communication, also cooperating with companies to change their internal policies towards more ethical and fair marketing strategies.

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ABOUT THE ALANA INSTITUTE

The Alana Institute is a non-profit civil society organization that invests in programs that seek to guarantee conditions for the full experience of childhood. Created in 1994, it has been maintained by the income of an endowment fund since 2013. Its mission is to "honor children".

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PRESENTATION

This study on the broad impacts of plastic toy advertising to children on their health and the environment is pioneering, and not only in Brazil. How can we measure, using consistent data and including the informal market, this sector that has grown steadily over the last decade, according to the Brazilian Association of Toy Manufacturers (Abrinq), which has a turnover of about US\$ 2.2 billion annually? What are the messages conveyed by electronic media, mainly social networks, which promote unreflective consumption by “adultized” children and “infantilized” adults (Postman, 1999), both by advertising and the product sold as a toy? What are the raw materials of these toy products and how are they produced? What kind of product is delivered, mostly comprising plastic material and other components in great quantity and variety, often toxic, such as endocrine disruptors (for example, plastic monomers, phthalates, Bisphenol A and heavy metals)? What can a surprise doll teach that is packed to exhaustion and covered in glitter? What about the plastic toys sold in fast food (eatertainment) snack combos, which promise an unrealizable dream of ephemeral happiness, ensuring only lasting damage to children’s health, in broad terms, including nutritional?

Thus, characterizing and coping with the problem associated with advertising plastic toys targeted at children in Brazil is urgent and requires questioning about the way childhood has been treated, whether in its linguistic and communication patterns, or

in food habits, desires, clothing and physical appearance (often sexualized), as these childhood images are being sold as adult-like, insightful and attractive. Furthermore, the residual plastic of the discarded or broken toy will not be solved by a simple 3R program (reduce, reuse, recycle), requiring a reflection on the production model and society that we need, considering the Sustainable Development Goals (SDGs) set by the United Nations (UN). A new practice in the field of Chemistry and Engineering based on green and sustainable materials and processes can also contribute to this agenda, associated with new models of education for diversity, plurality, ethics, inclusion, critical thinking and action and, perhaps, emancipation. This study was commissioned by the Alana Institute and intends to present data on the topic to support discussions and decisions by authorities, companies, advertising agencies, consumer groups and non-governmental organizations about advertising aimed at children when the subject is not only the toy, but also the intentionalities and materialities in it.

Prof. Dr. Dr. Vânia G. Zuin
(UFSCar, Brazil and UoY, UK)

ABOUT GPQV/UFSCar

The **Green Chemistry, Sustainability and Education Research Group** (GPQV) was set up at the Federal University of São Carlos (UFSCar) in 2010. It was founded by the faculty members from the graduate programme in Chemistry. The main objective is to investigate the production, use and evaluation of materials, techniques and processes aimed at Green and Sustainable Chemistry. Thus, interdisciplinary studies and research are carried out that include scientific knowledge, especially in the field of Chemistry, and environmental education from the perspective of Science, Technology and Society (STS). The group has scientific partnerships with renowned researchers from national and international institutions, who are recognized in their respective areas of expertise. It is worth mentioning publications derived from their research in prestigious academic sources, several of which have received prizes, such as the Jabuti literary award in 2010 and 2015.

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MAIN MESSAGES

1 Children are profitable targets for advertising and susceptible to consumer values

The child audience is part of a consumer society model that makes it a profitable target audience for advertising campaigns. Children end up having a strong influence on the families' decision-making about what to buy. Nine out of 10 parents in Brazil admit that they are influenced by their children when shopping (LOCOMOTIVA INSTITUTE, 2019).

2 Child advertising is illegal and abusive

In Brazil, regulatory frameworks prohibit advertising targeted at children under the age of 12 years old. However, the practice continues to happen, especially on digital platforms. On *YouTube Brazil*, the phenomenon of unboxing (the act of filming the process of unpacking a product) children's products, and child *youtuber* channels together record almost 12 billion views (ESPM, 2016) - 48 of the 100 most viewed channels on the platform are focused on children and adolescents.

3 The toy sector is among those that does the most child advertising

Toy advertising is the champion of advertisements aimed at children in Brazil, mainly in the periods leading up to Brazilian Children's Day (12th October) and Christmas (25th December). From January to October 2019, this sector was responsible for 71% of child advertising in Pay-TV channels (CRIANÇA E CONSUMO, 2019). In 2011, the investment of the toy sector in advertising reached US\$ 150 million in a period of 10 months (IBOPE, 2011).

4 Most toys are made of plastic and may have an impact on children's health

It is estimated that 90% of toys worldwide are made from plastic materials; PVC (polyvinyl chloride) is considered the main one. Phthalates, substances that have been shown in the literature to be toxic and potentially harmful in causing hormonal problems and cancer in children, are used to give PVC flexibility. PC (polycarbonate), another material less used in toys, can contain both Bisphenol A (BPA) and its substitutes Bisphenol S (BPS) and Bisphenol F (BPF), which have also shown health problems in children and adolescents in studies.

5 Plastic toys are unlikely to be recycled

Most plastics are recyclable. However, the mixture of other plastics, as well as other materials, such as pigments, green and glitter, makes the recycling process more complex and expensive or even makes recycling impossible. The chances of recycling plastic toys that are shiny and colorful are very low. This study estimated that from 2018 to 2030, 1.38 million tons of plastic toys will be produced in Brazil, equivalent to 198 thousand garbage trucks lined up approximately from Miami to New York.

6 Toy packaging is part of the problem

If toys are made to last, their packaging on the other hand is often single-use plastic, discarded immediately after opening the product. In order to compete on the shelves, many of these packages have added color and shine to attract more attention, which also makes recycling complex. It was also estimated in this study that from 2018 to 2030, 582 thousand tons of toy packaging will be discarded in the country.

7 L.O.L. Surprise! and McDonald's Happy Meals are examples of the relationship between child advertising and the excess of plastic toys

Two examples were used in this study to illustrate the “toy advertising = toy consumption = plastic disposal” cycle: L.O.L. Surprise! by MGA Entertainment Inc. and McDonald's Happy Meals. The first is a doll wrapped in several layers of plastic that, when removed, reveals surprises of the product. After unwrapping the toy, there is a small doll and a mountain of plastic. The plastic packaging generated by the 800 million units sold by L.O.L. Surprise! is equivalent to 24 loops around Earth. McDonald's Happy Meals, which combine food with the consumption of a toy (eatertainment), is the classic example of the combination of advertising-desire-consumption-disposal. The sale of toys - mostly plastic – in McDonald's Happy Meals makes the company one of the largest toy distributors in the world today.

8 There are possible solutions

Five solutions were found at the end of this study, to propose multisectoral ways that help to protect children from advertising targeted at them and, at the same time, provide education that is aware of the current socio-environmental challenges. The solutions include proposing an effective ban on the practice of child advertising through reinforced inspection; reducing consumption, especially of products known to be harmful from an educational and health point of view; designing green and sustainable

toys made from reusing materials and new compositions; sectoral agreements and changes in legislation; questioning the unlimited use of electronic toys and screens; incentives for free play in nature, exchanging and donating toys; and more academic research on the relationship between child advertising, toys, plastic consumption and disposal.

INTRODUCTION

In 1907, when the Belgian-American Leo Baekeland created bakelite - plastic based on phenol and formaldehyde - he probably did not imagine that 100 years later the world would be producing 265 million tons of plastic a year. If we look around, we will certainly find ourselves surrounded by products that contain plastics in their composition. The product was created to solve challenges from the beginning of the 20th century. Its durability, malleability and resistance, as well as low cost, replaced raw materials that are difficult to extract or even heavy metals. Back then, plastic was a great solution. Baekeland, considered the "Father of Plastics" (BRITANNICA ENCYCLOPAEDIA, INC., 2019), would perhaps be perplexed today to see that his invention became one of the greatest challenges of the 21st century.

If plastic is everywhere and in everyone's lives, children are not unharmed from consuming plastic products: from bottles and pacifiers, often used in the first days of life, to food wrapped in plastic packaging, to toys - objects that, on the one hand, provide them with an experience of playing, but on the other hand, they can be used by the market as a possibility of including children in a consumerist society through intense stimulus of acquiring new items and in large quantities, with the help of advertising that encourages excess and falsely promises happiness.

Television channels, especially pay-TV channels, constantly bombard people with advertising that stimulates consumption.

More recently, the phenomenon of *YouTube* channels with child and teen youtubers and unboxing videos invites children to the world of surprises, desire and, once again, consumerism. The market can use toys and their dissemination to children in the form of advertising for children as a way to make a profit and, with this, transform children into a profitable and consumerist target audience, aiming at production, sale and profit.

This study aims to analyze the connection between advertising aimed at children, the toy trade in Brazil and their relationship with consumption and the disposal of plastic. To the best of our knowledge, it is a connection that has not yet been addressed in the scientific literature, but it is very important to think about how children have been prepared, or not, to face current and future challenges. It can be observed that there is a cycle in which the child is exposed to massive dissemination of toys made out of plastic, several of them developed to bring about rapid disinterest and stimulate the consumption of the next market launch.

To start this complex analysis, but of the utmost importance to encourage more studies in this field, first we investigated the consumer society model based on the desire of “having”. Due to this, the first part of this study addresses the emergence of the consumer society and the insertion of children in that society; in the second part, the research examines advertising aimed at children, an intrinsic strategy to the model of society questioned here.

More than analyzing child advertising, the aim of this study was to also observe some of the advertising strategies specific to the toy industry in Brazil, as well as the market and production of these products in the country. In 2011, Brazil occupied seventh place in the global toy market, which has ample room for national growth (IBOPE, 2011). Currently, it is estimated that 90% of toys produced worldwide are made out of plastic (PLASTICS LE MAG, 2011), which can also result in a potential increase in the consumption and disposal of this material that is so challenging for today's societies.

The third part of this study specifically addresses the plastic toy chain: how they are produced, the source of their raw material and the challenges of disposal and recyclability. In this part, we also tried to make projections about the consumption and disposal of the plastic from toys in the country, always remembering that this is an industry constantly driven by advertising aimed at children.

To exemplify the theme, two preliminary case studies will be addressed. The first with L.O.L. Surprise!, a product widely advertised to children on TV and *YouTube* (with the culture of unboxing) and which, because it contains several layers of packaging stimulating the surprise effect, generates a large amount of plastic waste. Another case cited is that of McDonald's Happy Meals (*Arcos Dourados Comércio de Alimentos Ltda.*), which, in addition to associating entertainment with food using the desire for a toy, made the company the largest toy distributor in the world (ASSOLINI, 2009; MARANJIAN, 2016). Most of them are made out of plastic.

However, this scenario does not have to be just negative. The study ends by proposing solutions that intend to show that plastic does not necessarily have to be a villain, whose use must be rethought in different practices and products. These are solutions that range from alternatives to the material, through new types of plastic, as well as the proposition of public policies and actions to change society's behavior.

In this study, we expect to instigate reflections, practices and stimulate further research on the subject. If one of the advantages of plastic is exactly its durability, whereby some types remain in the environment for centuries, it is high time we observed the presence of this material in children's lives, whether they are consumers or citizens, who will inherit all the material produced and discarded from today.

1.

THE CONSUMER SOCIETY



1.

“Consumer society” is a term widely used to represent and justify the way of organizing modern societies, which are widely marked by the incessant desire to have and consume in an unbalanced way. This type of society is characterized by the socially constructed desire to acquire the superfluous, contradicting the need for essential consumption that human beings need to supply basic needs. Concomitantly, it is structured in a cycle that does not end, in which one necessity, sometimes met preliminarily, leads to another necessity and, thus, successively (RETONDAR, 2008).

It is important to highlight that there are two concepts in the consumer society that differ in their essence, namely: consumption and consumerism. The first has always been, historically, present in societies and is related as being indispensable to human nature, that is, we can say that consumption is directly related to the supply of basic human needs and the satisfaction of primary needs, as food, clothing and education. In turn, consumerism is not something natural, but rather constructed and determined by a standard imposed and sustained by society, providing the origin of a “liquid-modern” environment, where people who are part of this consumerist culture end up being influenced by the planned desire to have, consume, accumulate and discard (BAUMAN, 2001). There is a discrepancy between the two, whereby consumerism, or superfluous consumption, is based on the fulfilment of secondary needs created by the consumer society.

If we go back in time, ancient societies were founded on the process of exchanging where different peoples produced only what was necessary for their own consumption. This scenario has undergone profound changes, facilitating and increasing the production of goods and materials, which, on the other hand, has brought structural consequences to the way of consumption in society, especially with regard to large-scale production that led to an urgency to sell and expanded the market economy.

The first signs of the emergence of the consumer society date back to the structural changes developed in 18th century Western Europe, particularly with the advent of the Industrial Revolution, or the Tool and Machine Revolution, as it is also known. However, it was in the mid-20th century that large-scale production and consumption accelerated and gained centrality in economic development, in addition to becoming an element of mediation and formation of new relations and processes in the cultural sphere of modern societies (RETONDAR, 2008).

Over time, these alterations and changes contributed to the consolidation of the capitalist model in society, in which economic development and incessant search for profit was directly related to the growth of commercial activity and consumption. Thus, capitalism linked to consumerism has given rise to a socio-environmental crisis, which is supported by a rationalist logic that urges us to consume in an unbridled manner. Therefore, a consumer society of resources, capital and goods was created, causing damage and increasing socio-environmental losses (GUIMARÃES, 2011).

Growth in production is automatically linked to the market's efforts in relation to consumption and sales and, thereby, here lies the problem of the consumer society: creating desires and expendable needs, which are not related to meeting the essential and basic needs of human beings, but rather acquiring and consuming in an uncontrolled way. This problem has a direct influence on other social spheres, such as economic, promoting social inequalities, and the socio-environmental ones.

Nevertheless, consumerism is directly linked to individualization and deregulation processes of society. Acquiring goods has become an individualized practice, completely disconnected from desires, collective goals and class traditions. As a result, consumerism is ubiquitous in our lives and allows individuals to choose and create their way of life in society, completely individualized and devoid of community pretensions, causing the construction and acceleration of culture, habits and individual values (LIPOVETSKY; SERROY, 2011).

In addition to these, we have other phenomena caused by consumerism, such as compulsive and excessive buying, household debt, displaying and practices of addictive behaviors, unhealthy eating behaviors, which cause bulimia and/or obesity (LIPOVETSKY; SERROY, 2011), the instrumentalization of the environment, which leads to nature and its natural resources being used as merchandise (GUIMARÃES, 2011), among others.

Thus, the growing exploitation of the environment and its natural resources is based on unsustainable production and consumption patterns, encouraging us to reflect on how we relate to society and the environment, requiring change and establishing actions, practices and postures that can help modify parameters that underpin healthier choices and ways of life that are detached from the prevailing pattern (LOWY, 2013; HERMANN, 2009; PORTILHO, 2005).

To maintain consumerism strong in society, techniques are created that appear in different ways and are supported by large companies that use the media, marketing and advertising as creative mechanisms, maintainers and diffusers of needs and unnecessary materialisms. Control over human beings through the complex communication system aims to support the structures in force, with no intention of promoting convictions and world transformations, planning to avoid these and other impulses that may come to form the critical and active subject (ADORNO; HORKHEIMER, 1985). The planned obsolescence with

Here lies the problem of the consumer society: creating desires and expendable needs, which are not related to meeting the essential and basic needs of human beings, but rather acquiring and consuming in an uncontrolled way.



advertising is an example of the consumer society model that convinces us that we will be “more modern, happier and freer if we constantly desire and buy new products” (PADILHA, 2016, p. 46).

These advertising techniques that include the benefits of the products and the need to have them are able to introduce the idea to the consumer that he/she will not only be buying a good product or a brand that can generate status and personal satisfaction, but will also have the intention to maintain the structure that never ends, enhancing the creation of expendable needs. The importance of the brand discourse and how the marketing strategies for launching a product on the market are powerful can be observed, as it is through such strategies that the consumer society reinvents itself and remains active, in sync with the capitalist-rationalist logic.

Thus, the hyperconsumption society implies excessive production and waste while, paradoxically, it depends on finite natural resources to stay alive and fully exercised. It is ironic to think that precisely what feeds and sustains this logic of limitless consumption is exactly what destroys natural raw material sources (PADILHA, 2016).

1.1. Children in the consumer society

The growing process of consolidating the consumer society and expanding needs has separated consumerist logic into several groups, including children as they are considered a profitable and diversified public, with great consumer potential. Especially for them, who are in a particular stage of development and critical formation, consumerism is not only related to the act of buying what is not necessary, but also directly interferes in the education and formation of healthy values and habits. Considering this, the

consumer society has the ability to be present in other domains, raising awareness and changing behaviors and inclinations.

It was around the 1980s that children began to be seen by companies as a new, fantastic and profitable niche in the market, mainly due to children's programs that started to gain space in the television media, which led to a significant increase in the supply of marketing communications targeted at this group (SILVEIRA, 2018).



When we address consumerism, we immediately relate it to marketing strategies, advertising, images, everything connected to the idea of exposing and stimulating, in the most attractive way, the act of selling and buying, including in the children's world. If observed, children's ads are flashy, attractive, colorful, cheerful and aim to win over the child so that he/she will want to have what is put in front of him/her. In this regard, it is important to highlight that children between 6 and 8 years old, who are going through a particular stage of physical, cognitive, psychological, emotional and social development, are not yet able to distinguish advertising from the content of the given program and, until the age of 12, do not understand the persuasive nature of the marketing communication content. Due to this fact, the consumer market takes advantage of this fragility to further influence and enhance child consumption (LA TAILLE, 2008).

The world of advertising is diffused in all the places children live and the means of communication that reach them: television, artistic events, the Internet, schools and public spaces. Through this expansive logic, children are affected and attracted and, thus, advertising is inserted and remains in different social spheres, becoming completely legitimate and acceptable to society (LIPOVETSKY, 2006).

In addition, advertising and its marketing strategies can be considered a form of modern bureaucratic domination, which is intended to maintain the current order. By adopting methods

and techniques that invade our environment, it always tries to maintain and guide desirable patterns and behaviors, to immerse itself in society until its last instances (LIPOVETSKY, 2006).

Today's children are already born into a virtual reality, through which they have access to cultural goods such as TV, computers, cell phones and tablets with Internet access. Marketing in these media aimed at children is completely seductive and attractive, mainly because they are easy targets and able to consume all types of products and services, in an inexhaustible flow, from food to a toy (SANTOS, 2007).

The union between planned marketing strategies and the digital sphere is what makes advertising instantaneous, immediate and more realistic. And in this new way of relating, everything that involves the digital scenario, such as content marketing and digital influencers, dictates new consumption patterns and influences the development and formation of subjectivities, that is, this universe is not limited to just the act of communicating (BARBOSA; NETTO, 2019), but it has the power of creating purchase decisions, as well as influencing the formation of unhealthy and environmentally unsustainable behaviors.

In addition, we have other risk factors that are generated by the power of the media and advertising, such as family stress when a child insists on buying the product, the influence on how to consume family capital, the fun when related to food (BARBOSA; NETTO, 2019; SANTOS, 2007; WEBER; SOUSA, 2016), among others. It is inferred that we live in a "midocratic" society, which generates consumption patterns. And the construction of the subjectivity of values, habits and behaviors, which should be conceived by other institutions, such as school and family, can now be manipulated by another bias which compromises the educational process by which the critical subject is constructed.

All of these strategic mechanisms affect children's behavior through the excitement caused by exposure, as it is from childhood that we begin to shape most values and ideas, to

understand the world and how to relate to it. It is well known that children's exposure linked to this complex system ends up intervening in their education and, consequently, establishing negative actions that will directly reflect other social dimensions, such as socio-environmental ones.

2.

ADVERTISING TO CHILDREN IN BRAZIL



2.

It is in this consumer society model that children are introduced and slowly influenced, mainly due to the increase in advertising communication targeted at this group (BISSACO et al., 2015).

Because they do not have the critical vision that makes them understand the persuasive nature behind advertising, children end up getting into this complex system and are transformed into small consumers

(BARBOSA; NETTO, 2019).



Marketing studies ensure that childhood is the best phase to conquer a consumer and make him/her faithful throughout his/her trajectory as almost all habits are acquired in this period of life, including consumption habits. Considering this, children are understood by the market from three perspectives: the consumer today, the adult consumer of the future - loyalty and adhesion - and the sales promoter within his/her family and circle of friends (SILVEIRA, 2018).

Currently, child presenters and unboxing videos are advertising and marketing communication strategies that work in terms of attracting children, especially on video platform channels, such as YouTube, as children communicate well with other children and the fine line between advertising and entertainment can hardly be seen. Briefly, unboxing refers to the act of unpacking new products. This practice can be seen in videos showing aspects from unwrapping toys - which directly includes the children's

world - to opening up products aimed at the adult audience, such as notebooks, makeup, perfume, among others.

A survey carried out by ESPM Media Lab found in 2015 that among the 100 channels with the largest audience on YouTube in Brazil, 36 addressed content targeted at or consumed by children. In the same year, the audience for 110 children's channels totaled 20 billion views. By the end of 2017, the audience for children's content had exceeded 115 billion views and, among the 100 channels with the largest audience, 52 addressed content targeted at or consumed by children. According to their terms of use, the platform should not be used by people under the age of 13, which does not occur in practice, given that data which can verify whether the access is carried out by children or not, as it happens in other social networks, is provided by the visitors themselves, making them easy targets in the world of marketing and advertising (CORRÊA, 2016).

In 2019, the United States Federal Trade Commission signed a US\$ 170 million agreement with Google and its YouTube service to compensate for the illegal collection of data from children on the video platform, used for targeting ads. The company was accused of violating US law that stipulates children's online privacy protection and stresses that no data from people under the age of 13 can be collected without guardian consent. Considering this, the company has already issued a note stating that it will undergo a restructuring of its internal policies, aiming at new protections for children (FTC, 2019).

According to the data collected, the 2017 TIC Kids Online survey highlights that 74% of children aged 9 to 10 years and 82% of children aged 11 to 12 years are Internet users in Brazil and the vast majority watch videos, programs, films or series (NIC.BR; CETIC.BR, 2018).

In addition, children were responsible for 52,164 billion video views on YouTube until September 2016. Among the video categories that grew in audience figures between 2015 and 2016, unboxing rose 975%, followed by kid youtubers, with 564%, and TV channels on YouTube, with 171% (CORRÊA, 2016).



Corroborating this scenario, more recent data infer that child advertising increased dramatically as Children's Day (12 October) drew nearer. In the case of pay-TV, the children's channels Cartoon Network, Discovery Kids and Gloop had an increase of 331% in child advertising during October 2019.

Toy manufacturers lead advertisements targeted at children in pay-TV, and are responsible for 71% of them, followed by food products and media from the channels themselves, such as apps and social networks that account for 9% each (CHILD AND CONSUMERISM, 2019).

It can be concluded by analyzing the data that this public is bombarded with advertisements at all times and, consequently this is seen by large companies as a profitable, promising and highly influential audience in family purchases, able to further strengthen consumer society structures.

It is observed as a very well-planned project when we relate the model adopted by companies to target advertising at children and the unboxing videos practiced by child presenters. Adorno and Horkheimer (1985) problematized that such advertising and marketing communication strategies are controlled by large communication, advertising and entertainment companies in order to disseminate and propagate values, behaviors and symbolization that are capable of sustaining the consumerist-rationalist logic, or that is, consumption in an unbridled way.

In the Brazilian context, these practices and influences are prohibited by specific legislation, as they target any type of marketing and advertising communication to children abusive. Article 227 of the Federal Constitution establishes the duty shared between family, state and society, which includes companies, to guarantee, with absolute priority, the rights of children and adolescents (BRASIL, 1988).

The Brazilian Child and Adolescent Statute states that a child is a person up to 12 years old; that the child is going through a

Toy manufacturers lead advertisements targeted at children, and are responsible for 71% of them, followed by food products and media from the channels themselves, such as apps and social networks that account for 9% each.



particular phase of physical, cognitive, psychological and social development; and that the best interests of the child and their full protection in any type of relationship and the right to respect and inviolability of their rights must be guaranteed (BRASIL, 1990).

The Brazilian Consumer Protection Code (CPC) establishes that advertising must be easily and immediately identifiable by its target audience, so that advertising is only lawful when the recipient of the message can identify it as such at the time of exposure and without effort, and the advertising that takes advantage of the child's lack of judgment and experience is abusive (BRASIL, 1990).

Resolution n° 163, 2014, of the Brazilian Council for the Rights of Children and Adolescents (*Conanda* in Portuguese) describes in detail the concept of abuse by defining elements that characterize advertising to children (BRASIL, 2014).

Finally, the Legal Framework for Early Childhood, a more recent law, which prioritizes protection against all forms of consumerist pressure adopting measures to avoid early exposure to marketing communication (BRASIL, 2016).

In addition, these practices and influences are also harmful to the environment in which we are integrated, especially when related to the production, consumption and disposal of plastic, intrinsic to the children's world, more specifically, toys.

2.1. Toy advertising

Advertising can be found in our daily lives in several ways, following specific production and industry laws. When related to the children's world, toys are the items that stand out the most, especially on commemorative dates, such as Children's Day and Christmas. These disseminated advertising mechanisms, whether through TV, on the Internet or any other means of communication,

imply a consumer attitude towards the ads and products themselves (MAGALHÃES, 2005).

We already know that toys are part of every childhood. However, as time has gone by, they have been modified and gained new formats and features. In essence, toys are extremely significant and play an important role in the child's development, with the potential to stimulate imagination, creativity and cognitive and motor skills, but they also reproduce and stimulate social norms, for example, toys aimed only at girls or boys.

Despite the variety and modernity, research carried out in 2011 by the Target Group Index revealed that dolls and strollers are the most purchased toys in Brazil, accounting for 32% and 31% of purchases, respectively. The advertising investment in the toys and accessories sector nationally in the period from January to September 2011 was US\$ 150 million, reaching a growth of 36% when compared to the same period of the previous year, ranking seventh in the sectors that most increased investment in advertising (IBOPE, 2011).

More recent data show that in the first quarter of 2019 alone, US\$ 917 million were invested in advertising in Brazil, in which 61.3% of the amount went to television (open and subscription) and 19.1% to the Internet. (CENP, 2019). When crossing this source with the fact that a child has access to these communication vehicles, advertising targeted at this group and that on commemorative dates increases even more, we can imagine how much impact advertising has on childhood.

In Brazil, the toy category leads in child advertising ads, in addition to its excessive increase close to commemorative and specific dates in the children's world. As an example, the company Mattel do Brasil Ltda. - one of the largest toy manufacturers in the world - was the champion of TV ads in 2011, representing an average of 56%, responsible for 8,900 ads, 2,600 just for the Barbie doll alone (CASTRO, 2011).

The information gathered allows us to induce that the toy sector in line with the advertising market reaches several dimensions, manifesting itself both on TV and on the Internet, in addition to being a strong segment that invests in child advertising in Brazil and, consequently, in toy sales, boosting consumerism.

Nevertheless, child advertising is so strong and contagious that it can, when influencing children, lead them to often determine family purchases, and this is not just limited to toys. Nine out of 10 Brazilian parents or guardians admit that they are influenced by their children when they go shopping at the supermarket; more than half recognize that they spend more when accompanied by them (INSTITUTO LOCOMOTIVA, 2019). Another study points out that children have a weight of up to 80% in the purchase decisions of a Brazilian family (INTERSCIENCE, 2003).

As a result, children have a strong influence on adults to purchase products and services in their home environments. And this occurs, precisely, due to the high degree of exposure to advertising to which they are submitted daily in different media and living spaces. Adults have the purchasing power, but children influence the decision. No wonder we see advertisements for products and services from the adult world aimed at children, such as cleaning products, cars, waterproofing products, cell phone operators, among others.

In this context, we can say that parents accompanied by their children at the time of purchase may have higher financial expenses. Some of the main negative impacts of this are encouragement, from childhood, of a culture of excessive consumption and families in debt, as well as discomfort and family stress caused by the child's insistence on wanting the toy seen in some advertising mechanism.

As already pointed out in excerpts of this work, these practices aimed at children are considered illegal by the Brazilian legislation because it is considered abusive to target any type of advertising that takes advantage of the child's lack of experience.

However, despite having this illegal character, the market still operates and benefits from these strategies, and advertising ends up valuing a consumerist ideology.

Throughout this research, it is worth questioning whether the advertising proposal that focuses on children's toys has the concern of the child's full and healthy development at heart, as well as the relation with the ludic learning that is disseminated. We should also reflect on the type of education that is intended to be promoted and the kind of citizen that is desired to develop, as easy access of children to the media and advertising strategies makes the task of educating them critically and establishes less materialistic, more sustainable and healthier practices and values.

Thus, from childhood onwards values should be set that protect children from the consumerist and deteriorating world, principles that can be developed in conjunction with Critical Environmental Education, school education and family education, in a cycle that is complementary. However, the consumer society model goes far beyond these spheres, permeating several others that are related to the ethical, economic, social and environmental character, among others that constitute our environment.

Critical Environmental Education should be considered as a continuous and permanent process, associated at the level of education and as a social practice for the formation of citizenship, emphasizing full, autonomous and critical development in relation to socio-environmental issues, with a view to cultural change and social transformation (CARVALHO, 2012; GUIMARÃES, 2011; REIGOTA, 1998; SATO, 2002; ZUIN, 2011).

2.2. The toy trade in Brazil

To understand the market and toy trade in Brazil, it is important to understand the industry to which it belongs. The Brazilian toy industry is part of the “processed plastic products” chain and, in 2008, accounted for 1% of the total produced by this sector (ETULAIN et al., 2011). Currently, the Brazilian Plastic Industry Association (Abiplast) includes toys in the “wholesale and retail trade articles” category, which in 2018 represented 10.5% of the sector (ABIPLAST, 2019).

The whole chain of processed plastics in Brazil currently has 11,127 companies (ABIPLAST, 2019), of which about 900 are toy manufacturers and recreational games (ETULAIN et al., 2011). Despite the significant number, 72.1% are micro or small companies. In terms of billing, two international manufacturers, *Mattel do Brasil* and *Hasbro do Brasil*, account for almost 25% of sales (EUROMONITOR INTERNATIONAL, 2019).

In the 1990s, the opening up of trade and foreign exchange in the country favored the entry of imported products, mainly from Asian countries. This opening immediately brought two negative effects: the impact on national productivity and increased exposure to smuggling and illegal overbilling practices. On the other hand, the sale of imported products raised the toy market’s revenue by 50% between 1990 and 2000 (ETULAIN et al., 2011).

In order to speed up the entry of imported products and avoid further losses to the national industry, in 1996 the Brazilian government increased the rates of toy imports from 20% to 70%. After reducing gradually, the safeguard reached rates of 30% in the early 2000s (ETULAIN et al., 2011).

This safeguard ensured competition between national and international industries. In 2018, the Brazilian toy industry recorded sales of US\$ 927 million, while imported ones recorded sales of US\$ 844 million. That is, the toy sector in the country had a

total of US\$ 1.75 billion in 2018, representing an increase of 7.5% compared to the previous year (ABRINQ, 2019). It is important to highlight that the Brazilian toy sector grew in revenue in a year in which the global market suffered a 2% recession (NPD, 2019).

Brazil imports toys mainly from China, accounting for 84% of the toys that come into the country (ABRINQ, 2019). However, only 20% of the cargo unshipped in Brazilian ports undergoes some type of control. Although this is the international average for enforcement in ports, it can also contribute to smuggling and illegal toy trading in Brazil (ETULAIN et al., 2011).

In April 2019, the city of São Paulo seized 200 tons of toys illegally sold in the Brás region, downtown São Paulo capital. The seized products did not comply with the *Inmetro* certification (National Institute of Metrology, Quality and Technology), which attests the safety of toys (DESTAK, 2019). In the following month, the Inland Revenue barred the entry of 42 tons of counterfeit toys in the port of Santos. The cargo, which came from China, was carrying mainly fake products from the Marvel, Disney and Lego brands (PIMENTEL, 2019).

When stopped at Brazilian ports, much of this cargo goes on to Uruguay or Argentina to then be transported to Paraguay and, once again, attempts to enter Brazil. The insistence is not a coincidence. Brazil ranks as the seventh largest market in the demand for toys in the world. Although the country's demand accounts for only 2.7% of the global market, it has the greatest potential for sales growth. It is estimated that 20 million Brazilian children still do not have access to toys. With a greater income distribution in the country, a significant increase in access and sale of toys is also expected (ETULAIN et al., 2011).

Toy sales in Brazil are mainly concentrated in the second half of the year, accounting for 71% of the annual total. The main factors are the following commemorative dates: National Children's Day (12 October) and Christmas (25 December) (ETULAIN et al., 2011).

Male dolls, female dolls and accessories account for 19.2% of

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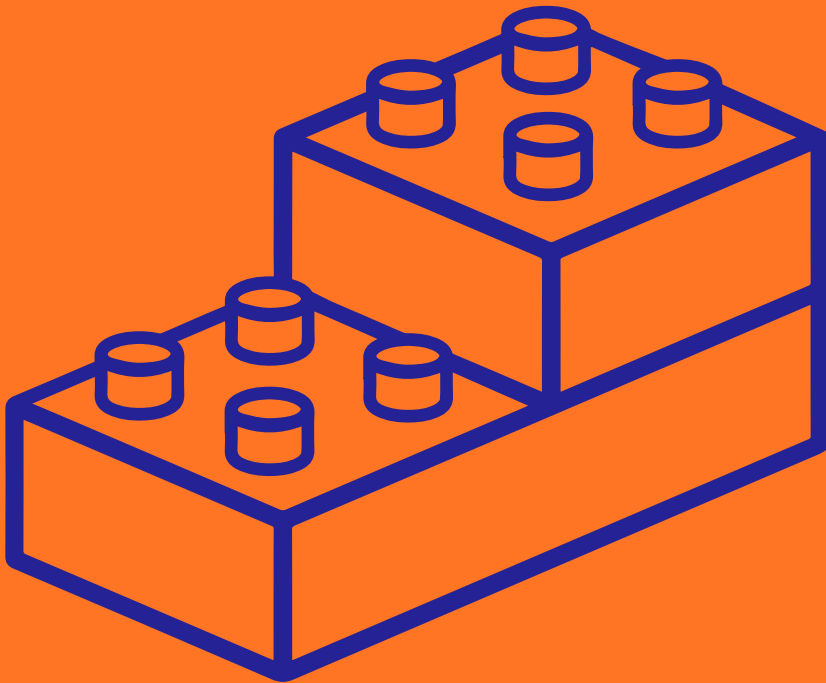


sales, followed by vehicles (strollers, motorcycles and tracks), with 16.7%. Sales occur mainly in stores specializing in toys (33.5%) and via e-commerce (22.4%). In 2011, internet sales represented only 1.7% of toy sales in the country. However, they continue to expand (ABRINQ, 2019).

The South and Southeast states concentrate 68% of the country's toy sales. São Paulo accounts for 33.7% of sales (ABRINQ, 2019). These data meet the growth potential of the sector in other regions of the country. Therefore, considering this factor and the role of children as inducers for family purchasing decisions (INTERSCIENCE, 2003; INSTITUTO LOCOMOTIVA, 2019), toy trade and consumption in Brazil sets an important agenda to analyze socio-environmental development and childhood development.

3.

PLASTIC TOYS



3.

If we go back in time a little and look at the toys our parents and grandparents had, we will see that many of them were made of wood or metal. Although the first plastic toy was created in the late 19th century - a doll made from celluloid - it was after the Second World War that the plastic industry took on a prominent position in the production of toys and reached the mark of 90% of toys produced worldwide from some type of plastic (PLASTICS LE MAG, 2011).

It is interesting to reflect that the first plastic toy in the world and the others manufactured so far may still be present on the planet and that, in some circumstances, they will be discarded, which may further enhance the impacts on the environment due to the excess of plastic, given that this material takes a long time to decompose.

When we associate child consumerism with the environment, we have plastic and its correlation with three types of products: food, drinks and toys. In the first and second cases, it is associated with the disposal of bottles and packaging, which represent the main source of marine litter (ARAÚJO; COSTA, 2003; MMA, 2013). In the third, the demand for plastic for almost the entire toy sector is considered, as previously described⁶.

⁶ Plastic toys are not studied as a source of marine litter. The existing bibliography is scarce and underway. However, this study may contribute to this field and, consequently, to the development of new research.

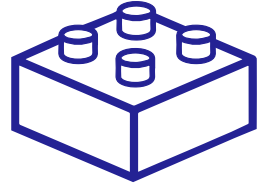
And where does the plastic come from? Primarily oil. Although there are already cases of plastics made from vegetable raw material, such as sugar cane, plastic toys are mostly made of PVC, especially dolls, which represent 16.7% of the national market and is the most sought after product in the toys and recreation sector (ABRINQ, 2019).

A classic example is Barbie. The doll was created in PVC in the late 1950s. In this category, vinyl has characteristics in its favor, such as the possibility that the processed plastic has a soft touch similar to human skin itself. In 2007, the executive director of the PVC Institute, Miguel Bahiense, declared that "PVC is and will continue to be one of the main, if not the main, thermoplastics in the toy sector" (PACHIONE, 2007).

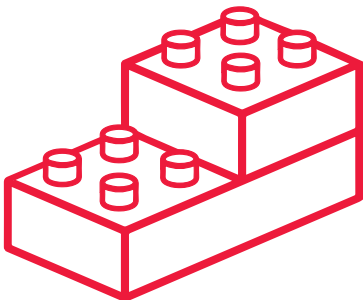
Production and consumption of plastics, particularly disposable for single or short-term use, are growing rapidly due to the current lifestyle of humanity. This consequently causes social and environmental problems worldwide, mainly in line with some characteristics, such as: product composition (increased complexity concerning the diversity of components, including toxic ones, such as dyes and heavy metals), increasing production, dissemination in all environmental compartments, difficult degradation and easy dispersion (ARAÚJO; COSTA, 2003).

A study carried out by Jambeck et al. (2015) published in Science Magazine evaluating the generation of waste from 192 coastal cities in the world showed that, in 2010 alone, 12.7 million tons of plastic reached the oceans. Brazil, where 41.6% of the plastic consumed does not have a suitable destination, occupies the 16th position among the countries that most dispose of plastic waste in the ocean, ranked behind mainly Asian countries, where the import of plastic products is predominant as China is the global leader in both production and inadequate disposal and ocean pollution.

In addition, plastic presents favorable conditions for fragmentation, giving rise to microplastic, affecting an even



**90% of toys
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plastic.**



greater number of organisms. If this scenario persists, the socio-environmental impacts may be even higher, harming human beings even more, as these plastic particles can be found in drinking water, food, clothing, among other items of daily use (ARAÚJO; COSTA, 2003; NUCCI, 2010).

According to the international environmental association World Wide Fund for Nature (WWF), it is estimated that a person can ingest, on average, up to five grams of plastic per week. The first source is water, especially if it is bottled. Among other products are seafood, salt and beer, which have a high rate of microplastics (JN DIRETO, 2019).

Most plastics are not disposed of properly and only a small portion of them are recycled; the remaining tons end up in landfills, dumps and oceans. Studies claim that in Brazilian society plastic is the most abundant non-organic waste, reaching 80% of the total that is accumulated in landfills and in the oceans. It is estimated that approximately 11 million tons of plastic waste are produced in the country each year, which ends up being improperly disposed of, comprising marine litter. Plastic pollution in the oceans may reach 300 million metric tons by 2030, considering projections of population growth, GDP per capita, and the current generation of plastic waste per capita (MMA, 2013; NUCCI, 2010; WWF, 2019).

Added to this is the complexity of plastic recyclability. Although Brazil already has 1,061 companies that deal with plastic recycling (ABIPLAST, 2019), the recycling process of this material needs to be done based on the type of polymer, as some plastics, if mixed, are contaminated (HAJAJ et al., 2019). According to Hajaj et al., all plastic is recyclable; some can be recycled easily, and others have a high degree of complexity. In some cases, recycling the material would be more expensive than producing a new one, as in the case of multilayer plastics.

Plastic recyclability is also associated with the purity of the product, which means parts made up of a single material, not mixed. The rawer, without additives such as pigments, paints

and mixtures of other plastics, the greater added value and the likelihood of recycling (HAJAJ et al., 2019). **That is, if we think of toys that are primarily made out of plastic, and all the pigmentation, paint, glitter and other components, it can be seen that the recyclability of toys is practically impossible.** Adding to that, there is the inappropriate destination of these products, which can result in improper disposal in oceans.



The waste found in oceans is due to anthropic activity, therefore, we must find alternatives to minimize this problem, as marine litter can cause, in addition to environmental losses, social, economic and public health damage (ARAÚJO; COSTA, 2003; MMA, 2013; SANTOS et al., 2001).

Concerning childhood, in addition to the risk of intoxication that some plastics used in toys bring, there are also the socio-environmental impacts caused by their production, consumption and disposal, stimulated by the children's toy industry, which promote consumerism in an unbridled way.

Thus, although there are few studies in the literature, marketing communication strategies of the toy industry and the consumption of plastic can be correlated, as well as their negative impacts on health, society and the environment.

3.1. The risks of plastic toys

It is not new that researchers are concerned with studying the damage that can be caused to human health and the environment by using plastic and its derivatives, such as utensils for daily use: glasses, plates, mineral water bottles, baby bottles and toys (ZIMMERMANN et al., 2019; ZINI, 2019).

A study carried out by Zini et al. (2009) analyzed toxic elements in plastic toys sold by street vendors on the border between Brazil

and Paraguay and in popular shops in São Paulo, produced mainly in Asian countries. In the sample carried out with PVC and latex dolls, mainly those that are easy to acquire and inexpensive, metals such as cadmium, lead, chromium, zinc and aluminum were found, together with organic substances such as phthalates - substances added to plastic to give flexibility to the material. Such compounds, when in regular contact with human beings, can cause various health problems, in addition to being more aggressive to more vulnerable groups, such as children and pregnant women, and can cause behavioral and learning disorders, diseases that can contaminate the nervous system and the kidneys, in addition to the possibility of acting as carcinogens. Nevertheless, the study reveals that traces of thorium, which is, along with uranium, a radioactive element, were detected in one of the studied samples. Although the measured radioactive dose was quite low, the presence of a radioactive contaminant is contrary to the regulations of the International Atomic Energy Agency (ZINI et al., 2009).

A recent study, launched by the European Environmental Bureau, analyzed the toxicity of 248 toys marketed in Europe. From these, 228 (92%) were categorized as presenting serious risks of intoxication; 51% of them had high levels of phthalates.

Out of the 15 European countries that participated in the research, 13 revealed samples of toys contaminated with an excess of the so-called “four phthalates” [DEHP - phthalate di (2-ethylhexyl); BBP - butyl benzyl phthalate; DBP - di- (n-butyl) phthalate; and DIBP - di- (isobutyl) phthalate]. In 2016, the European Chemicals Agency together with the Danish Environmental Protection Agency suggested that heavier restrictions be applied to these components (EUROPEAN CHEMICALS AGENCY, 2016; HUNTER, 2019).

In addition to handling, toxic contamination by plastic toys can also occur from accidents, such as inhalation, aspiration and absorption. A survey by the Federal University of Rio de Janeiro (UFRJ) in Otorhinolaryngology evaluated, between 1992 and 1998,



420 cases of foreign body aspiration. Most cases (91%) occurred among children aged 0 to 4 years. Small plastic artifacts were the second highest occurrence of foreign body aspiration (76 cases, 18.09%), second to only fragments of foam (96 cases, 22.86%), followed by beans (62 cases, 14.76%) and fragments of paper (23 cases, 5.47% of the total) (FIGUEIREDO et al., 2006).

As a result, a study by the German Ministry of Environment and the Robert Koch Institute, released by Der Spiegel magazine, found plastic waste in children's bodies. For this finding, from 2014 to 2017, 2,500 blood and urine samples from children aged 3 to 17 years were tested. The study states that younger children were the most affected by plastic ingestion, in addition to children from low-income families having more plastic waste in their bodies compared to high-income children (RAHN, 2019).

In 2007, Mattel, one of the largest toy manufacturers in the world, recalled millions of toys made in one of its industrial parks in China due to lead contamination. Most of the toys came from its subsidiary, Fisher-Price, known for making toys for babies. Mattel was fined US\$ 2.3 million, imposed only in 2009 (KAVILANZ, 2009).

It can be inferred that in line with the growth in production and use of common plastics, they appear frequently in human organisms, and children, being a fragile and vulnerable group of consumers, end up having contact with various toxic elements that can be found in plastic toys and which, if put in the mouth and ingested in larger doses, can cause serious health problems. Thus, warning should be given regarding plastic toys, especially those of dubious origin and those that are easy to handle.

3.1.1. The necessary categorization: the main types of plastic in toys

Globally, plastic production increased by more than 20 times between 1964 and 2015, with 322 million tons (Mt) produced annually, and is expected to double by 2035 and almost quadruple by 2050. Plastics contribute to economic growth, but their current production and use pattern, on a linear model of 'take, make, use, and dispose', is a primary driver of natural resource depletion, waste, environmental degradation, climate change, and has adverse human health effects. (BARRA & LEONARD, 2018).

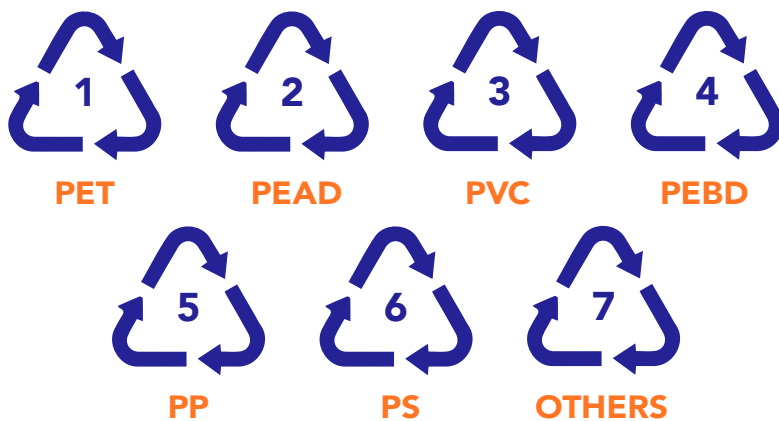


FIGURE 1. Symbols to identify plastic types according to the ABNT NBR 13230 standard in Brazil (COLTRO et al., 2008).

According to the ABNT NBR 13230 standard in Brazil, referring to the indication of recyclability and identification of plastic materials, the identification symbols of the types of plastic can be seen in Figure 1.

However, for toys, three types of plastic are predominant: LDPE (low density polyethylene); PP (polypropylene); and PVC (polyvinyl chloride). For LDPE and PVC, the main advantage is the flexibility and high strength of both. PP stands out mainly because it is inexpensive and very light (NEUPLAST, 2018).

However, PVC is basically the most used polymer for manufacturing toys (ETULAIN et al., 2011). Its malleability makes the plastic product the best option for toys such as dolls, the best-selling item in Brazil (ABRINQ, 2019). Despite its production advantages, phthalates, a class of chemicals used to soften plastics, are added to make PVC malleable.

The literature has already shown that excessive exposure to phthalates through inhalation, ingestion or even absorption in the skin can cause damage to health, ranging from asthma to hormonal, developmental and reproductive problems (EHCC, 2010). For this reason, *Inmetro* Ordinance No. 369/2007 determined a limit of 0.1% of phthalates in the composition of toys made from PVC. However, a test carried out by the Brazilian Institute of Consumer Defense (IDEC in Portuguese) made with 31 toys in 2008 found products that exceed 390 times that mark (IDEC, 2011).

Less common are toys made of polycarbonate (PC), classified as number 7 (others). PC is, in most cases, made from the reaction between Bisphenol A and phosgene gas (COCl_2). The first is a polymer that can cause everything from hormonal problems to prostate and breast cancer. The medical literature also associates Bisphenol A with cases of childhood obesity (JACOBSON et al., 2019). Bisphenol A-based PC was widely used to produce baby bottles, but studies reporting health problems associated with the compound led several agencies worldwide, including ANVISA (National Health Surveillance Agency), to ban it in 2011 (ANVISA, 2011).

Nonetheless, Jacobson et al. (2019), when analyzing urine samples among children and adolescents in the United

States between 9 and 19 years old, reported that the **alternatives found to Bisphenol A, which are Bisphenol S (BPS) and Bisphenol F (BPF), presented problems similar to the health of children and adolescents, such as childhood obesity.**



The study analyzed urine samples from the children and adolescents studied and identified the presence of 97.5% BPA, 87.8% BPS and 55.2% BPF. In samples with BPS, 95% were associated with cases of general obesity and abdominal obesity. Moreover, samples with the presence of BPF were also connected in 95% of cases to abdominal obesity.

It is important to note that **the use of PC with Bisphenol A was prohibited for manufacturing baby bottles in Brazil, but not in toys.** Although it is not the most common plastic for manufacturing toys in the country, a quick search on e-commerce sites with the term “polycarbonate toy” will already show that there is a variety of products for children using this plastic.



In fact, plastic has brought a number of advantages to the toy market, as well as to other varied sectors. Lightness reduces the risk of accidents, kinks or cuts. Despite the consumer society, which encourages children to always want a new toy quickly, plastic toys were made to last a long time, and are resistant to extreme temperature differences and exposure to the sun (NEUPLAST, 2018).

However, what the literature has shown is that not every type of plastic is healthy to use in toys. PVC with phthalates and PC with various bisphenols endanger children’s health and future. That is, in a market where PVC is still predominant, it would be advisable to look for other plastics that offer greater safety in toxicological terms or simply choose toys that are made out of other materials.

3.2. Recyclability of plastic toys and their packaging

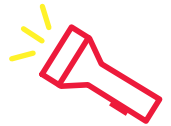
If, on the one hand, a toy is made to last and even span generations, on the other hand the toy market and its marketing is constantly putting novelties on the shelves so that children will want a new item every year.

Depending on the type of product, some can last for more than 500 years in the environment (WWF, 2018). In addition, even if plastic toys are stored for a long time, they come with packaging that is discarded immediately after use. In the toy industry, there is a whole study for packaging, most of which is made of plastic. They need to be attractive, shiny and often colored, which means again using chemical additives for plastic and, therefore, making it infeasible to recycle the product.

Packaging represents 40% of all discarded plastic waste, also found in the oceans, and integrates, along with straws and other products, the so-called single-use plastics. Although many plastics are suitable for recycling, only 9% of the plastic produced worldwide goes to this destination (GEYER et al., 2017). Once again, the recyclability of the plastic packaging depends a great deal on its level of purity. The sum of materials can make its recycling potential unviable, a common process when we talk about toy packaging, due to the excess of colors, brightness and attractiveness.

Although most toys are made of PVC plastic, which is considered a recyclable plastic, the mixture of plastics and addition of other materials, such as pigments, make the chance that a toy can be recycled almost zero (FABRIS et al., 2006).

In 2018, the Danish LEGO SYSTEM A/S (Lego), one of the largest toy manufacturers in the world, launched pieces made from plastic originating from sugar cane. The initiative is part of



the company's goal to ban the use of petroleum-derived plastics and packaging by 2030. However, currently the "green" pieces represent 1 to 2% of all the company's production (SMITHERS, 2018) and are, from a chemical point of view, identical to conventional polyethylene (PE) (BRASKEM, 2018).

Although the plastic industry defends its recyclability, it is also important to question its need to exist and circulate in certain sectors (ZUIN, 2016; KÜMMERER & CLARK, 2016; KÜMMERER, 2017). If for some areas, such as automobiles, the use of plastic has reduced the energy expenditure of vehicles, which represents a reduction in pollutant emissions, for example, in a sector such as toys, associated with the consumer society, it poses a problem that leads to the question: which plastics should exist or circulate in the toy industry?

3.3. Projections of disposing of plastic toys in Brazil

The lack of literature on the disposal of toys in Brazil and worldwide makes it difficult to understand the impact of this market on the disposal of plastic. Although the formal toy industry has very little representation in the processed plastics chain, it does play an important role in children's education and development.

It is also important to highlight that the existing data on the market and the toy industry in the world are produced by the sector itself and that many of these are accessible only by paying sums that amount to thousands of dollars. Therefore, generating open data that exemplifies the urgency of this topic is urgent and necessary.

In 2015, the world produced 5.2 million tons of toys, 70% of which were produced in China (INDEXBOX, 2019). Based on the premise that approximately 90% of the toys produced on the planet are made of plastic, it can be concluded that the world produces an annual average of 4.7 million tons of plastic toys.

In Brazil, the entire processed plastics industry produced 6.2 million tons of products in 2018. Considering a representation of the toy sector of a maximum of 1% of this industry, it can be estimated that 62 thousand tons of toys are produced annually in the country. Considering that in 2018 the Brazilian toy industry registered a growth of 7.5% (ABRIN, 2019), following this level of growth it would be possible to say, based on official data and information, that in 2030 Brazil can reach the annual production mark of almost 158 thousand tons of toys. Despite being a projection, this number can be reached by considering that 20 million children still do not have access to toys available in major retail chains in Brazil (ETULAIN et al. 2011). Thus, in this growth curve (Figure 2), the country will have produced around 1.38 million tons of plastic toys accumulated between 2018 and 2030. As a comparison, considering a standard garbage truck with 7 tons

Amount of toys (thousand tons)

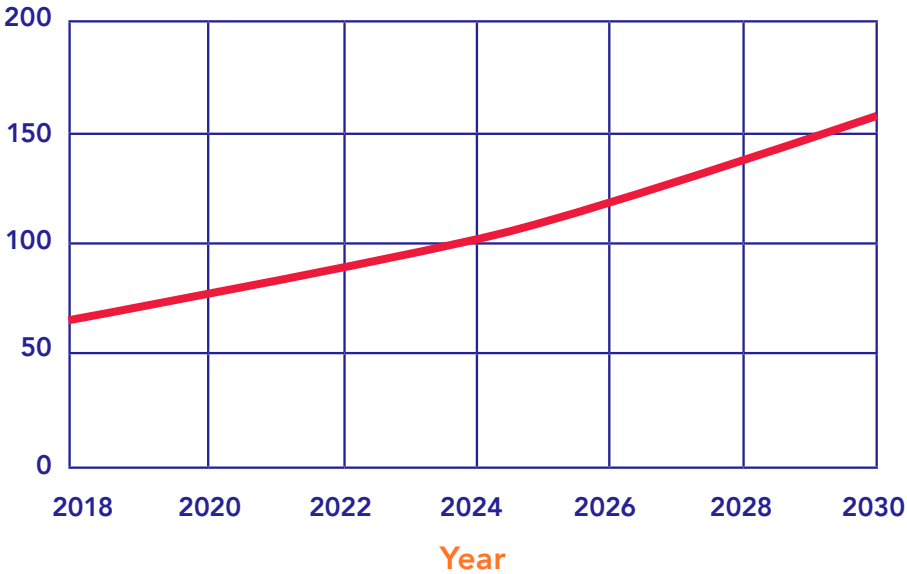


FIGURE 2. Projected growth in the production of plastic toys in Brazil from 2018 to 2030.



Brazil will have produced around 1.38 million tons of plastic toys accumulated between 2018 and 2030. As a comparison, considering a standard garbage truck with 7 tons of capacity and 10 meters long, this amount is equivalent to 198 thousand trucks lined up from Miami to New York.



of capacity and 10 meters long, this amount is equivalent to 198 thousand trucks lined up from Miami to New York.

It is worth noting that plastic was an innovation, especially known for its lightness. Thus, weight is not necessarily the best metric for representing the amount of plastic in a comparison. It is also important to consider that, although toys may be durable goods, their decomposition time means that this amount will remain on the planet for centuries.

However, if the argument of the durability of the plastic toy is still used to justify the use of this material, the same cannot be said about the packaging, as, in most cases, it is made for immediate disposal after opening the toy. Considering the lack of data on the quantity and disposal of packaging from the national toy sector, we compared two toys in the list of the most wanted in the country: the Original L.O.L. Surprise! and the Basic Mattel Princess Barbie.

For the Original L.O.L. Surprise! product, the technical file states that the total weight of the product is 240 grams and that only the doll weighs 140 grams, which means that 42% of the product is made up of the packaging. The technical file of the Basic Mattel Princess Barbie states the weight is 360 grams, in which 170 grams is the packaging weight, resulting in 47% of the product concentrated in the packaging (BKM DISTRIBUIDORA, 2019; HAVAN, 2019).

From these two comparisons, the value of 45% was estimated for the amount of packaging used in toys. Therefore, if in 2018, 62 thousand tons of toys were produced in Brazil, the packaging represents an amount of approximately 28 thousand tons. Considering this and following the same reasoning of growth of the sector used for the quantity of toys, if nothing changes, in 2030 Brazil will produce 66 thousand tons of toy packaging (Figure 3). The total for the 2018-2030 period would represent 582 thousand tons of packaging. It is important to highlight that the projected figures only consider the legal sector

Tons

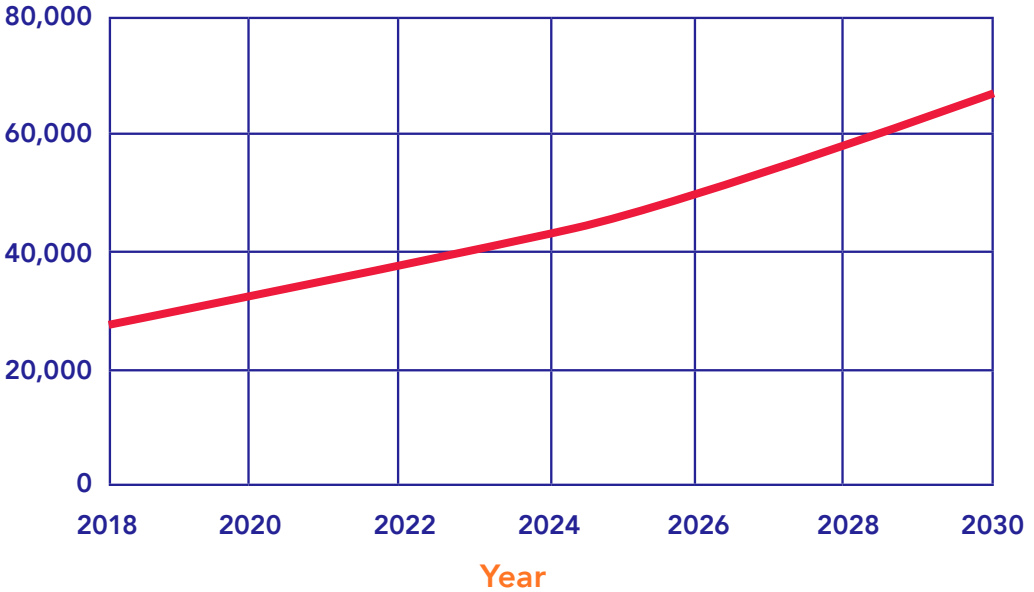


FIGURE 3. Projected growth in toy packaging production in Brazil from 2018 to 2030.

of toys. In other words, they do not take into account products that enter the country irregularly.

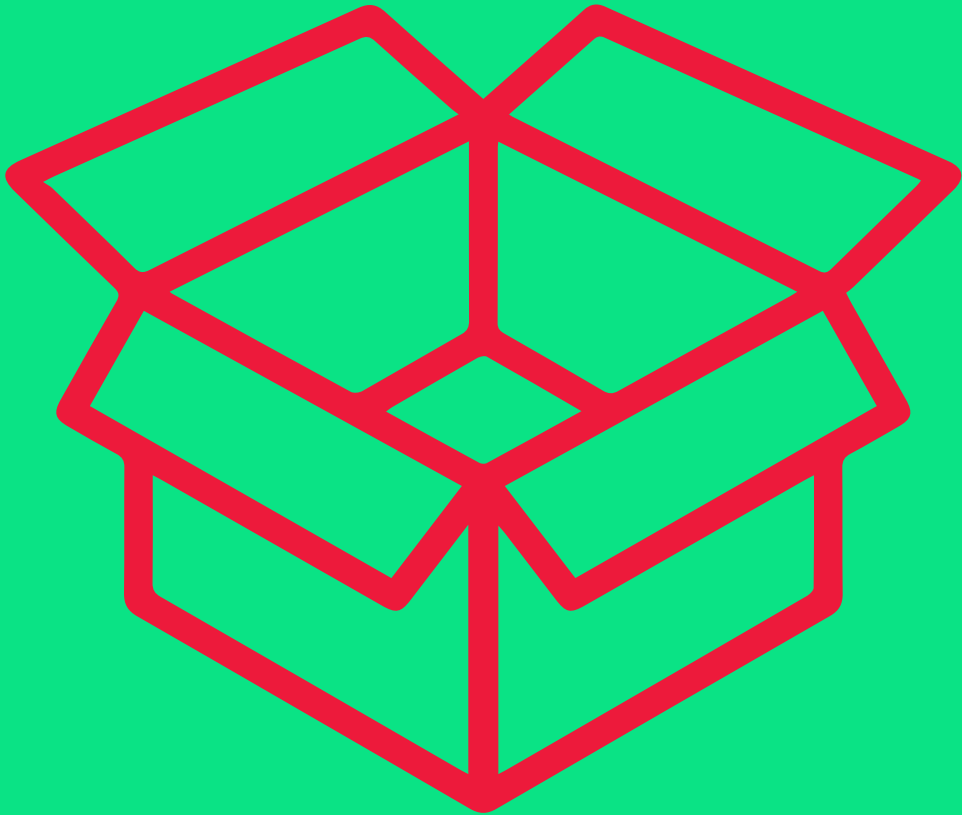
Regarding toy packaging, it is important to note that it is not always made entirely of plastic, and due to the little data that exists on this issue, an estimate is difficult. Even cardboard packaging, if analyzed, often undergoes treatments with varnish and polish and may contain plastic elements, which also makes recycling impossible. In other words, toy packaging depends on the manufacturer and can consist of plastic, paper or other material. In the case of L.O.L. packaging, it mostly comprises plastic. In the case of Barbie packaging, there is a mixture of materials, such as plastic and cardboard.

In the absence of direct data, the projections attempt only to demonstrate the urgency of in-depth studies on the subject

in order to find solutions, including with the sector. Although toys are produced to last, there is research that shows how quickly children lose interest in them. **A study in the United Kingdom concluded that children put a toy aside in 36 days and that one in three parents admitted to throwing away toys that are still in a perfect condition** (MYGREENPOD, 2019). Added to this is the fact that toy manufacturers constantly stimulate children using marketing strategies to want the latest novelty. In the next chapter, we highlight this in two preliminary case studies.

4.

CASE STUDIES



4.

To corroborate this research, two case studies were used to illustrate the problem of production, consumption and disposal of plastic toys and how this is connected to consumerism and child advertising. First, the problematization of the L.O.L. Surprise!⁷ collection and its plastic world linked to the culture of unboxing. Then, the study of the McDonald's Happy Meal, which associates the toy with the consumption of fat and low-nutritious foods (SILVA; FERREIRA, 2019) and which makes the company McDonald's the largest toy distributor in the world (MARANJIAN, 2016).

4.1. L.O.L. Surprise!

L.O.L. Surprise! is one of the practical examples of excess plastic generated by toys, in addition to the linked advertising strategies aimed at children, which encourage and accelerate the consumption and disposal of plastic.

Briefly, L.O.L. Surprise! is a line of collectible dolls wrapped in several layers of plastic that bring an element of surprise as they are peeled off, revealing hints about the doll's identity. In addition, an important part of the dolls' success is in the

7 L.O.L. is an English acronym for "Little Outrageous Little".

commercial and advertising strategy of the product, which is linked and disseminated by child presenters and unboxing videos.

According to the *Candide Brinquedos* website (2019), one of the product lines distributed by the company is called L.O.L. Surprise!. The standard model that integrates this line is the L.O.L. Surprise! doll, available in a round packaging made up of five layers of plastic, each layer of which is intended to reveal tips about the identity and the make-up of the doll through clothing items and stickers. The doll is, on average, eight centimeters tall and is also plastic.

Recent information points out that the doll was the bestselling toy in the United States in 2017, not differentiating from Brazil. According to *Ri Happy*, a leader in toy retailing in the country, it was the most sought-after item at Christmas in 2018. All this sales success is due to the combination of advertising strategies disseminated on digital platforms (SERRA, 2018; ZUIN; ZUIN, 2017).

To achieve this success, the company relies on permanent marketing strategies with massive advertising on TV and, in particular, unboxing videos with kid digital influencers. The unboxing strategy proves to be an effective sales mechanism for children as they are attracted by the surprise effect and the anticipation aspect that the videos cause. There is also the fact that they are interested in repeating this content to capture new details (SEMUELS, 2019).

In addition to the abusiveness of child advertising, there is the matter of excess plastic generated and discarded due to the commercialization of the doll. To exemplify this, Child and Consumerism made an estimate based on data. They estimated that between 2016 and 2018, 800 million L.O.L Surprise! dolls were sold in the world and, considering that they were all the standard model, the dolls' packaging could go almost 24 loops around the Earth (AMARAL, 2019).

The problem is even worse when we discover that, in addition to the protagonist, there are another 26 lines⁸ from the L.O.L. Surprise! collection, which comprise other L.O.L. products, the doll's sisters, pets, even the exhibitor for the dolls, among others. It is important to highlight that within the lines, special series can be found, which are launched in strategic periods. All the toys and accessories that make up each line are wrapped in layers of plastic that bring the surprise effect as they are "peeled off". What differs is that there are L.O.L. Surprise! dolls that have more than five layers before opening them, such as the L.O.L. Surprise! House, with 85 surprises, one at each stage, which consequently leads to more plastic disposal.

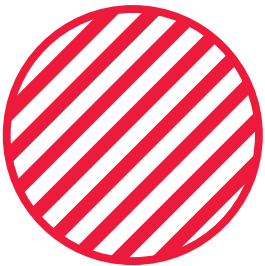
Nevertheless, the lines that comprise the L.O.L. Surprise! have rare items and dolls, which makes the competition and appeal to buy them even greater. This situation corroborates the child's insertion into the current corporate model, transforming the L.O.L. Surprise! into a collectible product, encouraging involuntary consumerism and intensifying socio-environmental impacts, as well as the deficiency in establishing Critical Environmental Education, which is able to continuously and permanently construct socio-environmental behaviors, habits and values (SJOSTROM et al., 2017; EILKS et al., 2018).

Therefore, in a quick search on the Internet, prices in Brazil range from US\$ 24 to US\$ 724, which is the case with the doll's house. It can be observed that there is an economic sphere of parents or guardians in this process, manifesting, since childhood,

8 According to the information available on the Candide Brinquedos website (2019), in addition to the L.O.L. Doll. Surprise! there are the following lines: OMG Lady Diva, Fashion Crush, Hair Goals, Sparkle Series, Bubbly Surprise, DIY Glitter Station, Lils, Boys, Fuzzy Pets, Bigger Surprise, #OOTD – Outfit Of The Day, Bling Series, Live Surprise, Pass The Surprise, Pop Up Store, Biggie Pets, Pets, Glitter Series, Confetti Pop, Under Wraps, Pearl Surprise, Big Surprise, Surprise Pack, Lil Sisters, Charm Fizz and Fizz Factory.



**From 2016 to 2018,
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a culture of excessive consumption and expenditure by families. Family stress can also be inferred when the child wants to purchase toys, encouraged by advertising communication.

Accordingly, in 2019, through the Child and Consumerism program, the Alana Institute filed a legal representation at the Operational Support Center for the Defense of Consumer Rights of the Public Ministry of the State of Espírito Santo (MP-ES). This was due to the abusive and marketing advertising and communication strategies to children through actions on social networks and video platforms to promote the L.O.L. collectible product lines in clear disregard with current legislation in Brazil, such as the violation of article 227 of the Federal Constitution, the various provisions of the Child and Adolescent Statute, the Consumer Protection Code (CPC), Resolution No. 163, 2014, from Conanda, and Article 5 of the Legal Framework for Early Childhood, as well as the social and environmental damage that is fostered buying the doll, directly interfering in the child's full and integral development and his/her environment (ALANA INSTITUTE, 2019).

Thus, this situation supported by the L.O.L. Surprise! and its plastic world has social and environmental consequences and makes us reflect on the well-being of children, the guarantee of critical socio-environmental education by all social actors and the construction of a healthy and sustainable society.

However, recent information released by the media reports that MGA Entertainment has already positioned itself on the knowledge that toys are one of the items that generate plastic waste and will launch sustainable initiatives on the market in 2020 regarding L.O.L. Surprise!, such as: new biodegradable plastic, exchange of internal plastics for paper, in addition to the possibility of recycling not only the packaging, but the toys when the children finish using them (CNN, 2019). However, the case needs to be monitored to verify whether the information disseminated by the media will be practiced by the company and whether the solutions found are, in fact, sustainable.

4.2. McDonald's Happy Meal

McDonald's Happy Meal is a meal sold to children at McDonald's fast food chain since June 1979. The snack consists of a beef hamburger, a sesame bread roll, cheese, salad, chips and soda. It is also possible to order and combine the snack with other items, making combinations according to personal taste. The meal is already part of the children's world and has become very common for associating fun with food and toys or a gift, which differs every month. The very phrase on the company's website highlights: "McDonald's Happy Meal: the most delicious combinations for children to eat and have fun" (MCDONALD'S, 2019).

Taking this definition of the Happy Meal as a point of investigation, we have, immediately and explicitly, a concept widely used by the toy industry, eatertainment, which is based on the combination of food and fun, through advertising, gifts and other marketing strategies that aim to influence and persuade children and, consequently, include them in the culture of consumption (ASSOLINI, 2008).

Advertising strategies alone are capable of influencing children, however, when associated with entertainment, the consumption experience is further enhanced. These techniques are being increasingly used by the food industry, which propagates the need for food to be a fun action. Entertainment linked to the act of consuming food becomes even more attractive when it involves a character who is part of the children's world, especially those who are always being advertised by the media (ASSOLINI, 2008).

These references to which the child has access and which are already considered to belong to daily activities become even more aggravating when we identify that it is not the nutritional value or the benefits that the food product can bring to the child's development that are highlighted, but rather the ability to entertain, to create and generate need and, above all, to make the child's daily life more fun.

By doing a quick search on the Internet, we can access the nutritional table of the fast food chain snacks and realize that they are loaded with calories and poor nutritional values, in addition to their side dishes, such as chips and milkshakes, with a high content of sodium and sugar, respectively, not being able to supply the daily values necessary for a minimally healthy diet.

Supporting this scenario, the situation is a great matter of concern. In a study carried out in October 2017, the World Health Organization (WHO) identified a total of 124 million obese children and adolescents worldwide. In Brazil, obesity has been growing more and more and surveys show that 50% of the population is in the overweight and obesity range. If current trends continue to grow, there will be more obese children and adolescents than those with moderate and severe malnutrition by 2022 (ABESO, 2019; MEC, 2018; PAHO/WHO, 2017).

According to the Brazilian Association for the Study of Obesity and Metabolic Syndrome (ABESO), the projection is that, in 2025, about 2.3 billion adults will be overweight; and there will be more than 700 million obese people. Regarding children with overweight and obesity rates, the number could reach 75 million, if the scenario remains the same and nothing is done to try to alleviate this worldwide public health problem (ABESO, 2019).

In addition to McDonald's being the largest and best-known fast food service company in the world, with companies in several countries (ASSOLINI, 2008), the chain is considered the largest toy distributor in the world (MARANJIAN, 2016). As a result, children are increasingly inserted into the consumer society and are contaminated by the need to buy and dispose of goods quickly - in this case, toys, which are mostly made up of plastic and its derivatives. It is noted that in this universe, food, even though it is not healthy, becomes a secondary element.

It is important to note that the chain does not invest in food associated with fun only in the Happy Meal, but in all the organization and reception of stores, which have educational

spaces with electronic and online games, playgrounds and, sometimes, characters around, such as Ronald McDonald, as well as entertainment on their trays.

Strategies not within the establishments can also be observed, such as partnerships with local American schools that promote educational events of the brand, programs to recruit groups of American mothers to build trust with the brand, among others (NEWS, 2015). Between 2014 and 2018, the company invested US\$ 3.5 billion in advertising (STATISTA, 2019). In Brazil, in October 2018, McDonald's was fined US\$ 1.5 million for carrying out abusive advertising directed at children in schools with shows starring Ronald McDonald, the company's character (ESTADÃO, 2018).

According to an article published by The New York Times, McDonald's distributes about 1.5 billion toys worldwide each year, surpassing Hasbro and Mattel, two of the largest toy manufacturers in the world. **The situation is alarming when the company and its fast food competitors represent almost a third of all toys distributed in the United States (BARNES, 2001), which makes McDonald's one of the largest toy distributors on the planet.**



5. SOLUTIONS



5.

As explained in this study, the consumption and disposal of plastic toys, sped up by child advertising, poses as a challenge on a social, economic and environmental scale. However, we cannot face it if integrated actions involving different actors in society are implemented, such as reinforcing compliance with current legislation regarding the non-targeting of child advertising, questioning and reflecting on the unlimited use of electronic toys and screens (TOYBOOK, 2019) - as they are ever present in the children's routine -, creating green and sustainable products, public policies to combat child consumerism and the exacerbated use and disposal of plastics, interventions led by the civil society, such as actions to encourage free play and donating and exchanging toys. If integrated and discussed, the solutions are multiple.

In this section, some alternatives that can be implemented in order to solve the contemporary challenge of using, not using and disposing of plastic toys will be listed. They are not unique and do not exhaust the varied possibilities for this agenda, but they are proposals for referrals that can help other developments and solutions (KÜMMERER et al., 2020).

5.1. Designing sustainable and green toys

Toys are important for the child's development. For this very reason, they play a fundamental role in their education and training as individuals and citizens. The chemical sector, which includes the plastics industry, faces the challenge of seeking alternatives that are green and sustainable, solutions based on renewable materials that would be discarded as waste. The processes and services in the chemical sector face the challenge of eco-design. Including sustainable green practices can interfere in different areas of everyday life, including the toy sector (ZUIN, 2016).

For over a decade, the literature has already cited examples that it is possible to use plasticizers from renewable sources to replace traditional plasticizers. An example is the line of nitrile rubber pre-plasticized in vegetable oil (Nitrigreen), with medium-high content of acrylonitrile (33%), which was developed to supply the needs of the rubber market. Nitrigreen is a product that complies with the European directive 2005/84/EC, as it uses a renewable plasticizer. It is not only easy to process, but Nitrigreen is also compatible with vulcanization additives and can be used in formulations of low hardness artifacts, such as toys, graphic cylinders and technical articles (MADALENO et al., 2009).

Bioplastics already exist on the market, which are derived from vegetable products, which are biodegradable and made from biocomposite fibers, such as wood fibers. Lego announced in 2018 that it will adopt bioplastics in its toys and packaging and intends to have 100% of its toys made from renewable materials by 2030 (BARRET, 2018), but discussions based on scientific knowledge need to be held to verify that they are, in fact, sustainable, as previously mentioned.

A recent report by the UN Environment showed that solutions to minimize the impacts of chemicals already exist, but ambitions from the sector and governments are needed to implement them. The solutions include proposing international agreements,

changing legislation, redirecting resources to green and sustainable products, producing knowledge and, then, changing consumer demand (UN ENVIRONMENT, 2019).

5.2. Sectoral agreements and public policies

Often changing legislation or creating new laws for a particular practice and sector can take years. In the case of the toy industry, which is constantly being updated, the process of a new law, when finalized, may even be obsolete. Policy changes that require, for example, the composition of green and sustainable toys or that eliminate the risks of exposure to products harmful to children's health and the environment are urgent, but sectoral agreements are also an alternative to short-term resolutions.

For example, the Ministry of the Environment (MMA) currently has only six sectoral agreements on the reverse logistics agenda related to plastic packaging for lubricating oils, fluorescent lamps, steel packaging, lead acid batteries, household electronics and packaging in general. These are agreements voluntarily adopted by the industries involved, but which generate benefits both for formulating public policies and corporate socio-environmental responsibility policies (MMA, 2018).

A sectoral agreement with the national toy industry could encourage manufacturers to produce toys from green and sustainable materials and to provide the appropriate destination for disposing of toys and their packaging. In parallel, the legislation could be rethought to promote a transition that would prevent the use of PVC in the production of toys and the exposure of children to phthalates and bisphenols.

An immediate solution that could be adopted in the short term is package labeling, specifying the chemical and plastic components of the product. Just as a packet of processed food

contains the ingredients used to make that product, the labeling could mention components such as phthalates and other types of bisphenols in addition to Bisphenol A. Currently, some products are already labeled with the BPA Free seal (free from BPA), but the opposite does not occur (when there is BPA).

Finally, there is a need for policies to stimulate the circular economy, a concept that has been coined with the principle of stimulating production models that are not based on finite resources and aimed at eliminating waste in its chain (ELLEN MACARTHUR FOUNDATION, 2019). Thus, the Ellen MacArthur Foundation created the New Plastic Economy initiative, which seeks to mobilize companies, governments, civil society organizations, universities, among other actors towards global commitment that resolves plastic pollution and disposal, which could be adopted by the toy industry.

5.3. Actions to encourage free play in nature, exchange and donation of toys

In the midst of so many toys, there is an element that cannot be forgotten and much less detached from childhood: actions to encourage free play in nature.

They must be prioritized as a crucial element for a child's development, allowing them to use their creativity and imagination to play freely and invent new games regardless of any objects, including other social actors and the world around them (CHILDREN AND NATURE, 2019).

Outdoor play and contact with nature are essential for a child's development and provide a safer life, as they: stimulate learning; inspire creativity; enable the construction of autonomy; prevent anxiety and chronic illnesses; accelerate the production of vitamins and hormones; help the immune system and body gains;



improve sleep and promote attention and concentration; awaken critical and conscious consumption; strengthen social ties and environmental conservation, among others (FOFONKA et al., 2019; LOUV, 2016; CHILDREN AND NATURE, 2019).

Thus, the presence of nature in children's lives is essential for their health and is directly related to their physical, emotional and social well-being, as well as shaping healthy habits and learning from the early years of childhood (LOUV, 2016), in addition to offering the experience that playing does not necessarily involve an industrialized toy. In view of this, a child's relationship with nature needs to be fostered by everyone around them, as it is a right that promotes not only their well-being and power, but also a more humane society committed to socio-environmental values (GUIMARÃES, 2011; HIGUCHI, 2003).

It is important to emphasize that, in this context, the State has a fundamental role through various legal frameworks that guarantee the right to nature and to play and in the promotion of safe public and natural spaces for this free play. In Brazil, in addition to the Federal Constitution of 1988, the right to play is guaranteed by the Child and Adolescent Statute, by the Law of Directives and Bases of Education and, recently, by the Legal Framework of Early Childhood.

Fairs where toys can be exchanged have become increasingly popular and the incentive for this practice comes from movements and organizations that work in favor of childhood and combating consumerism (REBRINC, 2019). Exchanging and donating toys are seen as one of the opportunities that enable adults and children to rethink how consumption works in society.

By and large, exchange fairs enable people not only to exchange objects, knowledge and services, but also to be in a sociable environment. This whole circle of solidarity exchanges breaks with the utilitarian perspective and allows people to assume their power of decision and control habits, making it possible to envisage and practice other ways that go beyond buying things with money. Thus, the solidarity economy helps to recreate ways of

selling goods and services, thus rediscovering other consumption strategies and unifying people in all exchange processes (LISBOA; FAUSTINO, 2006).

Since 2012, the Alana Institute has mobilized various cities taking these actions aiming to show adults and children new ways of thinking about consumerism and, thus, giving new meanings to toys, as well as having support material on its website that helps to organize solidarity trade fairs: feiradetrocas.com.br (INSTITUTO ALANA, 2019).

These actions make it possible to work on several issues in child development, such as encouraging detachment from material goods, making it feasible to discuss with the child the importance of playing and fun times that may be detached from the market bias propagated by advertising communication; accordingly, addressing the significance of the environment and its resources, with the intention of transforming actions and practices that foster a closer and healthier relationship with the environment.

They also raise awareness about environmental issues (SATO, 2002) that are part of our daily lives, such as the problem of the consumer society, the damage caused by the consumption and disposal of plastic, as well as marine litter - already addressed in parts of this study. In other words, the range of subjects and totality of problems are innumerable as are their different ways of dealing with them.

Through this process, it corroborates with the ideals of educating the ecological subject (CARVALHO, 2012), helping them to think critically and considering the environment in which we live in and all the socio-environmental relations that are part of it (CASCINO, 1998; JACOBI, 2003).

As a result, it is not only up to children to be influenced by these practices, but all active agents as it is necessary to have a critical perception that we are integrated in the same unit, driven by interactions and relationships of natural and social basis, in a constant process of educating by exercising active citizenship,

fostering the transformation of the relationship between human beings and the environment and also between human beings themselves (CARVALHO, 2012; FREIRE, 2003; GUIMARÃES, 2004).

Actions to encourage free play in nature and exchanging and donating toys, if linked to the precepts and practices of Critical Environmental Education, help develop local and global awareness, enabling individuals to feel complete and integrated with the environment they inhabit (BARBA; CAVALARI, 2016); in addition to the possibility of thinking critically and positioning oneself through a complex situation that is sometimes created through the model of society in which we live.

Considering this, Logarezzi (2016) considers that critical knowledge of reality depends on the “perception that people who are part of it have”. It is in the dialectical articulation that concrete reality can be constructed as the purpose of critical educative actions is to change the world by transforming people, and this kind of change is a condition for the transformative process.

As can be seen, the possibilities are endless, and actions to encourage free play in nature and exchanging and donating toys are some of them. It is up to us to use these potentialities to establish healthy habits and values that help change behavior patterns, which converge to modes of ethical, responsible and conscious consumption, influencing the construction of a sustainable society for all (BRASIL, 2005).

5.4. Reinforcing the illegality of consumer child advertising

The consumer values taught to children are intrinsically related to marketing strategies to target child advertising. It is worth emphasizing once again that child advertising in Brazil is illegal, based on several legal frameworks: the Federal Constitution of 1988, the Consumer Protection Code, the Child and Adolescent Statute and Resolution 163/2014 from Conanda (EIU, 2017). However, one just has to turn on the TV, go to supermarkets and shopping malls, access digital video platforms, among other advertising spaces to quickly find evidence of products and services being sold to children. An example already mentioned here refers to the study of the Child and Consumerism program (2019) that observed that children's advertising on pay-TV channels rose 331% in October only (Brazilian Children's Day). In the same research, it was found that 71% of commercials identified as child advertising were from the toy sector.

In addition to encouraging consumerism, advertisements selling toys, clothing and food aimed at children can impair children's development and social interaction and result in problems such as obesity and depression (GOMES et al., 2017). A study by The Economist Intelligence Unit (EIU) showed that if advertising targeted at the public of up to 12 years old in Brazil were totally banned, this would generate economic benefits in the order of US\$ 23 billion. The study took into account a reduction in health spending as the non-advertising aimed at children would directly influence these children's eating habits, resulting in healthier eating and less eating disorders and cases of childhood obesity (EIU, 2017).

Therefore, stricter regulation and inspection are necessary to guarantee a childhood free from market communication and, therefore, from consumerism. In the toy sector, it is essential

that the industry assumes responsibility for complying with the legislation in force in establishing commercial communication policies for its products and services that respect children and their families, directing them to responsible parents and adults.

5.5. Development of long-term research

We understand that, the way in which this research was undertaken and developed, we were able to present the universe that we propose to investigate: the impact of child advertising on the production, consumption and disposal of plastic toys in Brazil. However, there is a lack of scientific literature on the subject and we reinforce the need to include this dimension in the agenda, which is ever present in people's daily lives and has a strong influence on the socio-environmental problems of the century.

Taking this into account, this study contributes to this area of investigation and enables us, in addition to these considerations, to examine new reflections to mitigate or minimize the socio-environmental impacts caused by the capitalist-rationalist society model that is based on market strategies and the instrumentalization of the environment and its resources (DIAS, 1992; GUIMARÃES; RODRIGUES, 2012; GUIMARÃES, 2016).

To pursue the field of study, it is interesting for partnerships to be made between institutions, companies, NGOs, universities and other bodies so that theories are debated and examined and practices are disseminated in the most varied dimensions of society, not being limited to a certain social group or region.

This work also shows the need for further studies on the subject by developing long-term research, so that alternative paths are followed with the collaboration of various sectors of society so that real changes can be made. After all, the responsibility must be shared, especially those that directly relate

the social and environmental damage and losses and the child's full and integral development, which is mentioned in our Federal Constitution of 1988.

Based on the final outcome, we consider it important that one of the solutions is to produce new interdisciplinary studies and research involving the impacts of plastic toys and their correlation with child advertising, mainly examining other fronts that this work makes feasible within the human, biological and exact sciences.

FINAL CONSIDERATIONS

This work sought to address the current ambiguity behind the toy industry. On the one hand, it is certain that toys help a child to develop by stimulating playfulness, imagination and, in some cases, interaction and collectivity. On the other hand, associating it with the consumer society model and the overvaluation of “having”, toys expose children to a consumerist and waste-generating logic that could be avoided.

We are facing a cycle here: children are exposed to extreme child advertising with advertisements on television and YouTube channels saying: “Buy me”; “Want me”; “Get me”; “Be like me”. When you have the desired object, interest in it quickly disappears because other products are being launched and following the cycle of wanting - having - discarding.

To be attractive, toys are mostly produced from a mixture of different materials and chemical substances that give them shape, color and shine. These mixtures make it infeasible to recycle these toys. Although the country has a National Policy for Solid Waste (BRASIL, 2010), it considers only the reverse logistics of electronic toys. Even so, finding collection points for these toys is an almost impossible mission, which can discourage families’ interest in finding an environmentally safe way to dispose of toys.

Nonetheless, if toys can stay in a corner or even be donated or exchanged, what about packaging? Designed to be as attractive as toys, it is also often subjected to mixtures of components that

hinder or prevent them from being recycled. Added to this is the fact that plastic packaging represents the largest amount of plastic discarded inappropriately: 40% of plastics found in the oceans come from packaging (GEYER et al., 2017).

The solutions are varied and integrated, ranging from thinking about the consumption model in which we live today to the way in which toy advertising has been aimed at children, often linked to the overexposure of children as kid youtubers on YouTube channels. Innovating the way toys are made is also necessary, as well as developing a circular economy, regardless of finite resources and aimed at eliminating waste from its chain. Designing green and sustainable toys is possible and could be linked to an educational message from children as consumers (KÜMMERER, CLARK & ZUIN, 2020).

Overall, we must reflect on the type of education that is intended to promote and, consequently, the type of citizen that is desired to form so that society can know ways and alternatives to educate children to be less materialistic, helping to develop education that prepares them for conscious and sustainable consumption. The assumptions and practices of Critical Environmental Education, if included in all dimensions (formal, non-formal and informal) since childhood, allow the construction and formation of a critical ecological subject in the face of social and natural relations, establishing complementary and integrative actions and practices which are healthier for the planet.

However, more than questioning and changing the consumption and production model, we should also examine the current legislation, which still has gaps regarding advertising aimed at children and the proper disposal of toys and their packaging. The government has a fundamental role with the toy industry, in inspecting whether they are complying with the rules that protect children from exposure to child advertising and phthalates, and in ensuring the correct and safe disposal of these products.

This study sought to critically point out the challenges of

We are facing a cycle here: children are exposed to extreme child advertising with advertisements on television and *YouTube* channels saying: "Buy me"; "Want me"; "Get me"; "Be like me". When you have the desired object, interest in it quickly disappears because other products are being launched and following the cycle of wanting - having - discarding.



the integrated agenda of child advertising, toy consumption and plastic disposal and also show that solutions will only be possible in an integrated manner. Public authorities, companies, civil society and the Academy each have a role to address solutions to this agenda and ensure that Brazilian children play healthily and have a sustainable future.

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