

DESIGN BRIEF

Team 10

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Contents

- 1 Problem Statement 2
 - 1.1 Assignment 2
 - 1.2 (Re)define problem statement 2
 - 1.3 Problem statement 2
- 2 Stakeholders + needs & problems 3
 - 2.1 Stakeholders and their involvement 3
 - 2.2 Main stakeholders and their needs & problems 4
- 3 WWWWWH 4
- 4 Vision 6
- 5 List of requirements 7
 - Hard requirements table 7
 - Soft requirements table 7
- 6 DESTEP 8
 - Demographic aspects: 8
 - Economic aspects 9
 - Social aspects: 9
 - Technological aspects: 10
 - Ecological aspect: 10
 - Political aspect: 11

1 Problem Statement

1.1 Assignment

Design an active toy or game with an educational element for BS toys.

1.2 (Re)define problem statement

The new generation is growing up with very advanced and accessible technology. Most kids have easy access to phones, tablets, or laptops. Playing in front of screens has become a fast alternative for parents to keep their children entertained in their leisure time for a long period without getting easily bored.

For this project, we have the challenge of designing an active toy or game for children between 3-10. However, after considerable research, we learned that kids at the age of 6 have a significant turn in their perception of the world as well as the way they learn and move. This information captured our attention and we decided to narrow our target group to children between the ages of 6-10. Moreover, we choose a game over a toy to offer broader learning possibilities of interaction and challenges.

It came to our understanding that children's fine motor skills are well developed at this age, and they start thinking more logically, with a good understanding of numbers and words. In addition to that, the way they communicate is better, they can explain rules and tell stories. Not only that but also more aware of their surroundings, kids' values and morals are blooming.

Furthermore, it is very important for kids at this age to have active quality play so they can explore the natural environment, meet challenges, build strength and coordination, test their physical limits, and build self-confidence.

1.3 Problem statement

In short, the problem definition can be summarized in the following:

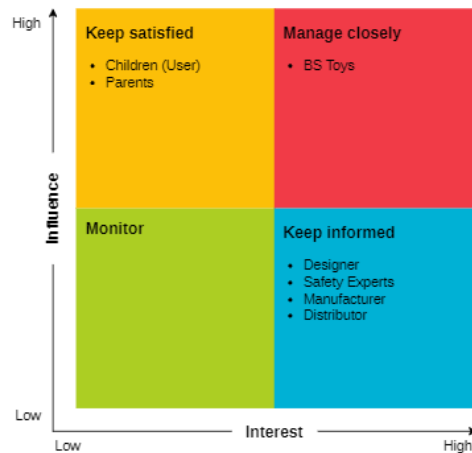
Design a game for kids between 6-10 that stimulates their educational and physical growth, to be played outdoors connecting with elements of nature.

2 Stakeholders + needs & problems

2.1 Stakeholders and their involvement

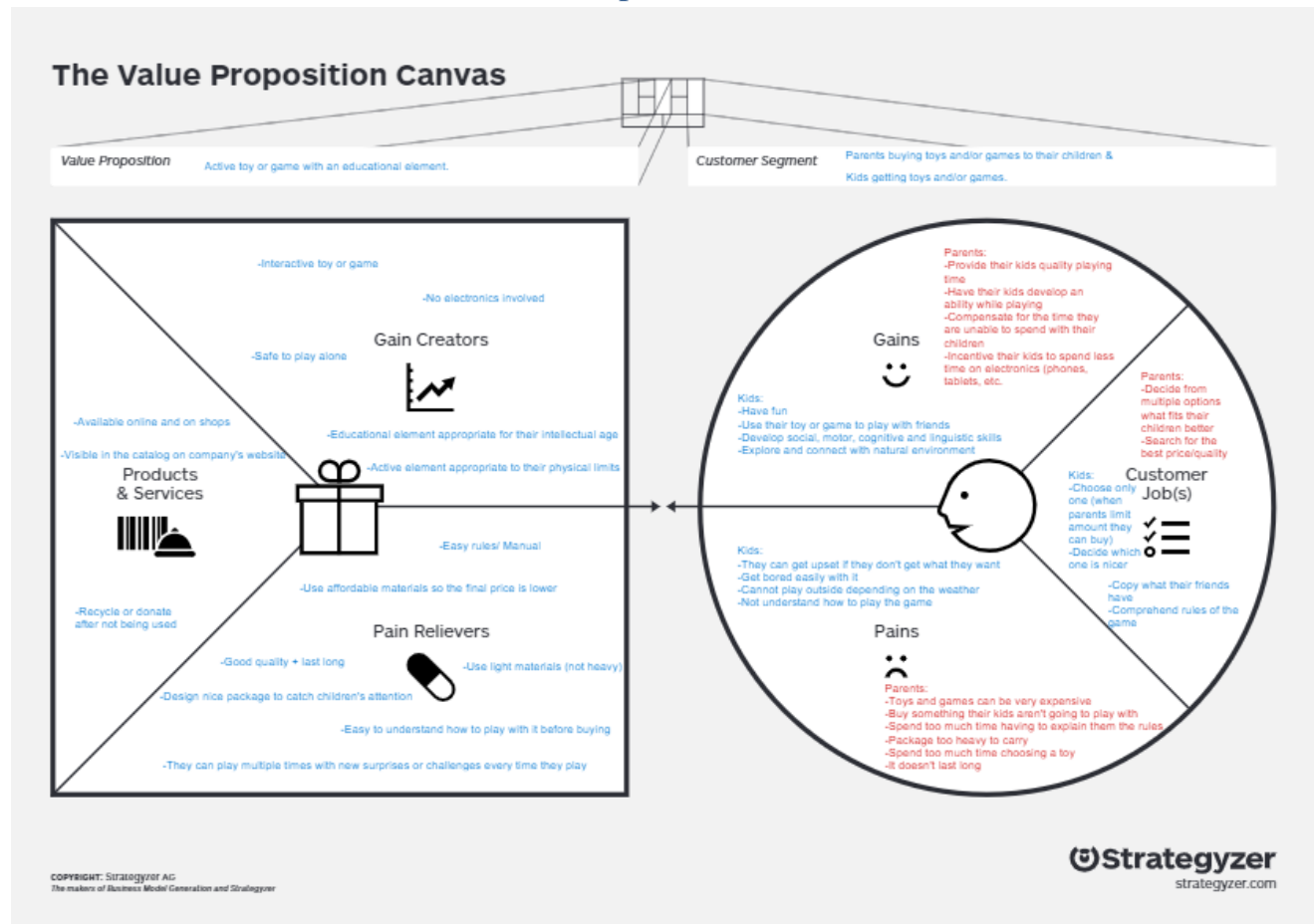
- Children (user): The main stakeholder since the entire process of research and design is to serve their needs and problems.
- Parents: Responsible for choosing and buying toys or games for their children.
- BS toys: They set guidelines and requirements.
- Designers: Responsible for the whole process of research, ideation, concept, and designing of the toy or game.
- Safety Experts: Safety consultancy of concept, design, prototype, and final product.
- Manufactures: Provider of mass services.
- Distributors: Companies or retailers that own space for selling our product.

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2.2 Main stakeholders and their needs & problems



3 WWWWWH

- Who?

Who has the problem? Basically, the problem has had an impact on a whole growing generation. However, kids of elementary school age (6-10) are most vulnerable. This is due to the fact that in this age gap, people start to learn basic communicative skills which will affect them in later life. At this age, there is rapid physical development, which interactive activities must fuel. *Who has an interest in finding a solution?* People who are busy raising and educating a new generation, such as parents, teachers, and caregivers. *Who are the stakeholders?* As it was said, the main stakeholders of the problem are parents, as customers, and kids, as users. Parents are responsible for the future of their children and their proper development and integration into society. As well as toy stores and manufacturers are interested in commercializing toys themselves because it directly increases their income.

- What?

What is the problem? Nowadays, children have an issue with a lack of physical activities and live interaction with peers and the natural environment. Consequently, it is noticeable that general interest in those activities is decreasing as well. Eventually, this tendency will lead to improper child growth. Such basic skills as social, communitive, physical, and motoric will be lagging in development. *What has been done to solve it?* Parents are trying to regulate and limit the time allotted for digital entertainment for their children. The educational system requires kids to have a certain amount of time playing outdoors. However, even these methods do not solve the problem entirely, because after school children continue to spend most of their time on gadgets at home and parents don't usually have enough time to supervise their children's entertainment.

- Where?

Where does the problem occur? As aforementioned, the current problem often occurs in open-air and outdoor areas. For example, parks, playgrounds, school yards, on travel, in the country. Where is a possible solution? Only a few mobile or PC games provide interaction with real life. Almost all the gaming companies are interested in children playing more and more time with gadgets. The possible solution can be found in designing a new game with innovative play mechanics, which can attract the attention of children.

- When?

When does the problem occur? When children finish their school activities, in other words, during leisure time. When should it be solved? When society understands the importance of real-life activities for kids in the first stages of development.

- Why?

Why is it a problem? Undoubtedly, the Internet practically fills human communication needs. However, it happens in a specific way, when interlocutors are in long distances with each other. For kids, this method does not develop communication and social skills properly. In addition, the lack of physical activities strongly affects muscle and body development. In the age gap of 6-10, those factors are essential for children. Why is there no solution? Technology continues to advance and its monopoly in the entertainment market is growing each year. However, there are solutions on the market, but we, as a design team, want to explore different ways.

- How?

How did the problem come about? Year by year internet gadgets become more available and affordable until in every house there was at least one internet device. Internet with easy access to any content tended to replace all types of entertainment. Meanwhile, the new generation was grown in this environment and got used to having fun and spending free time with gadgets. As a result, children get more easily bored with normal games and toys or interactive activities. How it can be solved? A new game with fresh play mechanics that involves outdoor activity must be released to the market and should draw children's and parents' attention and our list of design requirements.

4 Vision

The newly designed game will be released to the market and sold to resellers in around 30 countries. Our product includes an innovative game mechanic with physical activity and interactions with the natural environment and balances fun and educational elements. A broad marketing company will focus on modern design and sustainable materials which will be used in the package. After it becomes a bestseller in our resellers' toy stores, almost every kid will have our product not on a dusty shelf, but in the hallway next to the door. Due to soft wood materials and lightweight, children will always easily take them to the playgrounds, parks, and schoolyards.

5 List of requirements

Hard requirements table

Requirement	Description
Meet toy regulation EN71	Toy should pass all safety standards of European Union toy regulations. There are 14 parts to be met.
Safe	The product should not have any sharp edges, splinters (on wooden toys), no hazard materials used in production.
Sustainable	The product must be made by sustainable materials. Toys are usually hard to recycle, so we should raise awareness regarding the waste in landfills.
Large enough	The product must be large enough, at least 4 centimeters in diameter and 8 centimeters in length so that it could not be swallowed.
Clear instructions	The product must offer all additional information about the game itself and materials for parents to read. Product can contain QR code to scan it for more information.
Multilanguage	No language on the product itself. The product should communicate with visual imagery as far as possible and using universal terms. It should include instructions in 10 languages and 6 languages on the packaging.

Soft requirements table

Requirement	Description
Simple rules	As our target group is kids, the product must be easily understood within few minutes.
Entertaining	The product must be perceived as entertainment by 100% of users.
Attractive	The product should grab attention of customers in the toy shop.
Waterproof	As we are creating a game for outside, the product should be long lasting, waterproof.
Educational	The product should challenge the development of kids such as: motor skills, problem solving, creativity, social skills.
Diverse	Different cultural backgrounds must be taken into consideration while creating the product. The product must be enjoyable for diverse groups of people.

6 DESTEP

Foreword:

According to the website of BS Toys, they have a wide range of resellers of their products in the European Union, the United Kingdom, Turkey, China, Peru, and Australia. As the largest number of resellers are situated in Europe, the demographic situation in European Union should be scrutinized more deeply.

Demographic aspects:

- BS Toys has a wide range of resellers around the world including such countries as the United Kingdom, Turkey, China, Australia, European Union. The majority of the stores are situated in Europe.
- European Union had an increase in population from 2001 to 2020 by 4% reaching 447 million people. (European Commission. Statistical Office of the European Union, 2021, p. 4)
- European Union has a growing share of the elderly population, reaching in the year 2020 21% of people 65 years and older. The median age of the population in the EU is 44 years. (European Commission. Statistical Office of the European Union, 2021, p. 7)
- The age of women at the birth of a first child has risen to approximately 29 years. (European Commission. Statistical Office of the European Union, 2021, p. 9)
- On average a European household has one child. (European Commission. Statistical Office of the European Union, 2021, p. 11)

Conclusion

Although the European market is wide in terms of population, most European households have one child, thus it is important that the small one has an opportunity to socialize and participate in active team play with other kids. By these means, a child can properly develop his social and motor skills which are vital for their mental and physical health. Our design team should develop a game that will instigate the kid's social interactions and collaboration with their team members.

Furthermore, the trend in the increasing number of elderly population should also be considered while designing a game. A possible way of dealing with this tendency is to make a game appropriately playable for elderly people with their grandchildren and/or avoid the weight of the game hindering the healthy movement of the elderly person.

Economic aspects

- The average income in the EU varies from 6,171 euros to 852 euros per month and averages at 2,570 euros per month. (Statistics Explained, n.d.)
- The European Union has a developed economy that relies on a service-based sector that reaches almost 73%. (Europe - Resources and Power, n.d.)
- The escalating conflict between Russia and Ukraine led to a considerable increase in energy prices. (Press Corner, n.d.)

Conclusion

The European economy has proven itself to be strong and diverse and its citizens solvent. However, in the current situation, the European economy experiences rapid growth in energy, manufacturing, and transportation prices. Partially, it is happening due to the global energy crisis as well as the recent conflict between Ukraine and Russia and follows Russian sanctions. Therefore, our design team must consider ways of manufacturing that would suit the client's budget and cut unnecessary costs while preserving all the features the game should have. Moreover, the client's interests and those of the parent/caretaker should also remain intact.

Social aspects:

- European countries have a high diversity of population and are experiencing an increase in the number of immigrants from foreign countries and the internal mobility of their citizens. (European Commission. Statistical Office of the European Union, 2021 p. 16, 18)
- The educational level in European Union is rather high. Elementary level of education is mandatory with the variation of the entry age from 4 to 6 years old. (Statistics Explained, n.d.)
- The European Union and most other countries on the continent are secularized on the political level, however, religion still plays a big role in the private life of the European population and counts such belief systems as Christianity, Islam, Judaism, Hinduism and others. (Europe - Religions, n.d.)

Conclusion

There could be seen as a clear trend for further globalization and cultural diversification. Apart from all the positives that these phenomena introduce to society, they could sometimes result in misunderstandings and tension between people. It might happen because of cultural differences such as native languages or particular traditions.

While designing the game, our team will be aware of the different cultural backgrounds of parents and their children and make a game that will be equally enjoyable to diverse groups of people with different values, religions, and customs.

Technological aspects:

- Most families offer easy access to technology to their children at a young age. More games and toys involve interaction with electronic devices and often require an internet connection resulting in higher screen-time for the child. (Radesky et al., 2020)
- The attention span of the children is decreasing due to the over-saturation of information that they are exposed to through the internet. (Yadav & Chakraborty, 2021)

Conclusion:

With the spread of electronic devices across all age groups starting from a young age (in some cases from 3 years old), we assist our client (BS Toys) in designing a game that encourages kids to participate in outdoor activities rather than spending time online with the devices. Making a game that enhances the attention span by including memorization and focus elements could also serve as a fitting approach to this cognitive issue.

Ecological aspect:

- The world ecological crisis is taking place leading to, among others, such phenomena as higher pollution rates from an overproduction of goods and relentless commercialization of businesses, global warming, and destruction of the natural habitat. (Moore, 2017)
- Parents that pay attention to whether they are acquiring eco toys accept higher prices but require high ecological standards. (Scherer et al., 2017)

Conclusion

Undeniably, an environmental crisis is fasting it passes. Our design team must advise companies to focus on using sustainable materials in the manufacturing process and use marketing to attract more attention to this problem. That will aid longevity and considerably add to the sustainability of the planet. Such companies will thrive under various ups and downs in the toy industry, seeing the fact that there is a tendency in increasing awareness of contemporary ecological issues among the population.

Another way to contribute toward the solution of the eco-crisis to raise awareness of the importance of preservation of the natural environment among children through games. When children at young ages learn in engaging ways through games that it is very important to save the natural habitat, not pollute the surroundings and be conscious while buying and discarding products, it would considerably aid the ecological situation around the globe.

Political aspect:

- Strictly regulated safety standards in the European Union countries. (EUR-Lex - 32009L0048 - EN - EUR-Lex, n.d.)

Conclusion

As the legal address of the client's company is situated in the Netherlands, it must initially pass the safety standards of the European Union regarding the toy industry - EN71. All 14 parts of this regulation must be followed for the game to be sold in the European Union.

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