



A stylized, colorful landscape. In the top left, a large orange circle partially overlaps a cluster of purple, curved, worm-like shapes. To its right is a smaller yellow circle. In the top right, a series of yellow curved lines radiate from a dark green, abstract shape. In the bottom left, a cluster of small red dots is scattered. The bottom of the image features rolling hills in shades of green and teal. A small, pink, frog-like creature with large green eyes and thin black limbs stands on a light teal hill in the center.

hoppala

“a transgenerational game”



**a game that creates
a new norm between
children & elderly
more connected**



hoppala.

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english.

abstract.

In our changing world, society's needs and possible solutions are always changing so fastly. Speculative design which aims to seek after possible future scenarios and problems have to cover inclusivity to a better understanding for all the people who live in this future society. In every generation, we are facing new challenges. The statistics prove that by 2030, one out of every six persons on the planet will be 60 or older and they are getting more and more lonely and need to be involved in society. At the same time, children will also have problems of not having enough commitment with different generations. Since the children are raising more and more in institutions or schools rather than families they are losing connections with their upper generations. This is why they both need to have a more involved social life and together they constitute a challenging user group that can help each other. Elderly and children are two uppermost poles of human beings' life cycle; this study proposes that when those two poles come together via a common distraction, this could generate a bilateral benefit, that will furtherly affect the wellness of newer generations that can help each other. This research aims to analyze the design process of how we can bring them together in a more inclusive way in the future. We will discuss how speculative design can create a bridge between them. However, in this thesis, we will also focus on the current generation's needs and try to visualize their possible needs for the future along with speculative design.

abstract.

Nel nostro mondo in evoluzione, i bisogni della società e le possibili soluzioni si rinnovano sempre così velocemente. Il design speculativo che mira a cercare possibili scenari e problemi futuri deve coprire l'inclusività per una migliore comprensione per l'intera gente che vive in questa società futura. In ogni generazione, stiamo affrontando nuove sfide. Le statistiche dimostrano che entro il 2030 una persona su sei sul pianeta avrà 60 anni o più, sta diventando sempre più sola e ha bisogno di essere coinvolta nella società. Allo stesso tempo, i bambini avranno anche problemi a non avere abbastanza impegno con le diverse generazioni. Dal momento che i bambini crescono sempre di più nelle istituzioni o nelle scuole piuttosto che nelle famiglie, stanno perdendo i contatti con le loro generazioni superiori. Questo è il motivo per cui entrambi devono avere una vita sociale più coinvolta e insieme costituiscono un gruppo di utenti impegnativo che può aiutarci a vicenda. Anziani e bambini sono i due poli più alti del ciclo di vita degli esseri umani; questo studio propone che quando questi due poli si uniscono attraverso una distrazione comune, ciò potrebbe generare un beneficio bilaterale, che influenzerà ulteriormente il benessere delle nuove generazioni che possono aiutarci a vicenda. Questa ricerca mira ad analizzare il processo di progettazione di come possiamo riunirli in un modo più inclusivo in futuro. Discuteremo come il design speculativo può creare un ponte tra loro. Tuttavia, in questa tesi, ci concentreremo anche sui bisogni della generazione attuale e cercheremo di visualizzare i loro possibili bisogni per il futuro insieme al design speculativo.

acknowledgement

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content.

0 | ABSTRACT

1 | INTRODUCTION

1.0 research area definition	18
1.1 research questions/sub-questions	21
1.2 working hypothesis	22
1.3 research objectives	23

2 | LITERATURE REVIEW

2.0 speculative design	26
2.0.1 utopia dystopia	32
2.0.2 future elders and children	35
2.0.3 speculative design for inclusivity	36
2.0.4 speculative design for designing a better future	38
2.0.5 why did I choose the speculative design perspective?	41
2.0.6 how can designers help to construct new solutions for children and the elderly?	42
2.1 designing for children and elderly from speculative design	44
2.1.1 what are their current needs?	46
2.1.2 what will be their future needs?	47
2.1.3 what are their common points?	48
2.2 transgenerational design	50
2.2.1 what is transgenerational design?	52
2.2.2 why transgenerational design is important?	54
2.2.3 what can we create for bringing elderly people and children a more inclusive life?	56

3 | METHODOLOGY AND DATA COLLECTION

3.0 how this work is conducted/methodology	60
3.1 case studies	63
3.1.1 Cas Holman \ "We Don't Give Children The Freedom To Play"	64
3.1.2 Toy Project \ "A Global Movement To Promote Young Children And Older Adults Learning Together"	65
3.1.3 Toy Design Exhibition \ "Triennale Milano"	66
3.1.4 Toy Designs \ Fabio Guaricci	67
3.1.5 The Growing Season \ A Film By Evan Briggs	68
3.1.6 Arti Creativo \ "A Connection Between Your Inner Child"	69
3.1.7 Social Oven \ "By Magda Sabatowska"	70
3.1.8 Elderly Care Home In Spain \ Blancafort \ "By Guillem Carrera"	71
3.1.9 Uninvited Guest \ "By Superflux"	72
3.1.10 Service Project: To Help Elderly - Ideas To Do With Kids	73
3.1.11 Meals On Wheels	75
3.1.12 Summary of the case studies	75
3.2 market research	76
3.3 field research datas/ observations	80
3.4 drawing research method with children datas	86
3.5 interview with experts	88
3.5.1 Fabio Guaricci \ designer	90
3.5.2 Luca Fois \ designer	92
3.5.3 Zeynep Tuzun \ psychologist	94
3.5.4 Cigdem Sentop \ child development specialist	96
3.6 online survey results	98

4 | PROJECT

4.0 brainstorming and mood board	110
4.0.1 brainstorming	114
4.0.2 mood board	116
4.1 preliminary ideas	118
4.2 concept definition	120
4.3 final project	122
4.4 materials and production method research	136
4.4.1 material research and selection	138
4.4.2 production method research and selection	139
4.5 prototyping and testing with users	140
4.6 brand identity and packaging	144
4.7 production and marketing	150

5 Results and discussion	153
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6 Conclusion	157
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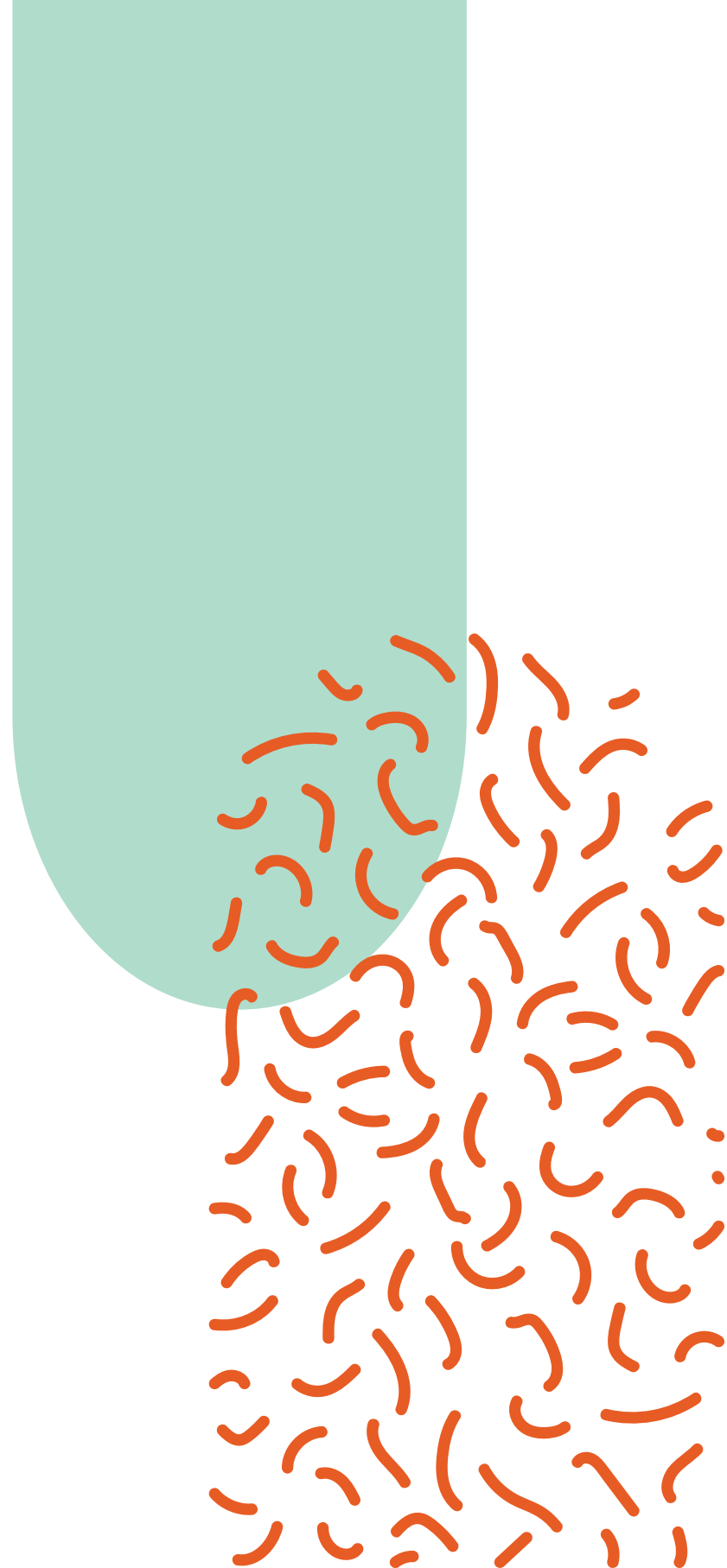
7 | References

7.0 bibliography	163
7.1 list of figures	171

1 | introduction.

1.0 | research area definition

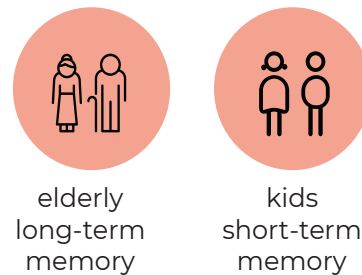
With time perception towards aging has changed. There are fewer early deaths in our lives now. Therefore, by the time the population has gotten older, one of the main problems for the elder community is that they are disjoined from society. The family types have also changed from big families to small families, which is why the communication between grandparents and grandchildren has become weak. In the literature, although there are many projects on the elderly and children, which are conducted independently. The topic of this study comes from the gap of their combination, 'Elderly' and 'child' studies are two fields that are powerfully connected with each other to create new horizons for our future. Many of the previous projects were presented from the care perspective rather than their social lives, but since life is longer we need to consider their leisure time activities as well as their healthcare. For this reason, what we need is to break that and create a more common atmosphere for these two generations. Consequently, the research area of this thesis is shaped around problems deriving from their socializing attributes from the transgenerational design perspective.



abilities



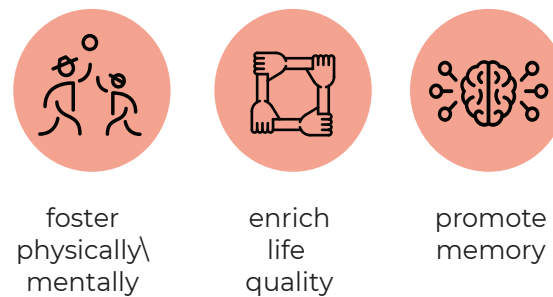
struggles



common points



current needs



1.1 | research questions/ sub-questions

This work is questioning how to improve the elders' and children's common points and how to regenerate their social lives. Hereby it produces some sub-questions such as;

1- What are their common points?

They both have free time and they both like to share their time to not stay alone. They both enjoy playing games and having new activities. They are both not needed to work, they don't have big responsibilities.

2- What are their current needs?

They both need to be;

- fostered physically and mentally
- enriched in their life quality by various activities
- promoted and/or empowered by their memory

It is important to promote the elderly's memory while empowering kids' memory. One of the crucial points is enriching their life quality by providing them with more meritable activities.

3- What are their abilities?

For many years storytelling is the traditional way of intergenerational relations to narrate the knowledge from elders to children in the communities. So elderly people are good storytellers by using their old memories and life experiences. On the other side kids are good listeners to learn and discover new things and craft new stories out of what they learned.

4- What are they struggling with?

While elder people have fewer difficulties concentrating the children have limited concentration time per activity. The challenge for elderly people is mostly the physical actions. They both have memory problems when the elderly struggle with long-term memory the kids sweat for short-term memory.

1.2 | working hypothesis

The main focus of this work is to create a platform that suits the elderly and children simultaneously via speculative design in order to generate inclusive generations.

According to Cohen “play” is a form of learning and a critical component of childhood development since it helps children to imitate the actions of those around them and build social skills.¹ On the other hand, the elder community is disassociated from society within the time, thus constituting a new problem. Some studies showed that their social skills lay fallow² which is why when it is considered the children’s and elder’s common points, weak points, and strong abilities they become a good partner. Since both sides’ common features are not being alone, having much free time, having no responsibility, no need to work and enjoying having new activity, thus occur a strong collaboration.

This study hypothesis that;

- a **milieu of game** shared by elderly and child can **intermediate** to both parties
- being fostered physically and mentally,
- enriching of their **life qualities** -by **potential diversifications of the game** content,
- promoting and empowering their **memory**.

¹Cohen, David. In The Development of Play. Abingdon, Oxon: Routledge, 2019.

1.3 | research objectives

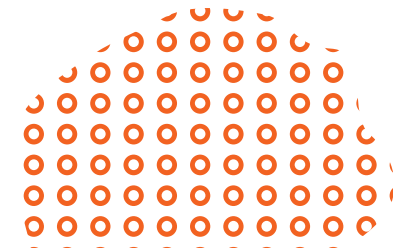
The focus point of this research is going to be the interaction between the elderly and children by investigating the ways to enhance their interrelationships and intertwine their commonalities with each other. Rather than knuckle down to their healthcare needs, it will try to figure out the possible innovative solutions for their social life and communication skills.

Thus also occurs several sub-points as below;

- \\ **combining the kids’ creativity and elderly’s knowledge**
- \\ **teaching traditional value and past from elderly to children,**
- \\ **teaching new technologies and innovations from children to elderly**
- \\ **enrich the kids’ vocabulary and prevent elderly’s vocabulary lose**
- \\ **strengthen their intergenerational relations by having fun and**
- \\ **encouraging them to produce something together**
- \\ **transferring experience towards future generations**

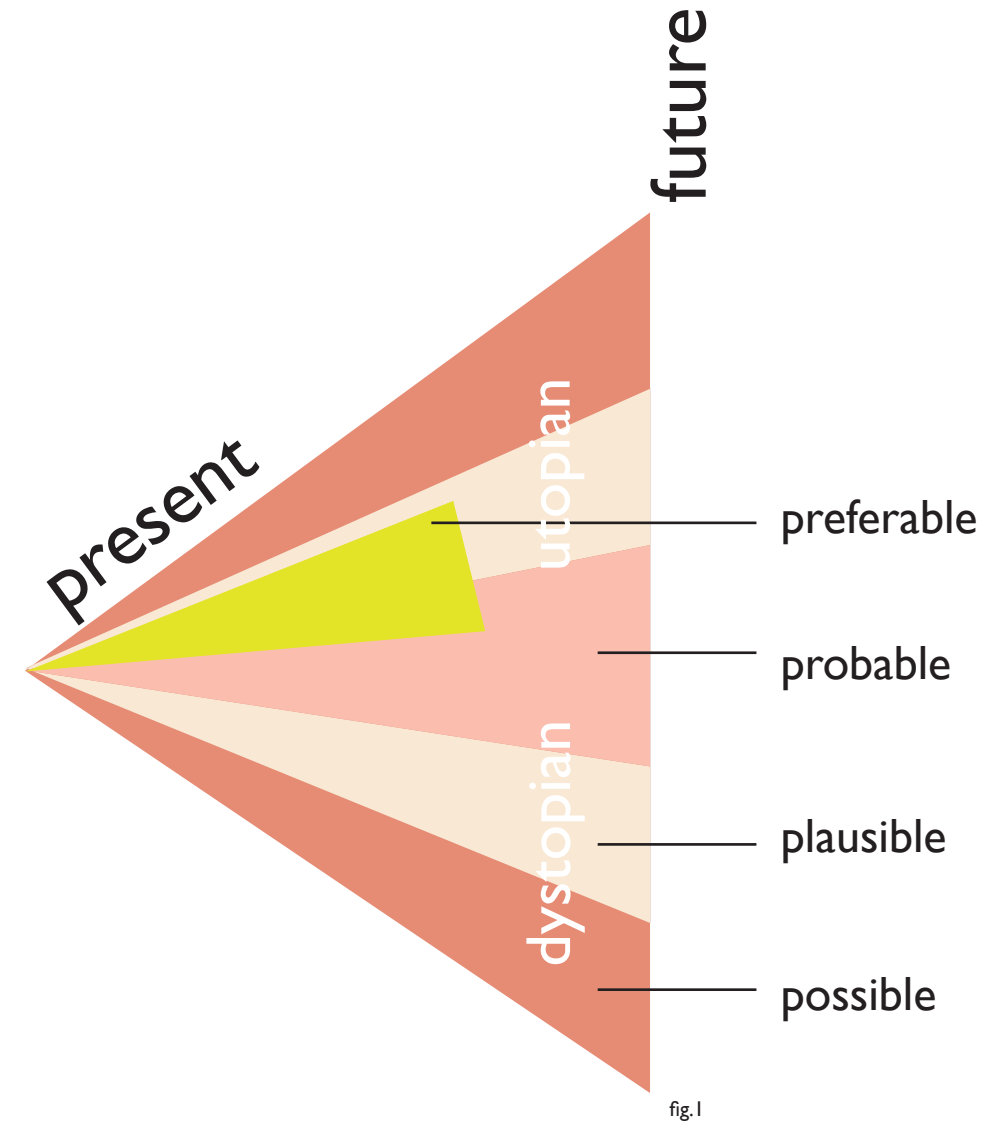
2 | literature review.

The literature review has emerged as a result of the collection of quantitative and qualitative data, putting speculative design and transgenerational design in the center. We started with the definitions of speculative design and transgenerational design fields and then proceeded with questions, such as what we can do in the future, what examples are available on this subject. In addition, the growth graphs of the elderly population, their percentage of living in the same house with their grandchildren, their interactions and needs were examined under two main headings - transgenerational, speculative design.



2.0 | speculative design.

Speculative Design is a new design approach – a distinct collection of tools, processes, and procedures – that emerged in the developed centers of the West around the turn of the century and is ready to be applied to the diverse contexts in which we live and function. ¹Over the last two decades, it has taken on a more worldwide character and impact. However, in Europe, certain nations are more familiar with and employ similar methodologies such as Design and Design Editing than others. The book of “speculative everything”, which is one of the most broadscale book written about speculative design, has been reviewed. One of the guiding graphics that formulate speculative design in this book is as we see on the side. When we examine this graph, the following come to the fore. The graphic of Dune and Raby shows that; the first cone was the “probable”, this is where the majority of designers work. It depicts what is expected to occur unless there is a major shock, such as a financial collapse, environmental crisis, or war. The majority of design approaches, processes, tools, and even design education are geared at this domain. The next cone represent “plausible” futures. This is the realm of vision and scenario building, the realm of what could happen. The “potential” cone comes next. Making connections between today’s world and the suggested one is the expertise here. The “probable” and “plausible” are intersected by a final cone. This is the “preferable” futures cone. After analyzing this graphic, this thesis is placed on the “preferable” area. The reason of applying on this area was to capture a possible future is being constructed which even connected today’s society. ²



¹SpeculativeEdu. (2019, December 21). An overview of contemporary speculative practice. SpeculativeEdu. Retrieved February 8, 2022, from <https://speculativeedu.eu/an-overview-of-contemporary-speculative-practice/>

²Speculative Everything by Anthony Dunne and Fiona Raby." RGD. Accessed March 17, 2022. <https://www.rgd.ca/2018/07/09/book-review-speculative-everything.php>.



fig.2

As one of the case studies examined in this context was a game project that impact also on the preferable cone from Speculative Edu. Speculative Edu collective has advanced various projects; one of their projects is a future story-telling game 'peek'. The peek game allows individuals to explore complicated narrative landscapes from now until 2060. In Peek, players take on the role of "Future Archaeologists" who use the "Peek" equipment to look into the future. They should inform the "World Government" of their potential future prospects. In a collaborative story structure, the game provides artificial intelligence (AI), machine learning, and sustainability research for users to explore speculatively.¹

Another case study that worth to examine was the Gensler Research Institute's project that is created by the intersection of transgenerational and speculative design perspective. Speculative design has an impact on various other disciplines of design such as urban planning. In 2019 Gensler Research Institute created a speculative design project that aims to be a sample project to bring the elder and children into the designed urban area and take the lead of enriching the intergenerational interactions in America.^{3,4} Local street sellers, community events and festivals, sports, playgrounds, and outdoor courses for people of all ages are all effortlessly interwoven into this conceptual design's district. This initiative, which intends to integrate many generations into the urban setting, envisions an increase in the use of digital content and instruments in the future. A communication area has been attempted to deliver information using technologies such as walls and sound waves. Furthermore, depending on the particular mood, the option of employing colors and noises to transmit, for example, a sense of security and the like, is examined.



fig.3

These examples can be further multiplied, other intermittent case studies will also be seen in this thesis, and in line with these, it will be explained how the study predicts to connect transgenerational design and speculative design. Therefore the reason for choosing the speculative design perspective across the transgenerational design will be explained within the next chapter (ch.2.0.5).

³Author: Nikolaus Hafermaas. Prof. Nikolaus Hafermaas is Managing Partner Creation of the innovation agency Graft Brandlab. The former dean of the ArtCenter College of Design in Pasadena / CA focuses on the creative connection between technology and being human. "Intergenerational Design as a Call for Cultural Change." Haus von Eden, July 6, 2021. <https://www.hausvoneden.com/lifestyle/intergenerational-design-kolumne-nikolaus-hafermaas/>.

⁴Latham, Stella Donovan and Laura. "Designing Intergenerational Communities." Gensler, December 3, 2019. <https://www.gensler.com/blog/designing-intergenerational-communities>.

affirmative
problem solving
provides answers
design for production
design as solution
in the service of industry
fictional functions
for how the world is
change the world suit us
science fiction
futures
the “real” real
narratives of production
applications
fun
innovation
concept design
consumer
makes us buy
ergonomics
user-friendliness
process

critical
problem finding
ask questions
design for debate
design as medium
in the **service of society**
functional fictions
for **how the world could be**
change the us to suit the world
social fiction
parallel world
the “unreal” real
narratives of consumption
implications
humor
provocation
conceptual design
citizen
makes us think
rhetoric
ethics
authership

2.0.1 | utopia&distopia

Utopia and dystopia are the types of speculative fiction, that represent either the ideal society that is covered by the laws and aims to bring happiness to everyone or contrary to an overbearing world. The literature considers the era of these concepts is from 380 bc. Lately, it transformed into the design for creating futuristic design ideation and it became a way of thinking, which analyzes the population's further needs and requirements. It is important to understand what dystopia and utopia mean to understand speculative design.

Speculative fiction is a wide word that encompasses all kinds of science fiction, fantasy, horror, supernatural, apocalyptic, alternative history, and other utterly unbelievable literature. Utopia is a universe in which everything is perfect. In utopias, there is war, sickness, poverty, oppression, prejudice, and inequality, among other things.¹ There are no issues at all. Sir Thomas More coined the term utopia, which is taken from Greek origins. Utopia was written by More in 1516. Depending on the Greek roots employed, utopia might signify either placelessness or a et our world are typically magnified. The prefix dis, which means terrible or difficult, is a vocabulary game on the term utopia. This prefix is used in words like unfunctional.

While seeking after the answers for following questions; why utopia and dystopia are important for design and what do they mean for design, Dune and Raby explained in their Speculative Everything book as; We see the concepts of utopia and dystopia mostly in cinema and literature. While these concepts are discussed in cinema, since it visually presents almost all the details of the fictional world to the audience, it makes the audience passive, on the other hand, literature only describes the fictional world verbally, it requires to complete with imaginations what the world is like from reader. According to Dune and Raby, the designer is placed in the middle of these two disciplines, while providing visual support, leaving ends that the user can complete with their own creativity, they can include themselves. At this point, this thesis aims to establish a new world, a new perception by including the user's own creativity in a way that will fully meet this hypothesis.



fig5.

“

We tend to overestimate the effect of a technology in the short run and underestimate the effect in the long run.

Amaras Law \\ coined by Roy Amara

¹"Utopia & Dystopia: Definition, Characteristics & Examples." Study.com. May 5, 2015. <https://study.com/academy/lesson/utopia-dystopia-definition-characteristics-examples.html>.

²"Speculative Everything by Anthony Dunne and Fiona Raby." RGD. Accessed March 17, 2022. <https://www.rgd.ca/2018/07/09/book-review-speculative-everything.php>.



fig 6

2.0.2 | future elders and children

This chapter is composed of two main questions; 1-what is the attitude of children towards the elderly, 2- what is the elderly's behavior towards children. It is going to try to clarify these points to understand how speculative design perspectives help them in the future. After the literature review on this topic, it has been seen from many articles that the way of having healthy aging is coming from feeling happiness.

Many results are showing that the most important thing is that they do not lose their social network, for which it is indicated that their family relations with multiple generations are a crucial key point.

In the article “Communication of Elderly-Children and Elderly-Children in Law, Social Support and Successful Aging of Men and Women Elderly”, the relationship between different generations is analyzed. It uses a cross-sectional study design and it was conducted in three urban villages namely Bubulak Village, West Cilendek Village and Menteng Village, Bogor Barat Sub-District, Bogor City, West Java Province. It was conducted with a group of 60 people (30 women, 30 men) with direct interviews (constructed questionnaire). Nursolehah & Krisnatuti explain in their article that if elderly people lose social support, they are also losing their other skills like communication, reflex skills and they are having physical disabilities earlier. As the results of the interviews, it is seen that the elderly people improve their communication deftness along with their families by the reason of their broad-mindedness and sincerity. It is also discussed how to include them more in the society by increasing their connection and that participation in community events and programs offered by integrated counseling services or older family coaching may also provide social support. In this part, it can be mentioned that design can mediate to try to find solutions to count them in society to build up their social life for their future. Since they are aging faster and faster it needs to get insights from their current needs and try to underline problems that will need more and more design solutions in the future. The speculative design fits perfectly to this content upon its principles.

2.0.3 | speculative design for inclusivity

This part will be questioning the relationship between inclusive design and transgenerational design. Hence it will be discussing also what can speculative design perspective contribute.

¹According to the inclusive design hub in Scotland definition of inclusive design is an area that enables as many individuals as possible to access and utilize it, regardless of age, gender, or handicap. That is why it has similarities with the transgenerational design such as the generation equality point and being accessible for every age group. Their principles are also showing parallelity while the principles of Inclusive design are inclusive, responsive, flexible, convenient, accommodating, welcoming, and realistic. On the other hand, the transgenerational design principles are; safety, comfort, convenience, ease of use, ergonomics, suitability, and user value.

²In recent years, there has been a shift in attitude toward integrating disabled and older people into everyday life through a more inclusive approach to the design of buildings, public spaces, and, more recently, products and services, rather than treating them as special cases requiring special design solutions. This is vital for social equity, but it is also a huge potential for new product and service development.

Life expectancy increased by more than 2.5 years every decade on average over the twentieth century. During the same time span, the population's only meaningful growth was among those aged 50 and up. Every new customer on the street becomes an older customer, as has been the case for the previous century.

People are living longer all around the planet. The average person nowadays may expect to live into their sixties or beyond. Every country in the globe is seeing an increase in the number and proportion of old people.

³By 2030, one out of every six persons on the planet will be 60 or older. The number of people aged 60 and more is expected to rise from 1 billion to 1.4 billion by 2020. By 2050, the global population of people aged 60 and up will have doubled (2.1 billion). Between 2020 and 2050, the number of persons aged 80 and more is predicted to treble, reaching 426 million.

During the design process, Baroness Sally Greengross is emphasizing that business and industry have to consider creating a world that is age-friendly, accessible, and inexpensive while ignoring the flatness, stigmatizing, and overprotective. (living longer: a new context of design, Design council, 2001). At this point, speculative design appears as a broad approach that covers all of these issues; providing an intergenerational bridge from a more inclusive perspective.



we can use speculative design to debate potential ethical, cultural, social and political implications.

Anthony Dunne, Speculative Everything: Design, Fiction, and Social Dreaming

¹Home - inclusive design hub. (n.d.). Retrieved February 8, 2022, from <https://inclusivedesign.scot/>

²Inclusive Design - UPB. (n.d.). Retrieved February 8, 2022, from http://cmap.upb.edu.co/rid=1153176144406_1235390754_1547/Inclusive%20Design.pdf

³World Health Organization. (n.d.). Ageing and health. World Health Organization. Retrieved February 8, 2022, from <https://www.who.int/news-room/fact-sheets/detail/ageing-and-health#:~:text=At%20this%20time%20the%20share,2050%20to%20reach%20426%20million.>

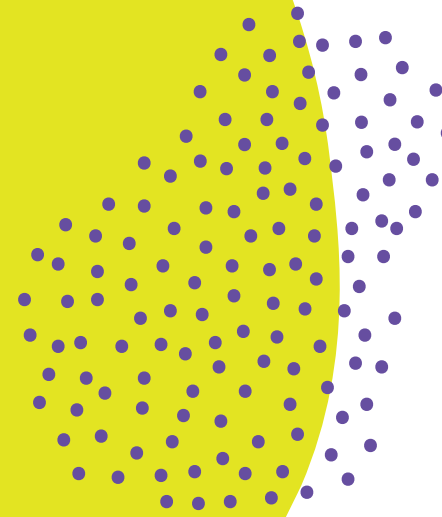
⁴Dunne, A., & Raby, F. (2014). Speculative everything design, fiction, and Social Dreaming. MIT Press.

2.0.4 | speculative design for designing a better future

The speculative design takes the leading role in presenting progressive and new storytelling for the future, by using the past and present knowledge and by manipulating the existing scenarios. Since today's fictional scenarios can create our possible future.

The scenarios, it helps to envision what the future society needs beforehand. The speculative design concept allows us to see many alternative perspectives, especially for the rapidly increasing; lonely elderly group and children growing up more and more isolated from society. Sterling (2005 from Yavuz al.2017) invented the phrase “design fiction” to describe a method of speculating on new ideas through prototyping and storytelling. It has largely been used to discuss the potential consequences of technology in hypothetical social-cultural environments. The article named “Designing The “Next” Smart Objects Together With Children” sought the answer to the question of whether they can produce a fictional scenario together by establishing a co-design session with children. Hence it is focusing on the children's playing attitudes and how this can contribute to the design process. In a game setting, we can imagine things without rules, and thus “what if?” we can think of the “impossible” by asking. A child's playing is not just a reproduction of what he has experienced, but also a creative reworking of the impressions he has acquired.” In a playful play, the child combines their knowledge to construct a new reality and a fictional world where things can go radically. It is explained as; involving children in the technology design process can bring new ideas and solutions.”^{1,2}

Considering the creativity of children in the design process, as well as examining the communication of children with their own age groups and with older age groups, is one of the points that a designer should consider. As well as designers, other professional groups emphasize that one of the ways to establish a healthier society in the future is to strengthen the interaction between the child and the elderly.



Grandparents can be a fund of basic knowledge, inspiration, and education in the areas of relationships, social interactions (getting out with others, dealing with people), communication skills, social perception, and other people's perceptions, as well as proper empathy. Children can also help the adoption of norms, routines, customs, and values by interacting with generations of grandparents. Because the majority of the older generation has more free time, they may devote more of it to their grandkids. Grandparents provide their grandkids greater emotional, time, and intellectual capacity as a result of it, according to Hauser-Schöner (1996, pp. 10–11). They are their companions in the realms of imagination and gaming; “They accompany them in the world of fantasy and games; they are able to put themselves in roles within the different games and they can offer their grandchildren a suitable filling of time during holidays (e.g. Strašíková, 2004, p. 39).”³

According to Joana Mendonça, Sibila Marques, and Dominic Abrahams; the study of children's attitudes toward the elderly is critical and essential. Exploring the strategies that have been utilized in other sorts of prejudiced attitudes and seeing how they may be applied to age discrimination is a key step.⁴ This is going to aid in a better understanding of how ageism develops in children and the development of successful intervention programs to minimize ageism at a young age (Marques et al. 2014b from Mendonça J., Marques S., Abrams D. (2018) Children's Attitudes toward Older People). Understanding how youngsters think, feel, and act regarding older people is critical in establishing a better and more inclusive future for all age groups in an aging society.

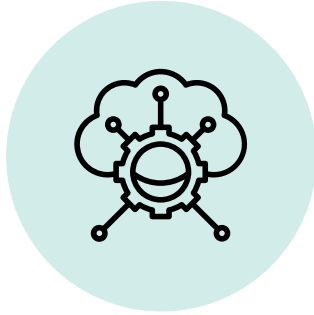
¹Ugur Yavuz, Sevil, Roberta Bonetti, and Nitzan Cohen. “Designing the ‘next’ Smart Objects Together with Children.” *The Design Journal* 20, no. sup1 (2017). <https://doi.org/10.1080/14606925.2017.1352882>.

²Williams, Marian G. In CHI '99, Human Factors in Computing Systems: The Chi Is the Limit: Chi 99 Conference Proceedings, 592–99. New York, NY: Association for Computing Machinery, 1999.

³Relationships between Children and ... - Shs-Conferences.org.” Accessed March 16, 2022. https://www.shs-conferences.org/articles/shsconf/pdf/2014/07/shsconf_shw2012_00044.pdf.

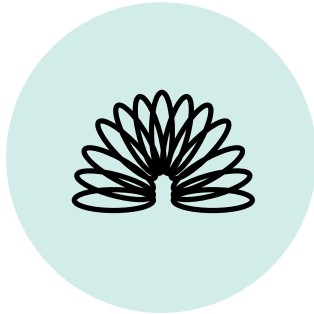
⁴Mendonça, Joana, Sibila Marques, and Dominic Abrams. “Children's Attitudes toward Older People: Current and Future Directions.” SpringerLink. Springer International Publishing, January 1, 1970. https://link.springer.com/chapter/10.1007/978-3-319-73820-8_30.

innovative



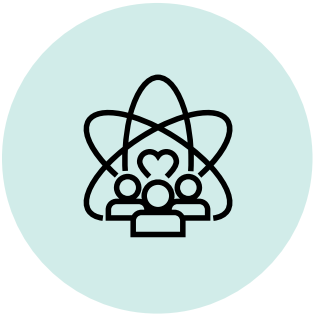
it can provide a fresh perspective towards the intergenerational relations and create a new way of communication

adaptive



it can help to adapt new society structure easily thanks to its limitless scenario creation method

involving



it can occur a more inclusive society by imagining a more intergenerational community

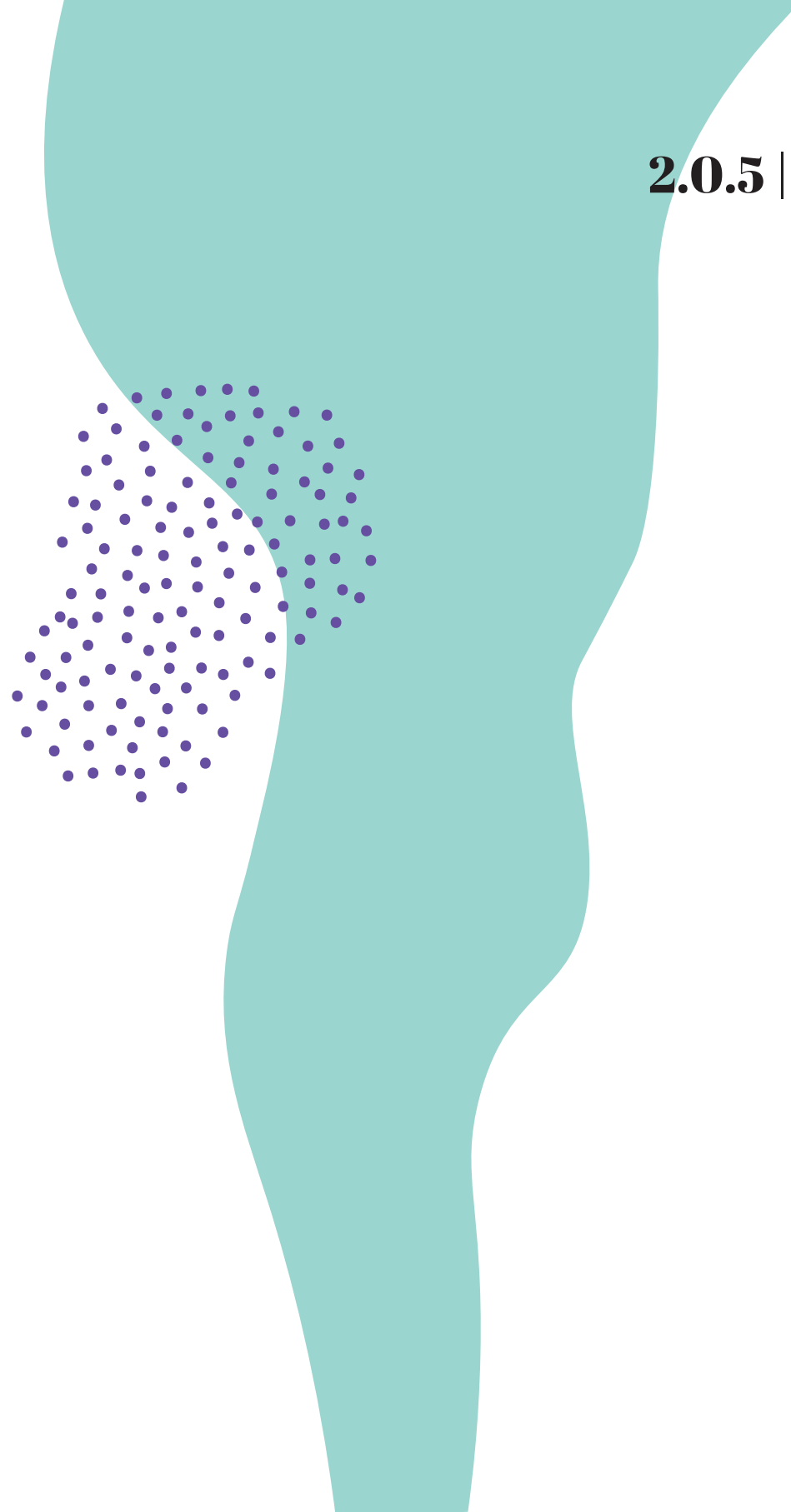
visionary



thanks to the fictional scenarios the future can be foreseen and prevent the possible bigger problems

2.0.5 | why did I choose the speculative design perspective

In order to create a more connected generation in the future, it is a very crucial step to involve the users in the design process, so the field research and user observations take an important place in this thesis in order to underline the 'now needs'. While making a project for the future, we need to create fictional scenarios and in this process, we need to collect as many perspectives and stories as possible and create fiction. At this point, it was decided to choose speculative by the reason that speculative design proceeds with a brief against situations that do not exist yet or are expected to change.



2.0.6 | how designers can help to construct new solutions for children and the elderly?

As many studies emphasized, the increasing elderly population should be more included in life and studies should be carried out for this from different disciplines. Therefore design is playing a key role within these frames in order to produce projects that enable it to make both -elderly and children -innovative and creative. It is crucial to involve designers in this field for conducting the solutions creatively from fictional scenarios. The abilities of designers are to take analyzes of sociologists and psychologists and turn these ideas into a real product that confirms their important role in transgenerational design. Therefore after chapter 2.0, we understand that transgenerational design is a crucial need for today's society and future society and the speculative design perspective that helps to create fictional scenarios is taking an important role in this issue.

For elderly and children, many experts are working collaboratively, meanwhile the social scientists are needed to co-work with designers in order to obtain more solid solutions such as service, products. In Ireland the group of "age and opportunity" organized a 6 weeks workshop for local communities' elders to boost their self-esteem and inspire children to think about and share their thoughts. The topics covered by these courses were;

- trust yourself
- body-mind-psychological self-consolidation
- emotional self consolidation
- self-awareness and stress relief
- social self development
- aging with confidence

In order to achieve these, this group supported the creativity and value of older people, aimed to combat discriminatory thoughts about aging, and in this context, tried to provide environments -in several domains; art and culture-schools-sports- that could attract the attention of the elderly and integrate them into social life. Many social studies show that age discrimination is very common in children who do not grow up with the elderly. On the other side if elderly have no relation between different age groups, they are also scared of younger generations.¹

This is why projects like these show us that it is important to involve designers and produce more projects in partnership with social disciplines. As it will be seen in the next chapters (ch.2.6) where the questionnaires will also explain later, there is a need for more product and service projects involving the elderly and children, and every project to be carried out in this area will ensure that they participate more actively in social life and stay in touch with different generations. Otherwise, the feeling of separation and isolation between seniors and children will continue to increase.

¹ Saraceno, Chiara. Essay. In Families, Ageing and Social Policy: Intergenerational Solidarity in European Welfare States. Cheltenham, Glos, UK: Edward Elgar, 2008.

2.1 | designing for children and elderly from speculative design.

According to Auger's article named Speculative Design: Crafting the Speculative; the speculative design attends two main issues; first criticizing today's society and second constructing fictional scenarios for the future.¹ Thus occurs that designers need to have research on what the relevant user's current need in order to analyze and criticize today's society. On the other hand, the designers also need to underline the future needs, for this reason in the next chapters (ch.2.1.1-2.1.2-2.1.3), it examines the elders' and children's current and future needs for clarifying the possibilities.

¹"Speculative Design: Crafting the Speculation - Researchgate." Accessed March 26, 2022. https://www.researchgate.net/publication/263596818_Speculative_Design_Crafting_the_Speculation.

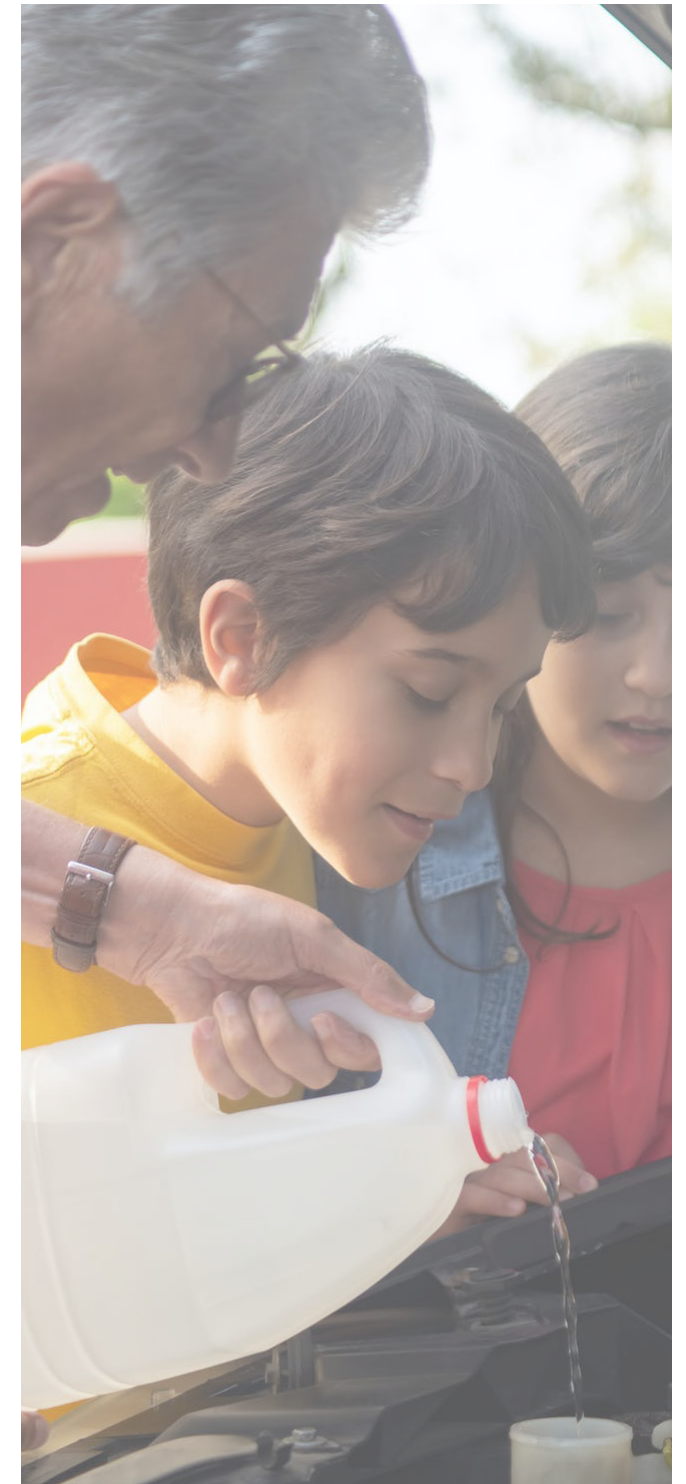


fig.7

2.1.1 | what are their current needs

As mentioned before, today the elderly mostly complain about being isolated from society and social life. At the same time, children are growing up within closed walls (which is a kind of isolation once again). The kids are no longer in relation with streets and they are mostly isolated within kindergarten without having community interactions. In the meantime the elderly have problems of isolations and being separate from their big family bonds. This equates to working on how can we bring them together in a more inclusive way and involve them in the community.

2.1.2 | what will be their future needs

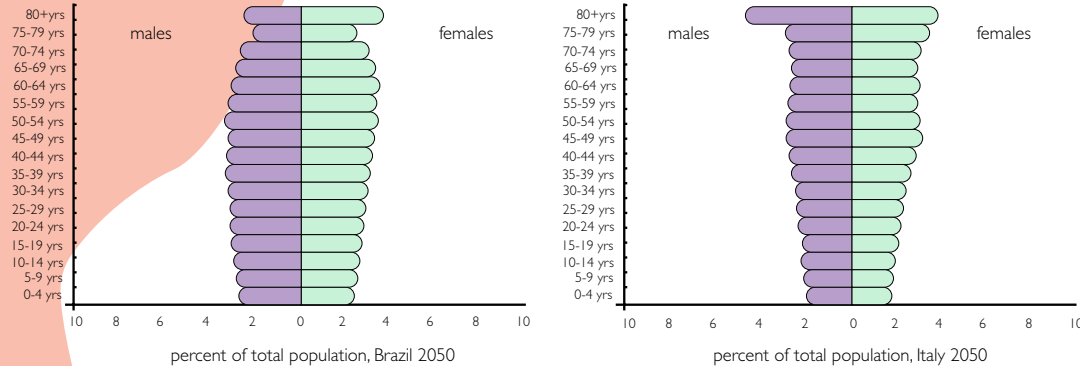
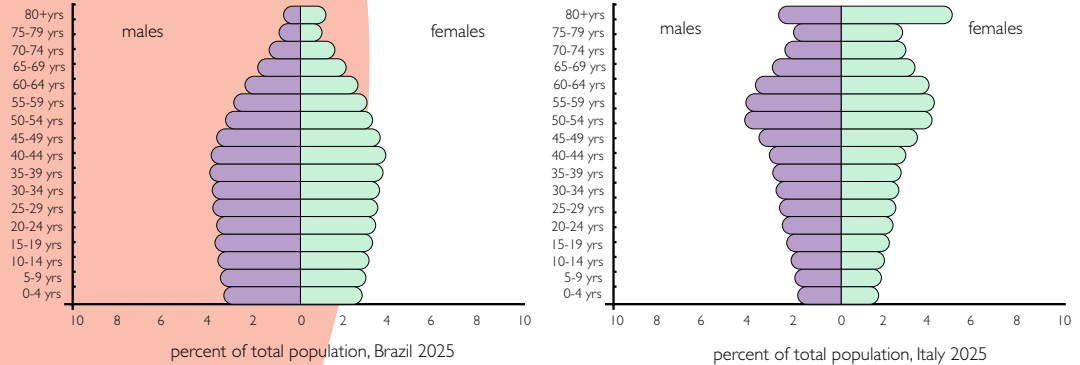
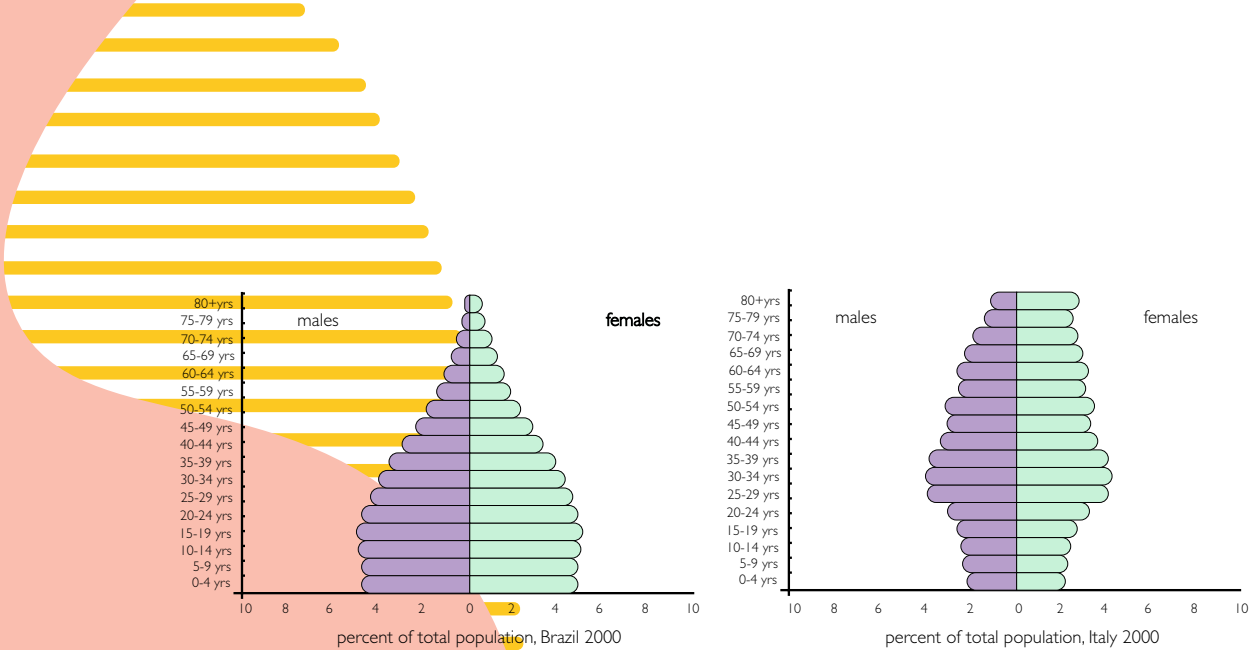
Since the research showed that the number of seniors are rising (ch.2.0.3), in the future they will need more involving project solutions from social scientists, designers and many other disciplines. After analyzing the futuristic projects such as uninvited guest it indicates that their future requirements will not differentiate much comparing with the current needs. There is going to be a need of solving the increasing elderly population problem. If elderly population reached high portion in the population this may cause numerous isolated elderly since the family no longer live together with all the generations and thus elderly's mental and physical handicaps can reveal. This issue is also a problem from children's side, they will lose their connections with upper generations more and more by the time.

2.1.3 | what are their common points

After the researches it proved again that elderly and children has many similar characteristics such as they both need to feel useful while daily lives. The kids age of 5 and 6 have the helping instinct towards their friends and they like to show their helping abilities to seniors. On the other hand the elderly people want to be beneficial for others in society or in their family in order to feel still young and functional. This requirement demonstrate how much they have to be included to the social interactions- community to individual and individual to society- and communication. They both enjoy the collective activities rather than single activities.¹

¹ Saraceno, Chiara. Essay. In Families, Ageing and Social Policy: Intergenerational Solidarity in European Welfare States, Cheltenham, Glos, UK: Edward Elgar, 2008.

2.2 | transgenerational design.



In this chapter it will be analyzing the transgenerational design profits for a more inclusive future that is generationally more connected. It is examined the statistics of the elderly population growth that is visible on the following pages.

2.2.1 | what is transgenerational design?

It is the discipline of designing products and environments that are compatible with the physical and sensory deficits that come with age, as well as restricting primary daily activities.

PirkI, an industrial design professor at Syracuse University, and his collaborator, gerontologist Anna L. Babic, created the intergenerational design in the 1980s. The idea of PirkI and Babic is that daily items and situations should be adaptable to the widest possible range of people. They think that by concentrating consumers on the spectrum's extremes (young, old, crippled, and sick or injured), those in the middle will benefit as well.

Intergenerational design, like universal design, aims to be empathetic and enabling rather than hostile and obstructive. However, PirkI characterizes intergenerational design as going beyond "accessibility." It's a holistic approach that focuses on how people really use things rather than producing "adaptations" that are code-compatible. It places a strong emphasis on the lovely, "soul-satisfying" features while purposefully avoiding the sterile and clinical.

Safety, comfort, simplicity of use, perfect ergonomics, user pleasure, and adaptability for a wide range of users are the aims of cross-generational design, according to transgenerational.org. Home design that follows these standards allows seniors to stay as autonomous as possible while still allowing them to be completely incorporated into "regular" home life.

One of the most essential strategies for the elderly is to harness their potential and build a linked society that fosters cross-generational connections. (Plaza, Martin & Medrano, 2011)

After procuring information from literature about transgenerational design it has been shown that the notion of transgenerational design is more explained from a single-sided perspective rather than considering both sides; elderly and children. Although they have some similarities and differences that complement each other that are not negligible while designing for intergenerationality, the benefits of the transgenerational design are also substantial for children. It needs to consider kids' exigencies like learning and improving their motor and verbal skills. At the same time, for the elderly learning even is still important, though it is not necessarily a primary requirement as much as the kids. Even though it seems they have different needs, they are in need of common agencies in which different qualifications are required. "Memory" can be a good title to enlighten the point; while the elderly are trying to keep their memory, the children are trying to build it from zero meanwhile it shows they both need memory improvement with different motivations. Learning and memory are complementary notices.

¹Transgenerational design: What is transgenerational design? (n.d.). Retrieved February 8, 2022, from <https://transgenerational.org/viewpoint/transgenerational.htm>

2.2.2 | why transgenerational design is important?

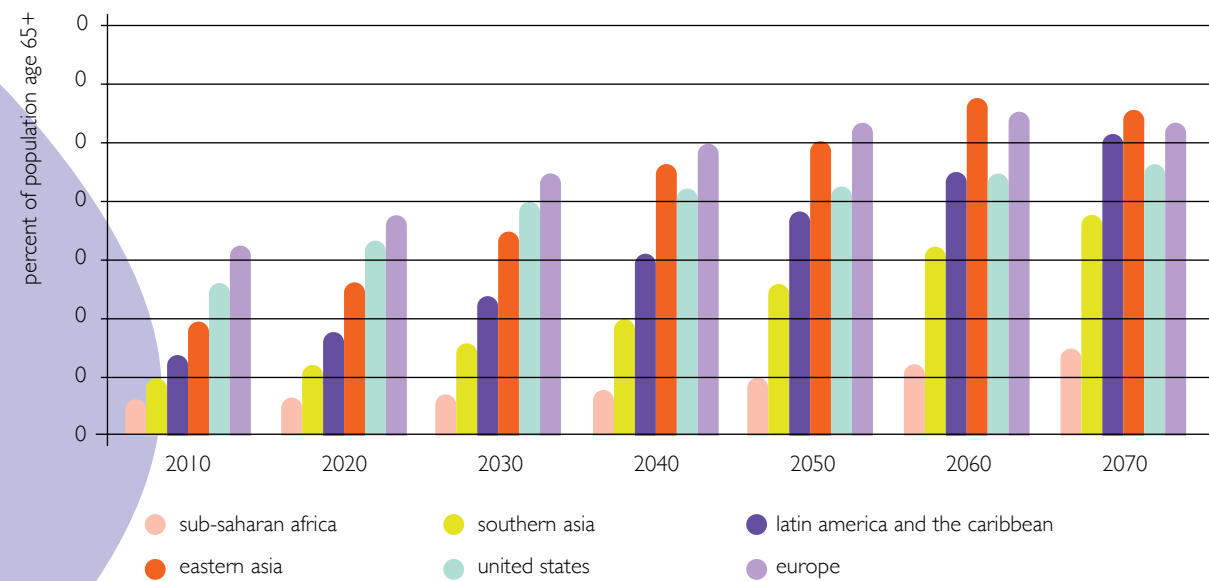
According to the BCCPA report on intergenerational learning guide& practice, it is explained that in recent years the connection between children and the elderly are getting less common. ¹BCCPA is an organization that aims to empower the population by supplying the tools that benefit different generations and groups in society like the intergenerational learning guide they created. This handbook is prepared to create a fundamental outline to compose a more inclusive society. An Intergenerational learning (IG) program is any collection of activities organized between two distinct age groups; however, for this site, an IG project is defined as interactions between young people and elders. Activities usually include young and old people exchanging talents, information, or experience. They exemplified some possible activities such as visiting seniors, group visits from schools. They listed the benefits of intergenerational projects in the following part;

- 1-empowering communities to become more age-friendly by removing age barriers and prejudices directed at one age group by another
- 2-encouraging others to comprehend, appreciate, and share their ideas, information, and experiences
- 3- educating the young about aging and the elderly about youth
- 4-forming connections that assist older individuals cope with the effects of diminishing physical and mental health
- 5-encouraging kids to pursue jobs in health care and to volunteer for a lifetime
- 6-enhancing older people's health and quality of life
- 7-Through the acquisition of new abilities, both age groups can improve their self-esteem and pleasure.

This list shows us the importance of creating a bridge project and proves that is crucial for both side elderly and children. ^{2,3}Other articles also underline that Children who play with older children and adults display stronger creativity and higher levels of language and problem-solving abilities than children who play primarily with peers of their age. They both have mutual respect for each other's knowledge, strength, and ideals that create benefits for both. Play has long been thought to provide psychological and physiological advantages for elder generations. It's even been linked to improved mental health, a decreased risk of sickness, and a higher chance of survival.



¹<http://www.bccpa.ca/wp-content/uploads/BCCPA-Intergenerational-Toolkit.pdf>, (n.d.).
²Pow, M. (2018, March 8). Benefits of intergenerational play. LinkedIn. Retrieved February 28, 2022, from <https://www.linkedin.com/pulse/benefits-intergenerational-play-michelle-pow/>
³Why multi-generational play is important: Playworld. Playworld® Blog. (2021, November 26). Retrieved February 28, 2022, from <https://playworld.com/blog/multi-generational-play-important/>



³Why multi-generational play is important: Playworld. Playworld® Blog. (2021, November 26). Retrieved February 28, 2022, from <https://playworld.com/blog/multi-generational-play-important/>

2.2.3 | what can we create for bringing elderly people and children a more inclusive life?

While the link between generations was an organic bond established automatically in traditional families, it is now being tried to be created through projects. How intergenerational links in the family allow for previewing: the young may discover their future selves by watching the elderly; the elderly can explore prior phases of life by interacting with the young. These projects, which gain importance with the increase of the elderly population, enable them to stay active and healthy in social life by connecting with other generations, in terms of the children, it enables them to develop the knowledge and experiences by observing the elderly while creating their own future personality.

number of people 65+ per 100 children

	65+/ children 2000 (2025) ¹	old men/ children 2000 (2025) ²	sex ratio 65+ 2000 (2025) ³
Norway	78 (138)	32 (62)	71 (80)
Germany	106 (201)	41 (88)	62 (77)
Lithuania	70 (145)	24 (54)	53 (59)
Russia	70 (142)	22 (50)	46 (54)
Greece	117 (201)	52 (88)	80 (78)
Italy	127 (235)	52 (99)	70 (73)

note: ¹ number of people 65+ per 100 children under 15; ² number old men per 100 children; ³ sex ratio (men per 100 women)
source: based on data from United Nations 2007

fig 10.

¹“Roots and Wings: An Exploration ... - Researchgate.net.” Accessed March 26, 2022. https://www.researchgate.net/publication/327844840_Roots_and_wings_an_exploration_of_intergenerational_play_Research.

Saraceno, Chiara. Essay. In Families, Ageing and Social Policy: Intergenerational Solidarity in European Welfare States, 22. Cheltenham, Glos, UK: Edward Elgar, 2008.

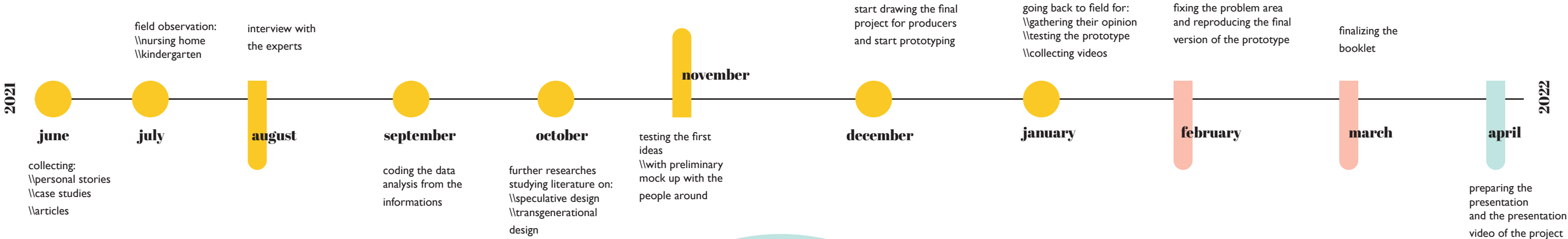
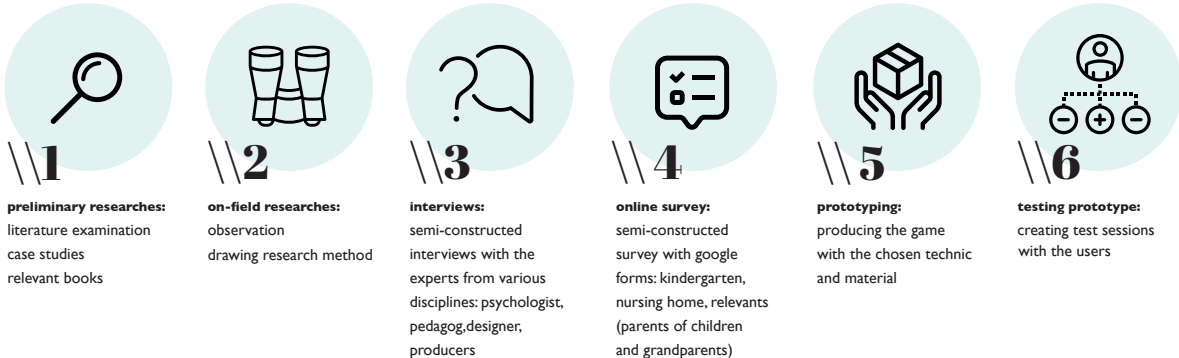


3 | methodology:

This thesis is composed of the merge of qualitative and quantitative data from the existing literature; it analyzes the weak and strong points of the existing projects and papers. Concurrently there is a selection of case studies to understand the current innovations and the market.

3.0 | how this work is conducted/methodology.

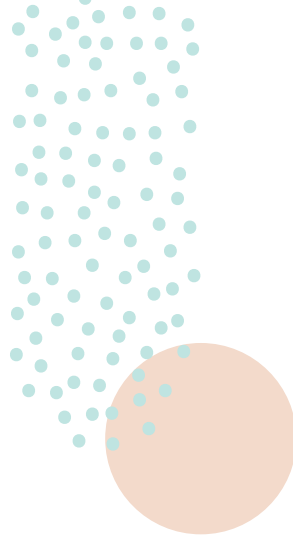
This thesis was carried out in six stages. Each phase aimed to gain knowledge and to shed light on the project by making use of diverse disciplines with different methods. These phases were, in order, 1- preliminary research, 2- on-field research, 3-interviews with the experts from various disciplines, 4-online survey, 5-prototyping and 6-testing the prototype with users.



3.1 | case studies.

3.1.1 | cas holman \ “we don’t give children the freedom to play”

Cas Holman is an American toy designer dedicated to children’s creativity. Her aim while designing toys is to create an open area to bolster up the kids’ imagination and freedom. During her interview in Dezeen magazine, she declares “with children’s lives becoming increasingly regimented, we need to let them play more freely.” She elaborates her argument with the importance of their daily freedom while having a lot of tight schedules, and that they also need to create their lifestyle to reveal their ideology with self-confidence. She is known for her flexible toy designs which allow children to use their imagination and communicative skills to create games, they are deciding on the rules and how many collaborative they want to play. Moreover, Holman is arguing about one of the problems of the toys industry. Since the toys industry is over-linked with the movie sector children are limited to storytelling for why they already know the story of the toys from films.



3.1.2 | toy project \ “a global movement to promote young children and older adults learning together”

The Toy Project is a collective idea that aims to bring children and the elderly together. Since we live longer it has become more and more important to spend time with different generations, and with the migration of parents to the big cities the grandparents are no longer spending time with their grandchild. The TOY program grew out of the EU-funded, which took place in seven countries between 2012 and 2014: Ireland, Italy, Slovenia, Spain, the Netherlands, Poland, and Portugal. With its particular focus on children in their early years of life – from 0 to 8 years old – the TOY project was unique among European intergenerational learning programs. The initiative combined early childhood education with activities for older individuals, bringing the two ends of the lifelong learning continuum together. This project aims not only to improve the interaction between the child and the elderly but also to inform society about this issue. Since such projects contain many sociological and psychological types of research and observations, they supply fertile data that a designer can use in the design process.

“Who We Are.” ToyProject.net. Accessed March 14, 2022. <http://www.toyproject.net/who-we-are/>.



fig.11

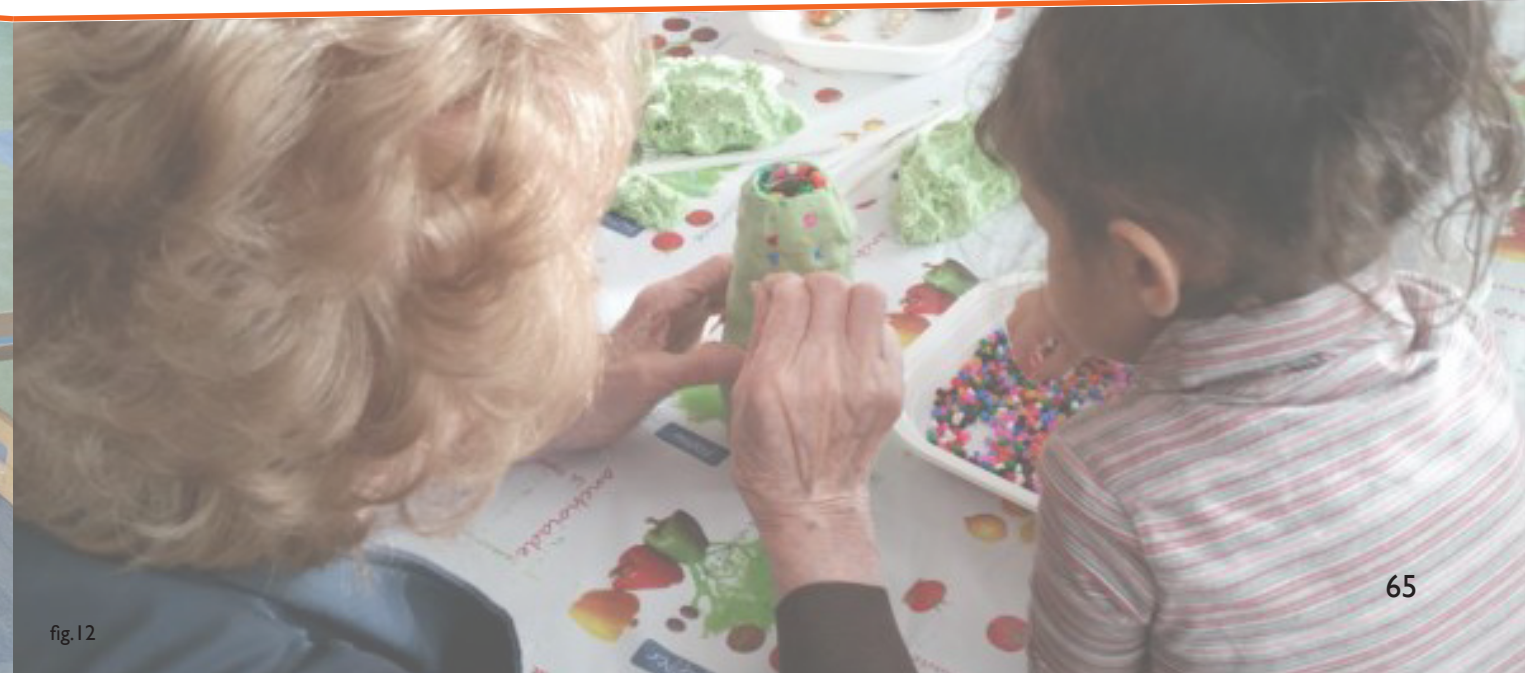


fig.12



3.1.3 | toy design exhibition \\ “triennale milano”

The toy design exposition is placed in the Triennale of Milano in 2017. The purpose of the exhibition was to design a path for playing and for observing the kids behaviours towards the placed toys. In addition to design, a way in which it is explained in terms of children’s world and children’s products in the architectural scale has been proposed. Because these two disciplines were thought to work well together to create experience, play, storytelling, and fun activity. The first part of the exhibition was created by Stefano Giovannoni. The most pop culture toys were placed in this section including the metroquadro game of Fabio Guaricci. From there, the flow of the exhibition develops with different perceptual suggestions, from graphic art to sounds accompanying the visitors in different sections: Furniture, Maria Paola Maino; Toys, Luca Fois with Renato Ocone; Architecture by Fulvio Irace; Signs, Pietro Corraini; Animations, Maurizio Nichetti and Tools, Francesca Balena Arista. The next part was the pedagogical toys and iconic characters by many designers such as Bruno Munari, Alberto Munari, Riccardo Dalisi, Francesca Picchi. The news report showed the toy exhibition had many visitors from various generations.

3.1.4 | toy designs \\ fabio guaricci

The toy design studio is created by a manifesto that underlines the importance of producing awareness toys. To create this awareness they design educational and social products for improving the kid’s sociological and anthropological doctrines. While doing that they conceive the entertaining part and aesthetic part at the same time. In their design collection, it is seen that they have designed also a game for different generations such as adults. They wanted to change the perception of designing toys only for kids by searching for value from the adult world. “Awareness toys” is a project to include the adult in the play; “to benefit from the game in a ‘Wellness-by-play perspective.’” This is a set of 6 wooden toys that aims to be a tool for the person to explore and weigh herself and her relationship with the other, to focus on the aspects of her emotional life, their balances, and their mental processes.¹ On the other hand, the toy design studio has worked on collaborative games across the parents and children. Metroquadro is an urban planning game with a strong focus on building collaborative design and relational skills. Metroquadro, which was designed with the principle of “There is a lot to learn from children”, was expected from children to share the city they founded and to convey to adults how they see a city with their imaginative perspective.²

“Toy Design at Triennale Design Museum Milano.” Toydesign, April 18, 2017. <https://www.toy-design.com/toy-design-at-triennale-design-museum-milano/>.

¹“Awareness Toys.” Toydesign, May 4, 2020. <https://www.toy-design.com/awareness-toys/>.
²“Metroquadro.” Toydesign, May 20, 2016. <https://www.toy-design.com/metroquadro-2/>.

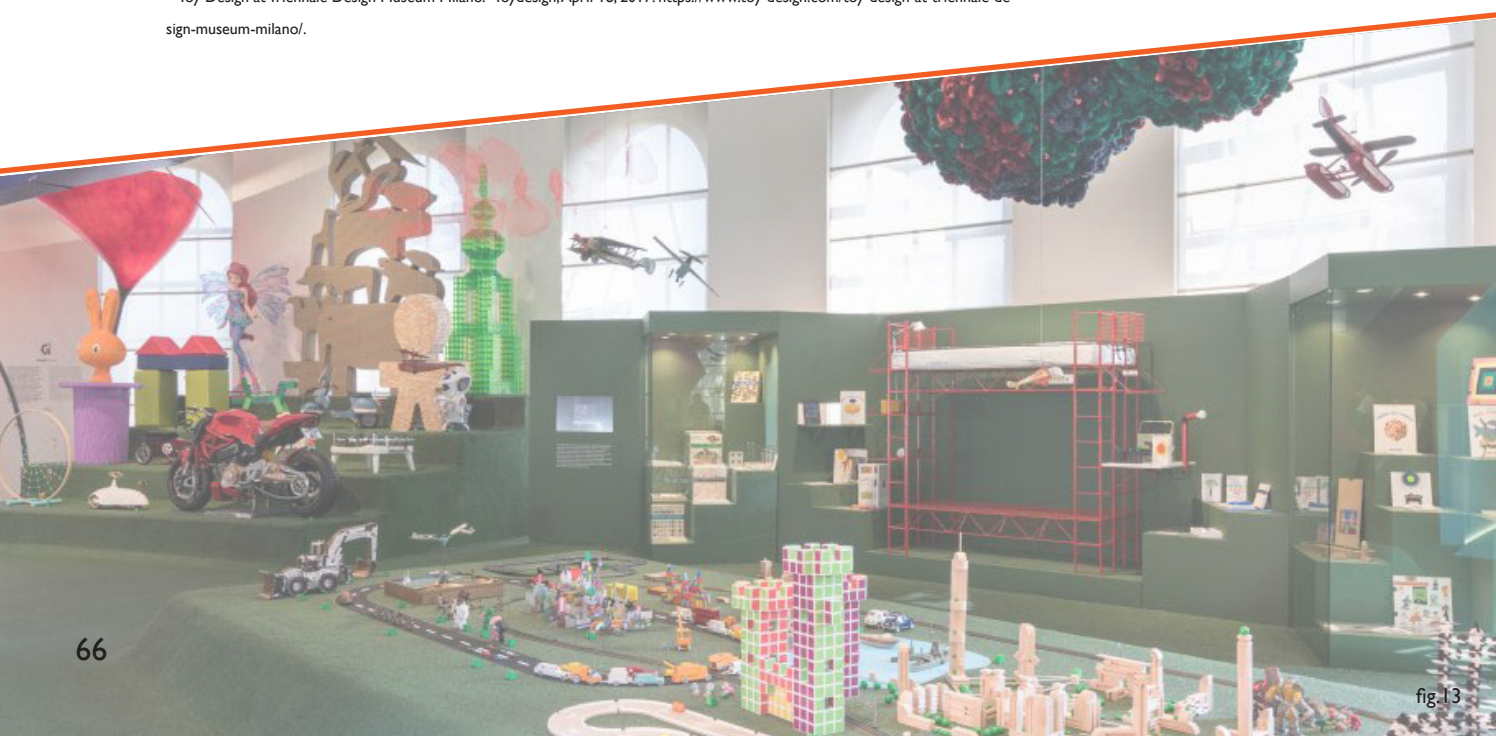


fig. 13



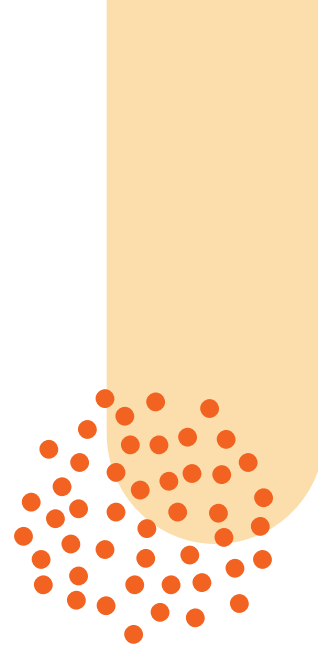
fig. 14

3.1.5 | the growing season \\ a film by evan briggs

The film “growing season” directed by Evan Briggs is a feature film on intergenerational learning. Briggs has given a lot of attention to aging in America, our connection with the elderly, and how broken that relationship appears to be. She wondered; “What is it in our value system that assures that these people no longer have a position at a certain age?”; “Our senior members of society have so much wisdom and life experience that we are unable to tap into, and it feels like a huge waste.”^{1,2} “The Seattle daycare center” is home to over 400 seniors. In this center, which is also a kindergarten, it was desired to establish a commune by transferring their knowledge and experience, while raising future generations, enabling them to be together with the elderly. In this way, it has also been observed that the elderly, who feel lonely, stay healthy longer. Briggs spent time at the center filming their daily activities and gathered opinions with some interviews. The center aimed to organize activities that include various physical and mental games that will benefit both the elderly and children.

¹<https://edition.cnn.com/2015/06/19/living/preschool-nursing-home-seattle/>.

²“The Future of Aging: How We Will Grow Older, Live Longer, and Be Happier.” Quartz. Accessed March 17, 2022. <https://projects.qz.com/is/what-happens-next-2/1490604/future-of-aging/>.



3.1.6 | arti creativo \\ “a connection between your inner child”

The “arti creativo” is a toy design company that intends to create an egalitarian way. Their main objective is to reduce the hierarchy to build a more healthy relationship among parents and kids. They have launched a project on the boundary between yourself and your inner child. They have designed a machine that connects you to your inner child thanks to your handprint and some questions about your childhood and according to these answers, the machine analysis shows you your inner child and that is the fun part of it. They are making them meet with their children to show that their inner child is their kids. The project tries to indicate the importance of the parents’ childhood memories to make them understand their children’s needs, therefore they can create healthier communication.



fig.15

SIÉNTATE A LA MISMA ALTURA QUE TU HIJO



fig.16

3.1.7 | social oven \ “by magda sabatowska”

The project brief is developing a tool to help the isolated elderly female residents of housing estates in Poland socialize with their neighbors. The social oven is a cooking kit that is paid for through a subscription service that is available to both neighbors and the elderly. Neighbors can pay for their meals with cash or by performing duties such as grocery shopping for the elderly or minor repairs around the house. Sabatowska feels that the women would benefit from regular social encounters and will be able to better integrate themselves into society as a result of this interchange. Sabatowska told Dezeen mag that she tried to “reimagine good aging.” “I believed it was vital to design for a reality that I was already engaged in, therefore designing primarily for older ladies in Polish housing estate was a deliberate choice, reinforced by a range of social and economic factors.” “I was particularly interested in what happens when families no longer live with or have time to see their elderly relatives,” Sabatowska stated. “Many of the ladies I spoke with suffering from despair and a loss of purpose in their later years since they no longer have someone to care for.”



fig.17

3.1.8 | elderly care home in spain \ blancafort \ “by guillem carrera”

Guillem Carrera is a Spanish architect who has created a special care home. Designed a more environmentally friendly ambiance for elder people and give them a more integral place. The purpose of this project was to include the neighborhood into their lives and create a socializing platform. The center is designed with two shared entrances and two central courtyards that enable residents and day visitors to spend time together. Carrera explains that he oriented the home for the elderly to the main space to the natural environment while he oriented the day center to the main space to a larger internal courtyard. The design aims to assemble people together for having laid-back events. Nature connection and socialization is a raising issue for the elderly nurse homes’ design in recent time for many points like giving them a more inclusive life and trying to keep them connected with the society.



fig.18

3.1.9 | uninvited guest \ “by superflux”

This project is created by superflux which is a London-based design studio for the ThingTank project. Superflux is a company that works on the possibilities of new scenarios for the changing future in order to make it more inclusive and adaptable for every people from individuals to the government by writing fictional scenarios. Uninvited guests is designed to help the elderly in their daily routine. Superflux seeks to gather the answers for these questions;³ How do we interact with intelligent physical items in our homes? What role does human agency play in a society where everyday items and settings are gaining some autonomy and agency? What impact do smart gadgets have on our daily lives? Are the gadgets we wish to use an impediment or a benefit? In the short film Intruders, London-based design studio Superflux investigates these themes via the life of Thomas, a 70-year-old man who lost his wife and lives alone. Thomas' children send him smart devices to track and monitor his meals, health, and sleep remotely because he lives alone. One of the most appealing IoT applications is elderly healthcare and remote monitoring. While there are evident advantages to remote monitoring of the old or unwell, the idea is not without its flaws.

¹<https://www.dezeen.com/2018/09/14/guillem-carrera-elderly-care-home-spain-blancafort-architecture/>. (n.d.).

³<https://superflux.in/index.php/work/uninvited-guests/#>. (n.d.).

3.1.10 | service project: to help elderly - ideas to do with kids

Like many other projects, this project also starts with the analysis of the elderly population growth. The brief is to bring new ideas to the elderly's lives from kids. The key motivation sentence of this attempt was “We need to be more active in caring for our elderly, and we need to teach our children to do the same”. During the process, they investigated the nursing homes as well to gather more accurate information about the elderly's daily needs and they are explaining that the administrative compartment does not look positive to the activities with the crowded kids' group so they tend to give them more structured and simple proposals. They also took into account the elderly's and children's concentration time for each activity and they put the ideas that can be completed in 15 minutes (some can be finished in multiple 15-minute sessions). Thereafter the hunting, they showed up with 17 propositions such as gardening sessions, card-playing sessions, helping them with their cleaning, and groceries.



fig.19



Brighten Someone's Day with a Garden Pot

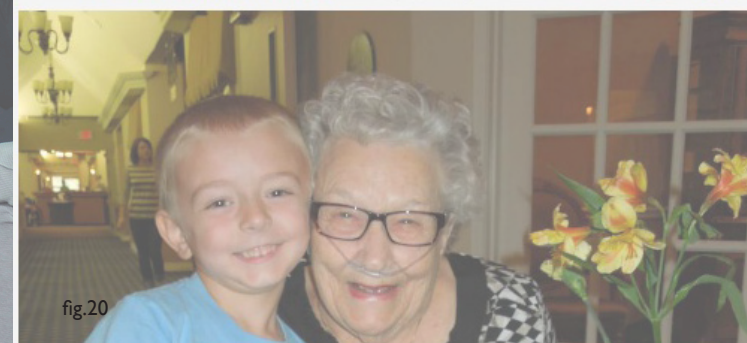
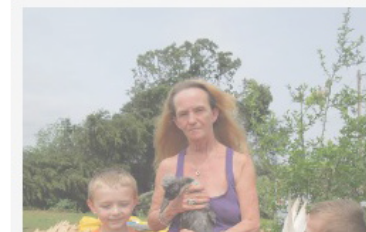


fig.20

20+ Service Ideas
to do with
KIDS





3.1.11 | meals on wheels

This is a project that aims to help the lonely elderly and give support to make them inclusive to society. The number shows that 1 of the 4 people is older than 65 years old and another data shows us that 1 out of 4 is living alone and feel lonely. The provided service is trying to shore them up by providing food delivery. The people who signed up for the application can order food for the seniors and deliver them on their own. It gives the opportunity to have a chat with them and has sympathy for them.

3.1.12 | summery of the case studies

Many of the cases show us the importance of the aging population and their isolation from society. Meantime they are getting more and more lonely because of their children and grandchildren's migration towards the big cities or new habitats. They are no longer connected to their upper generations. With the average age rising the designers have started to keep up with new solutions through these issues. It becomes crucial to activate the generations' interaction.

Most of the projects are focused on service design solutions; there are not many product-based solutions that may bring them together. Therefore these projects, which are mostly reflected from a single point of view, consider the benefit of either the children's side or the elderly side more. In addition to this, many newly developed projects and researches on this subject are currently ongoing, thus taking the kindergarten children to visit nursing homes (ch: 3.1.2-3.1.5) or architectural solutions (ch:3.1.7). Besides, there is still a gap in the market for more product-based solutions.

3.2 | market research.

CRITERIONS :| out of 5

- multiple game option
- easy to understand & play
- both side benefit
- imaginative
- interactive



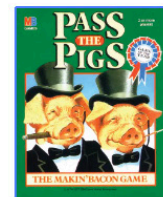
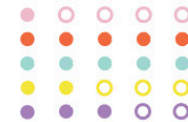
Code name pictures



Bandido



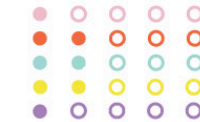
Pictureka



Pass the pigs



Ludo



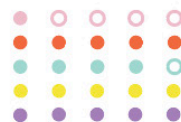
Torre di animali



il castello del tesoro addormentato



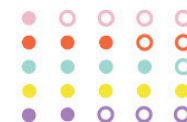
Hedbanz



Hippo



Tucano



In this part, the existing games in the market are analyzed with 5 criteria; 1- multiple game options, 2- easy to understand and play, 3- both side benefit, 4- imaginative, 5- interactive. The criteria were chosen from the common needs of generations (Ch. 2.1.3) and the missing points of existing games. After analyzing the games' types (ch:2.2.3) and deciding on the board game, ten board games that pair up the criteria and can be played from 0 to 99 years old are examined

1-Codenames(?) pictures is a team game that needs 2 groups. The main point of the game is to communicate with your teammates well and try to find the clue together to reach the final picture. Therefore, it has strong points for communicative skills, but on the other hand, it has limited playing options.

2-Bandido is a card game that aims to stop the prisoner from not running out of tunnels. It is a family strategy game that intensifies the family bonds thanks to the cooperation feature of the game. The weak points of the game are the limitation of the playing options and the lack of imagination.

3-Pictureka is another family game. The purpose of the game is to find the figures as fast as possible from the board and collect the points. This is an easy-playing game for children and the elderly. But the obstructions of the game are the fewness of the drawings that the comments are showing, of which children are easily getting bored playing with the same illustrations, and the void of interaction since it is playing individually.

4-Pass the pigs is a dice game created by David Moffatt. Every player is throwing 2 dice that are in the pig form and have a chance to obtain the maximum point out of them. The scoring system is the fun part of the game, dice have different numbers of dots and the position of the pig is also important for getting the mark. However, this game also has limited playing options.

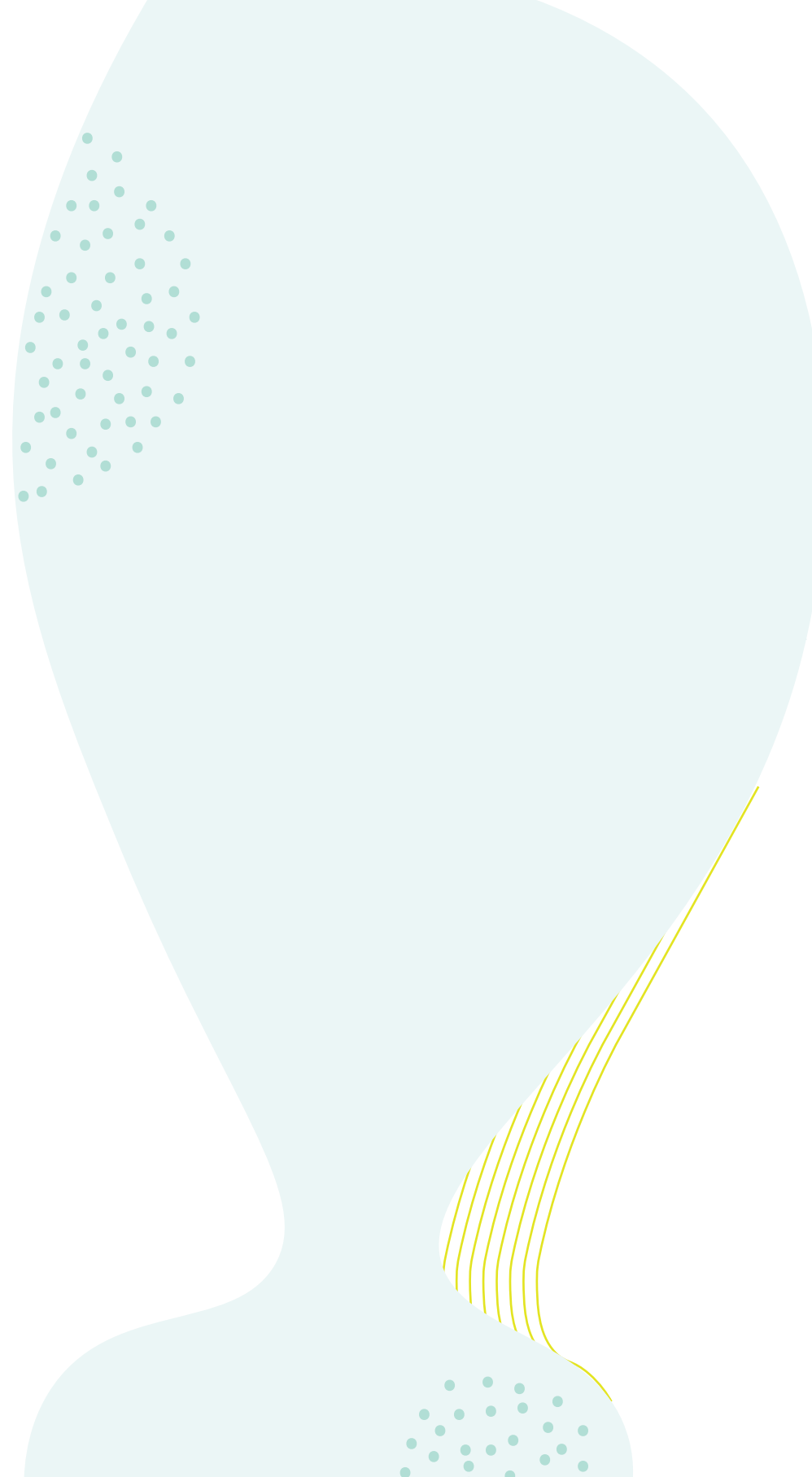
5-Ludo is the simple version of The Indian game Pachisi. Ludo was invented towards the end of the nineteenth century and has remained a popular game ever since. Though the player has some control over what they do, luck plays a big role in who wins and who loses, making it a fun game to play with kids.

Each of the up to four players has four pieces, which they race around the outside of a cross-shaped board based on the throws of a single six-sided die. When a piece completes a circuit, it moves to the center of the board to complete its journey. The game is won by the first player to get all four pieces to the center. On one hand, it is an easy learning game and it is again restrictive for children.

6-Torre di animali is a children's board game designed by Klaus Miltenberger and published in 2005. Although the user audience of the game is children, it is also a popular game for adults. The strong points of this game are the short playing session so the kids are not losing their concentration but on the other side, the game doesn't provide any alternative game option which makes it repetitive, then boring for children.

7-Spot it/doodle is a visual perception, speed, and reflex game that can be played with the family, in which players attempt to locate a picture on two cards. Each card in the original Spot it! The game has eight different symbols, which vary in size from card to card. There is exactly one symbol in common between any two cards. It helps to develop focus, visual perception skills, speech-language skills, and fine motor skills.

8- Hedbanz is a simple what I am game. The purpose of this game is to figure it out the the card which placed on the player's forehead and try to guess who or what is it by asking yes no questions to other player to get the clue about the card. It's a race against the clock to see who can obtain three scoring badges first. It gives chance to interact and thanks to the speaking part of the game it enhance the verbal skills and communication. The missing point is there is no other playing option and it put that an easy boring game category.



9- Hippo; A player in Hippo wishes to eliminate it by methodically placing all of the float chips in Mr. Hippo's swimming pool. Mr. Hippo's tiny pool is lane 7, and the swimming lanes are designated 1 through 12. Players throw three dice and choose whether to add or subtract their values. Whoever gets a 7 on the dice begins the game all over again. Chips can be re-rolled from the pool if a lane is filled and a player plays there again. The weak points are the limited playing option and limited interaction so the comments shows that the children are not focusing long time on this game.

10- Tucano's aim is to collect the best fruits wisely while avoiding the bad ones and you can use your Toucan cards to keep your stash or steal your fruits. It's simple to make a move: you need to pick one of three card decks, then lay a new card on top of each one. It's up to you to make the greatest tactical moves in order to win and leave your opponents with the rotten fruit. Tucano is a colorful and clever strategy game for kids and adults with simple rules. On the other hand, it is missing also the multiple game chance and interaction.

3.3 | field research data// observations.

In the first stage of the project the field visit to a kindergarten and a nursing home was planned. The purpose of these visits was to procure the informations about their actions and their approach throught games, collect data from the professionals such as; teachers, child development specialists and observe their daily kindergarten routine.



nursing home// ankara

After visiting the nursing home in Ankara it has been collected a good amount of data. The visit was composed of 3 sessions. The first step was getting direct information from the elder people to clarify their daily routine and get some insights from their observations. The second step was to interview the nurses to see their current needs and discuss the possible solutions. The final step was observing from outside their behaviours to perceive their abilities and disabilities. The observations showed that they are more into collective activities and the thing they enjoy is communicating with each other. Some elders are more capable of moving and doing physical activities but moreover, there are also some elderly who are not capable of that so their common strength is talking. They are needed for more mental activities than physical activities to keep their memories fresh. Their body health is not good enough to handle the physical performative activities. For this reason, they are feeling uncomfortable and inadequate themselves while they feel sufficient and effective with the table activities (such as board games, playing card games).



fig.32

mimoza care center\\ from the school student visit day



fig.33



fig.34



fig.35

kindergarten// ankara



fig.36



fig.37

kidsland preschool

The visit to the chosen kindergarten was aimed to observe the childrens' interactions and behaviors. This visit was placed in the beginning of the project development for having some insights to understand the kids' need and their attitude toward playing. It was divided into 3 parts; the first was a free observation, the second was to interview their professors and the third was using the drawing research method with the kids. Free observation part is realized by spending time with kids of age 5 to 6 during their playing hours without having any interaction in order to see their behaviours with a wider perspective. It is monitored that the children like to play collaborative games and share stories of their families from their house life. They were good to take the instructions correctly and their verbal skills was very progressed to explain what they need. The second part was the interviewing sessions with the instructors; it was asked free form questions such as what they most enjoy to play, what for they are struggling. The teachers explained that the most problematic issue is their limitation of the concentration time, they want to change the game within every 15 or 20 minutes. They underlined that to keep the kids' attention more longer the games have to have multiple options in order to motivate and stay focus. The final part was the drawing experience that aims to collect their imaginative ideas from a given instruction to clarify what they are able to do and to gather their expectations.

3.4 | drawing research method with children.

While visiting the kindergarten, drawings were collected from the kids with the aim of understanding their time perception and their attitudes towards the playing action. This experiment was carried out with 8 children from ages 5 and 6. It is required to draw “car in the past” and tell us the background stories.

group: 6 years old

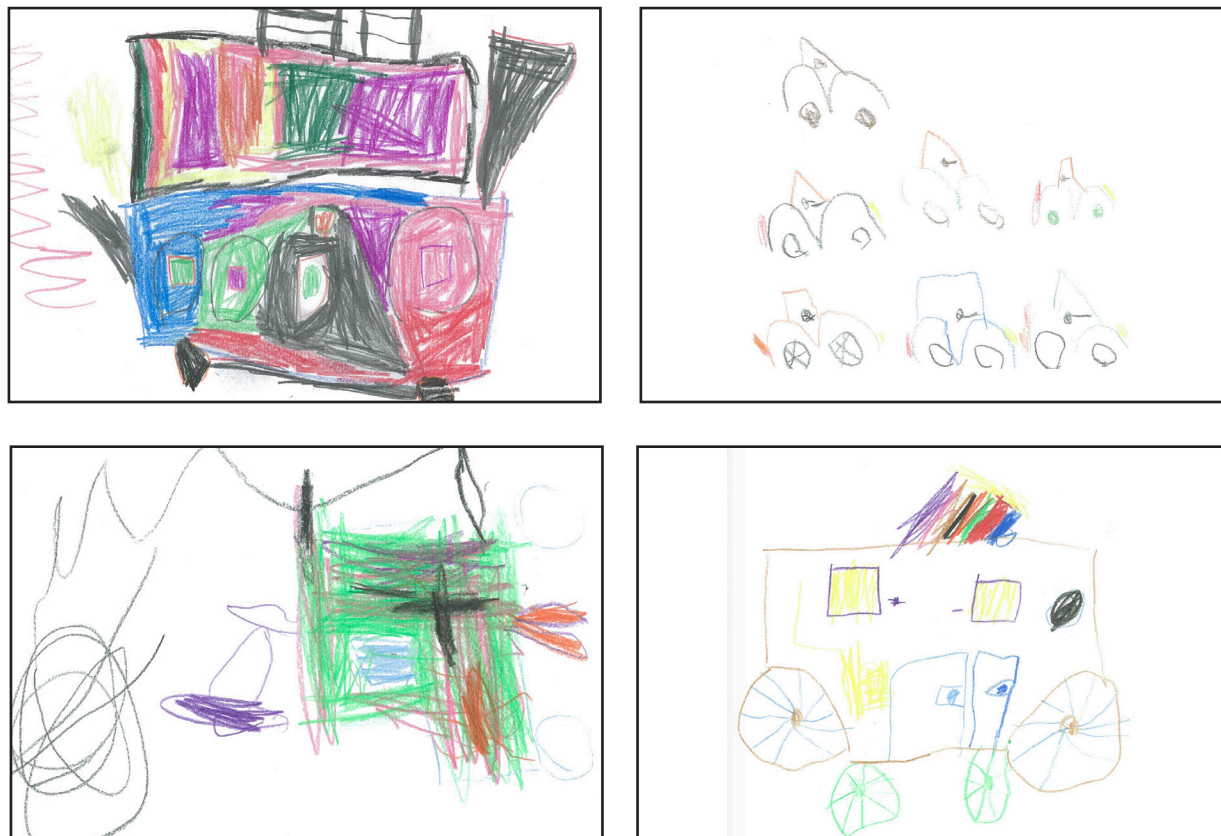


fig.38



fig.39

group: 5 years old

\\results.

The obtained insights show that they are not capable of differentiating the past and future, their all drawings were futuristic. However, one of the important points was seeing they are affected by each other while drawing sessions and telling similar stories. In order to remove this problem, it would be better to have single sessions instead of group testing. It has been proved that they need more specific information maybe with the help of some photos and pre-explanation. The chosen age group was ideal since it was convenient to follow the instructions and begin to imitate related shapes. The test also helped to check their concentration time during playing. Even though it was varying from kid to kid the average concentration time was around 15 minutes per game.

The information gathered from their teachers was also helpful to clarify their skills. They explained what they are accomplished for. They agreed that this age group is good to have the order correctly and apply for it. They are also efficient at using their creativity and learning by pretending to capture new things. Additionally, it has been found that they can play with different generations such as their parents and grandparents, and enjoy themselves with them thanks to the safe play mode. Even if they communicate well they are sometimes struggling with what they need, therefore it is important for them to have a safe playing area.

3.5 | interviews with experts.

This part shows the selection of the experts to gather the new perspectives from their experiences in their field not only from a design perspective but also from various professions such as child development experts and psychologists. To enrich the subject, it is analyzed what psychologists and pedagogs observed from children and their parents to understand their needs from their behavior. The interviews were realized with 4 people; 2 designers, 1 psychologist and 1 pedagog. It aimed to syncretize the data to create a guide for find out the possible ways for intergenerational projects by understanding the key factors.

3.5.1 | fabio guaricci \\ designer

Fabio Guaricci is an Italian designer who currently works on toy design. He co-founded his studio “Toy Design” in 2005 to work on educational toys and communicational products. The interview is conducted as a half-constructed interview to procure more information about the subject freely. The questions were prepared after the literature research to complete the empty parts such as the customer side observations and their requirements during a design process for children. Guaricci pointed out the fragility of the emotional bonding with older people and children.

“There is a constraint you have to think about: while creating a bridge between elder and children consider the elder people won’t be there forever.”

“maybe you can try to not focus on the emotional bonding”

He has proposed to avoid this to create more sustainable projects which can create a bridge between them. He announced he still had not experienced a transgenerational process for design. He explained his design period while creating a toy, by saying that he is surmounting the observation of the parents and children and their relationship to discover the problematic areas to handle with them.

“We collect the stories during the design process and have a lot of observations on children’s attitude through toys but we did not experience yet a project for elder people”

He also confronted the importance of the future requirements of them which we can see from his design aspect of the technology to immerse the speculative design. The well-being of children is also a visible point in his designs, ¹He is saying that he designed intending to foster the social and entrepreneurial cut and create a debate around design, education, disability, society, and technology.

¹About Fabio. Toydesign. (2020, April 24). Retrieved January 26, 2022, from <https://www.toy-design.com/about/fabio/>



“intending to foster the social and entrepreneurial cut and create a debate around design, education, disability, society, and technology.”

Fabio Guaricci \\ italy \\ co-founder & designer \\ toy design studio



“something collaborative
not competitive”

Luca Fois \\ italy \\ professor at Polimi

3.5.2 | luca fois \\ designer

Luca Fois is an Italian designer who works on toys and kids. The interview has been realized open debate format from semi-constructed interview form. The questions were prepared in open question style. It has been followed the flow of his experiences and observations.

He started to explain one of his previous projects about the kids to reunite the different generations. Fois is declared the focus point of the project was to use the common features of generations to acquire a more cooperative project.

“ I also worked on a project with children intergenerationally. During the project, children used the technological tools that elder people are not able, so the general purpose was to help each other with their straightness and weaknesses because you know our knowledge is based to learn by empathy.”

Fois emphasized that

“ In the first 1000 days we are like a plastic which can absorb anything, it is incredible the number of synapsis we have so it is very important to learn new things”

“you know there is Renacimiento for many fields and I invented ‘kid-nacimiento’ to see the kids as a person because now it is to see them as a single person. In Poland, they built new policies for children’s rights. Before we were deciding everything for them by sometimes manipulation but we need to keep their personality and respect their brain”

3.5.3 | zeynep tuzun \\ psychologist

Zeynep Tuzun is a psychologist who works with children and adolescents. The interview is formed in a semi-constructed manner to have a broader range of information. It is started from the general perception of children's attitude towards their parents and grandparents. This took us to the point of the problem of not having enough time or the boundary of not living in the same city with grandparents. It is proved once again they are no longer in contact with the seniors thus making their relationship weak and not sharing experiences. Tuzun declared that "whenever they can see their grandparents; It makes the children very happy spending time with them. The most common answers to the question of what they do together are playing games, story-tellings, and talking to share knowledge and memories." She continued by explaining the results of some experiences on intergenerational learning; the observed outcomes are the kids who have contact with upper generations are more talented in verbal skills than the kids who have not enough communication with elders.

“ whenever they can see their grandparents; It makes the children very happy spending time with them.

Zeynep Tuzun\\turkey\\psychologist in Hacettepe University



“ they enjoy collaborative games and they like to share the stories

Cigdem Sentop\\turkey\\ child development specialist in kidsland preschool



3.5.4 | cigdem sentop \\ child development specialist

The interview was conducted in a semi-constructed way and the questions were based more on the pedagogical information towards kids' attitudes while playing. The questions that shaped the interview include the following:

- what do they enjoy the most to play,
- what kind of games are difficult and challenging for them,
- what types of games they are easily handling.

According to Sentop the concentration-time for every age group changes and ability according to their age and progression is analyzed in children's improvement by looking for their skills on the motor, verbal and creativity.

When asked about the development of 5 and 6 years old kids, Sentop emphasized that these two age groups were divided into the first six months and the last six months. She stated that even the first six months of the age group differ greatly from those of the last 6 months. Afterward she conveyed the basic developments of these four groups as follows;

5 years old-first six month-; This is the period when hand-eye coordination is expected to begin to develop, so activities such as painting and cutting the given shape are done to help them develop it. They can start to play the game with the easy rules.

5 years old-last six month; they start to contact more and have more new relation, they like to create things and share with the older people.

6 years old-first six month; communication skills are good enough to transfer ideas.

6 years old-last six month; like the first 6 months of 6 age their verbal skills is well improved, their vocabulary reaches 10000 words, so they have no problem expressing themselves correctly. Some of them starts to write and read aswell.

They are good to play the instructional games with average difficulty.

3.6 | online survey results.

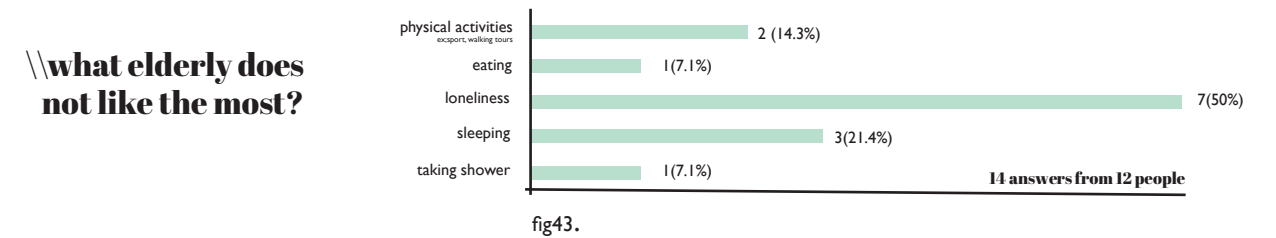
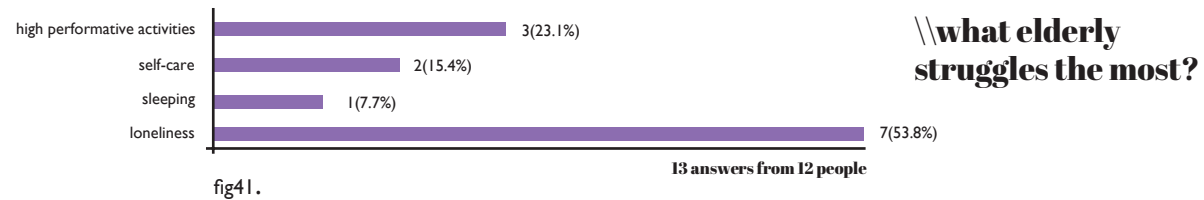
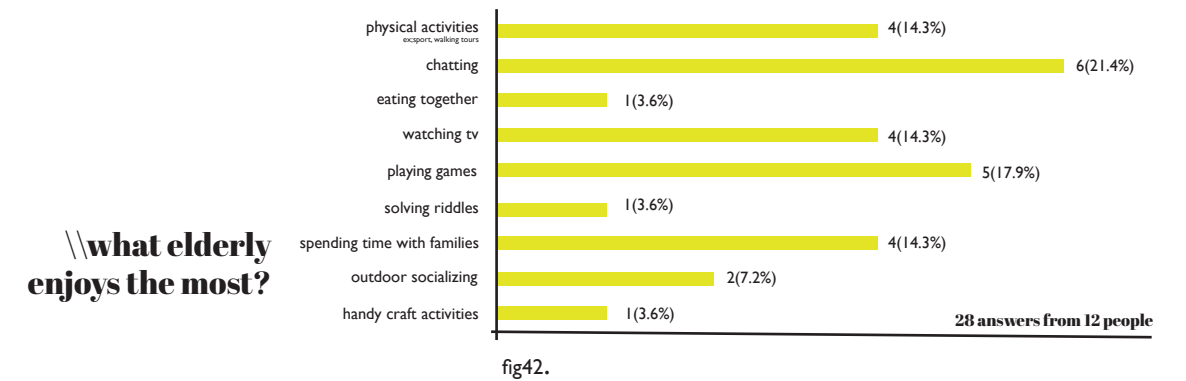
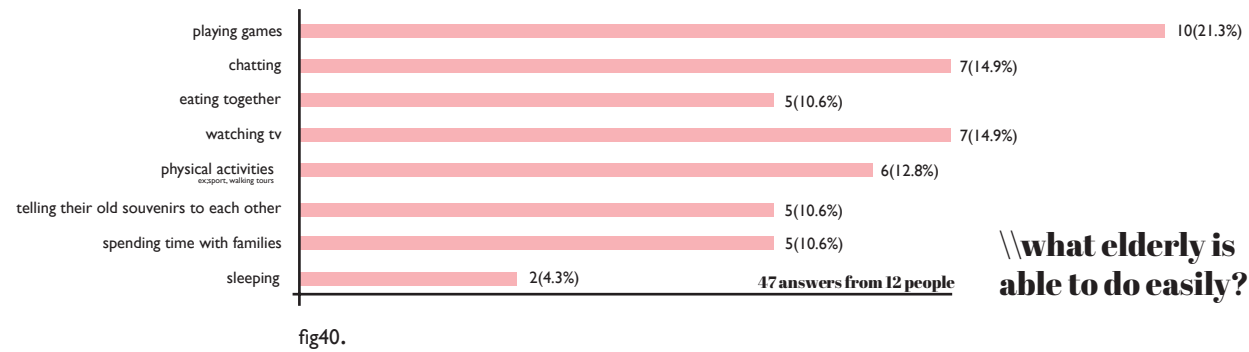
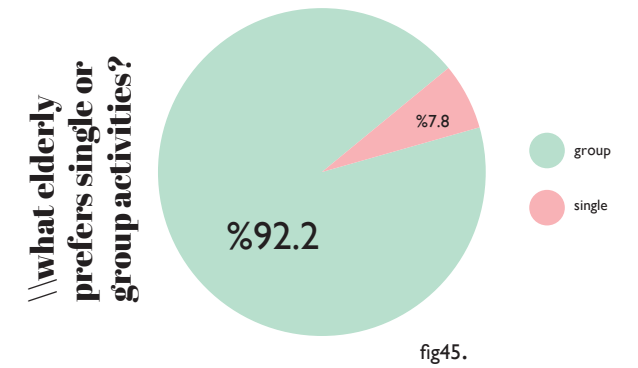
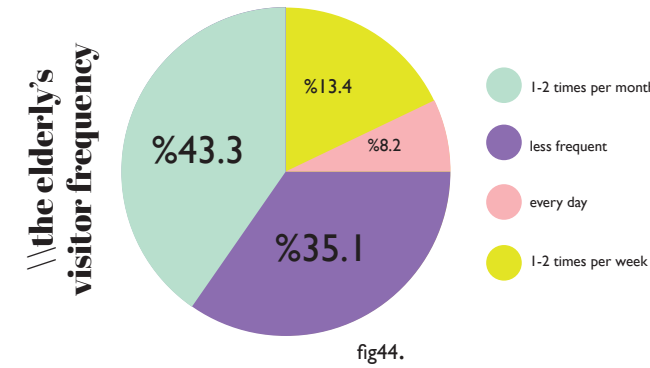
The online google survey was launched on the 10th of October. It is divided into 3 parts; 1- for the nursing homes, 2- kindergarten, 3- relatives.

The objective was to held multi-technic questions such as open questions, and multi-optional questions for obtaining insights from the qualified people in the field. It was important while creating the concept of the game and use the gathered information as an inspiration tool and to point out the requirements correctly in order to occur an innovative and involving project.

The survey is conducted via mail to the concerned people directly and the data is formed automatically by the google form's algorithm.

3.6.1 | nursing homes

It has received 12 answers from participants; 3 nurses, 5 caretakers, 1 president, and 3 interns of the home. The questions are replied to from online platforms thanks to personal contacts. The form included 15 questions in mix-technique such as open questions and also some multi-choice questions. The first 13 questions aimed to understand their current abilities and their daily schedule. However, the following 2 questions aimed to look beyond their possible needs and clarify how we can improve their social life as designers. The questions' focus points were to clarify the elderly's daily needs, what does elderly struggle with, what they are capable of doing easily, and how frequently they are having visitors in order to examine their relationship with their families, especially with children. It shed light on the interaction types of elderly and children by asking what they do enjoy doing the most together.



\\results.

According to the nursing home personnel's answers, it showed what the elderly are able to do easily in order; playing games (21.3%), chatting (14.9%), watching TV (14.9%), physical activities (12.8%), eating together (10.6%), telling their old memories to each other (10.6%), spending time with families (10.6%), sleeping (4.3%). It proved that most of the elderly are connected to playing games and chatting since they have many free times and they like to remember their old times together and share their life's experiences.

When it is asked what the elderly enjoy the most the responses were parallel to what they are capable to do. The highlighted findings were chatting (21.4%), playing games (17.9%), physical activities (14.3%), watching tv (14.3%), spending time with families (14.3%), outdoor socializing (7.2%), eating together (3.6%), solving riddles (3.6%), handy craft activities (3.6%).

The following question was what the elderly struggle with the most and it is found respectively; loneliness (53.8%), high performative activities (23.1%), self-care (15.4%), and sleeping (7.7%). The numbers underline that the most problematic areas are their socializing need in their daily routine and their loneliness problem. Since they tend to be isolated from the community they are standing to feel active again and included to nourish their mental and physical skills.

In addition to the previous question, the survey seeks after what they do not like to do the most, loneliness was the most common answer and it reached 50%. Afterward sleeping and physical activities follow with the percentage of 21.4 and 14.3 respectively.

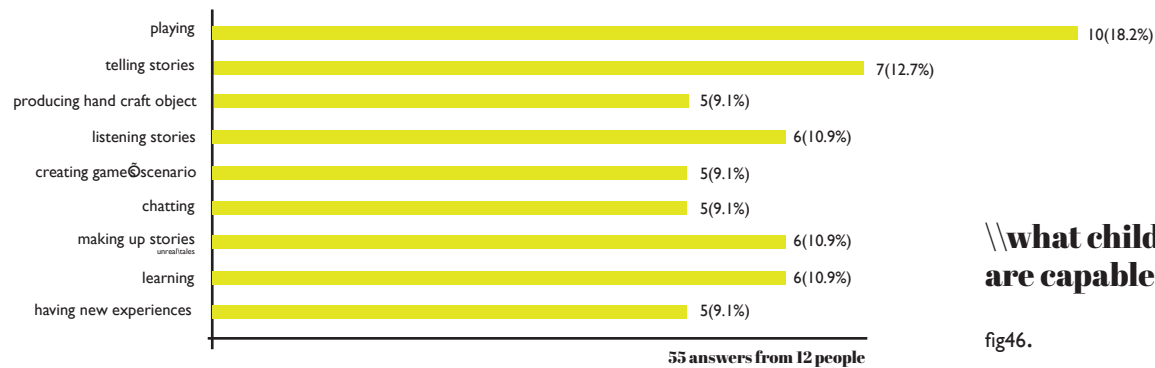
Another key factor during this thesis process is important to understand if the seniors are into group activities and the results showed 92.2% of them are more likely to enjoy collective activities. On the other hand, there was also 7.8% enjoyed single activities. The reason to ask this question was to acquire data for finding the game instructions and to verify once again how much they enjoy playing collaborative games.

After the literature review, it was discovered that the elderly's loneliness issue is a crucial topic that can not be underestimated. Hence, it indicated the value of intergenerational projects to ensure generational ties are stronger. This led to analyzing the elderly's visitor frequency for observing their family relations and how they spend time together. After all, the project direction is decided to strengthen the transgenerationality for future societies

To summarize the results, they are in need of socializing and being more connected to society through several mediums such as games, story-telling, and watching tv. Therefore, when discussing the game concept as a preliminary idea they told me that they feel happy when they are getting in touch with their grandchildren while playing and sharing their experiences and knowledge. For this reason, it is important to design tools that can help to enforce their communication.

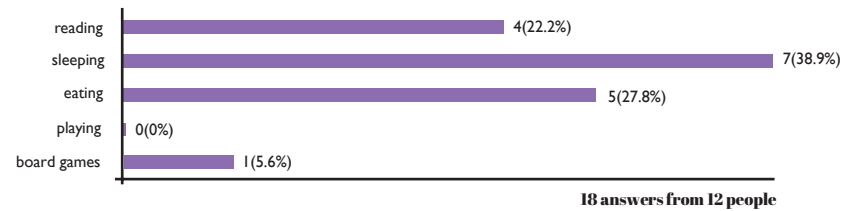
3.6.2 | kindergarten

The purpose of doing a survey in kindergarten was to examine the kids' behaviors around their playing perception and collect data from the people who work with the children. The chosen group were 5 years old and 6 years old kids. The questionnaire is formed by using the mixed technique with open questions and multiple-choice questions. 12 people (1 director, 1 child developer, 1 kitchen responsible, 9 teachers) participate in this online survey, the questions are transmitted via mail to the relevant people, and the data is created automatically by google form's algorithm with the graphic statistics. This survey aimed to learn what this age group of children can do, what they have difficulty in doing, what interests them the most, and asks questions in this direction. In addition, the communication of children with their grandparents was also questioned.



\\what children are capable to do?

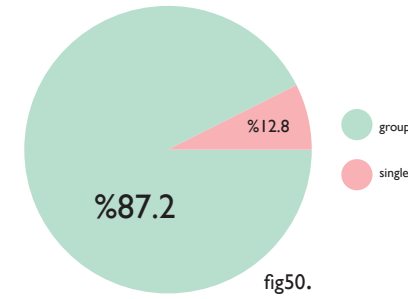
fig46.



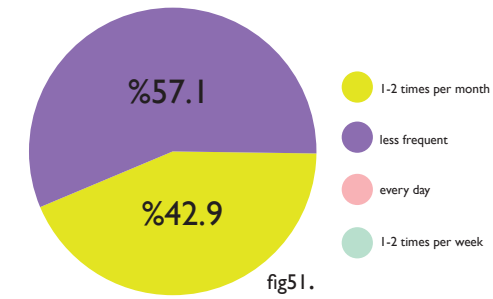
\\what children do not like to do?

fig47.

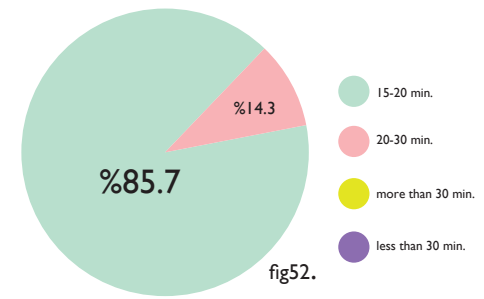
\\which activity type children enjoy single or group?



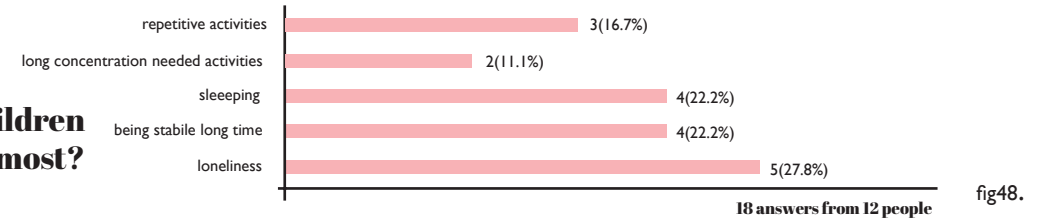
\\how frequently they are being together (grandparents and grandchildren)?



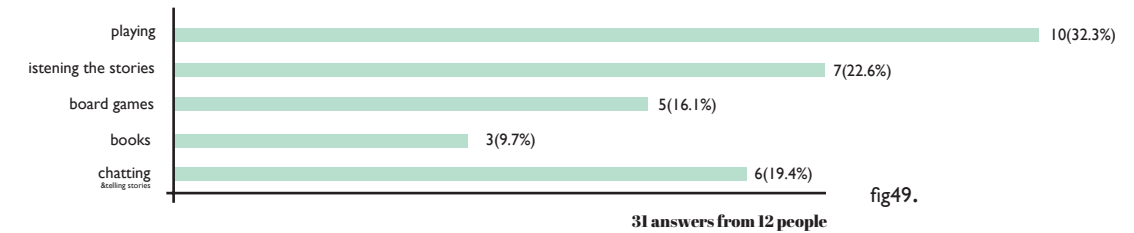
\\children's concentration time limits



\\what children struggle the most?



\\what children like to do the most?



\\results.

The first question of the survey was, what the children enjoyed doing the most. Among the responses, the most striking responses were playing games(32.3%), listening to the stories(22.6%), and telling stories (19.4%). Later, this argument was supported by the interviews with their teachers.They emphasized that children like to share their stories about their lives and that they care about sharing what they do with their families.

The highest-rated answers to the question of what they can do are; It was playing games (18.2%), telling stories (12.7%)-sometimes imaginary sometimes real-to create something, creating a game scenario (9.1%), learning new things (10.9%), having new experiences (9.1%).As it was learned in the interview with psychologist Zeynep Tuzun, the children's desire to create games and stories' importance has been understood once again here.

The next question was about the percentage of the children who were interested in collective activities and individual activities. Therefore the results showed that they are more into collective activities with a percentage of 87.2% rather than individual activities.



Afterward, it is asked how much time they spend together (grandparents and grandchildren) and the answers were once or twice a month or much less frequently. One of their teachers said that a couple of students were picked up from school by their grandparents and that she observed a sensitive attitude towards the elderly in these children as was marked in many articles.

It is also questioned what are their daily needs and what kind of instruments they need.As mentioned before in chapter 2.0.6, when instructors are replied to what kind of tools they need;They said that they still need a lot of both educational and creative designs in the field of design for children. However, they stated that it would be beneficial for children to create games that would strengthen the bonds between generations since the elders around them had a great influence on the development of children's social skills.They added that the existing games have limited playing options.As the results of "their concentration-time" question, it is seen that they have mostly 15-20 minutes of concentration per game and they are getting bored easily from a game. For that reason, teachers require games that contain multiple alternatives.To conclude they declared that they need to have social supporter games that can enhance also their creativity and mental skills.

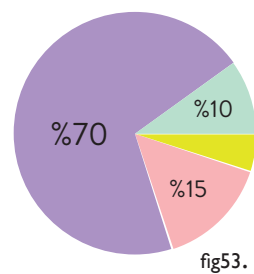
3.6.3 | relatives

This questionnaire was prepared to be answered by people who have children, elderly parents, and an acquaintance in a nursing home. Answers were obtained from 20 people. Questions are prepared in multi-methods by using open questions, and multiple option questions. afterward, it aimed to procure data about the intergenerational relationships within families. This survey sought questions such as the importance and perception of generations in families, how much time they spent together, and whether they lived together or not. In this part the effects of the changing family structure on people were examined.

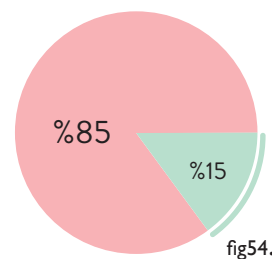
This survey was carried out between the ages of 40-60 at the moment, which is defined as the X generation. It has been observed that the average age of the parents of the participants in this survey is mostly between 60-69 years of age, with a rate of 70%. As we saw in articles in the new social order transformation, it was seen once again as a result of this survey that families do not live together as a large family. Another question asked in this direction was as follows; How much time do their children spend with their grandchildren? The responses received were again showing that the bond between generations is gradually decreasing, with 55% of the respondents saying less than once per month, while only 20% of them answered once or twice a week.

The answers given to the question of what they like to do most when they come together as a big family, showed parallelism with the answers from the kindergarten questionnaire. It was seen that they enjoyed chatting a lot, sharing a memory or an experience, and playing a game at large family gatherings.

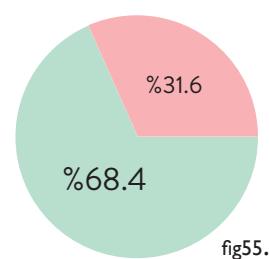
research towards elderlies' behaviour to their grand children



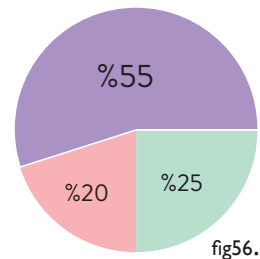
how old they are?



are you living with them(elderly)?



can they do their personal care?



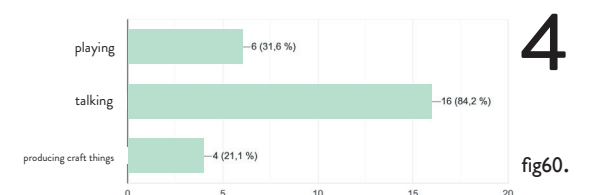
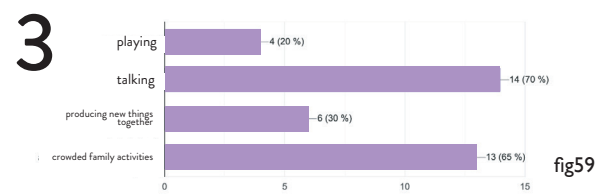
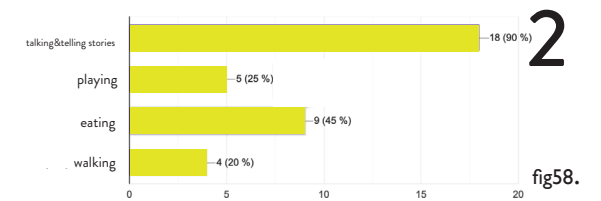
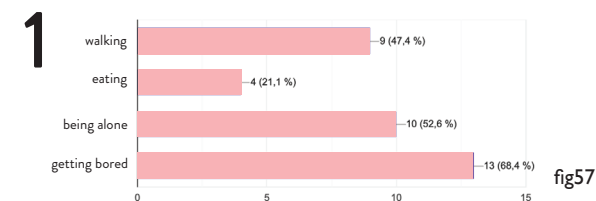
how many times they spend with their grand-children?

- 60-69
- 70-79
- 80-89
- 90-99

- yes
- no

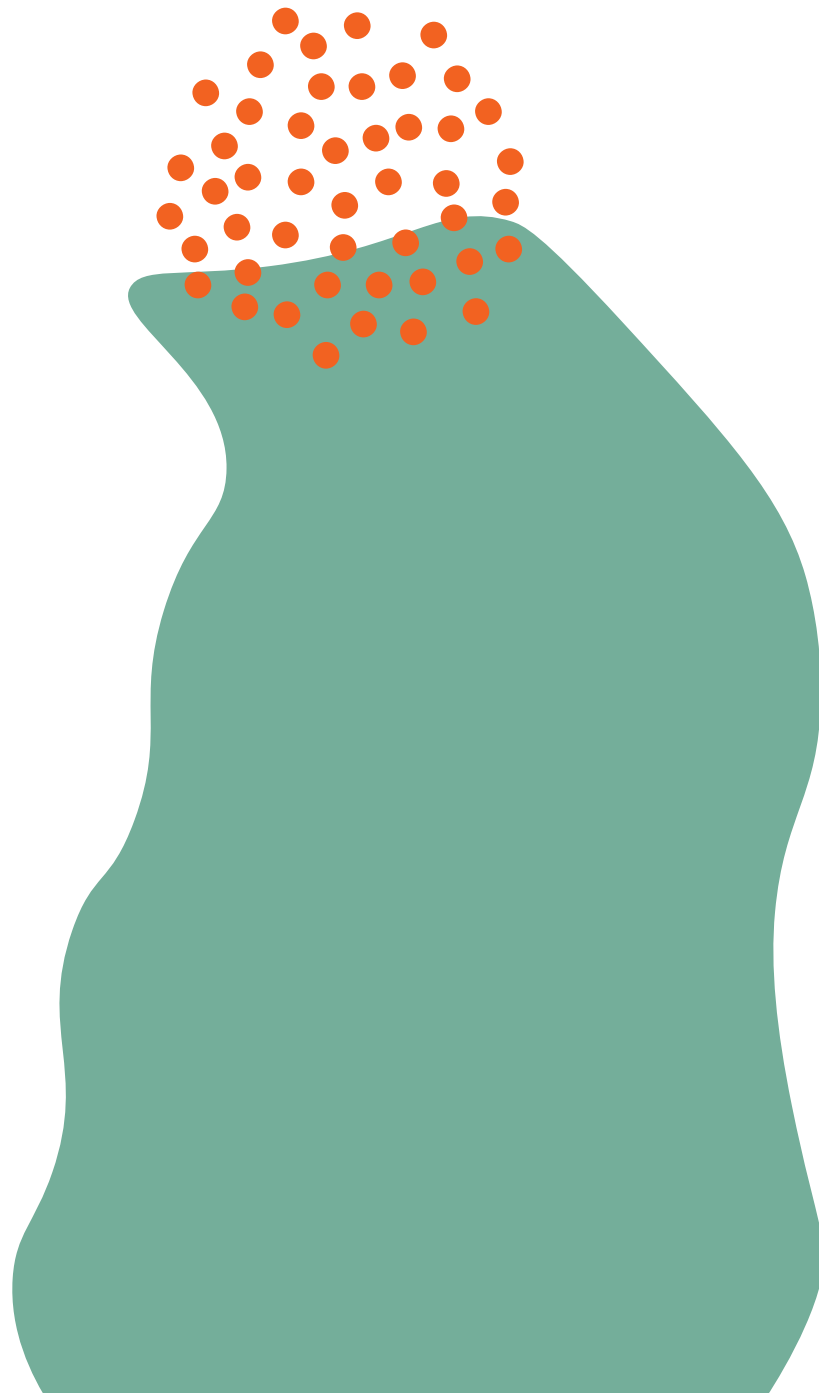
- yes
- no

- 1-2 times per week
- 1-2 times per month
- more
- less



- 1\ What are the daily things they have the most difficulty with?
- 2\ What are the easiest activities they do on a daily routine?
- 3\ What are your parents' favorite activities with their grandchildren?
- 4\ What kind of activities your children enjoy doing the most with their grandparents?

4 | project.



4.0 | brainstorming and moodboard

4.0.1 | brainstorming

After the literature review, case studies, and market research it is seen that both side elderly and children need to be more involved in society and have more communication. Since they both need care it is a good match for kids to construct their future relationship and the elderly to have their minds and body fresh with their memories from their youngness. They are very important for the population to have a healthy future. Thanks to the transgenerational connection the kids can profit while building their future behavior and get knowledge about time perception from the elder side. After all the project emerged through designing a game that can be adapted to various generations. It has been analyzed the key elements and the possible scenarios around these factors(fig: xx). Elderly's and children's common abilities and disabilities are evaluated for detecting the design path. Subsequently, the keywords formed are subdivided into 5 colors to categorize them easily; the pink area in the showing chart is the common features, the other colors are complementary colors to each other to point out their subsidiary features with each other.

research towards elderlies' behaviour to their grand children

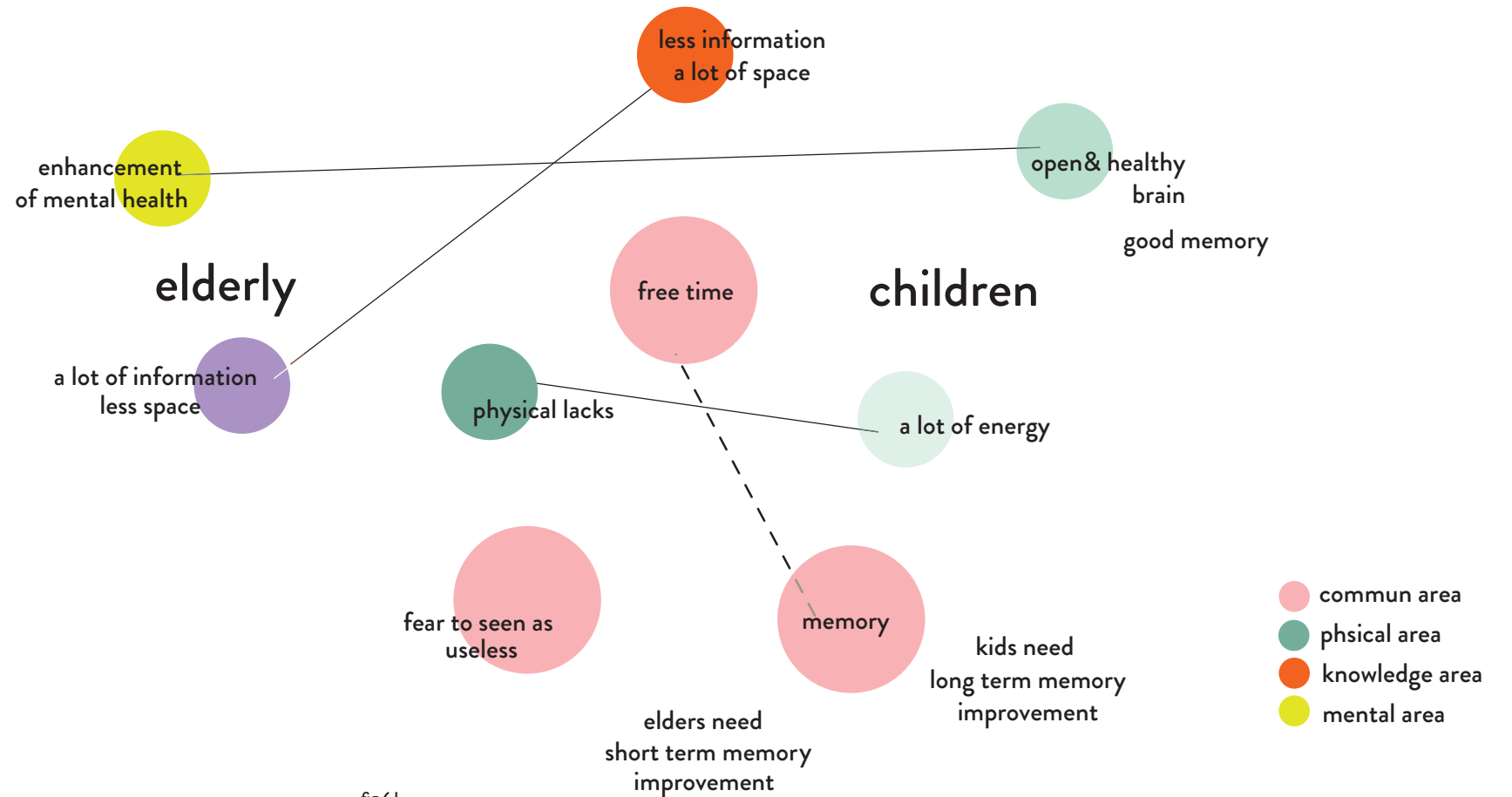
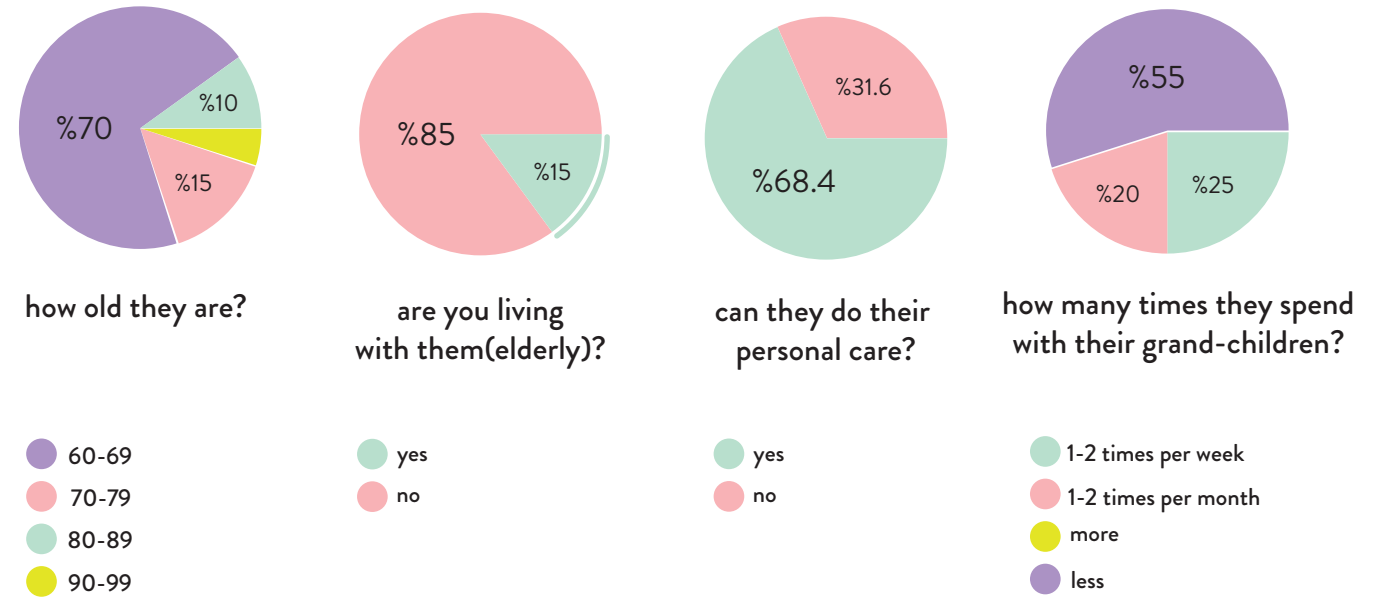


fig.61

4.0.2 | moodboard

The main starting points of the project were; to make the time spent by two generations - the elderly and the children - more effective and of high quality. The mood board, which was created from these points in a way, created a collective, interactive, fun, complementary source of inspiration by supporting each other. The abstract form and colorful illustrations were other key oracles that way to achieve a creative and entertaining product.



4.1 | preliminary ideas

The first ideation process was formed by numerous brainstorming sessions by starting to research the key elements such as the behavior analysis of children towards elderly and elderly towards children to clarify the positive sides and missing parts of their current tie. Later on, the field research observation session is incorporated into the design thinking process. In this field, many social science disciplines and NGOs realized the importance of reactivating the communication between generations. The generation's transactions lack is invented after disappearing the big family's formation(ch.1.0). Social scientists and related institutions completed various studies like workshops, research, and social experiments thus showing that this area still needs to be underlined especially from the product design discipline. There is still a big gap. While transgenerational interaction issues were traditionally handled in previous times now it requires specific solutions from professionals and special products. Starting from that point the project proceeded on using their common areas- pink areas on the chart- like having free time, care needs, communication need for verbal skills' improvement, or holding them active and need of entertainment to increase their leisure time quality. In pursuit of the gathered data, the project focused on product-based solutions rather than service-based solutions. The other important factor was to provide advantages to the elderly and children simultaneously. According to the field observations and the interviews with the experts unveiled the objects they use frequently in their daily routine. For the elderly side, it is been seen the most needed ones are reminder objects; pills reminder, activities reminder-eating, walking-, the physical support objects, and the leisure time objects which are mostly games. Receiving this information conducted the market research part of this study (ch. 3.2). The first bench of ideas is shaped around rising creativity and sharing stories within all generations. To keep the attention on the game, generating some challenges and regarding a game that encourages co-working rather than a competitive game was substantial.

The photos shown alongside show a few of the first ideas; first photograph shows the trial with hand drawings on semi-transparent cards, the second photo shows the test with the cutting and pasting abstract forms on transparent cards and the third and fourth photos show the final version of the card design.



fig.62



fig.63



fig.64



fig.65

4.2 | concept definition

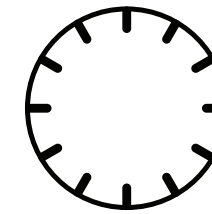
After deciding to work on 'game' the second question was what kind of game can be more adaptable for the future society in a more inclusive way. Then it is analyzed the existing games which address as much as generations and it is found the board games. The board games are the most sustainable games like chess, go existed from very old centuries. Several studies have shown that playing games, especially card and board games, is extremely helpful to senior citizens. These leisure activities, according to research, aid in the maintenance of cognitive function, mental clarity, and memory recall.^{1,2} You've undoubtedly heard that playing board games can help prevent age-related diseases like Alzheimer's and dementia from developing early. By keeping their minds busy and working, board games aid in the prevention of these disorders. Thus provide social advantages in addition to cognitive ones. These games do indeed help with social skills and interpersonal interactions. They offer an environment in which individuals may speak and build their ties. They help keep senior citizens from feeling lonely and alone. The researches reveal also the percentage of video games players in the senior population is rising too but the reason for choosing the board game is coming that tangible games are more long-lasting than digital games. The table games do not require any special environment or substantial tools other than the games' materials. they can be played in different places and in various conditions such as beaches, forests.

The technological part of the concept is coming from the analysis of possible future society requests. While investigating the future society it has been shown that they are in need of having more contact with the world since they are more living alone they want to feel more inclusive to their community. So, therefore, the companies who work for speculative design like superflux have developed high-tech solutions with utopic usage scenarios like the uninvited guest project. The used technology was IoT (internet of thinking) tech, thus permitting to track the people from collecting their personal data with sensors, computing power, software, or other technologies that allow you to connect and share data with other devices and systems through the Internet or other communication networks.^{3,4} Experts predict that by 2020, there will be more than 10 billion linked IoT devices, and by 2025, there will be 22 billion. Thus has a wide application area in our daily lives from kitchenware to buildings. After discovering this technology the project concept went towards to use that to enable collecting data out of the game and procure not only leisure time but also help them to improve their weak skills.



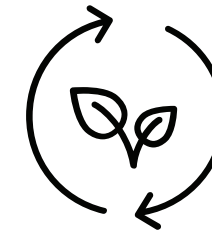
placeless

you can play it
where ever you want



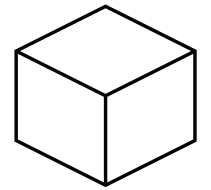
timeless

it is not disappering
in years



eco-friendly

no energy needed
you can use
recyled materials



durable

you can hold it
for long time

The other consideration while creating the concept was to obtain a game that permits to have multiple playing options. Thus came out from the market research (ch.2.3) after analyzing the existing game it demonstrated that there is not many board game that offers more than one playing option. Thence it generates to achieve many gaming concepts alternatively (ch.4.2, ch.4.5).

1 Pangilinan, Jessa. "15 Best Board Games for Seniors and the Elderly." Happier Human, February 16, 2022. <https://www.happierhuman.com/board-game-elderly/>.

2 "Board Games May Stave off Cognitive Decline." Medical News Today. MedLexicon International. Accessed March 6, 2022. <https://www.medicalnewstoday.com/articles/327153>.

3 "What Is the Internet of Things, and How Does It Work?" IBM Business Operations Blog, August 28, 2020. <https://www.ibm.com/blogs/internet-of-things/what-is-the-iot/>.

4 "What Is the Internet of Things (IoT)?" "What Is the Internet of Things (IoT)?" | Oracle Türkiye. Accessed March 7, 2022. <https://www.oracle.com/tr/internet-of-things/what-is-iot/#:~:text=What%20is%20IoT%3Fand%20systems%20over%20the%20internet.>



4.3 | final project

After completing the market analysis part, the guidance of the 5 criteria (ch.3.2) developed there allowed a more versatile view while the project was being formed. Having a wider perspective to accomplish as much as benefits converted the project thought a creative collaborative game. Spending time with the kids and elderly during field research led to setting eyes on what they are capable of and what do they enjoy the most during the day. By the end of the observations in the kindergarten, free games and board games that enable them to produce more freely came to the forefront. The insights we gathered from their teacher showed that they have 15 minutes of concentration time per game, therefore it created another challenge for the brief. Creating the multi-optional games was the key to holding them into the game, it is seen that they go for creating and producing together out of semi constructional things like lego and non-constructed ones like free drawing. What is meant by “semi-constructural”, the games that contain already made pieces and permit to put something out from these pieces? The nursing home inputs demonstrated their most common favorite activity as communication-based activities and not mentally exhausting activities for instance the Okey, Backgammon, Ludo. Later on, the focused purpose was to prove a semi-constructural game to encourage both sides’ creativity and communicative skills together. The game contains various usage scenarios, the designed elements of the game provide a large scale of playing types.

- The usage scenarios;
- 1- PICK and CREATE: Drawing from a word or concept card that is placed in the middle, the elder and the child depict the chosen card with Plexiglass cards by adding their imaginations and exchanging ideas.
 - 2- IMAGINE and CREATE: The elder and the children compose a word or phenomenon that they made up in their minds together with the help of Plexiglass cards. Then explain the background story in order to enlighten their drawing to each other.
 - 3- TELL and RECORD: The cards contain fairy tales created in sets of 8. The elderly and children choose one of the fairy tales and tell them with the aim of creating it, and in the meantime, they create a sound recording through the application. Then, the tale previously saved in the application is automatically compared with the application software and the scores are created.
 - 4- PAST-NOW-FUTURE: This version of the game is about the time perception of the child and the elderly, he or she shares his or her knowledge about the past with the child, and thus help to develop the child’s perception of time and remain fresh the perception of time in the elderly. The game principle is to use the cards to form the given pictures that were designed by considering the elements that have changed the most from the past to the present; such as cars, computers, homes. The brief is composing the given picture by using the figures on the card and trying to obtain the same picture together. The pictures are designed regarding the objects that have changed the most over time such as cell phones, cars, watch, computer, music player.

\\THE APPLICATION

In favor of the app that is synchronized with IoT technology, the parents can track their kids’ evaluations virtually while they play the game. Due to the IoT sensors on the card they can watch their children’s verbal skills, motor skills, and creative; problem-solving- skills developments via the game. The next question is how it works; firstly the pattern of the game permits them to analyze their motor skill by gathering data from their coordination while putting thee cards. Secondly, it collects the information from how they combine the cards in order to check their creative skills. Lastly, the verbal skill is verified by capturing the conversation between the elderly and kids. The app can be used also during games; for the “pick and create” game the picking cards are also enclosed in the app so they might pick the cards from there, for the “tell and record” game as described above the app will record their voices while they start to tell their tales and compare with the already recorded one to give points. Finally, the app contains the “past-now-future” game drawing cards and the instruction is to create the same drawing, once the drawing is completed the app shows the mark.

the application



fig.66

\\cards' illustrations

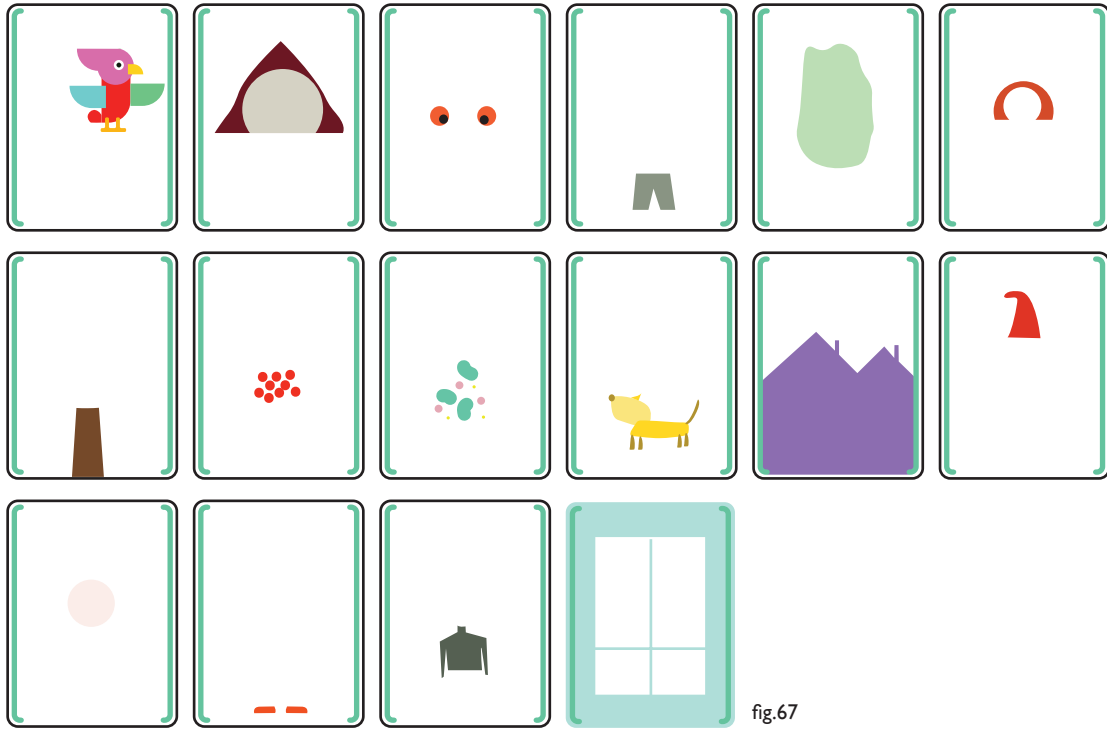


fig.67

\\tale "bird"

The little red hair kid who wears a red hat has left his blue windowed house and went to collect the beans in the forest. Suddenly she saw a little and colorful bird, the bird was trying to paint the tree with the purple ink that comes from his wings. The kid surprised to see a peinture bird, then asked him what he is drawing on the tree. The bird answered; I am drawing a little house for the little dog. The kid asked again where is the dog. The dog came out from the cave and started to play with the kid. They all helped to finish the drawing and finally the dog had a little purple house, and he never slept again in the cold cave.

\\word cards



fig.68

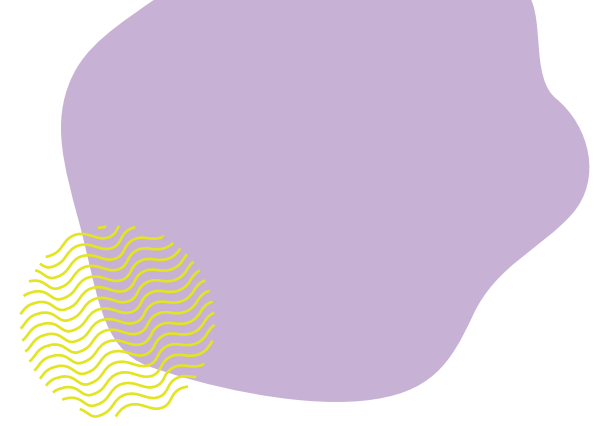




fig.73

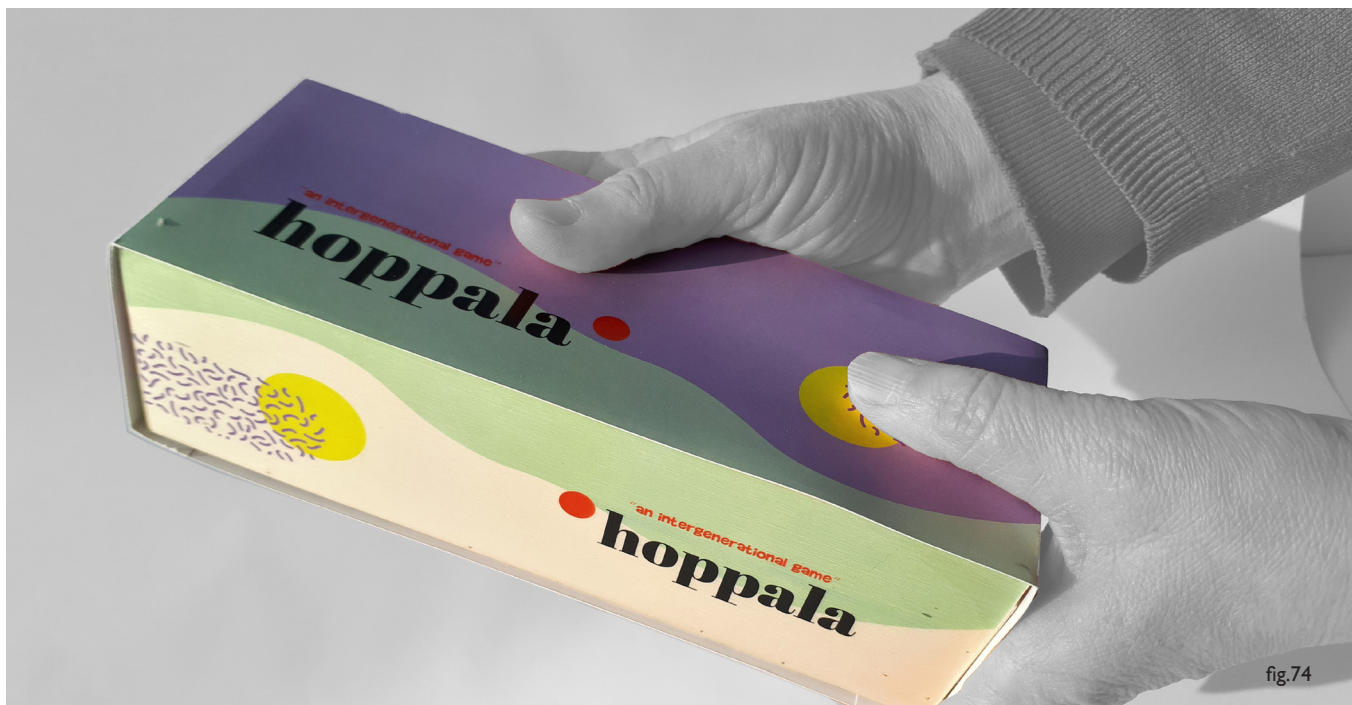


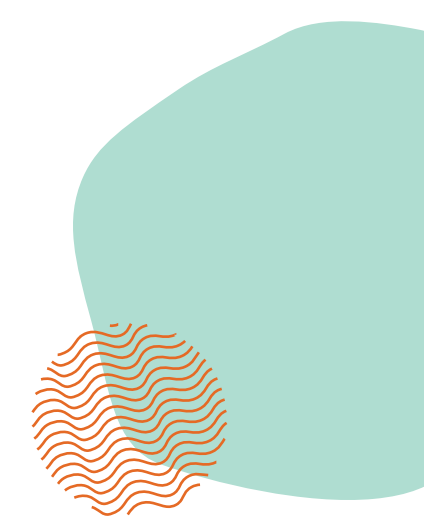
fig.74



fig.75



fig.76



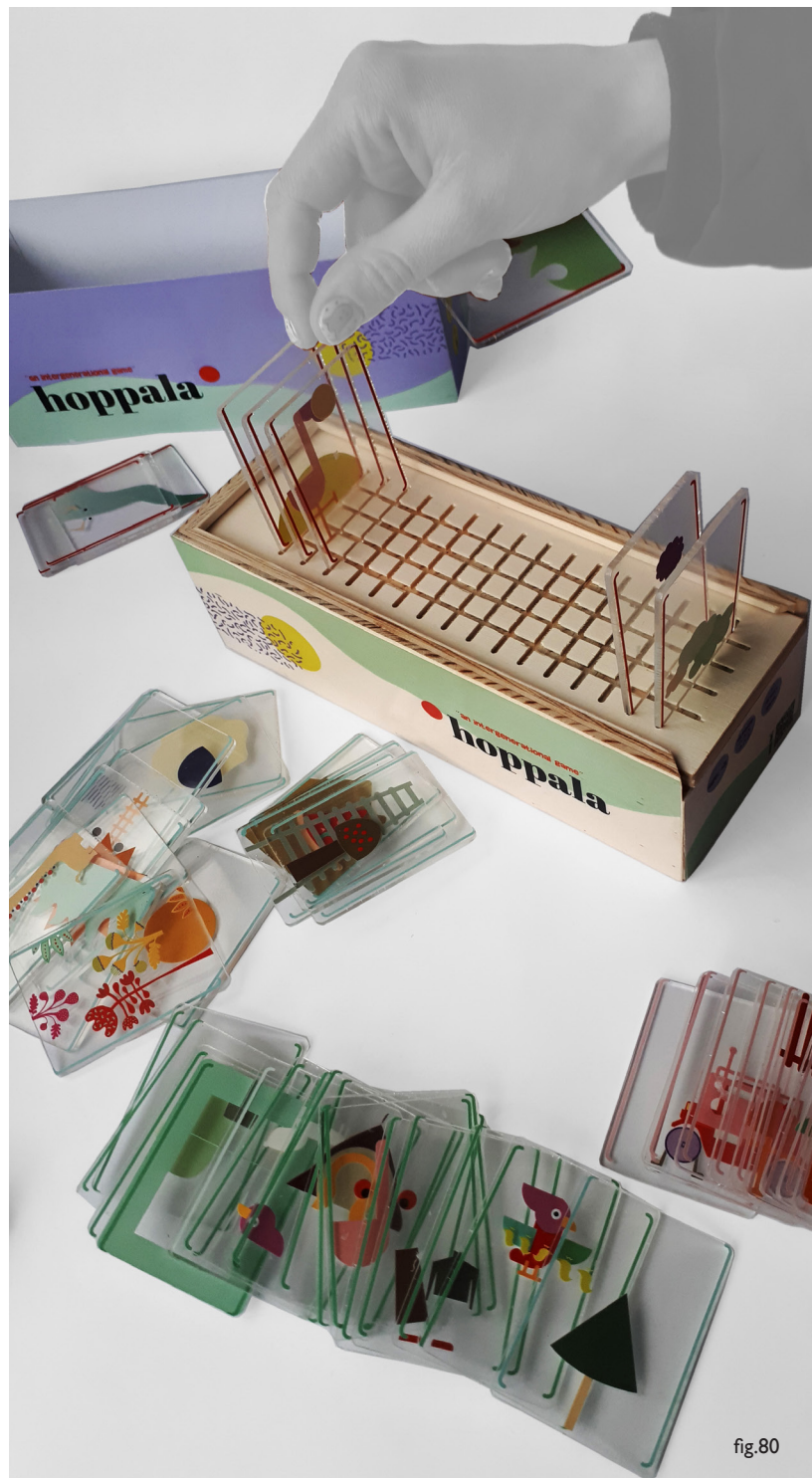


fig.80



fig.81



fig82

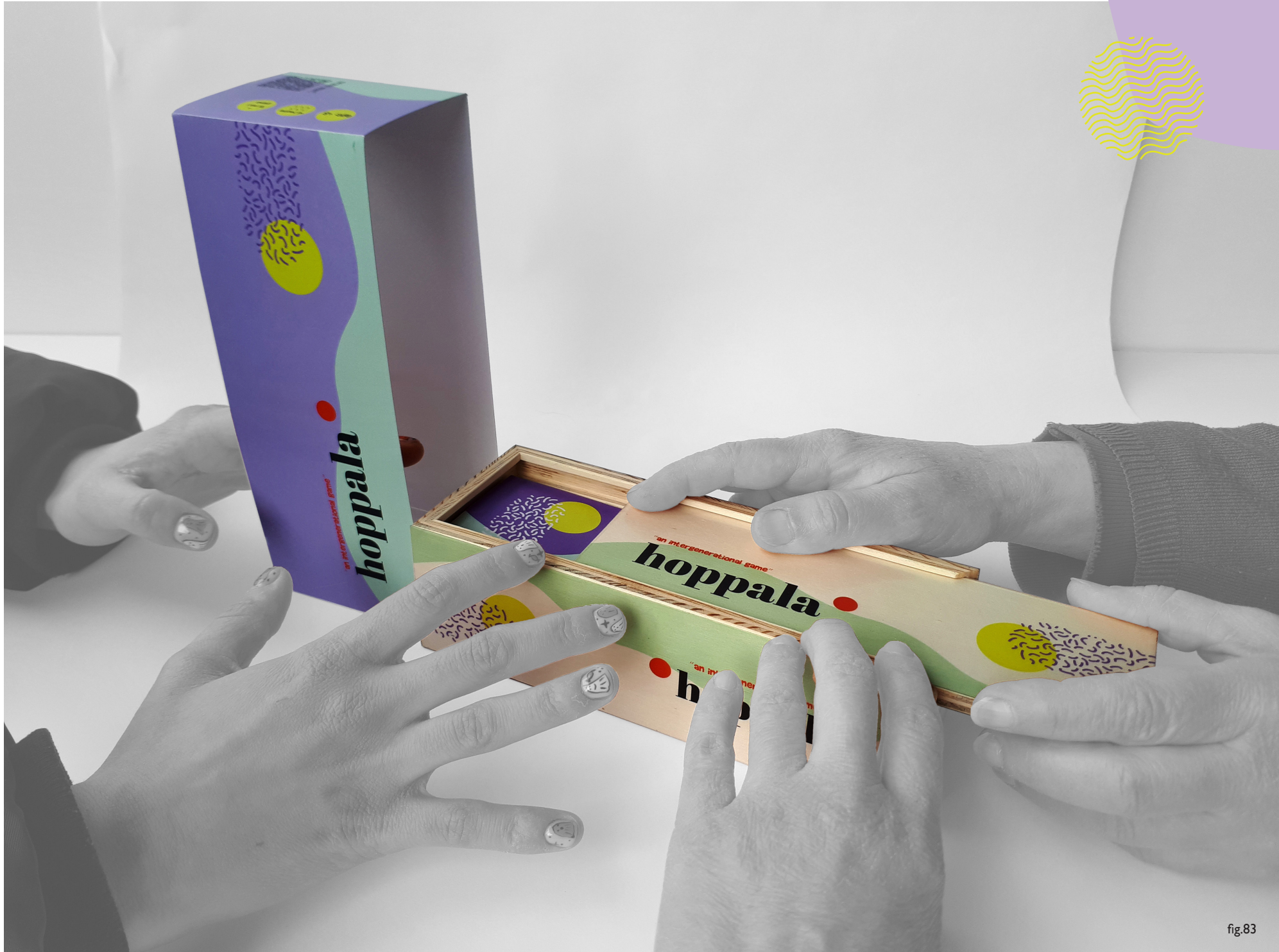


fig.83

4.4 | material and production method research

This chapter shows the research of materials and production techniques that will be most suitable for the project. In this process, it is explained what is taken into consideration, which criteria are highlighted and how the selection is made. While creating the criteria, the needs of both user groups were regarded, and as a result, the items you will see below occurred. This research process progressed based on points such as the technical properties of materials and their convenience for design.

4.4.1 | material research and selection

The following step was to find the compatible materials. Firstly the material choice criterion is formed to specify what kind of properties it is needed for a board game by considering the user's profiles. Afterward, ten highlighted criteria were chosen namely; price, durability, eco-friendly, easy to produce, safety, resistance, outdoor usage friendly, lightness, transparency, and finally non-toxic. After studying out the related material selection, it is seen that Plexiglass and wood sheets were the most coherent materials in order to obtain these qualifications. Since they are both producible thanks to the laser cut production method, hereby it helps to reduce the price. Plexi has good transparency, and optical clarity, compared to glass it is 17 times more resistant and half of its weight. It can be used for many areas including kitchenware therefore it is a safe and non-toxic material.^{1,2} It is also considered the packaging material to make the design more holistic. therefore wood sheet was a preferable option. The wood is also chosen for the base part of the game to distinguish the cards from the background easily, concurrently from the aesthetic point of view wood was a good complementary material with Plexi by creating a contrast with the transparency of the Plexi.



fig.84

wooden sheets 6mm

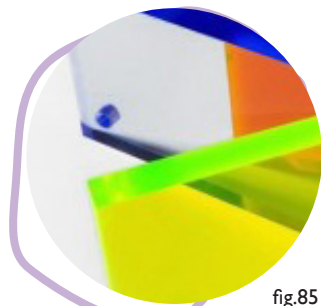


fig.85

plexiglass 1-2-6mm

4.4.2 | production method research and selection

After deciding on material, the production methods for plexiglass and wood sheets showed up. Nevertheless, while searching for the most adaptive production method several technics have been examined to illustrate the plus or minus facts. After all, laser-cut was the most suitable. It was important to reduce the budget by optimizing the technique types with a minimum of materials. Using Laser-cut was also a good choice to produce wooden parts of the game including the packaging. The most problematic issue was to find the best printing method to gather a more durable product.^{3,4} Then UV print procedure has been decided in order to have a long-lasting game. Along with this research, it has been taken into consideration the health issue of not using a material that may cause toxic results during the process. Whether the size of the cards is defined regarding the ergonomics for users, raw material dimensions are checked to decrease the scrap and thereby the cost.



fig.86

laser cutting



fig.87

UV printing

¹ "Acrylic Properties." CarvillePlastics, July 10, 2018. https://www.carvilleplastics.com/latest_news/key-properties-cast-acrylic-pmma/.

² "Pleksiglas Nedir? Pleksi ile Neler Yapabilirsiniz? Tek Mesgalemiz Sizsiniz!" Pleksiglas Nedir? Pleksi ile Neler Yapabilirsiniz? Tek Mesgalemiz Sizsiniz! Accessed March 9, 2022. <https://www.mesgalem.com/pleksiglas-nedir>.

³ "Printing on Acrylic Sheets." NGS Printing, January 26, 2022. <https://www.ngsprint.com/our-materials/printing-on-acrylic-sheets/#:~:text=Digital%20printing%20is%20the%20preferred,directly%20onto%20the%20plastic%20surface.>

⁴ "Printing on Acrylic Sheets." NGS Printing, January 26, 2022. <https://www.ngsprint.com/our-materials/printing-on-acrylic-sheets/>.

4.5 | prototyping and testing with users

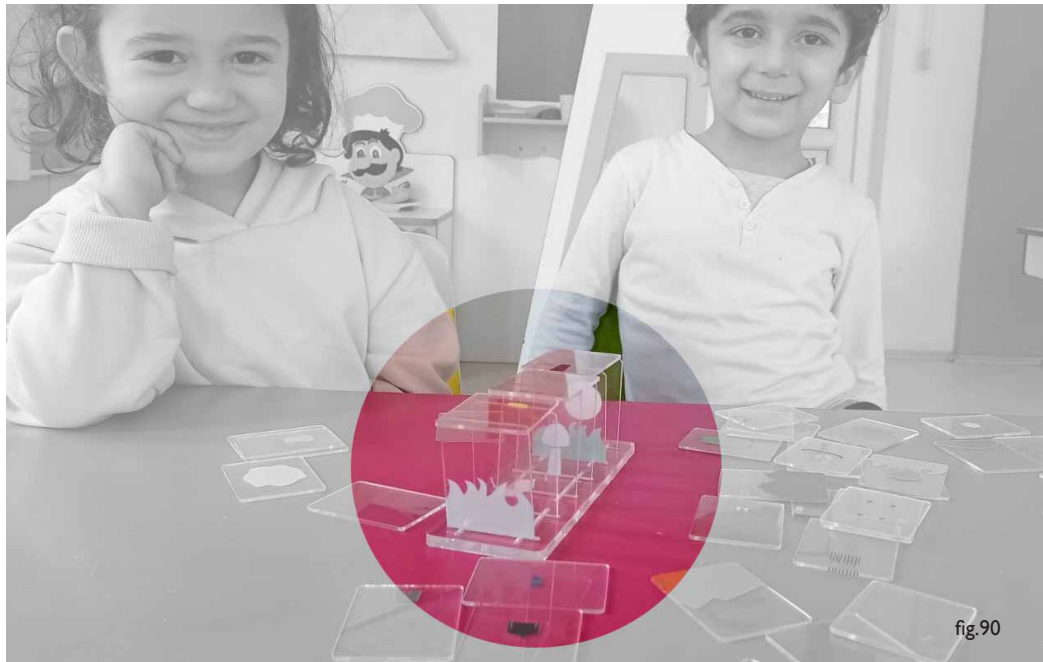
In order to test the user's reactions while playing, the testing sessions have been formed. The sessions are composed of two parts; 1-elder-children: playing with grandparents, 2- children-children: playing in kindergarten. The meetings are recorded in video format to clarify the weak and strong points additionally to determine the missing parts. Analyzing the kids' attitude toward the game was a progressivist way to see the project from a more applicable way. Their playing performance gave clues about what they perceive from the instructions, what they are having difficulties with, what they are doing well, and how they feel.



-The first playgroup was held with two 5-year-old children. The aim was to measure the playability of this age group and to observe how they cooperate with each other during the game. The facts observed were; they took the instruction easily, thanks to their advanced hand-eye coordination, they can put the cards in the right place correctly, although they can mostly play by communicating, in the case they speak less, with the help of elders and the cards in the game they could increase their communication and produce something together thus was enhancing point for their verbal skills by listening seniors. They enjoyed creating characters and telling its story, while the children were assembling the cards, they mostly looked for the mouth figure on the cards, and later in the meeting with their teachers, they stated that the 5-6-year-old kids' group find expression very important in order to understand the feelings, for this reason, they care about the mouth figure. Therefore it contributed to the advance of the figure's design on the cards. Observing their way of playing aided in the progress of the game to obtain new alternative playing modes. These findings indicated that they prefer to put the cards more freely on the base, so the design of the slits was rearranged by this consideration.

-The session with the 6 years old kids' group also showed us similar feedback. Additionally, the observation insights were; they were more prone to build up the scenarios collaboratively than 5 years old kids, even though they were using the cards in a more realistic way they were focusing more on the futuristic and utopic scenarios rather than composing an object or phenomenon from the world we know.

-On the other hand, the group of 5 years old children were using the cards in an abstract way and explaining with the words that belong to daily life. The kindergarten educators emphasized that this game can help children with their verbal skills, communication skills, collaborative production skills, and also increase their concentration time. They explained that this can bolster their creativity. Also, they declared this game can be useful as an educational tool in schools by the way it is designed, the figures can train the geometry, colors, and many other topics.



\\ What were the first observed problems?:

- it should be more closer the burrow of the cards for making the forms more matchy
- for the story-telling game; the cards needs to have a mark to differentiate the tales
- it can have another alternative for display
- the tiny drawings does not work well the elder people can not see them

\\ What were the good points?:

- +the card size is good to handle easily for both elder and children
- +it has many options therefore it enhance the creativity well and it can be enriched for further ideas
- +the children amused while creating stories with the perspective of elder and spending time with them
- +elder people were satisfied to pass their knowledge to the children while playing the game
- +thanks to the design of the cards it can be packaged easily (per pack: 16x4 cards) and it can vary easily\\ easy to carry everywhere by the small packaging
- + it permits to have more deck after purchasing
- + it can be adapted to the old games such as tangram, math games, memory games, tetris
- +the level of the game can have multiple options with different decks



4.6 | brand identity and packaging

The graphic design process started with the search for the most suitable in order to show the idea to the customer. Criteria during a brainstorm; it was easy for everyone to read, catch the user quickly and express it in two generations. After many names were considered, "hoppala" was chosen. Hoppala is coming from a reaction sound when you are playing with children. This sound is especially used to get kids moving, a word to encourage young children when they jump.

wooden packaging graphic



fig.94

instruction guide

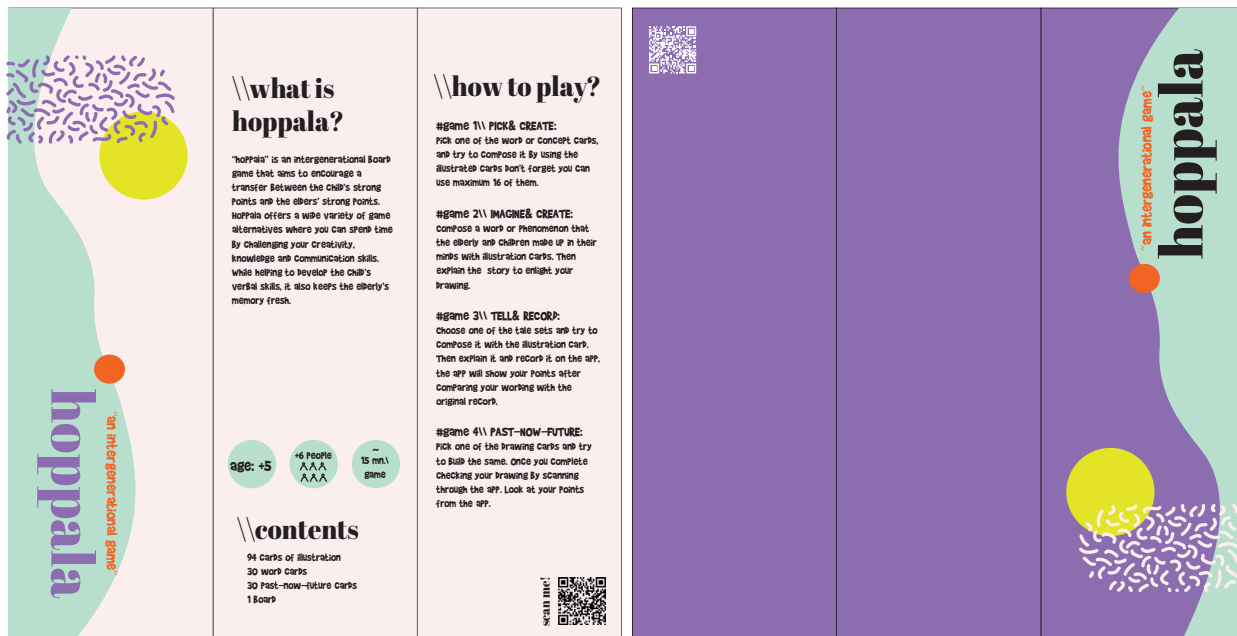


fig.93

backside design of word card's

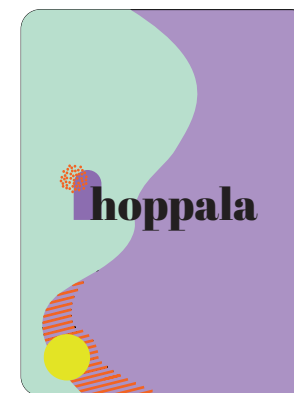


fig.95

hoppala (def.): a word to encourage young children when they jump

"Hoppala Nedir? TDK Sözlük Anlamı." [kelimeler.gen.tr](https://kelimeler.gen.tr/hoppala-nedir-ne-demek-153772). Accessed March 27, 2022. <https://kelimeler.gen.tr/hoppala-nedir-ne-demek-153772>.

4.6 | brand identity and packaging

\\typography

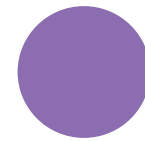
hoppala
hoppala
hoppala

The chosen typography is “abel” for the product logo in order to get an image that is a mix of old and new. While the sheriff represents the elderly, her chubby appearance appeals more to children.

an intergenerational game

The chosen typography is “Brady Bunch Remastered ” for the product catch phrase. Handwriting style aims to show that people should expect a creative and crafting game for every generation and thanks to orangey reddish color it helps to gather people’s attention.

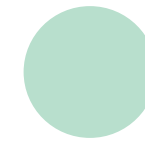
\\color palette



#8d6fb1



#f26523



#b7e0cd

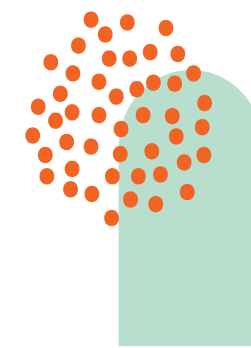
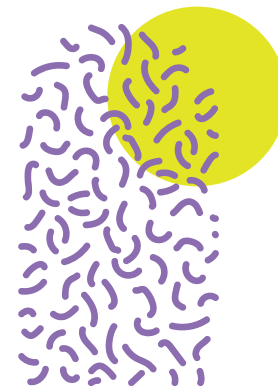


#faeced



#e4e526

\\illustrations



The used illustrations on the packaging is coming from the logic of the game that allows to create figures by overlapping. it is used in a simple way on the graphic part of the product.

4.6 | brand identity and packaging

The graphic design of the packaging is created by using the card's figures and the typography is chosen by considering the kids. Ultimately the choice was "Abel" and "Mali" for making the children remark.

The packaging design is made out of wooden sheets, the main inspiration was the old wooden pencil case design, the idea behind this design was to make the board include the packaging simply, thus, opening the lid of the box and placing it in the same game in an upside-down way allowed to obtain the game platform.

QR CODE FOR INSTRUCTIONS AND FURTHER INFORMATION
YOU CAN DISCOVER OTHER SERIES OF THE "HOPPALA" CARDS

IT BECOMES THE BASE OF
THE GAME WHEN YOU TURN!!

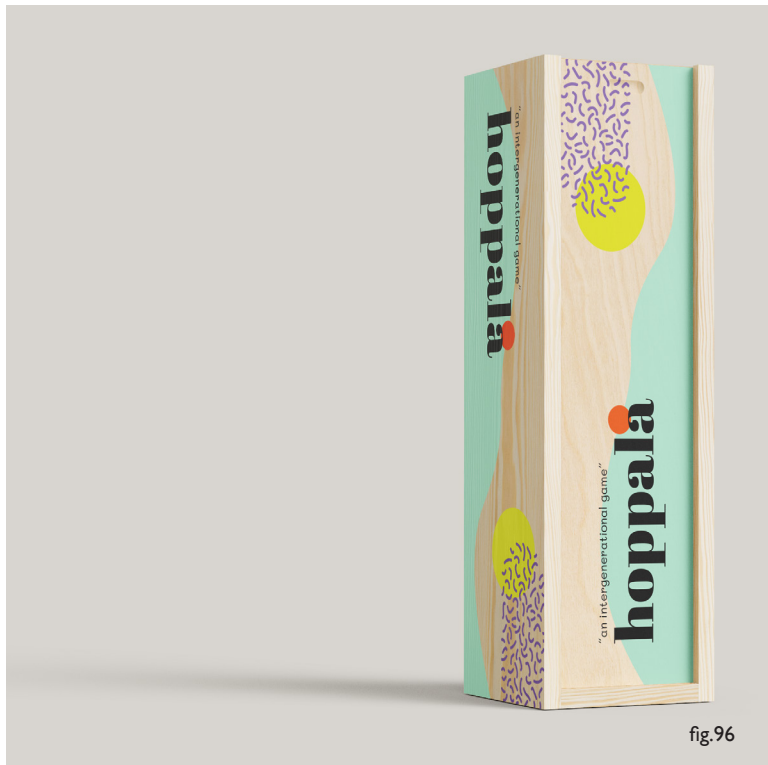


fig.96



fig.97

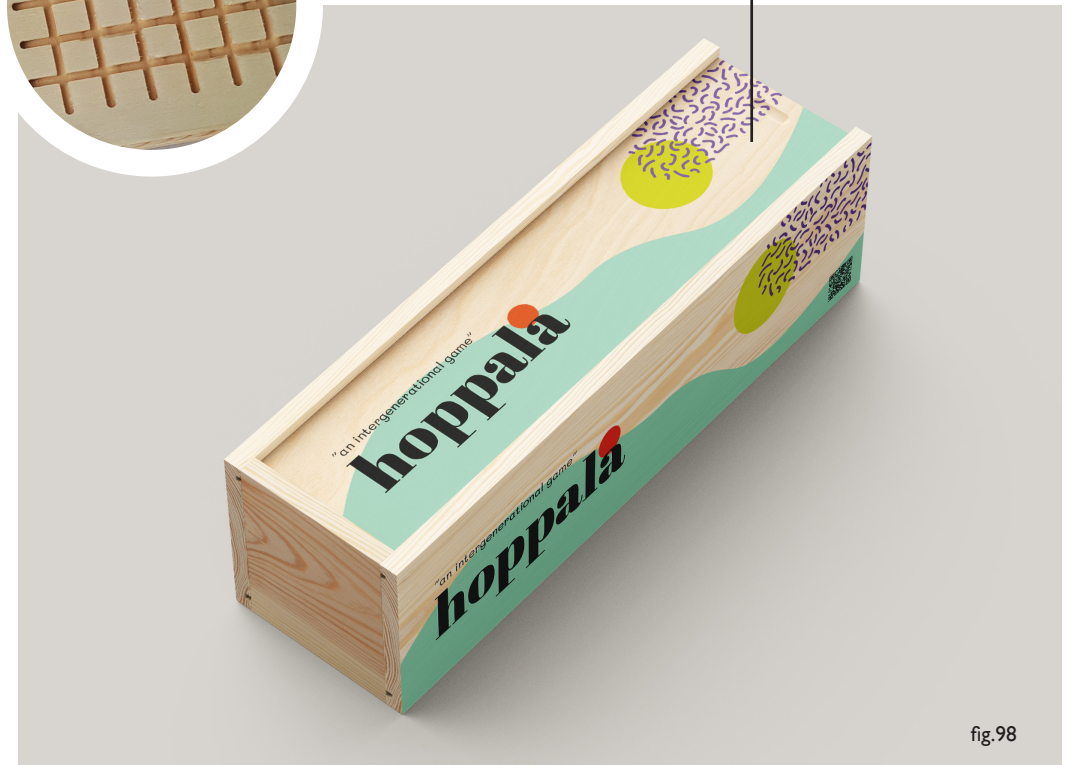


fig.98

4.7 | production & marketing

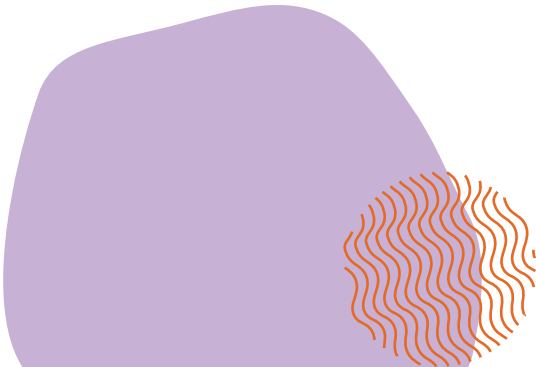
After producing the game, it is analyzed from marketing strategies including the price range, sale technique, and sale places thanks to the meeting we had with the expert producers. The questions were asked to 2 people; sales president at a toy shop chain (Toyzshop), laser cut company president (Pleksiart Company). From the producer, it has gathered the customer's expectations, their reactions on the prices, and also marketing strategies recommendations. First the coherent material for the user is chosen and after finding the right supplies the production method and pricing is examined for mass production. The price chart shown side is based on 1.000 pieces, 10.000 pieces and 100.000 pieces.

The sale president of Toyzshop explained the price range of the educational toys in the existing market and their sales strategies behind. He declared that the most purchasers for this branch of games are the parents and the grandparents. He continued as; they neglect to check the prices and they are willing to buy even the expensive products for their kids' education. He added that the quality of the product is given more priority than the price in order to obtain benefit for their kid's development. Although the prices are variable even for a single game, with the difference in material and packaging, the price range of the products sold in this category varies between 30 euros and 300 euros.

In line with the information obtained, the suggested marketing strategy was to establish a sales network -online and physical - by contracting with several toy sales platforms. in spite of the fact that is a game which has the purpose of filling a society's gap, for further development of the game, the researches showed that creating in-store events, making unboxing videos for demonstrating how it can play and making attractive advertisements that can be caught by children can also support the sale strategy for 'hoppala'.


	box (wooden parts) + packaging (cardboard part)	cards (plexic parts)	total price (approximately)
for 1000 pieces	10 € \ per piece	20 € \ per piece	30 € \ per piece
for 10.000 pieces	8 € \ per piece	17 € \ per piece	25 € \ per piece
for 100.000 pieces	6 € \ per piece	14 € \ per piece	20 € \ per piece

fig.99





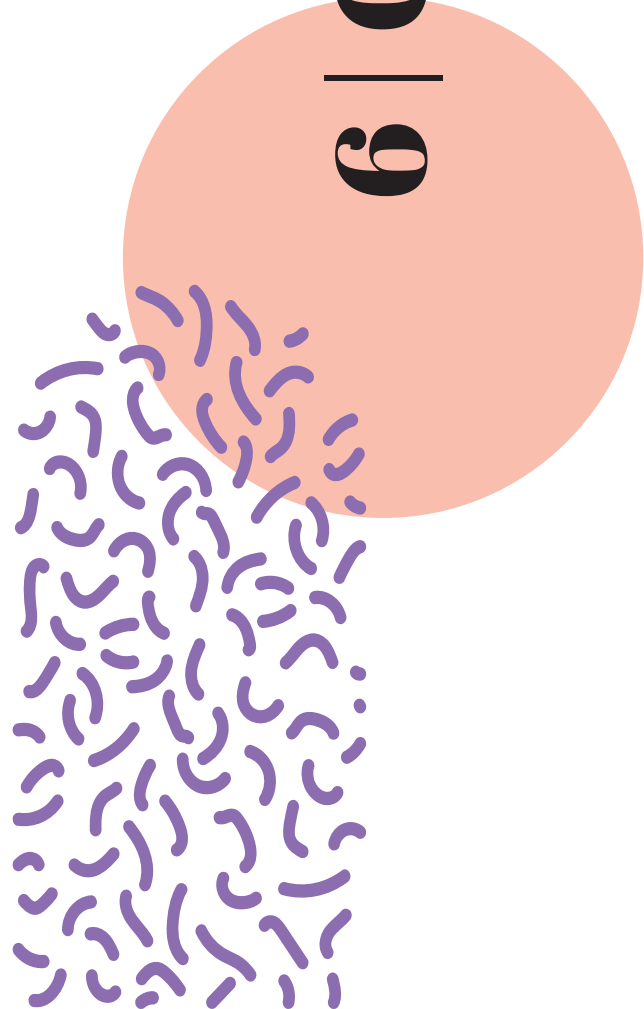
5 | results & discussion.



After producing the game, it is analyzed from marketing strategies including the price range, sale technique, and sale places thanks to the meeting we had with the expert producers. The questions were asked to 2 people; sales president at a toy shop chain (Toyyzshop), laser cut company president (Pleksiart Company). From the producer, it has gathered the customer's expectations, their reactions on the prices, and also marketing strategies recommendations. First the coherent material for the user is chosen and after finding the right supplies the production method and pricing is examined for mass production. The price chart shown side is based on 1.000 pieces, 10.000 pieces and 100.000 pieces.

The sale president of Toyyzshop explained the price range of the educational toys in the existing market and their sales strategies behind. He declared that the most purchasers for this branch of games are the parents and the grandparents. He continued as; they neglect to check the prices and they are willing to buy even the expensive products for their kids' education. He added that the quality of the product is given more priority than the price in order to obtain benefit for their kid's development. Although the prices are variable even for a single game, with the difference in material and packaging, the price range of the products sold in this category varies between 30 euros and 300 euros.

In line with the information obtained, the suggested marketing strategy was to establish a sales network -online and physical - by contracting with several toy sales platforms. In spite of the fact that is a game which has the purpose of filling a society's gap, for further development of the game, the researches showed that creating in-store events, making unboxing videos for demonstrating how it can play and making attractive advertisements that can be caught by children can also support the sale strategy for 'hoppala'.

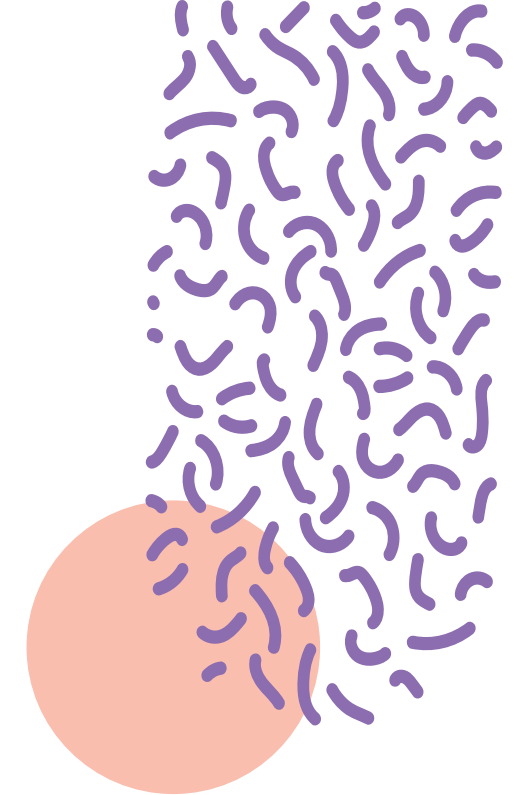
A decorative graphic consisting of a dense field of purple, hand-drawn squiggly lines on the left, which transitions into a solid orange circle on the right. The text '6 | Conclusion.' is centered within the orange circle.

6 | Conclusion.

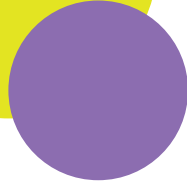
As a summary of all these studies while designing for the growing old population and the children who are losing ties with the upper generations ,within the time since the families are no longer living together as big families with grandparents.Thus showed there is a need for filling this field in order to create inclusive relationships between generations.The studies proved that the elderly need to have more interactions with the younger generations for staying mentally and physically healthy and on the other hand children need to have more contact with seniors to not lose the generational knowledge transfer. After the online survey with kindergarten and nursing home, the results showed that they both enjoy playing and thus took the project to the direction of designing a game that can be a suitable tool for both side.The fact that they both had a lot of free time was another common feature that contributed to their being a good match.

In line with the needs identified in the elderly and children, it was understood that the elderly need to transfer their knowledge and the child need to convey what they had established in his imagination, and on top of that, a game where the children could learn something from elders and with the creativity of the kids the elderly could feel more alive and involved.

While designing this game, it was inspired by the story-telling games of grandparents and grandchildren seen in traditional families in the past.The project is proposing 4 different games; story-telling, past-now future, pick & create and imagine & create(ch.4.3).The common purpose of these is to have a cooperative playing with the harmony of the elderly knowledge and kids' imagination.As a result of the concept of intergenerational design combined with speculative design, a world with intertwined generations in the future has been targeted. In game design, a wide board game was obtained thanks to the versatile perspective offered by speculative design.The game aims to use speculative design for a near and possible future and to present a more feasible project.



7 | **references.**



7.1 | bibliography.

“A Review of Intergenerational Play for Facilitating ...” Accessed March 26, 2022. https://www.researchgate.net/publication/301658006_A_review_of_intergenerational_play_for_facilitating_interactions_and_learning.

“Age-Friendly NYC - New York City.” Accessed March 17, 2022. <https://www1.nyc.gov/assets/dfta/downloads/pdf/publications/AgeFriendlyNYC2017.pdf>.

“Ageing Population.” Ageing Population - an overview | ScienceDirect Topics. Accessed April 5, 2022. <https://www.sciencedirect.com/topics/social-sciences/ageing-population>.

Albernaz, Ami. “Study: Close Grandparent-Grandchild Relationships Have Healthy Benefits - the Boston Globe.” BostonGlobe.com. The Boston Globe, December 14, 2015. <https://www.bostonglobe.com/life-style/2015/12/13/close-grandparent-grandchild-relationships-have-healthy-benefits/kxL8AnugpVBKknDuzHZDKO/story.html>.

“Board Games May Stave off Cognitive Decline.” Medical News Today. MediLexicon International. Accessed March 6, 2022. <https://www.medicalnewstoday.com/articles/327153>.

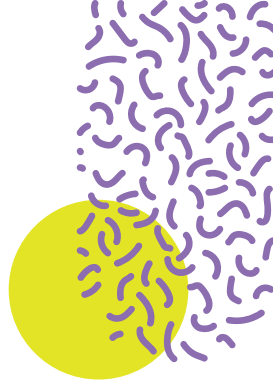
Cohen, David. In *The Development of Play*. Abingdon, Oxon: Routledge, 2019.

“Console Gaming across Generations: Exploring ...” Accessed March 26, 2022. https://www.researchgate.net/publication/220606692_Console_Gaming_Across_Generations_Exploring_Intergenerational_Interactions_in_Collocated_Console_Gaming.

Define_me. Accessed March 17, 2022. [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(20\)31039-4/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)31039-4/fulltext).

Design, and 2021 Simone Sbarbati · 13 Aprile. “Play to Learn: Un Podcast in 5 Puntate Su Didattica e Design e Sul Pensiero Delle Più Brillanti Menti Italiane Degli Anni ‘60 e ‘70.” Frizzifrizzi, June 27, 2021. <https://www.frizzifrizzi.it/2021/04/13/play-to-learn-un-podcast-in-5-puntate-su-didattica-e-design-e-sul-pensiero-delle-piu-brillanti-menti-italiane-degli-anni-60-e-70/?fbclid=IwAR2ISBlORJlwtu4yNCtudKTzCVIWMw8u9hSc2mP-Npt2FFC7iAj4xl189Zsk>.

Huizinga, Johan. *Homo Ludens*. Torino: Einaudi, 1991.



“Inclusive Design - UPB.” Accessed March 16, 2022. http://cmap.upb.edu.co/rid=1153176144406_1235390754_1547/Inclusive%20Design.pdf.

“Intergenerational Projects in the Netherlands.” Bristol Early Years. Accessed March 17, 2022. <https://www.bristolearlyyears.org.uk/early-learning/culture-and-community/intergenerational-projects-in-the-netherlands/>.

Mendonça, Joana, Sibila Marques, and Dominic Abrams. “Children’s Attitudes toward Older People: Current and Future Directions.” SpringerLink. Springer International Publishing, January 1, 1970. https://link.springer.com/chapter/10.1007/978-3-319-73820-8_30.

Mitrović, Ivica et. al. Beyond Speculative Design: Past, Present - Future. Split: Arts Academy, University of Split, 2021.

Miloš N. Mladenović, et al. “The Landscape of Envisioning and Speculative Design Methods for Sustainable Mobility Futures.” MDPI. Multidisciplinary Digital Publishing Institute, March 20, 2020. <https://www.mdpi.com/2071-1050/12/6/2447/htm>.

Norman, Donald A. The Design of Everyday Things. Cambridge, MA: The MIT Press, 2013.

Papanek, Victor. Design for the Real World. ThamesHudson Ltd, 2019.

Preface. In Speculative Everything: Design, Fiction, and Social Dreaming. Erscheinungsort nicht ermittelbar: MIT Press, 2014.

“Relationships between Children and ... - Shs-Conferences.org.” Accessed March 16, 2022. https://www.shs-conferences.org/articles/shsconf/pdf/2014/07/shsconf_shw2012_00044.pdf.

Grimaldi Roberta et. al. “Rethinking Public Transport Services for the Elderly through a Transgenerational Design Approach.” SpringerLink. Springer, Cham, July 17, 2016. https://link.springer.com/chapter/10.1007/978-3-319-39949-2_38.

Saraceno, Chiara. Families, Ageing and Social Policy: Intergenerational Solidarity in European Welfare States. Cheltenham, Glos, UK: Edward Elgar, 2008.

“Save Time and Improve Your Marks with Citethisforme, the No. 1 Citation Tool.” Cite This For Me. Accessed March 17, 2022. <https://www.citethisforme.com/topic-ideas/life-sciences/http%3awwwtandfonlinecomdoifull110108013607860500193138%3fscroll%3dtop%26needAccess%3dtrue-37445577>.

Singh, Archana, and Nishi Misra. “Loneliness, Depression and Sociability in Old Age.” Industrial psychiatry journal. Medknow Publications, January 2009. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3016701/>.

“Social Isolation, Loneliness in Older People Pose Health Risks.” National Institute on Aging. U.S. Department of Health and Human Services. Accessed March 17, 2022. <https://www.nia.nih.gov/news/social-isolation-loneliness-older-people-pose-health-risks#:~:text=Health%20effects%20of%20social%20isolation,Alzheimer's%20disease%2C%20and%20even%20death>.

“Speculative Design: Crafting the Speculation - Researchgate.” Accessed March 26, 2022. https://www.researchgate.net/publication/263596818_Speculative_Design_Crafting_the_Speculation.

“Speculative Everything by Anthony Dunne and Fiona Raby.” RGD. Accessed March 17, 2022. <https://www.rgd.ca/2018/07/09/book-review-speculative-everything.php>.

Speculative Everything: Design, Fiction, and Social Dreaming. Erscheinungsort nicht ermittelbar: MIT Press, 2014.

SpeculativeEdu. “Speculativeedu.” SpeculativeEdu. Accessed March 16, 2022. <https://speculativeedu.eu/>.

Stichler, Jaynelle F. “Design Considerations for Aging Populations.” HERD: Health Environments Research & Design Journal 6, no. 2 (2013): 7–11. <https://doi.org/10.1177/193758671300600202>.

Ugur Yavuz, Seçil, Roberta Bonetti, and Nitzan Cohen. “Designing the ‘next’ Smart Objects Together with Children.” The Design Journal 20, no. sup1 (2017). <https://doi.org/10.1080/14606925.2017.1352882>.

Waag. “The Future of Toy Design.” Waag. Waag. Accessed March 17, 2022. <https://waag.org/en/article/future-toy-design>.

“What Is Inclusive Design?” Inclusive Design Hub. Accessed March 16, 2022. <https://inclusivedesign.scot/what-is-inclusive-design/>.

Williams, Marian G. Essay. In CHI ‘99, Human Factors in Computing Systems: The Chi Is the Limit: Chi 99 Conference Proceedings, 592–99. New York, NY: Association for Computing Machinery, 1999.

“‘Roots and Wings’: An Exploration ... - Researchgate.net.” Accessed March 26, 2022. https://www.researchgate.net/publication/327844840_'Roots_and_wings'_an_exploration_of_intergenerational_play_Research.

“10 Best Games to Play with Seniors.” Modern technology to scale senior services. Accessed March 17, 2022. <https://www.monami.io/articles/10-best-games-to-play-with-seniors>.

“Acrylic Properties.” CarvillePlastics, July 10, 2018. https://www.carvilleplastics.com/latest_news/key-properties-cast-acrylic-pmma/.

“Ageing and Health.” World Health Organization. World Health Organization. Accessed March 16, 2022. <https://www.who.int/news-room/fact-sheets/detail/ageing-and-health#:~:text=At%20this%20time%20the%20share,2050%20to%20reach%20426%20million>.

Ali Morris | 18 July 2018 Leave a comment. “Subscription Cookery Kit Is Designed to Help Elderly Women Socialise.” Dezeen, January 25, 2022. <https://www.dezeen.com/2018/07/18/social-oven-magda-sabatowska-central-saint-martins-design/>.

Ali Morris | 14 September 2018 Leave a comment. “Guillem Carrera’s Care Home in Northern Spain Encourages Residents to Socialise.” Dezeen, February 26, 2019. <https://www.dezeen.com/2018/09/14/guillem-carreira-elderly-care-home-spain-blancafort-architecture/>.

The Annie E. Casey Foundation. “What Is Generation Alpha?” The Annie E. Casey Foundation, November 4, 2020. <https://www.aecf.org/blog/what-is-generation-alpha>.

Augusta Pownall | 14 February 2020 Leave a comment. “‘We Don’t Give Children the Freedom to Play,’ Says Designer Cas Holman.” Dezeen, February 17, 2020. <https://www.dezeen.com/2020/02/14/cas-holman-toy-designer-interview/>.

“Awareness Toys.” Toydesign, May 4, 2020. <https://www.toy-design.com/awareness-toys/>.

The dynamic archive @ HFK Bremen. Accessed March 17, 2022. <https://thedynamicarchive.net/component/the-difference-between-a-triangle-and-a-circle/>.

“The Future of Aging: How We Will Grow Older, Live Longer, and Be Happier.” Quartz. Accessed March 17, 2022. <https://projects.qz.com/is/what-happens-next-2/1490604/future-of-aging/>.

“The Growing Season.” The Growing Season. Accessed March 21, 2022. <http://thegrowingseasonfilm.com/>.

Hafermaas Nikolaus “Managing Partner Creation of the innovation agency Graft Brandlab.” The former dean of the ArtCenter College of Design in Pasadena / CA focuses on the creative connection between technology and being hu. “Intergenerational Design as a Call for Cultural Change.” Haus von Eden, July 6, 2021. <https://www.hausvoneden.com/lifestyle/intergenerational-design-kolumne-nikolaus-hafermaas/>.

Holt, N.L., Neely, K.C., Spence, J.C. et al. “An Intergenerational Study of Perceptions of Changes in Active Free Play among Families from Rural Areas of Western Canada - BMC Public Health.” BioMed Central. BioMed Central, August 19, 2016. <https://bmcpublihealth.biomedcentral.com/articles/10.1186/s12889-016-3490-2>.

“Hoppala Nedir? TDK Sözlük Anlamı.” kelimeler.gen.tr. Accessed March 27, 2022. <https://kelimeler.gen.tr/hoppala-nedir-ne-demek-153772>.

“Intergenerational Connections in Long-Term Care Homes.” Accessed April 5, 2022. https://clri-ltc.ca/files/2020/05/Intergenerational-Connections-in-LTC-During-COVID_Final.pdf.

“Uninvited Guests.” Superflux, February 2, 2022. <https://superflux.in/index.php/work/uninvited-guests/#>.

Anjo Geluk-Bleumink et. Al “Ageing Better in the Netherlands.” Gerontology, 2018. <https://doi.org/10.5772/intechopen.74748>.

“Key Milestones for 4-6 Year Olds: Milestones for Children.” Pathways.org, November 24, 2020. <https://pathways.org/growth-development/4-6-years/milestones/>.

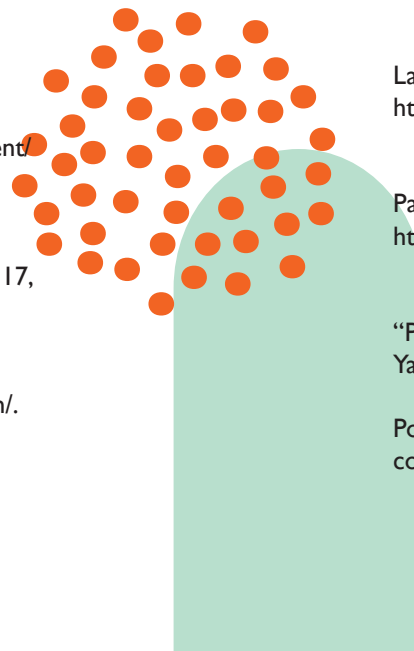
“Metroquadro.” Toydesign, May 20, 2016. <https://www.toy-design.com/metroquadro-2/>.

Latham, Stella Donovan and Laura. “Designing Intergenerational Communities.” Gensler, December 3, 2019. <https://www.gensler.com/blog/designing-intergenerational-communities>.

Pangilinan, Jessa. “15 Best Board Games for Seniors and the Elderly.” Happier Human, February 16, 2022. <https://www.happierhuman.com/board-game-elderly/>.

“Pleksiglas Nedir? Pleksi ile Neler Yapabilirsiniz? Tek Mesgalemiz Sizsiniz!” Pleksiglas Nedir? Pleksi ile Neler Yapabilirsiniz? Tek Mesgalemiz Sizsiniz! Accessed March 9, 2022. <https://www.mesgalem.com/pleksiglas-nedir>.

Pow, Michelle. “Benefits of Intergenerational Play.” LinkedIn. LinkedIn, March 8, 2018. <https://www.linkedin.com/pulse/benefits-intergenerational-play-michelle-pow/>.



“Printing on Acrylic Sheets.” NGS Printing, January 26, 2022. <https://www.ngsprint.com/our-materials/printing-on-acrylic-sheets/#:~:text=Digital%20printing%20is%20the%20preferred,directly%20onto%20the%20plastic%20surface.>

“Printing on Acrylic Sheets.” NGS Printing, January 26, 2022. [https://www.ngsprint.com/our-materials/printing-on-acrylic-sheets/.](https://www.ngsprint.com/our-materials/printing-on-acrylic-sheets/)

“Toy Design at Triennale Design Museum Milano.” Toydesign, April 18, 2017. [https://www.toy-design.com/toy-design-at-triennale-design-museum-milano/.](https://www.toy-design.com/toy-design-at-triennale-design-museum-milano/)

“Toy Projects Archives.” Toydesign. Accessed March 17, 2022. [https://www.toy-design.com/category/toy-projects/.](https://www.toy-design.com/category/toy-projects/)

Transgenerational design. Accessed March 17, 2022. <https://www.aplaceformom.com/caregiver-resources/articles/1-7-15-10-transgenerational-designs.>

Transgenerational design: What is transgenerational design? Accessed March 16, 2022. <https://transgenerational.org/viewpoint/transgenerational.htm.>

“What Is Play?” Active Learning Space. Accessed March 17, 2022. [https://activelearningspace.org/principles/what-is-play/.](https://activelearningspace.org/principles/what-is-play/)

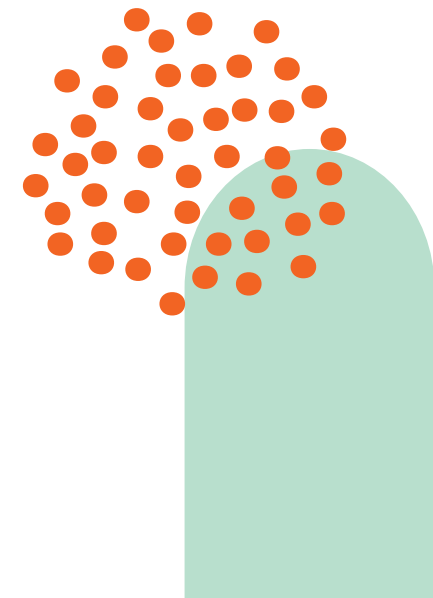
“What Is the Internet of Things (IoT)?” What Is the Internet of Things (IoT)? | Oracle Türkiye. Accessed March 7, 2022. <https://www.oracle.com/tr/internet-of-things/what-is-iot/#:~:text=What%20is%20IoT%3F,and%20systems%20over%20the%20internet.>

“What Is the Internet of Things, and How Does It Work?” IBM Business Operations Blog, August 28, 2020. [https://www.ibm.com/blogs/internet-of-things/what-is-the-iot/.](https://www.ibm.com/blogs/internet-of-things/what-is-the-iot/)

“Who We Are.” ToyProject.net. Accessed March 14, 2022. [http://www.toyproject.net/who-we-are/.](http://www.toyproject.net/who-we-are/)

“Why Multi-Generational Play Is Important: Playworld.” Playworld® Blog, November 26, 2021. [https://playworld.com/blog/multi-generational-play-important/.](https://playworld.com/blog/multi-generational-play-important/)

Sashin, Daphne. “Poignant Moments Unfold at a Preschool in a Nursing Home.” CNN. Cable News Network, June 19, 2015. [https://edition.cnn.com/2015/06/19/living/preschool-nursing-home-seattle/.](https://edition.cnn.com/2015/06/19/living/preschool-nursing-home-seattle/)



7.2 | list of figures.

- fig 1.: A graphic from “Speculative Everything” by Dune and Raby, adapted from “Speculative Everything” book _____ 27
- fig 2.: A collaborative, speculative storytelling game by Evan Raskob, adapted from <https://speculativeedu.eu/case-study-peek-a-game-for-future-storytelling/> _____ 28
- fig 3.: Designing Intergenerational Communities by Stella Donovan and Laura Latham, adapted from <https://www.gensler.com/blog/designing-intergenerational-communities> _____ 30
- fig 4.: A graphic from “Speculative Everything” by Dune and Raby, adapted from “Speculative Everything” book _____ 30
- fig 5.: An abstract photo that represents utopian and dystopian world’s pattern, taken from <https://www.pexels.com/photo/brown-textile-137594/> _____ 33
- fig 6.: A photos that represents future elderly and children in a more connected way, taken from <https://www.pexels.com/photo/boy-teaching-a-man-how-to-play-video-games-8185896/> _____ 34
- fig 7.: A photo that represents how elderly and children will interact more taken from, <https://www.pexels.com/photo/woman-in-yellow-jacket-carrying-girl-in-blue-denim-jacket-7854086/> _____ 45
- fig 8.: Statistical data of elderly population growth by gender with the comparison of Brasil and Italy 2000, 2025 and 2050, adapted from https://id.elsevier.com/as/authorization.oauth2?platSite=SD%2Fscience&scope=openid%20email%20profile%20els_auth_info%20els_idp_info%20els_idp_analytics_attrs%20urn%3Acom%3Aelsevier%3Aidp%3Apolicy%3Aproduct%3Ainst_assoc&response_type=code&redirect_uri=https%3A%2F%2Fwww.sciencedirect.com%2Fuser%2Fidentity%2Flanding&authType=SINGLE_SIGN_IN&prompt=none&client_id=SDFE-v3&state=retry-Counter%3D0%26csrfToken%3Da567caaf-5011-4c3a-ad1e-db0aedaefd29%26idpPolicy%3Durn%253Acom%253Aelsevier%253Aidp%253Apolicy%253Aproduct%253Ainst_assoc%26returnUri%3Dhttps%253A%252F%252Fwww.sciencedirect.com%252Ftopics%252Fsocial-sciences%252Fageing-population%26prompt%3Dnone%26cid%3Dtp-5a4b-f91e-356b-43f0-a2f7-ab656665bd4c _____ 51
- fig 9.: A graphic data of percentage of the 65+ people by continent with the time consideration, adapted from <https://www.newsecuritybeat.org/2013/09/fast-growing-countries-aging-concern-planning-demographic-dividend/> _____ 55
- fig 10.: A graphic data of the elderly and children population ratio, adapted from https://www.google.it/books/edition/Families_Ageing_and_Social_Policy/yIjhfZqc4uEC?hl=en&gbpv=1&printsec=frontcover _____ 57

fig 11.: Toy designer cas holman while playing with the kids with her the toy designed by her, taken from <https://www.dezeen.com/2020/02/14/cas-holman-toy-designer-interview/> 64

fig 12.: EU funded toy project for intergenerational project community, taken from http://www.toyproject.net/wp-content/uploads/2020/10/Evaluation-report-TOY-Storytellers_final20102020.pdf. 65

fig 13.: Toy design exhibition in Triennale 2017, adapted from <https://www.toy-design.com/it/toy-design-triennale-al-fuori-salone-di-milano/> 66

fig 14.: Quadrilla space city by Fabio Guaricci 2017, adapted from <https://www.toy-design.com/it/quadrilla-space-city/> 67

fig 15.: An independant documentary by Evan Briggs about intergenerationality shoted in a nursing home in U.S 2017 taken from <http://thegrowingseasonfilm.com/> 68

fig 16.: A video by arti-creativo company for intergenerational relationships awareness taken from <https://www.youtube.com/watch?v=REs8ByGH62k> 69

fig 17.: Cookery kit for elderly to socialize by Magda Sabatowska, taken from <https://www.dezeen.com/2018/07/18/social-oven-magda-sabatowska-central-saint-martins-design/> 70

fig 18.: A care home in northern Spain by Guillem Carrera 2018, taken from <https://www.dezeen.com/2018/09/14/guillem-carrera-elderly-care-home-spain-blancafort-architecture/> 71

fig 19.: Uninvited Guests: a critical futures and speculative design project created by Superflux Lab for the ThingTank project, taken by <https://superflux.in/index.php/work/uninvited-guests/#> 72

fig 20.: Service projects for elderly 2013, taken from <https://penniesoftime.com/service-projects-to-help-the-elderly/> 73

fig 21.: Wheels on meals: a delivery system for elderly people get connected with younger generations, first establishment in U.K 1943, taken from <https://lionsheartservice.wordpress.com/2019/09/27/nonprofit-high-light-meals-on-wheels-america/> 74

fig 22.: A board game: Code names pictures , taken from <https://www.gamesworld.com.au/product/codenames-pictures/> 76

fig 23.: A board game: Bandido , taken from <https://boardgamegeek.com/boardgame/191925/bandido> 76

fig 24.: A board game: Pictureka , taken from <https://boardgamegeek.com/thread/291877/review-pictureka> 76

fig 25.: A board game: Pass the pigs , taken from <https://boardgamegeek.com/boardgame/2593/pass-pigs> 76

fig 26.: A board game: Ludo , taken from <https://boardgamegeek.com/boardgame/2136/pachisi> 76

fig 27.: A board game: Torre di animali , taken by me in the board game shop milano 76

fig 28.: A board game: Spot it! , taken from <https://www.akilakademi.com/urun/spot-it-zeka-oyunu> 76

fig 29.: A board game: Hedbanz , taken from <https://www.amazon.it/Spin-Master-6019225-importato-Germania/dp/B007HSHF8S> 76

fig 30.: A board game: Hippo , taken from <https://boardgamegeek.com/boardgame/234105/hippo> 76

fig 31.: A board game: Tucano , taken by me in the board game shop milano 76

fig 32.: Mimoza care center from a school visit day, taken from the center 2022 82

fig 33.: Mimoza care center 2022 from a school visit day, taken from the center 83

fig 34.: Mimoza care center 2022 from a school visit day, taken from the center 83

fig 35.: Mimoza care center 2022 from a school visit day, taken from the center 83

fig 36.: Kidsland Preschool 2022 from a playing session, taken from the their archieve 84

fig 37.: Kidsland Preschool 2022 from a playing session, taken from the their archieve 84

fig 38.: Kidsland Preschool 2022 from a drawing research exercice with 6 years old kids' group 86

fig 39.: Kidsland Preschool 2022 from a drawing research exercice with 5 years old kids' group 87



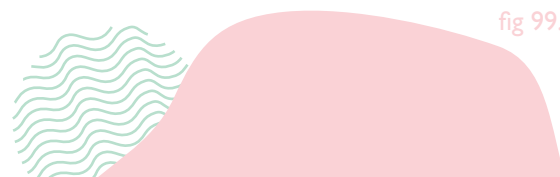
fig 40:	A graphic data from nursing home survey results/what elderly is able to do easily	100
fig 41 :	A graphic data from nursing home survey results/what elderly struggles the most	100
fig 42:	A graphic data from nursing home survey results/what elderly enjoys the most	101
fig 43 :	A graphic data from nursing home survey results/what elderly does not like the most	101
fig 44 :	A graphic data from nursing home survey results/elderly visitor's frequency	101
fig 45 :	A graphic data from nursing home survey results/what elderly prefer single or group activities	101
fig 46 :	A graphic data from kindergarten survey results/what children are capable to do	104
fig 47 :	A graphic data from kindergarten survey results/what children do not like to do	104
fig 48 :	A graphic data from kindergarten survey results/what children struggle the most	105
fig 49 :	A graphic data from kindergarten survey results/what children do like the most	105
fig 50 :	A graphic data from kindergarten survey results/what children prefer single or group activities	105
fig 51 :	A graphic data from kindergarten survey results/how frequently they are being together(grandparents and grandchildren)	105
fig 52 :	A graphic data from kindergarten survey results/ children's concentration time limits	105
fig 53 :	A graphic data from relatives survey results/ how old are your parents?	108
fig 54 :	A graphic data from relatives survey results/are you living with your parents?	108

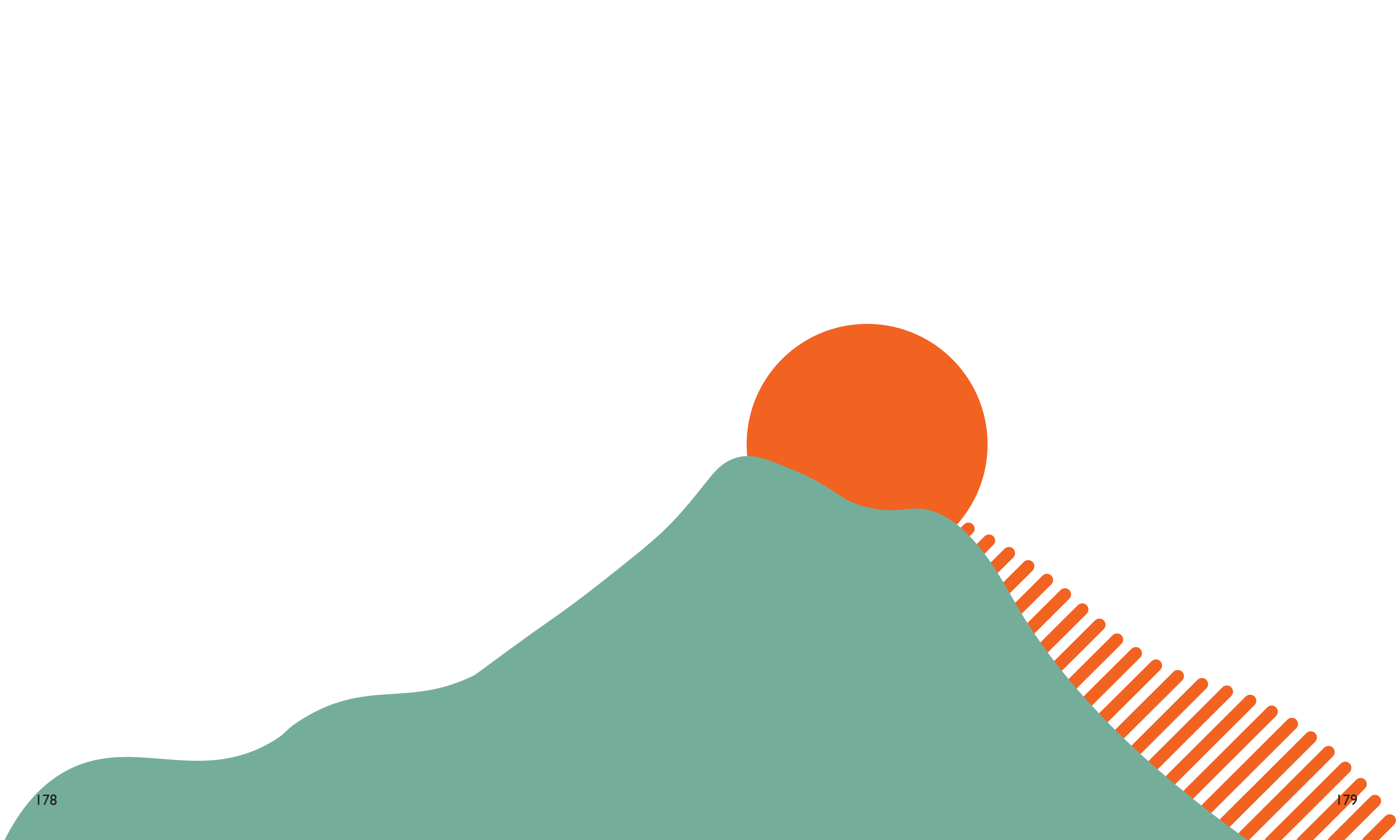
fig 55 :	A graphic data from relatives survey results/ can they do their personal care?	108
fig 56 :	A graphic data from relatives survey results/ how much time they spend with their grandchildren?	108
fig 57 :	A graphic data from relatives survey results/ what are they having difficulty for the most?	109
fig 58 :	A graphic data from relatives survey results/ what are the easiest activities they do?	109
fig 59 :	A graphic data from relatives survey results/ what are your parents favorite activity with their grandchildren?	109
fig 60 :	A graphic data from relatives survey results/ what kind of activities your children enjoy to do the most with their grandparents?	109
fig 61 :	Brainstorming board that shows the common,different and similar points of elderly and children	115
fig 62 :	Preliminary ideas-1st trial- mock-ups- photo taken by auther	119
fig 63 :	Preliminary ideas-2nd trial- mock-ups- photo taken by auther	119
fig 64 :	Preliminary ideas-3rd trial- mock-ups- photo taken by auther	119
fig 65 :	Preliminary ideas-4th trial- mock-ups- photo taken by auther	119
fig 66 :	The application interface design of the game "hoppala"	122
fig 67 :	Card's illustration design of the game "hoppala"	124
fig 68 :	Word card's design of the game "hoppala"	125
fig 69 :	Final prototype of the game "hoppala" photo taken by auther	126

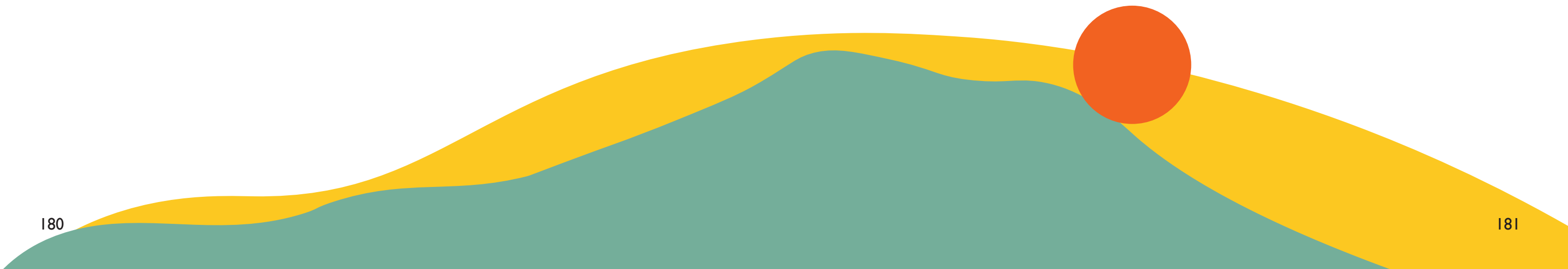


fig 70.: Final prototype of the game “hoppala” photo taken by auther	126
fig 71 : Final prototype of the game “hoppala” photo taken by auther	126
fig 72 : Final prototype of the game “hoppala” photo taken by auther	127
fig 73 : Final prototype of the game “hoppala” photo taken by auther	128
fig 74 : Final prototype of the game “hoppala” photo taken by auther	128
fig 75 : Final prototype of the game “hoppala” photo taken by auther	129
fig 76 : Final prototype of the game “hoppala” photo taken by auther	129
fig 77 : Final prototype of the game “hoppala” photo taken by auther	130
fig 78 : Final prototype of the game “hoppala” photo taken by auther	131
fig 79 : Final prototype of the game “hoppala” photo taken by auther	131
fig 80 : Final prototype of the game “hoppala” photo taken by auther	132
fig 81 : Final prototype of the game “hoppala” photo taken by auther	132
fig 82 : Final prototype of the game “hoppala” photo taken by auther	133
fig 83 : Final prototype of the game “hoppala” photo taken by auther	134
fig 84 : Plexiglass texture, taken from https://www.amazon.com/Transparent-Fluorescent-Colored-Acrylic-Plexiglass/dp/B092W8Y27L	138

fig 85 : Wooden texture , taken from https://www.freepik.com/free-photo/wood-texture-close_971896.htm#query=wooden%20texture&position=44&from_view=search	138
fig 86 : Laser cutting process, taken from https://www.fiberlasercuttips.com/	139
fig 87 : UV printing, taken from https://1touchpoint.com/blog/5-reasons-to-choose-uv-printing	139
fig 88 : From test session-grandparent to grandchildren- of the final prototype game “hoppala” photo taken by auther	140
fig 89 : From test session-grandparent to grandchildren- of the final prototype game “hoppala” photo taken by auther	140
fig 90 : From test session-in kindergarten with the group of 5 to 6 years old- of the final prototype game “hoppala” photo taken by auther	142
fig 91 : From test session-in kindergarten with the group of 5 to 6 years old- of the final prototype game “hoppala” photo taken by auther	142
fig 92 : From test session-in kindergarten with the group of 5 to 6 years old- of the final prototype game “hoppala” photo taken by auther	143
fig 93 : Brand & Packaging design/ instruction board of “hoppala”	144
fig 94 : Wooden packaging graphic design of “hoppala”	145
fig 95 : Backside design of the word cards of “hoppala”	145
fig 96 : Brand identity and the packaging details of the “hoppala” box	148
fig 97 : Brand identity and the packaging details of the “hoppala” box	148
fig 98 : Brand identity and the packaging details of the “hoppala” box	149
fig 99 : Pricing chart created by author	151









**a game that create
a new norm between
children & elderly
more connected**

