



TALLINN UNIVERSITY OF TECHNOLOGY

SCHOOL OF ENGINEERING

Msc. Design and Technology Futures

**WELCOMING EMOTIONS: GAMIFYING FAMILY
COMMUNICATION TO PROMOTE EMOTIONAL
INTELLIGENCE**

Emotsioone tervitades: emotsionaalse intelligentsuse arendamine
läbi mängu pere siseses suhtluses

MASTER THESIS

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Tallinn, 2021

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THESIS TASK

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Emotsioone tervitades: emotsionaalse intelligentsuse arendamine läbi mängu pere siseses suhtluses.

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2. Exploring alternatives to create a proposal that suit current needs and interests.
3. Designing a solution for supporting families to develop their Emotional Intelligence abilities.

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ABSTRACT

Emotional Intelligence is an important part of children's development because this shapes the abilities that determine their relationship with their own and others' emotions. Since those are acquired mostly from social interactions, the family constitutes the first facilitator in this learning process. However, a lack of education in this regard has generated a gap for many parents to know how to manage their own emotions or guide their children towards these competencies. Therefore, this study aims to find how a design-based approach and solution can support current families to enhance their children's emotional development. Specifically, it focuses on everyday communication to promote mutual emotional growth for the family members.

To explore the hypothesis that guided and welcoming family communication leads to higher emotional intelligence development, a set of design research methods were conducted, including an online questionnaire, a design probe, and a co-design workshop with families formed by millennials parents with a child of 6 to 8 years old. The outcomes showed that there is not only an absence of emotional abilities, but the need to support parents to address assertive emotional communication in the frame of their active lives.

The results suggest that by providing a dedicated space for emotional communication with a playful approach and progressive guidance for parents, families have the opportunity to practice emotional abilities that later will integrate into their daily lives.

On this understanding, the design solution presents a digital platform with a set of games for encouraging parents and children to exchange feelings and experiences, while it trains their emotional abilities. Parallely, the platform supports parents with information and feedback. The thesis concludes that besides encouraging emotional competencies, the concept also reinforces families' connection and mutual knowledge.

EESTIKEELNE KOKKUVÕTE

Emotsionaalne intelligentsus on oluline osa laste arengust põhjusel, et see kujundab just neid võimeid, mis määravad laste suhte enda ja teiste emotsioonidega. Kuna need võimed omandatakse peamiselt sotsiaalsest suhtlusest, on pere selles õppeprotsessis lapse esmane tugi. Vastava hariduse puudumise tõttu on paljude vanemate teadmistes tekkinud puudujääk, kuidas iseenda emotsioone juhtida ning samuti lapsi nende pädevuste arengus suunata. Selle uuringu eesmärk on leida, kuidas disainipõhine lähenemine ja lahendus saab peresid toetada, et parandada laste emotsionaalset arengut. Täpsemalt keskendub see igapäevasuhtlusele, et leida võimalusi pereliikmete vastastikuse emotsionaalsuse arengule.

Hüpoteesi uurimiseks, et juhitud ja tervitatav emotsionaalne suhtlus viib emotsionaalse intelligentsuse kõrgema arenguni, kasutati erinevaid disaini uurimismeetode, sealhulgas veebipõhine küsimustik, disaini sondid ja kaasavad disaini töötoad peredega, mille moodustasid 1980 a. ja hiljem sündinud vanemad 6 kuni 8 aastaste lastega. Tulemused näitasid, et puudu pole mitte ainult emotsionaalsetest oskustest, vaid ka vajadusest toetada vanemaid, et nad suudaks oma aktiivsesse ellu mahutada emotsionaalsuse põhise suhtluse.

Tulemused näitavad, et pakkudes spetsiaalset keskkonda emotsionaalseks suhtlemiseks koos mängulise lähenemisviisi ja lapsevanemate järkjärgulise juhendamise, on peredel võimalus harjutada emotsionaalseid võimeid, mis hiljem nende igapäevaellu integreeruvad.

Sellest lähtudes esitleb antud disainilahendus digitaalset platvormi koos komplekti mängudega, et julgustada vanemaid ja lapsi oma tundeid ja kogemusi vahetama, samal ajal oma emotsionaalseid võimeid trennides. Paralleelselt toetab platvorm lapsevanemaid teabe ja tagasisidega. Lõputöös jõutakse järeldusele, et lisaks emotsionaalsete pädevuste julgustamisele tugevdab kontseptsioon ka pereliikmete omavahelist sidet ja vastastikust arusaamist.

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1. Introduction

Did anyone explain to you what emotions are for, how to interpret them, or to transit the way back to recover yourself? Many of us would say: No. Certainly, as adults, we have had to figure it out on our own. But are our children ready to do the same by themselves? Although directing our attention towards the inner self for understanding our emotions was not something we were guided for, researchers have shown that this is still as necessary as math, biology, or geography (MacCann, Jiang, Brown, & Bucich, 2019). Then, what we need to do to make this happen?

Those thoughts appeared when I was selecting the topic of my thesis project. My concern was focused on how to help children to have a better connection with their emotions, how to provide them with the abilities to be free to feel, and how with this, we all can honor our emotional nature, instead of ignoring it.

Immersing myself into the topic, my first enquire was regarding the role of education for emotional development. Unfortunately, since emotions were considered distractions until the beginning of the 90's, most of the attention on children's development was on the cognitive competences, and little on the emotional ones (Brackett, et al., 2013). This is supported by an education system focus on academic and economical achievement forcing productivity as the priority of current Western societies. The approach has forgotten about other aspects of the human psyche, since creativity, soft skills, and self-development are still secondary or non-existent in the curriculum, which is generating adults ready to join the workforce, but with difficulties to cooperate, establish personal relationships, empathize and even understand their emotional cues (Nussbaum, 2010).

The lack of support from schools in this matter has given the responsibility to parents and caregivers to teach children how to deal with their own emotions. However, it is likely that parents were not taught either on emotional abilities, so they will transfer their own understanding to their children, building a generational cycle of emotional patterns (Barrett, 2017). With this logic, a healthy emotional environment during the person's childhood, ensures a future adult who encourages a welcoming emotional development of their offspring. On the contrary, emotionally irregulated family environments will promise children with lack of those abilities, and probably involved in behavioral and social conflicts. This means in few words, that children's emotional understating and regulation are directly related to their parents' emotional competencies.

From this consideration, although my initial motivation was to improve children's understanding of their own emotions, through the initial research, I realized that for achieving this, the project should acknowledge the parents' function in this process. Aiming to find a way through, the Emotional Intelligence (EI) notion emerged into the research, as a concept explaining the abilities for dealing with emotions in a healthy way.

Emotional intelligence is a set of abilities to perceive, understand and manage emotions (Salovey & Mayer, 1997). Its influence is related to academic performance, since emotions intervene in our retention, learning and decision-making skills (Parker, Saklofske, Wood, & Collin, 2008). It is also associated with self-awareness, problem-solving and communication, which are indispensable for social relationships (Lopes, Nezlek, Schuetz, & Brackett, 2004). Effective leadership, cooperation and accurate management of conflicts at the workplace are also correlated with emotional abilities (Kapur, 2018). And finally, for families higher EI means strong bonds, assertive communication and life satisfaction (Platsidou & Tsirogiannidou, 2016).

As those outcomes showed, emotions have an important influence in diverse aspects of life. Since they appear immediately after birth (Holmes, 2020), ideally parents must be able not only to interpretate and provide solutions to them, but also to teach children how to recognize and regulate them. During the first two years, this is possible by mirroring facial expressions, labeling emotions, going down to the child level, giving hugs and kisses, and others (Siegel & Hartzell, 2003). As the child grows older, parents assist their emotional development through three main dynamics that compose the family emotional environment: emotional displays, responses about other's emotions, and emotional conversations (Eisenberg, Cumberland, & Spinrad, 1998). This phenomenon is explained by humans' ability to learn through imitation, observation and modeling from the interactions around them (Thompson R. A., 2015). In the case of children, **the family is their first social circle, so parents' role is crucial for stimulating children's emotional development**

In this sense, researchers claims that parents who have received preparation in Emotional Intelligence are more supportive to emotional displays and are aware of their part in the child's growth (Gottman, 2018) (Maliakkal, Hoffman, Ivcevic, & Brackett, 2017). However, not every adult understands and is sensitive to the subject, indeed, it requires the intention and interest for accessing to it. Certainly, for learning EI in a sustainable way, it is even more important that parents work on themselves, rather than focusing on their children. In this regard, Marc Brackett (2019) from his experience affirms that "parents look to learn

strategies for helping their kids regulate their emotions—and then realize that for that to happen, parents first have to regulate their own”.

In addition to the “intention” of training EI, there are other factors affecting parents’ perspectives and approaches to children’s emotional development. First, wrong beliefs about emotions and society’s pressure to match feelings to circumstances are both limiting the time and attention to understand one’s emotions (Barbalet, 2019). Second, the growing tendency of some parents to overprotect children is putting them away from situations that can stimulate their emotional abilities, and even sometimes keeping them apart from parents’ needs and feelings (Schwartz, 2018). Lastly, the increasing usage of screens and virtual communication have changed dynamics of social interaction, reducing the opportunities for children to develop their emotional understanding (Pearle, Schwartz-Lavares, Roy, & Yang, 2021).

All the factors mentioned above affect both, parents' and children’s emotional understandings, and consequently, it shows that **children’s emotional development is limited by the family’s emotional environment.**

With this in mind, the project aims to explore how a design-based solution can support the integration of the discussion about emotions in the family. The idea is not to disconnect the project from EI, but to encourage parent-child emotional communication for the training of Emotional Intelligence abilities. Because although the popularization of the EI concept has raised awareness about the importance of feelings (Brackett M. , 2019), after talking with parents, their concerns lay in bringing this knowledge into reality, mainly in those difficult moments when adults are too busy and distressed to act calmly, and the child’s brain is ready for imitating. Therefore, everyday conversations are ideal moments to encourage the understandings of emotions and the practice of strategies (Cervantes & Callanan, 1998), that can be recalled during emotions arousals, when those were learned in a previous state of calm.

On this basis, I believe that by **involving emotional communication into the family’s routine and providing guidance for parents to address emotions in a proper way, it may improve the emotional environment at home, while it builds EI abilities for parents and children simultaneously.**

Currently, solutions for supporting the development of EI abilities vary from books and flash cards for stimulating the recognition of basic emotions for the early childhood. Emotional expressions are also developed through games, and such like toys and toolkits

that improve regulation and coping strategies. Possible additional solutions like programs and methods, would require parents' time, and preparation to make these work in daily basis. In the study of the solution space, a gap of options was perceived to guide parents and facilitate emotional communication.

With that said, the methodological approach for this project starts with a literature review presenting the definitions of the main theoretical concepts that are used throughout the project. The starting point is the acknowledgment of emotions role and impact in people lives. This is followed by discussing the concept of Emotional Intelligence and children's emotional development, including stages and process of learning. Research ends with the explanation of the development of parent-child emotional communication and the influence of digital technology.

Once project's theoretical base is described, it is followed by an exploratory research conducting a questionnaire and interviews with parents and experts on children's development. And finally, participatory research methods like design probes and a co-design workshops are used which lead the study to the final ideation process and design concept development.

2. Methodology

2.1 Constructive Research Design as a Method

I decided to guide my exploration with the Constructive Research Design Method proposed in the paper “The Role of Hypothesis in Constructive Design Research” (Bang, Krogh, Ludvigsen, & Markussen, 2014). Which advocates for knowledge-making through the progress of the design research in the field. Specifically, I found this model interesting, since it allows to evolve the hypothesis throughout the process in a non (necessarily) linear way. Therefore, I conducted my thesis research adjusting the frame of the solution according to the ongoing research and revelation of new knowledge I acquired in the development. Next, I introduce the model of my thesis research (figure1):

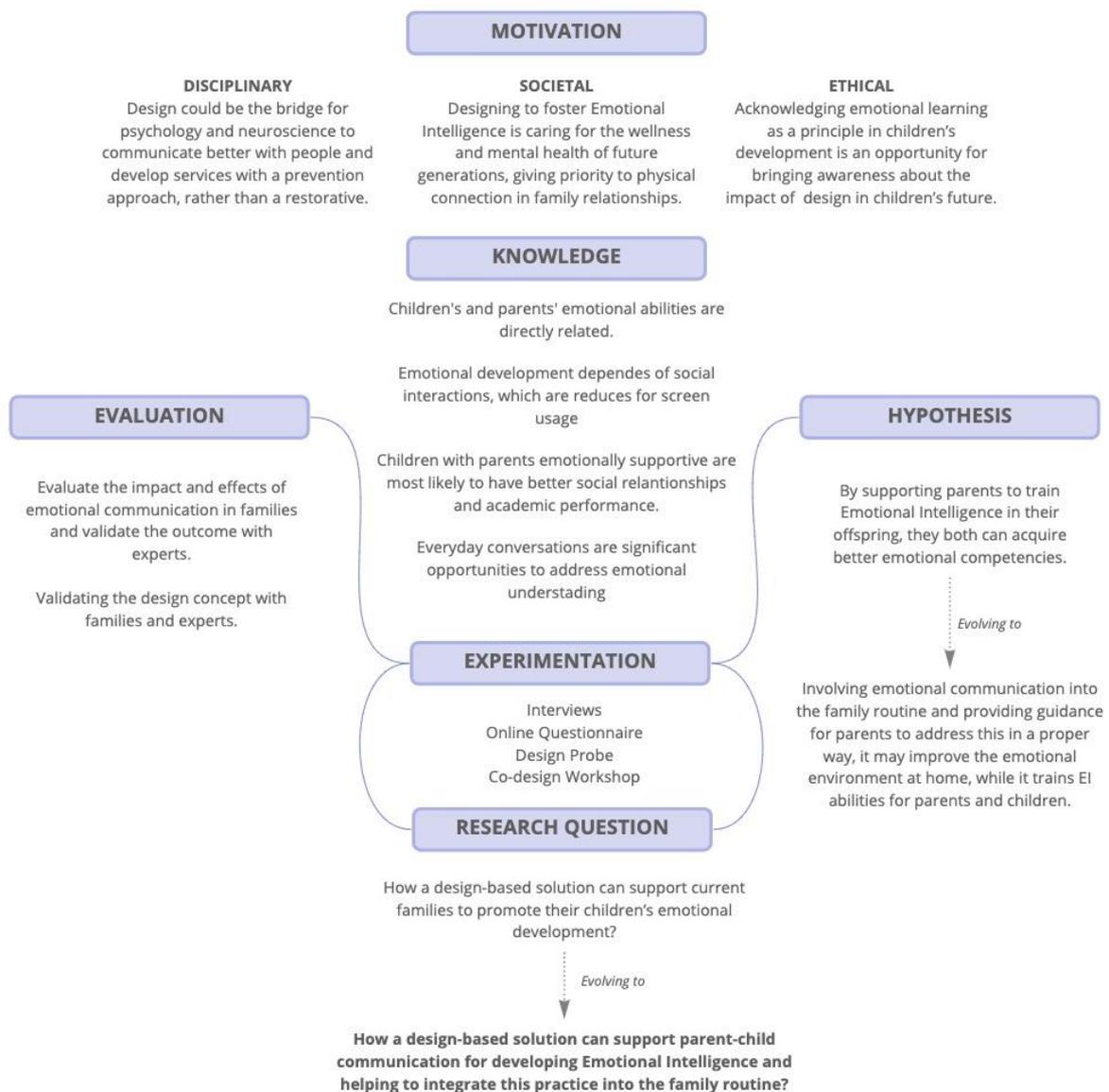


Figure 1. Constructive Design Research Model of this Thesis. Made by the author.

2.2 Research Question

Through the early understanding that children's emotional development is directly related to parents' abilities, the goal of the research is supporting the Emotional Intelligence development in families to enhance a welcoming emotional environment at home. Therefore, the initial research question is:

How a design-based solution can support current families to promote their children's emotional development?

2.3 Gaining Knowledge

In order to immerse myself into the subject, I considered it important to understand EI from both, psychological and also neuroscience viewpoints. Therefore, **Permission to Feel** (2019) by Marc Brackett introduced me to Emotional Intelligence concept, abilities and different contexts to be integrated. Then later, I approached to emotional learning through the understanding of the brain development and the role of parents in this process. For this, the work of Daniel Siegel was enlightening with **Parenting from The Inside Out** (2003) and **The Whole-Brain Child** (2011) in collaboration with Tyna Payne Bryson. Those works provided me not only with the knowledge on how essential is the parent-child interaction in the emotional development, but also with the evidence base strategies for encouraging those connections. Also, due to the context and my target group (families), I consider it is important to recognize the technology's influence in children's development and what are the alternatives proposed by researchers to mitigate the impact. **"Educar en la Realidad"** (2015) or Learning from The Reality by Catherin L'Ecuyer, presented me comprehensions to be critical about fast pace solutions involving screens.

Additionally, several papers and researches were studied and taken into account throughout the document for building deeper knowledge and also guiding the decision-making in the research and design process.

Interviews. A humanized approach to the subject

Semi-structured interviews with experts and leading parents were accomplished, parallelly to the desktop research. The aim was to gain a deeper understanding of the topic from

professionals who have had first-hand experiences with families and children, and can related them to emotional development. The following presents the summaries of the conducted interviews (to see the interviews' summary, refer to appendix 1):

Fiona Coenen-Winer, Pediatrician and mother from S.A. and practitioner in U.S.
(04-11-20)

- Relation of pediatric medicine and emotional development.
- Effects of poor emotional development in children.
- Parenting guidance as a pediatrician.
- Parents understanding and abilities to deal with emotions.
- Effect of technology in children's development.
- Design concept review and suggestions in a later meeting (21-04-21).

Carmen Elena Soto, Psychologist, early infancy researcher and preschool teacher from Colombia. (22-11-20)

- Experience as a preschool teacher.
- Role of school in the children's emotional development.
- Genealogy effects in identity construction.
- Children's development in vulnerable population families.
- Parent-child talks about family memories.

Taavi Tamkivi, Co-founder of Lasterikkad Isad MTÜ and father of 4 children from Estonia.
(29-12-20)

- Experience as a father of 4 children.
- Regulation and expression of emotions in the family.
- Gender implications in emotional displays.
- Current role of father figure in the family and implications in the emotional development of children.
- Purpose and activities of Lasterikkad Isad MTÜ.
- Possible relation of parents' initiatives with the promotion of emotional abilities.

Alari Aho, Co-founder of Lasterikkad Isad MTÜ and father of 4 children from Estonia. (08-01-21)

- Experience as a father of 4 children.
- Emotional talks in the family.
- Similarities between current and old times parenting.
- School role in emotional development.
- Children's technology relationship.

- Purpose and activities of Lasterikkad Isad MTÜ.

Katlin Valge, Preschool Teacher from Estonia. (08-01-21)

- Emotional intelligence in school curriculum.
- Teachers training for emotional development.
- Emotional abilities stimulation in the classroom.
- Coping strategies for unpleasant emotions.
- Parent-teacher collaboration for emotional development.
- Role of government for encouraging emotional learning as a principle.

Blanca Velázquez-Martin, Licensed Counselor and Clinical Psychologist, Mother and Social Media Influencer (@Whole.Child.Home) from Mexico and practitioner in U.S. (25-02-21).

- Montessori method and approach to emotional development.
- Parents' awareness in regard to the importance of children's emotional development, their role on the process and the impact on the long term.
- Emotional Intelligence in children and adults, and opportunities for collaborative learning.
- Parents' behaviors toward children's emotions and emotional communication.

Luis Aldemar Rodriguez, Psychologist and cultural studies researcher from Colombia. (18-04-21)

- Design concept review and suggestions.
- Proposal impact in children's emotional learning.
- Use of concept as a psychologist.
- Possible perspectives about the concept from families.

2.4 Experimentation and Design Research

2.4.1 Online Questionnaire for Parents

First approach to parents for gaining major understanding base on real experiences was through an online questionnaire. This one was implemented with 15 parents from different countries, aiming to understand how they regulate their own and their children's emotions, and how this is related to the parenthood challenges. The questionnaire was formulated with 21 questions, 8 for collecting quantitative information about the participants, and 13 for

the discussion about emotions and parenting. Due to the type of research topic, the questions needed to be open to assure the obtention of qualitative information.

Participants were all born between 1981 to 1996, better known as millennials, originally from Europe (10), Latin America (3) and Asia (2). They all have a nuclear family, composed by parents and offspring, and have one or two children. The result of this activity will be exposed in the Design Research chapter in regard of parents' perspective to emotions and preparation for training competences in children. To see the questions and the results' summary, refer to appendix 2.

2.4.2 Design Probe

A design probe is a qualitative research tool to involve the target group in a participatory activity for self-documentation. This method first known as Cultural Probe was evolved by Tuuli Mattelmäki (2006) to include the perspective and flexibility design needs, with the particular follow-up interviews to know the participants' final impressions (Mattelmäki, 2006). Although this method demands higher resources (compare to others) for its creation and execution, I considered it accurate for my research because of the opportunity of provoking reflection through it. Thus, the private nature of the subject indicated that participants' self-documentation must be easier for those who may find uncomfortable to express their emotions.

Therefore, the probe was intended for finding genuine responses regarding emotional communication in the family context through activities in which parents and children must express their emotional experiences. The exercise was a 3 days activities package containing one envelope per day and a booklet for parents and another one for the child. Tasks were designed for children from 6 to 8 years old, and to be done by parents and children together, including material for both parents, the child and a sibling.

For the probe's creation, the observational learning theory from Albert Bandura described later was implemented and adapted to emotional learning dynamics to propose the following activities:

- Day 1 task
Symbolic model: Talking about nonreal characters' emotions.
Three subjects were proposed to the participants (shame, failure, optimism) for them to select one and create a story of 4 frames, using cartoons and facial expressions provided in the envelope.

- Day 2 task
Verbal instructional model: Talking about previous feelings and experiences.
A set of questions were provided in a dice to be replied by parents and children together and write those in the answers sheet.
- Day 3 task
Lived model: Talking about present emotions and coping strategies.
Participants needed to locate in the drawing body, where they feel the 6 basic emotions provided (sadness, happiness, anger, embarrassment, disgust, fear, gratitude). They should have selected the most unpleasant and creating a plan as a family for regulating that emotion, including what the person needs for feeling better, and what the other can do for helping him/her.

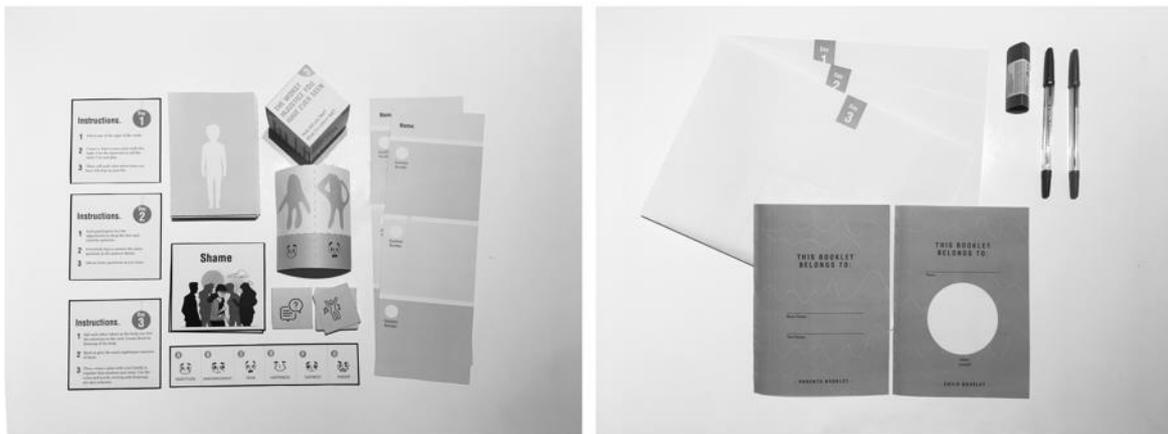


Figure 2. Probe materials. Photo took by the author.

Additionally, a booklet for reflecting about each of the activities was provided to the parents, asking questions like: What did you learn from the experience? What did you not know about your child? What was the most uncomfortable? What would you need to make this process easier?

For the child's booklet, it was provided a set of simple activities to encourage small talk about emotions in random situations at home. Those were drawing, taking pictures and videos about most loved objects for parents and children, and places to find calm during big feelings' arousals.

During the design process of this activity, a test with a 7 years old child was conducted in order to guide myself in providing accurate and doable activities for this age range. Finally, the probes were finished for 5 families from Estonia (3), Poland (1) and Iran (1), and the

main findings will be related under the Design Research chapter for explaining what are the needs, limitations and motivations involved in parent-child emotional communication. To see the results of each activity, refer to appendix 4.

2.4.3 Co-Design Workshop

According to Melonio and Gennari (2013), co-design is the term to describe the activities during the design process in which the stakeholders are involved to participate and co-create in regard of a specific subject or problem. By using this methodology there is a more proper consideration of needs and interests, accurate expectations in the studied group and an inclusive approach from the inputs of marginalized populations.

Once the probe was analyzed and major insights were summarized, I decided to conduct a co-design workshop with a family, in which participated a mother and her two children (4 and 8 yr.). The initial purpose of this workshop was finding out with them what are the moments during the day where those emotional talks can happen. For that a time line for the day was built together with stickers, where we could discuss, what are the activities that allow to have conversations and which of those let to open up emotionally.

The second part of the workshop aimed to test some parts of the final concept. Three activities were presented under the framework of a collaborative game, which goal was to accumulate points for the family every time an emotion was mentioned. The following activities were undertaken:

1. Collecting emotions:

Each participant received a task in regard of recalling emotions (my emotions yesterday, my positive emotions of tomorrow and the emotions of son yesterday).

While they narrated the motions and what was the cause of it, I (as the facilitator) was assigning points to complete the illustration in which they could see their achievement.

2. Describing the emotion:

After, they had to pick one emotion described before and explain what they felt in the body, what was the thought and picture in their mind when that happen and what they learn from the experience. Each answer provides a score also.

3. Detecting emotions in the story:

The final task consisted in the narration of a story that included different kind of emotions. The participants should describe the emotions while I was telling the story. Again, every emotion represented a point for the family.

The results of the workshop are further explained in the design research chapter. To see the results of the activity, refer to appendix 5.

3. Theoretical Framework

What Are Emotions?

The word emotion comes from the Latin "e" as out, and motion as "*movere*" or to move (Etymologeek, n.d.), meaning move out or agitate. For Aristoteles, it was a stimulus that makes men to "change, as to affect their judgments, also attended by pain or pleasure" (Solomon, 2019). In old times, emotions were related to chaos and immaturity, so the belief was "rules your feeling, lest feeling will rule you" (Publilius Syrus. 100BC).

Later on, the perspective about emotions has evolved. According to Marc Brackett from the Yale Center of Emotional Intelligence, the perception of emotion has progressed from the idea that "passion and reason are antithetical", to be understood as an important part of personal development and relationship building (Brackett M. , 2013). He defines emotion as "the interpretation of what is happening in the world or the mind through the lens of present goals or concerns, for alerts us to a shift in the environment" (Brackett M. , 2019).

Supporting this, David Siegel (2003) describes emotions from the neuroscience perspective, as a process that integrates several neural circuits in different regions of the brain. A process which first feels the emotions delivering an alert signal, then evaluating the feeling for deciding the reaction, and later regulate and control of the feeling. This does not only make the brain to prove information, but also shape and give meaning to the experiences.

Contrasting to it, emotional scientist Lisa Fieldman Barret (2017) turns around the process. This new theory understands emotions as concepts, like something the brain builds from past experiences and previous notions already established. She states that emotions are not the interpretation of external data, but the simulation of what the brain predicts is going to happen, this, as a survival response for what this organ is designed for.

Although there is a disagreement in understanding emotions as biological circuits or social concepts, it seems that the last one helps to bring awareness about the possibility to reshape our ideas of emotions, by understanding that those are constructed based on early experiences, and therefore they have different shades from person to person. However, for this project and in relation with children development, **emotions are**

information that need to be interpreted by the brain in order to modify ourselves and our environment. This, because it is even more complicate to reform emotional notions on children that do not have clear memories and abilities to manage abstract concepts, like an adult could have. So, emotions as data allow to teach a more linear and simpler process to young brains, aiming to build structures of self-awareness and regulation that are essential throughout life.

Why Are Emotions Important?

Attention and acceptance to emotions have increased compare to the views of three decades ago. The reason for that is the raising of studies proving the influence of emotions in learning, decision making, judgment, and physical and mental health.

Emotional awareness assists motivation, as we are able to understand with our feelings and cognition what makes sense for us (Phillips, 2018). Emotions influence our attention which affects learning and memory competences, and also the way we interpret the world. Social relationships, assertive communication, teamwork dynamics are all influence by emotions and the ability to express them and bring empathy to the situation (Brackett M. , 2019).

On the other hand, the inability to regulate unpleasant feelings affects the person's physio and psychological sides. An immature brain feeling negative emotions is forced to narrow down the mind as a survival response, letting the emotion to take over and making even harder to find back the emotional desired state (Brackett M. , 2019).

Being lost into the emotions can persist and prolongate over time, they just do not disappear by ignoring them. On the contrary, emotions blow up in some point when they cannot be contained anymore, provoking unbalance and discomfort to ourselves and the people around us. Proof of that is the constant growing of mental health problems, drug addiction, domestic violence, bullying, and professional dissatisfaction (Brackett M. , 2019).

The partial focus of education, together with cultural beliefs has raised a society that do not know how to deal with emotions healthfully. This justifies why people are reporting to feel negative emotions every time more since 2010 (Helliwell, Huang, Wang, & Norton, 2020). In a way, it seems that the approach to solve the problems caused by emotional inability has not been across prevention, but through remediation, which naturally, involves higher costs and remarkable damages that are not always possible to reverse.

In that sense, providing people with tools to manage and comprehend their own emotions is taking more relevance. It also explains why psychologists have given more attention to the field, coming with theories that support the development of emotional competences. The following is an introduction to Emotional Intelligence, as a concept to foster abilities that help to deal with emotions in a healthy way.

3.1 Emotional Intelligence

Through history, researchers in psychology and social behavior have been discussing different ideas and considerations about how emotions affect our behavior and social relationships. Studies have showed that the construction of this understanding started a century before the theory was describe itself (Faltas, 2016), still most of the attention was on the cognitive development.

Dr. Howard Gartner (Scarr, 1985) deflected this in 1983 with the theory of The Multiple Intelligences. This states that human intelligence is not limited to the intellectual, but it co-exists with other kind such as linguist, musical, spatial, logical, body-kinesthetic, interpersonal and intrapersonal. However, in that moment and even now, there is lack of evidence to support the theory, and the implementation of the intelligence notion to describe what it is also believed as talents, abilities and personality traits.

In light of Gartner's proposal, there was an awakening for psychologists to point out their interests toward others abilities, further that cognition. Therefore, it may have installed new views readjusting learning goals and including other sort of knowledges.

That idea of a different type of intelligence was evolved to Emotional Intelligence by Salovey and Mayer in 1990 with the abilities model, and later by Goleman with the traits model. Salovey and Mayer called and defined for the first time Emotional Intelligence (EI) as **“the ability to monitor one's own and others' feelings and emotions, to discriminate among them and to use this information to guide one's thinking and actions”** (Kellya, Longbottomb, Pottsb, & Williamsonb, 2004). With a model based on abilities, they believed EI as a set of cognitive skills for understanding and handling emotions, and with them to drive thinking and make decisions. Those abilities are measured through performance assessments, by presenting situations to be interpreted and manage by the person skills (Cherry, Fletcher, O'Sullivan, & Dornan, 2014).

Later, Daniel Goleman (1995) presented a further proposal, including besides skills, personality traits and dispositions. This second model that opened the category of traits and mixed models for EI, measures emotional abilities through self-report assessments (Brackett, et al., 2013). It is then and still, the most popular model due the bestselling book Emotional Intelligence (1995), that popularized the concept explaining with a simple language the importance of EI over IQ.

Although, Goleman's theory is the most used among people from different disciplines, its self-report assessments are likely to obtain answers that are socially accepted, meaning that they could be fake, thus under this model, results are not totally reliable. In addition, since the ability model (Salovey and Mayer's) views EI as a mental skill, this suggests that our relation and understanding of emotions are possible to be trained and molded (Brackett, et al., 2013), while with the second model seems to be more limited, because changing personality traits and temperament is not that manageable. With this said, I believe the ability model is a more accurate structure to shape emotional competences in children. Thus, everybody, no matter the background and education level are able to improve their relation with their emotions and social relationships.

Indeed, the EI ability model has become the base or part of several programs to bring the concept to schools and homes. One of them is the RULER approach promoted by the Yale Institute of Emotional Intelligence, aiming to spread the value of emotions and teach the principles of EI to enhance the skills training (Brackett M. , 2019). The method is an acronym to underline the 5 abilities involved in Emotional Intelligence, which I have found as an interest and simpler way to summarize the concept, but also to give shape to the previous definition of this model.

Based on that, Emotional Intelligence is defined in this study as a set of abilities to recognize, understand, label, express and regulate one's own and others' emotions. Marc Brackett defines those as (Permission to Feel, 2019):

- **Recognizing:** The first step for noticing that something significant is happening is by identifying the physiological and thoughtful clues that emotions bring, (sweating when feeling fear or connection of thoughts after being embarrassed). Through this ability is also possible to recognize the emotions in others, such as facial signals, voice tone, body language and postures.

- **Understanding:** Going back to find what the causes of an emotional state are, and being aware of how this influence own and others' behavior and the decision making.
- **Labeling:** Parallely to the first abilities, labeling is using vocabulary to connect the emotional experience to an accurate way to describe it. This allows to increases self-awareness and assertive communication.
- **Expressing:** The ability to know when and how is appropriate to present emotions according to the context and socio-cultural rules the person has been raised in and surrounded by.
- **Regulating:** Treat the expressed emotion to go back to the desired emotional state. Regulating more that controlling is allowing the person to transit the emotion, instead of hidden or ignoring it.

The concept of Emotional Intelligence has been studied in different contexts such as education, psychology counseling, health, sports and business. In the workplace for example, books, coaches and workshops have expanded the concept, because strengthening EI abilities influences positively leadership and the relation between employees and managers, which increases productivity, and consequently profitability. Thus, EI is a valuable skill for businesses nowadays, so they are investing in training soft skills every time more (Kapur, 2018).

In regard of education, emotional intelligence has started to be involved slowly in the curriculum of schools, generally under SEL (socio-emotional learning) programs. A study (Taylor, Oberle, Durlak, & Weissberg, 2017) understanding the impact of those programs in 82 schools in the USA, EU and UK showed that students (97.406) from kindergarten to high school can enhanced mental health, social abilities and academic outcomes. Even more notable is that the study's results suggested that those improvements can last for years, regardless the socio-economic level, race or location. Similarly, another study claims that the RULER program mentioned above also contributes to improve the learning environment by enhancing productivity and engagement (Hagelskamp, Brackett, Rivers, & Salovey, 2013). The difference about the RULER, and which I consider important to remark, is that this program attempts to educate first teachers and provide them with theoretical and practical tools to use in the classroom (Brackett M. , 2019).

In a smaller extension, compared to the workplace and education applications, emotional intelligence has also been used in the family context for helping fathers and mothers to improve their parenting competences. Training programs, workshops and books provide knowledge, advices and practices to increase the satisfaction in the family life based on the EI notion. The success of a parental educational program was studied with participants assisting to 8-10 sessions, which aim was to improve communication skills, children's development knowledge and parent's emotional competences (Platsidou & Tsirogiannidou, Enhancement of Emotional Intelligence, Family Communication, and Family Satisfaction Via a Parent Educational Program, 2016). The research showed that when parents commit to help their children to have a healthy relation with their emotions, they also present better learning performance. Still, researches about the effectiveness of those initiatives are short and there is still the need to understand better how these programs affect the daily life of families.

In conclusion, emotional intelligence is a set of abilities to understand and manage one's own and other's emotions. The boost of these abilities in any person may improve their learning process, decision making, social relationships and mental health. This concept has been applied widely in the workplace and education to refine the skills and have better results in the academic and business field. However, there is lack of evidence to demonstrate the effectiveness of the EI educational programs for parents, which it would be pertinent for developing further approaches with younger generations. Next, I explain children's emotion development, general stages focused on emotions and how this process occurs.

3.2 Emotional Development in Childhood

Every human being has emotional experiences since the first days of life, so learning in regard of this subject starts at the same time. Researches done around infancy and childhood suggest this period as the initial point for emotional development, as adults' studies confirm the results of this emotional development journey (Buss, Cole, & Zhou, 2019). Therefore, having clarity about how this process occurs is a way to find how it can be promoted and improved.

Emotional development constitutes one of the most important features of psychological evolution for the human being. Its complexity lies in the demand of several developmental

processes the brain does for emotional growth during the childhood. Because of this, the topic has been the target of psychological studies evolving the understanding, but still having trouble to unify and agree in only one of them (Thompson R. A., 2008).

3.2.1 Emotional Development Stages

Theories on children development have come to understand the process through phases, many of them intertwining emotion and cognition. Piaget's (1983) theory describes consecutive stages the child goes through for its cognitive development. Those key moments influenced by age and ability, are sensorimotor, pre-operational, concrete operational and formal operational stages, forming the thinking by the brain responses to external stimulus (Huitt & Hummel, 2003). His approach is still nowadays the base for some education systems, but the limited attention to the cognitive side for the human development was the reason why other theories emerged.

Complementarily, Erikson's theory (1963) focused in emotional development, presenting eight stages expressed as crises. The model suggests that the culmination of each crisis is necessary for approaching the next one, that is how his proposal includes mature ages (McLeod, 2018), while Piaget only focused on the childhood.

Those theories have been the base of the developmental science, although they were openly criticized because the non-empirical research (Huitt & Hummel, 2003) (McLeod, 2018). In this sense, modern psychology has focused in getting a general comprehension on emotional learning base on scientific evidence (Thompson R. A., 2008). (Pons, Harris, & Rosnay, 2004). However, emotional development is still knowledge on progress and the need to find an unify interpretation remains active.

The intention of involving this information into the project's framework is not to present a discussion on developmental theories to find the most suitable, but to acknowledge the average particularities of each period in regard of emotional development. Therefore, a structure summarizing components or abilities in a timeline is proposed (figure 3) based on studies (Pons, Harris, & Rosnay, 2004) (Saarni, 2011) (Thompson R. A., 2015) on emotional development.

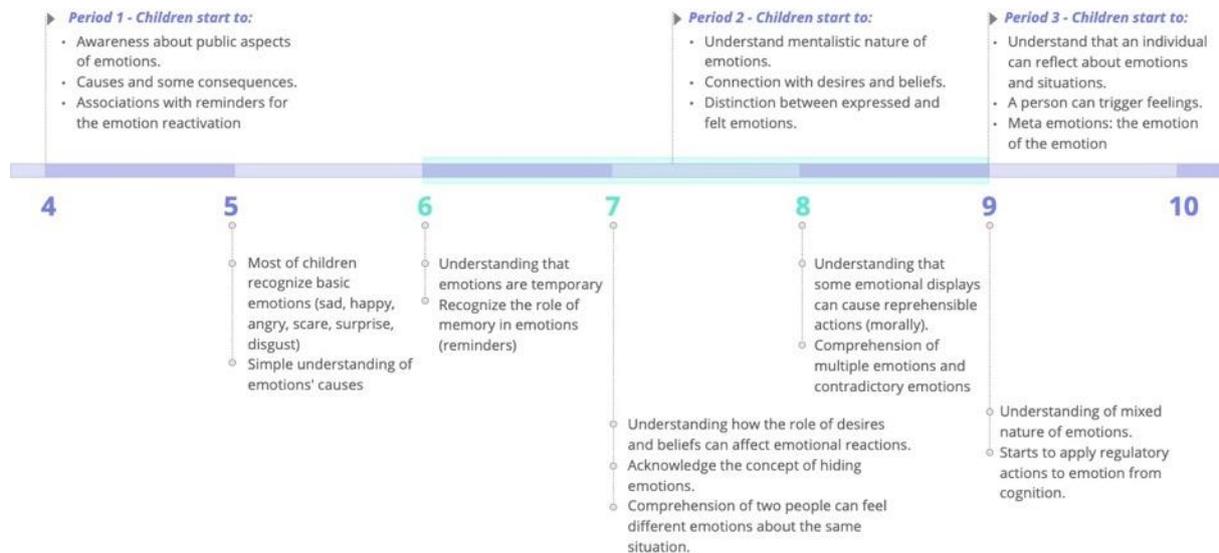


Figure 3. Emotional development stages from 4 to 10 years old. Figure development by the author.

The selected frame focuses in **children from 6 to 8 years old**, who usually have the following characteristics in terms or emotional development:

- Before the 6th birthday, most of children are able to recognized the 6 basic emotions (sadness, happiness, surprise, fear, disgust and anger), as they also are able to understand causes (mainly externals) and reminders. Around 7 years, the child comprehend the relation of emotions with desire and beliefs.
- Besides of starting self-talking, at 6 years old children initiate to explain how they feel through storytelling, drawing or performance. Progressively, they will participate in emotional discussions with family and friends, while they are getting able to think about emotional experiences.
- Since children at this age (6 years old) are learning to recognize their own and other's feelings, with the time they will start to interpretate non-verbal emotional signals, and identify that sometimes those can be different from the inner experience, in other words, emotional signals can be faked. Consequently, they will be able to understand that one emotion can feel and express differently in each person, or the same situation can provoke different emotions for people.
- At the age of 6, kids can practice emotional coping strategies like breathing, squeezing something or distracting themselves with the adult guidance. Later, if

this happened, the child will be able to practice those, while he is in a group of people.

- Since it is an age in which the child grows its social circle, self-emotions such as embarrassment and guilt become predominant and require guidance for regulation. The same is with fear, what is not related anymore to the fantasy of monsters and witches, but to the danger of the body and the people around it, meaning that topics such as death, illnesses or poverty may be inquired.

The reason why I found interesting to use this as the target group for the project is because there are already plenty of solutions for teaching the basic emotions that around 5 years they can recognize. However, since the goal is to involve the family, it seems more suitable to propose a solution for a child who can think and reflect about emotions.

3.2.2 Emotional Development Process

In order to bring a general idea of how children achieve this emotional development, it is necessary to explain two major paths. The first is through one's own emotional experiences and the second is from others' experiences, either by observation or by receiving information.

Own Experiences

*"Connections on the outside with other people,
build neuro connections on the inside"*
Becky Bailey, Conscious Discipline.

In the first case, Daniel Siegel (2003) associates emotional learning with two type of memories. Implicit memory is the one in charge of the mental models, creating circuits in the brain for generating emotions, behaviors and perceptions, and it does not require conscious attention to make use of those models (e.g., hiding emotions unconsciously because fear of abandonment). He states that after the second year of life, explicit memory crates new brain connections for giving meaning to the experiences we live (including the emotions' significance), bringing sense of self and time. This one is stimulated across the interactions with people around us and requires attention to recall those memories.

However, Catherine L'Ecuyer (2015) emphasizes based on studies, that children's brains do not distinguish the semantic memory (learning through concepts) and explicit memory

(learning from lived situations), indeed they can only understand it slowly in the adolescence and adulthood. She stated that “conceptual or virtual methodologies such as cards, speeches or interactives platforms, are not accurate for children education”. Children with an immature brain, are not able to bring into reality previous conceptual learnings, because for having complete understanding of the world and themselves, they actually need genuine experiences.

In that sense, emotions cannot be only explained through flash cards with sad and happy faces, they need to bring those supports in real time, so the child’s brain can connect experiences with sensations in the body, words to tag the emotion, understanding of the causes and later, strategies for coping.

Nevertheless, the caregiver role is still important, even though the emotion is in the learning subject (the child). Their function is to take an active part in those experiences, by guiding and stimulate that explicit memory. This means giving a hug, tell stories, bring memories, explain what happens, pay attention, disapproving and all those human actions, that none object or advance technology can replace. In other words, “adults around the children should provide them with reality” (L’Ecuyer, Educar en la realidad, 2015).

From the neuroscience perspective, it is important to have in mind that the parents’ role is to perform as a regulator, until the child has the maturity to use those skills. This is necessary because the frontal lobe in humans, which is in charge of cognitive functions (problem-solving, impulse-control, planning and organizing) is fully developed around the age of 25 years (Johnson, Blum, & Giedd, 2009). Thus, the caregiver’s function is similar to an external frontal lobe that needs to guide the child through its emotional experiences, by giving meaning, explaining and regulating.

Others’ Experiences

*“What we are, teaches the child far more than what we say,
So, we must be what we want our children to become.”
Joseph Chilton Pearce.*

The second approach for emotional learning is in relation of perceiving others’ emotional experiences.

As it was mentioned before, the explicit memory is stimulated by the interaction with people. However, in this scenario emotional learning does not only occurs when the child is the one feeling the emotion, but also when he/she perceives the emotional responses of those around him/her.

Some researchers have explained this over the concept of Social Referencing, a phenomenon in which the child takes adults' behaviors as signals to interpret the world, and later reacts based on these to certain situations. However, studies have not been consisting in presenting a unifying information about what exactly this concept affects, either thoughts, feelings or behaviors (Bandura, 1992). The famous experiment "Bobo Doll" made by Albert Bandura (1961) aimed to answer that, by setting two groups of children (boys and girls) to see images of kids hard-hitting a doll. Another group was also involved, but this did not see any aggression. Right after, the children were left with the doll, and they all imitated the same behaviors as they were exposed before. The experiment demonstrated how likely it is for children to repeat a behavior, they witness previously, even if it is not morally accepted (Naglieri & Goldstein, 2011).

Bandura's social learning theory was supported from this and other experiments, claiming that knowledge is stimulated through observation, imitation and modeling. Those include emulating someone's behavior, accepting a described performance -through talking & listening- and following by being inspired in -real and nonreal- characters (Child Development Theories: Albert Bandura). This model was used in the project for the formulation of the design probe for the research.

In regard of emotional development, social referencing explains how other's expressions (verbal and non-verbal) and actions influence not only the understanding of emotions, but also the predisposition to future situations (Bandura, 1992), e.g., if the child notices his mother's disgust face at broccoli, the child will repeat and understand that he should reject broccoli later. This continues in a constant imitation of the parents' behaviors, explaining why the emotional abilities in adults perpetuate in their children. Parents' validations or refutations for behaviors create the first ideas of guilt and shame, and consequently self-esteem (Thompson R. A., 2015).

In this sense, not only abilities are shared, but also beliefs. If an adult was raised with the idea that showing emotions is weakness, he/she is going to wire this belief to their children's brains. Emotional scientist Lisa Feldman Barret (2017) explains that "emotions are not built into the brain, but by the brain", meaning that a communal emotional

comprehension is preserved as a neural circuit, by being transmitted from the previous to the next generations. This is what I have called the **emotional generational loop**.

Understanding the effects of social interactions in emotional development, sets the family as the most important influencer, since this is the child's first social context. The relation of the caregiver with their own emotions and the way they manage and show them to the child is determinant for emotional development. Therefore, this suggests that for promoting emotional intelligence in children, it is necessary to assure adults' emotional competences.

To conclude the information presented above, children's emotional development depends on the social interactions around them, which allows the kid to be guided with its own emotions, but also learn from other's emotional experiences. This is explained by the ability of human brain to learn by observing, imitating and modeling from others' expressions and behaviors, meaning that the emotional learning in the child depends on the abilities of the caregivers.

Through this reflection, it became pertinent to frame this project as the opportunity to promote emotional intelligence for both parents and children: how they could grow together those abilities and how this could enhance their relationship. It may be possible that by giving attention to the feelings of the two actors, the outcome may result in a more welcoming emotional environment at home.

With this, it was interesting to me that more than separating emotional learning for each, join children and adults to create their understanding of emotions could also strength their attachment. That is why, the next step in the theoretical framework is to focus on understanding how parent-child emotional communication encourages EI abilities and distinguishing those factors influencing an accurate interaction around emotions.

3.3 Parent-Child Emotional Communication

*"Our sense of "I" is profoundly influenced
by how we belong to a "we"."*

Daniel Siegel

Communication for families is the way to share information about the desires, interests and needs of each family member. Either with words or signs, families should provide a

safe and welcoming space for exchanging their likes and also differences, allowing to find solutions for their conflicts. Emotions are in communication an important factor that can enhance the message, but also disrupt it, thus shaping abilities to manage and express emotions is essential.

From the Emotional Intelligence model, the abilities to recognize, understand and identify emotions as brain’s inner actions, means that they do not need to be showed to work. Though, the externalization of the emotion, and usually with the purpose of communication, is a more complex activity that requires the capacities of two people (Brackett M. , 2019).

In this sense, children’s expressions are associated with parents’ socialization of emotions. A heuristic model (Eisenberg, Cumberland, & Spinrad, 1998) of the factors influencing this matter suggests that “parent-child emotional talks, parents’ emotional expressiveness and their reactions towards child’s emotion”, are all relevant in building children’s skills and for setting an emotional environment at home. In this exchange of emotional experiences, the child’s and parents’ characteristics, the cultural values, and the context where the emotion is happening influence the action. Nevertheless, the model (figure 4) explains that parents’ socialization of emotion affects “the child’s experience of emotion, the emotion-related behavior in a giving context, the understanding and regulatory process and the quality of the relationship between the child and the socializer”.

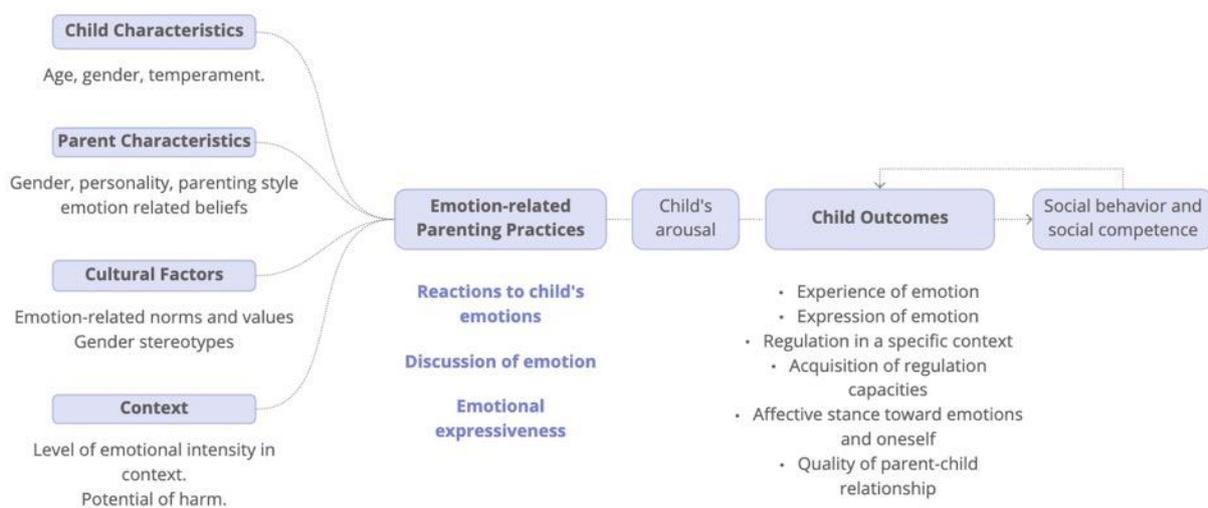


Figure 4. A heuristic model of the socialization of emotion (Eisenberg, Cumberland, & Spinrad, 1998)

In this structure, the expression of emotions between parents and children is important for promoting emotional development. However, most of studies on the subject have been done through one-way parents' discussions of causes and consequences for positive and negative feelings, and the accurate behavior for expressing them. Still, **parent-child emotional socialization is an interdependent dynamic in which both parts contribute in the interaction** (Mazzone, Roskam, Mikolajczak, & Nader-Grosbois, 2017), so a reciprocal emotional expression may have also further effects.

A study aiming to understand the effects of mutual emotional communication (Morelen & Suveg, 2012) suggests that "supportive emotion parenting (SEP) involves an awareness of children's feelings and ability to discuss emotions in a way that validates their emotional experience while helping children learn appropriate emotion regulation strategies", this implies that ideally parents have a welcoming attitude towards their own emotions. The same proved that the level of parents' support is related to the child's integration of emotional regulation actions and also the diminution of expression problems.

Saying that, we may reason that parent-child emotional communication enhances EI when there is a collaborative dynamic of expressing and listening, but also a welcoming attitude of emotional validation for both. So, a conversation with this base line, first provides a safe space to release emotions, and second, it drives understanding and regulation abilities.

Viewed in this way, I found interesting to underline those factors influencing emotional communication. However, there are several strategies for helping parents in this regard from different authors and areas, many of them based on types of parenting styles, not always supported by scientific evidence (B. Velázquez-Martin, personal communication, 25-02-21). Thus, I decided to summarize those proposed by Daniel Siegel and Tina Payne-Bryson (2011), which are based on the understanding of how a developing brain reacts and shapes on those interactions:

Mindful attuning: The neuroscience perspective (Siegel & Hartzell, 2003) explains that every time there is display of emotions, the child's brain is expecting to receive a response that it will be incrustated as a neural circuit, determining the sense of self. For building a good memory of this situation, the response quality, intensity and time must be similar to the signals exposed from the child, giving to the brain the "feeling of being felt". This does not mean that parents need to be 100% available for the child, but at least some moments of mindful synchronicity. He states that "attuning to the child's emotions could mean getting down on his level, having an open and receptive demeanor, looking at what he has

brought to show, and expressing curiosity and enthusiasm in the tone of voice". In order to be emotionally attuned with the child, the parent must **validate the emotion** no matter what it is, which is different to accept it, if this one is inappropriate. Validation in this case means to acknowledge the child's feeling instead of denying or dismissing it.

Safe Listening: Parents' ability to listen openly allows to decode the real meaning of the child's message and experience. Mark Brackett (2019) mentions that caregivers tend to provide answers before understanding the situation completely. This may be caused by parents' urgent need to help the child to feel better, or because they may be embedded into their own issues or beliefs. Being able to show empathy and curiosity about the child's experience may help to bring a more accurate solution, and at the same time to avoid that simple problems become unmanageable situations. At the end, more than solutions, what the child needs is knowing that this feeling is normal and temporary, and the parent will be there to support.

Verbal and non-verbal coherence: Attuning is not only in regards of words, there must be congruent signals for the two brain hemispheres, meaning that the nonverbal signals must match the explanation of what is happening (Siegel & Hartzell, Parenting from the Inside Out, 2003). For example, when a kid approaches his mom to ask why she is crying, and her answer is "nothing" or "I got something in my eye", the child will understand that it is not right to show sadness. Children need to see that grownups also have feelings, so showing them what we do with those emotions, it takes part in their development. Non-verbal signs include the person's posture, facial signals, tone of voice, pitch and behaviors.

Giving a name: Siegel (2011) explains that by labeling the emotional experience, the brain already can make use of neural connections for understanding and calming down. A parent can do this by explaining to the child what is happening by naming and mirroring kid's facial signals in a respectful and empathic way. The strategy helps not only to recognize the feeling, but also to find a way to release it or going back to the desire state, which is a practice that after being learnt in the childhood, it keeps working for the adult. This also support the need, that both adults and children have a broad vocabulary for expressing the different intensities of similar emotions.

Calmness for learning: Another important factor to have in mind when parents want to guide the children is to know that the brain is not able to think when is in the middle of emotional arousal (Siegel & Bryson, 2011). Indeed, emotions mean that the right side of the brain is activated and, therefore what it needs is reactions from the same hemisphere, so parents here should provide a hug, empathy, or a speech with a soft tone of voice.

Then later, the child in a state of calm will be able to understand, reflect on what happens, and learn how to manage next.

I found interesting that some of the actions mentioned above, in many cases are nature responses linked with the personality traits, indeed, it is very common that first reaction when someone is crying is to give it a hug or hold a hand. However, I also notice that by having the information of how the brain works in regard of emotions, those actions make more sense. Tina Payne Bryson (2021) assures that parents are able to have anew perspective about tantrums, when they understand that children still don't know what they are feeling, or do not have the capacities to regulate, so parents can assume themselves the role of that missed part of the brain and help it on its development. So, here many questions come to know how to support this process? How to provide this knowledge for people who are far from the topic? How to bring intention for welcoming emotions? What has it done in regard of this?

For solving those questions, I present next, the existing solutions supporting parents on the promotion of their children's emotional competencies.

3.4 Supporting Parent-Child Emotional Communication

(Existing Solutions)

"Understanding emotion, it's not just a matter of intuition, opinion, or gut instinct (...), we all have to learn it."

Marc Brackett

There are numerous and diversified solutions addressing the field of emotions. In regard of the promotion of the subject from parents to children, existing solutions for this research have been categorized by the main purpose: **emotions' recognition**, **emotions' understanding and coping strategies** and **teaching to teach EI**. **Parent-child connection** is an additional category due to the importance of the one-to-one interactions for EI development. This section describes and evaluates the existing solutions pointing out opportunities for innovation (To see the visuals of the solutions refer to appendix 3):

3.4.1 Emotions' Recognition:

Solutions for children to learn a variety of emotions and their names helps the brain to build a relation between facial and body signals and certain feelings. These are the most popular activities in the area of emotions, and are created and implemented for the early childhood, when the child does not have the tools to explain their feelings yet, because of a lack of vocabulary.

Emotions' recognition teaching solutions are presented as analog or digital games, books, flash cards, videos and toys. Their approach is to recognized those emotional signals in characters with the help of someone else. Some of them use additional skills like memory, similitude matching and imitation.

A missing opportunity in this type of solution is that, besides being able to recognize signals in others, the child brain needs to learn how those emotions are felt in their own body. In that sense, involving the child to define where in the body they feel the emotion, it may help to bring the concept into its own experience and reality (Margolin, 2019). For emotion recognition, it is even better, if the caregiver describes and labels the child's emotion in real time, so the brain relates the sensation and the causes to what it is described (Siegel & Hartzell, Parenting from the Inside Out, 2003).

3.4.2 Emotions' understanding and coping strategies:

Proposals for emotional understanding are focused in helping children to related feelings with their causes and consequences, some included communication tools for expressing assertively the emotions and coping strategies for dealing with them. This kind of solutions are created for 4+ years old children and still refer to basic emotions, depending of the complexity.

These types of solutions are presented in books, digital games, boardgames, movies, and songs. One approach for enhancing emotional understanding is the storytelling with fictional characters, which studies (Aznar & R.Tenenbaum, 2013) have demonstrated to be more comfortable for those families who has trouble with emotional expression. Another direction is using child own experience through the representation of a third character (e.g., The penguin asking why you are feeling sad today and changing the appearance and scenario according to the child answer). Coping strategies for managing emotions are also included in some of them, by giving ideas of how to react and what to do after an emotion arise.

Although most of these solutions have been used for years, there is still a gap for putting into practice, what has been learnt. In the case of books helping with emotional comprehension, the learning should be aligned with the family's beliefs and behaviors, so it is incorporated into the child's brain. Few family boardgames encourage both, parents and children to share their real emotional experiences, but they are focused in the child learning.

Smiling Mind, a digital platform for teaching Mindfulness is a remarkable example. Although the main purpose is not EI training, the solution has achieved to join the family members to practice together one of the emotional coping strategies, so people can incorporate this later in their daily life.

3.4.3 Teaching to teach emotional abilities:

This category's solutions are created based on the concept that no parent can help their children with their emotions, if they cannot regulate themselves first. So, the main purpose is to provide the adult with understandings about child development and emotional intelligence.

Teaching to teach solutions are presented as books, workshops and courses for parents and teachers. Educational programs which are the most complete offer, provide theoretical knowledge and a set of tools for using at home. Usually, besides a significative budget, the tools require time for training the caregiver and explaining the purpose to the children, otherwise they become simple toys. The courses are also limited to people who are already interested in the subject, thus for families who actually need them, they are not priority.

One solution I would like to highlight is the Feelings Buddies as one of the tools of Conscious Discipline Program (Bailey, 2013). It is a set of figures with emotional facial expressions for teaching a self-regulation process including, recognizing, labeling, accepting and managing any emotion. Through a ritual conducted by the caregiver, the child's brain learns how to welcome the emotion and understanding its ephemerality, so later in life the brain will keep the same process. These are more than 10 years evidence-based applications created based on young brains development, which means that training the caregiver is an important part of this program success.

3.4.4 Parent-child connection:

Proposals for promoting the connection between parents and children are diverse, since there are different ways to improve social relationships. They are created usually not only with the purpose to connect, but also for stimulating a second ability.

Those may be through books, conversations cards, shared journals, boardgames for families and one-to-one activities. What assures achieving connection is people's ability and willingness to show themselves genuinely, however, in the case of parents, they must find a point of balance between being honest and do not overwhelm the child. In that sense, some solutions have focused in guiding parents and children through complex subjects such as books, and others to provoke conversations that may stimulate critical thinking and /or knowing each other deeper.

To finalize the analysis of the existing solutions, I would like to stress that through the research of those, it was evident that the alternatives for encouraging emotional development in children are few compared to those fostering motor, cognitive and creative skills. Indeed, besides of storytelling approaches, solutions for EI and communication are presented as methodological tools demanding previous training to parents and teachers, many of them with poor graphic and communication development that does not encourage its use. That is why, I believe design can be a translator of psychological and science knowledge (or technics) to bring them in more accurate and fun way to people who are not related to the subject.

From the existing solutions, it can be concluded that:

- EI training is popularly and mostly done through the stimulation of emotional recognition skills, ignoring the other emotional abilities.
- Although using non-real characters for explaining emotional abilities is common and comfortable for people, the best way to develop those competences is by bringing into reality those emotional experiences, so the child learns to relate signals, feelings, thoughts and situations. For achieving that, parents must be involved into the activity and fully present in the moment.
- Best methodologies for EI stimulation are those in which parents have received a practical training, so emotional intelligence become an integrated approach in the home environment.
- Complete solutions for addressing emotional intelligence should not only focus on stimulating emotional abilities in children, but also in guiding parents to develop their own skills for themselves and for teaching their offspring.

3.5 Digital Technology on Children's Emotional Development

Currently, technology and children is a popular topic as the effects of digital technologies have started to be visible, which has turned experts' attention to find what are the influence in their development. In fact, researchers have already related consequences of the screen time in sleeping disorders, obesity, social inabilities, attention deficit, violent behavior, anxiety and others (McCarthy, 2016). However, in regard to emotional development the effects have been quieted and misunderstood.

First, technology has changed many activities that were opportunities for socializing with other people for interacting with the screen. Through that, it has reduced children's chances to build social relationships, and consequently to cultivate emotional learning. Usual moments for connection are now less likely to happen because we are all busy or entertained by the phone. Either children in need of attention or tired parents have found on the screen a good way to have a rest. What has become problematic is that this lack of interactions does not show effects right away, but it might in the long term. Indeed, many consequences such as stress or emotional dysregulation are misunderstood as behavioral problems, instead of what they really are: a lack of emotional abilities for what they have not trained yet (Brackett M. , 2019).

Currently, Covid-19 situation has forced children to be in contact with screens even longer. The outcomes are already evident in different aspects, and not only for them, but also for parents, who have had to double their attention towards work and children. In this context, face to face activities are even more important, but less likely to happen in a healthy way. Children who use the phone to deal with boredom and unpleasantness are losing the opportunity to self-regulate, becoming dependent on it as a distraction (Colier, 2018). Moreover, screen' stimuluses are not only in the middle of negative feelings, but also in the way for finding joy and pleasure.

Catherine L'Ecuyer (2015) assures that children's brains are susceptible to become addictive to be stimulated. She cites that a study in the US found that T.V. shows and video games exposes children to about 7,5 abrupt changes per minute, including images, situations, colors, and sounds. She considered this an overstimulation that makes the brain release higher amounts of dopamine, in a similar process during drug consumptions. This means that the brain will demand later more stimulus at the same speed. The problem of this is that life does not happen like that, indeed there is a diversity of rhythms that demand adaptability and patience. Children who got used to screens are losing the ability

to enjoy the life out of it, activities like reading, going to the park and sports are not attractive anymore.

This also influences the attention span (Tamana, Ezeugwu, Chikuma, Lefebvre, & Azad, 2019), understanding it as the capacity to filter and stay focus for what is relevant for the person, still this ability is not mature in kids, because they do not have the criteria of sense of relevance. Therefore, either technology and current education models saturate the brain with many tasks and stimuli to do at the same time, demanding attention for all of them and confusing their ability to prioritize. Later, the effects of this will be perceived in academic performance and activities that demand concentration, patience and perseverance.

This constitutes a challenge for designers, educators and parents in the creation of solutions and methodologies that encourage the child to interact and learn from it. L'Écuyer (2015) assures that there are two options to cope with this, one is to provide the same type and amount of stimulus, meaning to reinforce the vicious circle, and second, it is to give the child experiences that provokes wonder, but also connection. So, the arousal of their curiosity is reactivated to discover the unknown with the safety and the protection of someone who accompanied those moments. There is one thing that technology can not provide, and that is connection, the feeling of being seen, sooth and protected.

On the other hand, there are some researchers claiming that the evidence in regard of technology effects in children is not enough to know what will be the long-term impact, and contrarily, it is ignoring its benefits (Therrien & Wakefield, 2019). However, more than discussing if technology is good or bad, the intention is to acknowledge that in terms of emotional development, social relationships must be priority.

In that sense, the attention should be in finding balance in how instead of using screens for entertaining and replacing human interactions, technology can be the medium to guide parents, provoke real interactions or invite for playing out of the screen.

To conclude, technology has changed some activities that were opportunities for social contact which has an impact in children's emotional development, because it has increased the child's solo time and reduces the space for human interactions. With most of the current offer, the overuse of screens can have an overstimulating influence in the brain, distorting children's perception of reality, as the abilities to stay focus, be patient, be creative towards boredom and enjoy the time out of the screens. Acknowledging this possible effect is important to know that more than replacing human interactions,

technology should be a tool to mediate and provide knowledge, for what designers and developers need to take into account.

Chapter Conclusion

To summarize the theoretical research chapter of this thesis, we can conclude that emotional intelligence is a set of abilities to understand and manage own's and other's emotions. The development of these competences is a complex and integrative process that comprises biological and psychological growth, which goes by hand with cognition, communication and social development. Its complexity and subjectiveness together with a multidisciplinary attention has made of this concept still a knowledge in progress for what several understandings and approaches are available. Therefore, Emotional Intelligence lacks of structure to be taught and evaluated, which its development is based on instinctive and culture, more than knowledge and science.

Still, emotional abilities are essential because they influence the learning process, decision making, social relationships and mental health. Their development starts from the first months of life and evolves during the childhood and throughout the life span. For children, emotional development depends on the social interactions around them, which happens when the kid is guided through its own emotions, but also when he/she observes other's emotional experiences. This is explained by the ability of the human brain to learn by observing, imitating and modeling from other others' expressions and behaviors, meaning that the child's emotional learning depends on the caregivers' abilities.

In this sense, parents play an important role for stimulating, supporting and promoting abilities since the first months and progressively with the child's growth. Either their teachings, behaviors and beliefs are the foundations of their children's emotional understating, and those will be transmitted to their future descendants in an emotional generational loop.

Natural and frequent occasions when the parents can facilitate Emotional Intelligence is through everyday conversations. Parent-child emotional communication, expressiveness and reactions towards the child's feelings are essential elements for the child's emotional growth. In this process, they both contribute by listening and sharing their experiences, for developing consequently a mutual care. As more supportive and open in regard of emotions the parent is, the child is more likely to integrate emotional regulation strategies and have no problems expressing its emotions.

An effective emotional communication requires a supportive and open parent for validating emotions, which it will assure the child integration of regulatory strategies and emotional expression. Factors affecting the process are parents intentionally presence and empathy that allow the children to “feel felt”, followed by coherence between verbal and non-verbal signals, and finally active listening for understanding fully and without judgements the emotional experience of the other person.

The existing solutions to promote Emotional Intelligence are mainly focused on recognition and labeling of emotions. Although using non-real characters for explaining emotional abilities is common and comfortable for people, the best way to develop those competences is by bringing into reality those emotional experiences, so the child learns to relate signals, feelings, thoughts and situations with its own experiences. Still, the best methodologies for EI stimulation are those in which parents have received a practical training, so emotional intelligence become an integrated approach in the home environment. Therefore, solutions should not only focus on stimulating emotional abilities in children, but also in guiding parents to manage their own.

Currently, part of these tools or methods use new technologies, which it may seems contradictory to involve what usually distracts and influences the child abruptly, for the purpose of achieving abilities that require people real and physical connections. Acknowledging the effects of the screen time is an opportunity to understand the role of designers and developers to use technology as a tool or medium instead of a replacement for human interactions.

4.Reframing

From the theoretical research, I concluded that since children's and caregivers' emotional abilities are directly related, the promotion of Emotional Intelligence development should involve the two of them in the learning experience. Therefore, everyday conversations are the opportunities to facilitate these teachings. With this understanding, the initial research question is reframed with the following inquiry:

How a design-based solution can support parent-child communication for developing Emotional Intelligence and helping to integrate this practice into the family routine?

From this question, I developed further the hypothesis:

Involving emotional communication into the family routine and providing guidance for parents to address this in a suitable way, it may improve the emotional environment at home, while it trains EI abilities for parents and children.

5. Understanding Emotional Communication in Current Families

Once exposed the significative influence of parents' emotional abilities in children's development, the focus of this project became the parent-child emotional communication, which is understood as a key activity for training Emotional Intelligence. Therefore, since the Constructive Research Design Method sets experimentation at the core of the research, the following steps were focused on understanding with an explorative and interventionist approach, what means emotional communication in the family context.

For that, first I found important to recognize who are the parents and children of nowadays, what are their beliefs and desires? How and when they connect with each other? What are their perspectives about emotions? And how is their relationship with technology? This initial understanding was important to have suitable expectations in regard of the stakeholders' limitations and possibilities, so the experimentation and the design solution would be congruent. The findings involve literature review and insights form the interviews to parents and experts in psychology, education and healthcare.

Following this, the focus went to the emotional communication of those parents and children. An ideal journey for parent-child emotional talk was created base on researches and experts advises, and later compared to the findings of the experimentation. The results were categorized to describe families' limitations, needs and motivations, which leads the design brief. The experimentation was conducted by the implementation of a design probe, as it is described in the methodology chapter.

5.1 Parents of Nowadays

In this study, I focus on parents reaching parenthood in recent years, who belong to generation X or Millennials. Since the oldest group of Millennials are getting into their 40's, this research concentrates on those born between 1981 to 1996, as the subject of study. The following is an understanding of what Millennials' mindset is in regard of parenting and emotional intelligence:

It is not only about family: A new study from Pew Research Center comparing generations' behaviors measure how Millennials are approaching family differently by having into account data about starting a family on their own, birth rates and marriage statistics. This showed that Millennials (compared to Generation X) are taking longer to form a family and the majority are not married, although they live with a romantic partner earlier. Millennials seem to be more open for diversity, since one in ten are married to a person with a different race or ethnicity. This generation is also the most educated, mainly for young adults and prefer to have a partner who already has an education title. Women are taking longer to give birth, and although before the fertility age was from 22 – 37 years old, they are now waiting until their 40`s to be first time mothers (As Millennials Near 40, 2020). In an interview with a clinical psychologist, she mentioned that this generation wants to do everything at the same time, meaning that either parenting, career and others are all important in their life and they do not want to exclude one for the other (B. Velázquez-Martin, personal communication, 25-02-21). This explains why they try to keep a self-sense by balancing parenthood with their interests and needs.

Academic performance is still priority: Since Millennial are cautious about their economy and prefer experiences over buying (Shridhar, 2019), they are still concern about the financial future of their children (Stokes, 2015). This may mean a tendency to still insist in forming their offspring in high cognitive skills for assuring their future success. This mindset may be result of the context and the culture Millennials grew up. They were mostly raised by baby boomers, who were also interested in their children academic achievement as a way to fit in, and to assure their future success. This made Boomers to push their children into living a life in order to be well educated and with that, achieve a higher position in the society (Petersen, 2020). In the current situation, this may be mirrored in parents' inclination to involve children in extracurricular activities, that provide them with other abilities, making them busy with a routine that prepares them for the future, but at the same time, leaving them with less space for just being children.

I want to make it better: Millennials, compared to Generation X, are involving kids into the family decisions and talk to them with honesty as they feel the need to be "real" with them. They also are open for guidance not only from relatives, but also from friends, experts, educational resources and even brands. From the online questionnaire, it was possible to see that these parents prepared themselves for parenting, either by books, workshops or counseling, however they also mentioned that there is a big gap from theory to reality, so there is more to learn during the practice. Currently, they reported an additional challenge in regard of digital technology, as they have already noticed the behavior implications of the screens. However, in the interviews they manifested that

controlling the use of electronic devices is something they do not know how to manage, because restricting their use would mean also to separate them from its benefits (A. Aho, personal communication, 08-01-21).

Emotions are still female: As parents, Millennials also seem to be doing differently compared to other generations. A study made by Google (2017) with more than 3000 American respondents (aged 18–54), found that gender stereotypes are getting broken, since fathers are getting involved every time more in their children's raising, by searching online sources about paternity and connection activities with kids. However, in terms of emotions the pace goes slower, because according to interviews conducted, fathers are still giving to the mothers the responsibility of emotional talks, which is congruent with gender studies supporting that women are addressing their children's emotional learning (Mazzone, Roskam, Mikolajczak, & Nader-Grosbois, 2017). A father said, "although in theory men should share their feelings and be able to listen others', in practice this is different" (T. Tamkivi, personal communication, 29-12-20). Still, the change is visible, by noticing that fathers acknowledge the importance of emotions, but for some opening up is not an easy task.

Emotions are important, but I do not want to talk about it: Little research has been done about the emotional abilities of millennials, but with parents comparing and pushing for perfectionism, it is probable that their EI was influenced by growing in a culture where emotions were seen as a distraction (Petersen, 2020). These misbeliefs could also provoke a lack of emotional language at home, little disposition for listening to children and wrong messages, as the well-known: "boys don't cry" (Aznar & R.Tenenbaum, 2013). Schools in the middle 80's and 90's also reinforced the academic goal, giving little guidance for improving socio-emotional skills, and on the contrary promoting competency, rational focus and student's homogenization. In this sense, Millennials still lack knowledge and Emotional Intelligence since most of them were not provided with it. In practical terms, this makes them still uncomfortable about feeling and expressing emotions and therefore, it may induce a need to save children to feel them. It is likely to notice it in those who control or deny the emotional expression of children, because it is more uncomfortable for them, than for the children.

To conclude, since new parents wish to make it better for their offspring, they educate themselves, look for help and are open for change, however in practical terms, there is still a lack of support for breaking old patterns. However, they have acknowledged the importance of improving and giving attention to children's emotional development. This is still challenging mainly for fathers, since emotional education involves a switch in their

beliefs and mindset which will take time and effort. Additionally, academic achievement is still a priority, although it is combined with other activities, making every family member busy. Millennials parents listen to their children and want to have a close and honest relationship with them, although they do not always have the time or abilities to guide children through their emotions. They also need help to manage the use of screens for them and their children, because they debate between the benefits and constraints of technology.

5.2 Children of Nowadays

Children of Millennials or those born between 2010 and 2025 have been recently named as the generation Alpha (McCrinkle, 2015). Although it is too soon to describe their mindset and traits, there are some patterns in regard to Millennials parents and the contextual conditions around those children that can suggest variables to understand some general characteristics. Therefore, the following are the main features, I consider important to acknowledge into the framework of this project:

Do not want it, but need it now: Children born in this generation are more presumably to have no siblings because of the delay of millennials women in giving birth (Livingstone, 2015). That may indicate that their children could have selfish behaviors by centralizing the family attention, but at the same time, it may imply having more pressure to cover parents' expectations (2009). This together with the fact that technology is accessible enough to satisfy children's desires quickly, it may mean a generation less able to delay gratification (Ewens, 2019), which a study demonstrated, it affects the capacity of self-control in the long term (Casey, et al., 2011). This is not new, but a behavioral pattern inherited from the generation Z, who is considered by marketers the group with the shortest attention span (Peterson, 2016).

Happiness is at fast speed: Generation Alpha starts to operate mobile phones, tablets and computers since early years, which has made them to be recognized as digital natives. Indeed, a survey to millennials parents around the world reports that around 8 years old, kids have already higher tech skills compare to their caregivers. By being exposed to screens from the first years of life, this generation may need to be constantly stimulated by external factors, meaning that analog solutions with slow pace and tasks that required time and dedication would seem boring or even difficult for them (L'Ecuyer, Educar en la realidad, 2015). A mother interviewed during the research mentioned that her child relates

going to the park as a waste of time (D. Kuzmicz, personal communication, 19.01.21) which supports Catherin L'Ecuyer's statements about the screen effect over the children ability of wonder, for her an important factor for learning. In relation to emotions, this overstimulation can be later translated into the appearance of big feelings and emotional tension, sometimes with no tools to manage them (Falkenstein, 2019). Also, from my perspective, the brain's need to be overstimulated could also change dramatically the notion of happiness or other emotions, so it will be challenging for parents to agree with children on those new perspectives.

Ready for complexity: The demographer Elwood Carlson suggests that the majority of Alpha children won't be surrounded by their two biological parents and in most of the cases they will be native from different countries (Bologna, 2019). By being around diverse cultures, these children may keep increasing the current trend of embracing diversity and new family structures, so what Millennials understood about the limitation of race, religion, political and cultural differences, for Alpha's the normality is accepting all together. Indeed, a study with children in the U.S. supports this by indicating that they have strong opinions and actually care about important issues around the world (Kane, 2019). I found this remarkable, because if children have those interests, it is because there has been someone who has provided the information and has motivated their questioning. Indeed, it is believed they will be the most educated generation (McCrinkle, 2015), maybe related to the idea that Millennials and their children have a close and friend-type relationship (2017), that allows them to have conversations about complex topics. This suggests the opportunity to propose services and products for parent-child time and interests sharing.

Emojitional: In terms of communication, the children of Millennials are using digital channels as an everyday interaction tool, they are very comfortable with voice assistants and artificial intelligence solutions, sometimes even preferred than physical contact (Fourtané, 2018). Indeed, one of the fathers interviewed explains that sometimes it is faster and easier to ask children to come for dinner through phone messages (A. Aho, personal communication, 08.01.21). Parallely, schools are using digital tools every time more either for supporting teaching or communication (Fourtané, 2018).

What is the most important point to stand out about screen communication is that this will influence tremendously the emotional development of Alpha children, since this happens through social contact. Dr. Michael Borba (2017) claims that cartoons or emojis will not train emotional abilities on children, nor either make children sensible or aware of others' emotions, which will be translated into a lack of empathy. This contradicts with the pattern above, but at the same time, it may bring hope that the willingness of Millennials parents

to make things different with their children, it might mean their intention and commitment to build empathy in their offspring.

In brief, Gen Alpha children will be in its majority single-child that will be raised by parents/caregivers from different cultural backgrounds, and often in the presence of only one of the biological progenitors. They are considered the most educated and technology provided generation, but their early contact with it may generate impatience and urge to stay busy all the time due to the brain's overstimulation. Their emotional development is uncertain, not only for the limited social interactions due to children indoors/screen time, but also because part of their communication is happening through virtual channels. In the long term, all those may bring problems of self-control, lack of empathy and difficulty to express emotions. On the other hand, Millennials and their children are likely to have a tight relationship, that will help to mitigate the effects of the technology. So, this connection could enhance the discussion of emotions and complex topics, that will encourage empathy and acceptance of diversity.

5.3 The Understanding of Emotional Communication on Current Families

Through the identification of the main characteristics of the stakeholders of this project, the design probe was constructed using also Bandura's theory of social learning (explained previously). Since the purpose of the exercise was to provoke emotional communication between families, the idea was to experiment with different ways to do it, for finding what those may cause, including needs, reflections, motivations and limitations.

Founded on the literature review, an ideal journey for emotional communication was created, generalizing main answers, attitudes and behaviors that are involved in the activity (To see analysis map refer to appendix 6). With this as a baseline, the probe's results were analyzed for finding gaps and pain points. Therefore, the following content refers to the main insights discovered through this activity, which were categorized by motivations, limitations, parents' needs and children's requirements (figure 5):

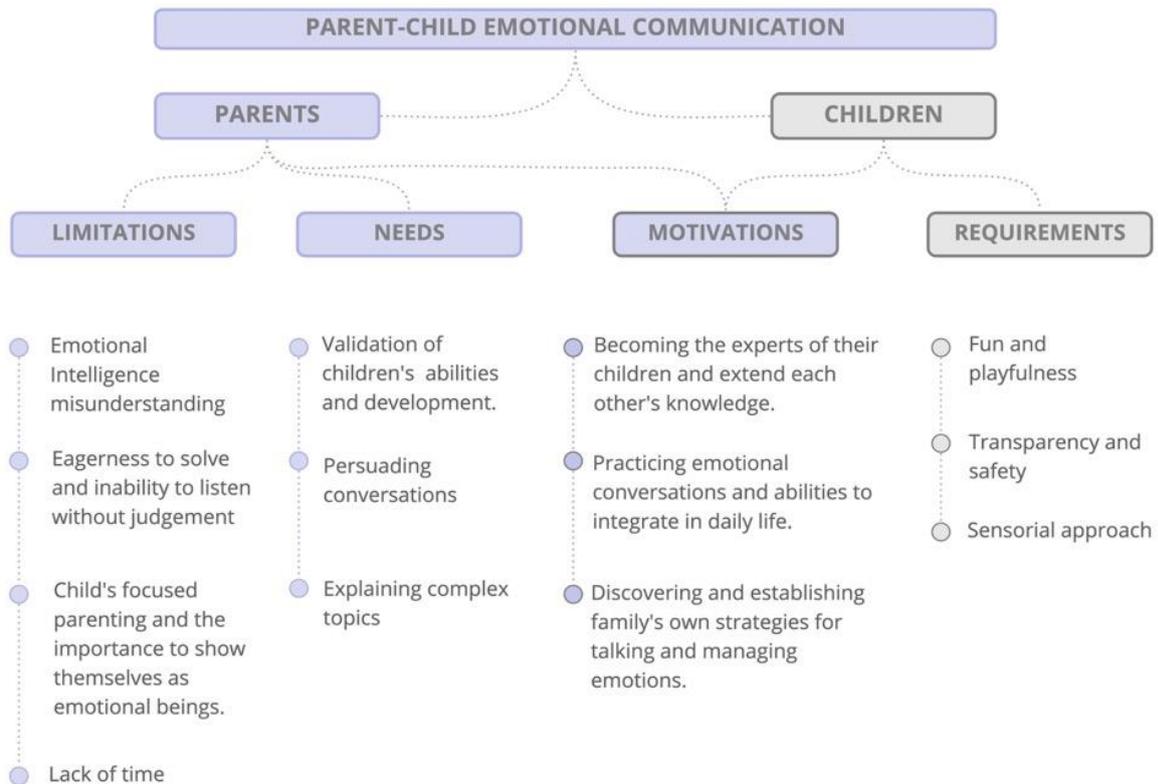


Figure 5. Factors found on parent-child emotional communication. Figure made by the author.

5.3.1 Motivations

When I first mentioned the relation of Emotional Intelligence with my thesis, most of the parents showed a high interest in it, so a general comment from them was something like: "it may help us to teach children how to deal better with their own emotions" (Anonymous, personal communication, 2021). Certainly, their attention was in the direction of the children, since one of the main reasons to explore EI is for helping their children. However, by provoking emotional conversation through the probe, it was possible to see that there are additional motivations that make parents foster this.

Becoming the Experts on their Children.

One of the strongest motivations for persuading emotional communication in the family is the need to understand the other person as an act of love. Siegel (2003) from the neuroscience perspective explains it as connection of the basic elements of parent's and child's brains influencing each other's states of mind, first through nonverbal signals, and later with words.

Throughout the kid's life, parents create different strategies for communicating with it until becoming experts on their offspring. They may not be educated in children's development, but still most present parents have a broad knowledge about the child, their needs, interests, likes, dislikes and even a unique language that is only understood by them (Zuluaga, 2020). From this side, emotional communication becomes a tool not only for knowing the child better, but for strengthening their relationship by building trust and assuring protection.

From the follow-up interviews with parents after the probe, they manifested concerns and doubts they had in regard to the children, however, they still showed that instinctive feeling to detect when something moves the child. They definitely knew what was more difficult or easy and recognized those patterns in their daily life.

By provoking conversations about emotional experiences, the most meaningful result from the probe was to recognize the impact of emotional communication. A mother for example said that "the task brought up a totally unknown problem they did not know, and it helped to understand the child better" (Anonymous, personal communication, 2021). Another parent mentioned how interesting it was for her to know things that were meaningful for the child and she did not see before. Also, I noticed that those families who got more insightful discoveries were those whose parents opened up the most, so the children did the same.

In that sense, becoming the experts on the children for understanding and guiding them better is a motivation for parents to persuade and use emotional communication.

Practicing for Integrating

First step to address emotional communication is the intention and desire to do it, still getting it assertively is even more complicated. Either for emotional expressiveness or regulation there are many techniques and strategies done by psychologists, educators and scientists that guide parents and everybody into this habit, however there is a gap between the theory and the practice. In this regard, the interviewed psychologist claimed that "it requires more than knowing to integrate in the daily life those tactics, (...) and it is only through repetition that this happens" (B. Velázquez-Martin, personal communication, 25-02-21).

For instance, in the questionnaire most parents mentioned to have strategies for managing emotions. Though, in the practical questions, such as, how you regulate your own feelings

when you have to cope with your children's ones, 50% of parents mentioned to not be able to regulate themselves, highlighting this as the major struggle, the other 50% said that most of the time they stay calm, otherwise they apologize with their children after. The answer for the first half showed the gap between theoretical and practical knowledge and how knowing emotional regulation tactics does not ensure their use.

Changing behaviors or beliefs from books readings is challenging when there is not accompanying to get it done. In this respect a parent said that "book wisdom can be a base, but every child and situation are different and you will never be prepared well enough to deal with it perfectly" (Anonymous, online questionnaire, 2020). Same for emotional communication, it needs a lot of training to be later integrated in the moments when it is really useful.

That is why, Siegel (2011), same as other experts interviewed, claimed that for teaching emotional regulation or talking about feelings, the brain needs to be in a state of calm, so the left hemisphere, which is the one in charge of thinking, can understand and appropriate the practices.

With this said, accurate emotional conversations require practice and with that, the intention to do it and to learn it, likewise, the practice needs to be done in moments of calm. In that sense, parents and children can rehearse together, ideally until it is a habit that later it will be a natural behavior and thinking pattern for facing emotions.

Discovering Family's Own Strategies

Finally, another motivation for encouraging emotional communication is to know which of those strategies really suit the family. The diversity of strategies and recommendations vary from parenting styles, psychological and scientific approaches, but they all are not necessary work for everybody. In regard, a parent said that although she prepared herself, there is no way to put everybody in the same box, because "what suits for one parent does not work out for another one" (Anonymous, online questionnaire, 2020).

Actually, the probes' results showed that there was not a single pattern that unified the emotional experiences of parents or children, indeed the only pattern was that everybody feels distinctive and has struggles with different emotions and abilities. While some kids had problems expressing themselves, others did not know how to release anger, while some parents were looking to help the kid to deal with fear, others needed to control

themselves. So, definitely for creating a solution for promoting emotional communication, it cannot be focused on the most difficult or common emotion, because those depend on the uniqueness of each person.

Additionally, making emotional communication as a habit is not only going to help to discover the best strategies for the family, but for each family member. Indeed, sharing emotions may help to find and make clear how is possible to connect with each of the children. By listening to different emotional experiences, parents are able to understand what is exciting, annoying or scary for kids, so they have more information to connect with them through their uniqueness.

To conclude, motivations for integrating emotional conversations in the family context are in regard of knowing the child better and creating a connection between all the household members. However, the success of those talks is related to the understanding that feelings are different for each person and therefore, every family needs to find their own way to do it.

5.3.2 Limitations

Although the motivations described above are good reasons for families to address emotional conversations, there are also some limitations making this more challenging. Acknowledging the following constraints is important not only for understanding the context, but also for creating a design proposal that takes them into account.

Emotional Intelligence Misunderstanding

While sharing with people about my thesis topic, I noticed that there is a misunderstanding of what Emotional Intelligence is. At first sight, people show interest in the topic (parents and others), still later talking to some of them, I realized that their desire is to have the ability for emotions do not affect them. In the same line, Marc Bracket (2019) assures that "most of people confuse the concept with empathy, charisma, (...) or self-control by meditating 10 minutes in the morning". This is a paradox because moving is actually the purpose of emotions, making us feel something to modify our surroundings or ourselves. What needs to be clarified is that EI helps to find balance, restore and understand that there must be a reason for that feeling.

In relation with this is the lack of abilities influencing the perception of emotions. For example, parents who reported to have problems regulating their own emotions, have

usually the need to “fix” the child’s emotions. Or those who associate feelings with weakness are usually not interested in developing a further knowledge about it. The experts interviewed assured that Intention is mandatory for working emotional abilities with adults, because it demands to take time off, to reflect about uncomfortable situations and sometimes to invest in coaching (B. Velázquez-Martin, personal communication, 25-02-21).

Consequently, the competences absence takes to ignore, deny and dismiss the emotions, which becomes a bigger problem when there is a child learning from the adult. That is why one of the final purposes of the project is to involve emotional communication as the first step to normalize feelings towards a more welcoming environment at home.

Eagerness to solve.

With the understanding of emotions as noise in the base line, it is not strange that the attitude towards them is to get free from them.

Therefore, in the case of adults guiding children’s emotions is not different. Indeed, a notorious pattern in interviewed parents was in regard to their need for providing solutions to the child’s unpleasant feelings. The behavior is caused by the intention of protecting the kid, however, it also limits him from understanding and learning how to deal with those emotions (B. Velázquez-Martin, personal communication, 25-02-21).

The impulse for solving children’s emotions is a limitation not only because it teaches that emotions bother, but also it reduces the emotional experience to do something with the feeling for making it disappear, constraining the opportunity to understand what the emotion is telling. Indeed, the word “solving” in this pattern refers to the belief of emotion as a problematic situation.

The confusion in this case is caused by the mix of guidance and control notions. So, for example a parent who has an open attitude towards her child’s emotion, discussed with me the strategies they are trying together to deal with anger arousals. Which is a good way to explain that the role of the parent is to provide tools to the child to be and learn from the emotion, more than getting rid of it.

This attitude linked with beliefs and childhood memories is probably an unconscious reaction (Siegel & Hartzell, 2003), which is not that easy to correct if the person does not have the intention. However, raising awareness about the importance of emotional

validation may start to change the need for solving something that we all feel, without discriminating any feelings.

Child-focus parenting.

The need for solving feelings is not the only limitation in emotional learning, but the fact that some parents give most of the attention to the child's needs and feelings, affects the way that young brains perceive the other's emotional experiences.

This is common in some Millennials parents that either have learnt that parenting means sacrifice, or on the contrary feel bad for not being at home enough with the child, so their way to repair is by providing all the attention to them, sometimes giving even more than they can (Farm Rich, 2017). This was visible in different stages of the research, for example, a mother who answered the online questionnaire mentioned that "as the focus is mainly on the children, she has pushed her feelings aside" (Anonymous, 2020), equally in the probe activity, most of decisions were made by children, and the reflections in regard of the activities were totally focused in the youngest ones.

From the same perspective, in the questionnaire the part asking about actions for parent-child connection, exposed in almost all of the answers that the way to create this link is through doing what the kid likes, being involved in their interests, ask questions about their day, feelings and dreams, but not all the way around (parents' interests). Only one mention to say or to do what parents also want, or either talk about themselves. This again shows the child-focus operation on some families and how these are unconscious decisions, since participants also said that having time for their emotions and themselves were also important.

This behavior could be related also to the concept of *Emotional Labor*, which was shaped in the 80's by Arlie Hochschild in her book *The Managed Heart*, and it refers to the need of some professions to display fabricated feelings towards others, because of the nature of their job. Those workers could be nurses, teachers, waitresses or any in contact with customers (Hochschild, 2018). Although it is not exactly described by the author, parents could act similarly with their children. In the same questionnaire, several of them mentioned that they forced themselves to cover up their feelings in order to stay calm in front of their children. Something like "managing anxiety associated with obligatory chores" which for Hochschild (2018) is an attitude of emotional labor.

In addition, denying or dismissing parents' own feelings can be problematic for themselves and for their children. On one hand, starting from considering that emotions just do not disappear by ignoring them, parents' who suppress them tend to explode at some point either with anger, depression or sickness. On the other hand, these circumstances affect children by restricting them to learn from the emotional experiences of the caregivers, so if the parents do not allow themselves to feel and claim for their needs, the child will never see how you do that.

From this perspective, welcoming emotions for every family member is an approach that may enhance and validate everybody's experiences and normalize emotions in the family context.

Lack of Time.

The lack of time was a common factor for all the participant families in the research. Actually, the major difficulty was to find volunteers who joined the probe activity although they were interested on it. Those who did it still had to deal with tight schedules, not only for grownups, but also for children.

The agitate routines of nowadays make adults take care of many things at the same time, career, family, marriage, friends, and self-care at the last spot. For children, between school, extracurricular activities, every day chores and screens. What is interesting is that the attention absence towards feelings and self-awareness seems to be unconscious. While all the parents mention (in the questionnaire) the importance of recognizing and addressing emotions in the family life, many of them do not have particular rituals or spaces for emotional communication.

The deficiency of quality time during child rearing has many impacts, but in regard to emotional development I would like to highlight three: the screen usage as babysitter, the few opportunities to connect as family and the little disposition to understand better about child's and self-development.

As it was mentioned before, screens for some parents have been used to entertain the kids in moments where they need to be busy or just because there is no energy for interacting. Sometimes perceived as unharmed, those solutions have taught children to find in the phone the way to deal with boredom and stress, meaning that their strategies for these feelings are going to be always in an external and overstimulate source (F. Coenen-Winer, personal communication, 04-11-20). In the questionnaire, most parents did not report to have problems with children and screens, but after interviewing some of

them, they mentioned the difficulty to motivate the child to do something different out of the phone.

Linked with this, it is the fact that screen isolates the kid from social interactions, which reduce the opportunities for families to connect (L'Ecuyer, 2012). Again, emotional development occurs only through human relationships, which none technology can replace, either the absence of a figure of attachment. In that sense, it is not only about technology, but the tiredness of people and their priority on productivity which is blocking family connection.

Finally, lack of time also influences parents' preparation and involvement in the child's development. For example, a preschool teacher mentioned that is very difficult to communicate with parents because many of them approach the school in rush, with their phone on, and hurrying up the child when there is something else ahead (Katlin Valge, personal communication, 08-01-21). She said that it is understandable that parents do not know everything about development, but the interest for listening to experts is significant to enhance children's achievement. Additionally, the psychologist said that lack of time together with technology has made social media the first source of information for many families, sharing knowledge and beliefs about children and parenting, that are not always reliable, and on the contrary, very confusing (B. Velázquez-Martin, personal communication, 25-02-21).

To conclude, the limitations of emotional communication is related to misbeliefs and the rush of current days. Changing those is long and requires a systemic approach, however, by acknowledging the factors, it suggests that emotional talk cannot be a task more, but rather a moment of connection for knowing each other, releasing every family member's needs and desires, and creating a welcoming emotional environment at home.

5.3.3 Parents' Needs

One of the main insights from the Design Probe was in relation to the need of supporting parents for addressing emotional communication with their children. This includes the support for knowing and validating children's competences for understanding more complex emotions, the support for facilitating the conversation, so it is not only caused by problematic circumstances, and finally, the support for explaining the nature and causes of the concepts.

Validating Children's Capabilities for Understanding Emotions.

When parents talk about emotions it is easier for them to address the most basic ones: sadness, anger, happiness, disgust, fear and surprise. However, for discussing more complex situations and emotions, many doubts come to them: Is the child ready to understand? Should I be completely honest? Am I going to give him a worry, he does not need? Is it healthy for the child?

For facing those questions parents have different approaches. Those with a welcoming attitude towards emotions address the conversation in a careful way: "I was not so sure if he was ready to listen to this, but I was brave and I told him" (D. Kuzmicz, probe diary, 19.01.21). On the contrary, other parents who struggle with emotional communication tend to give the responsibility to another person or avoid the topic, giving lighter answers.

In that sense, experts in child's development claim that in an ideal scenario parents should have a basic knowledge on children's developmental stages, so they may be able to solve those doubts (B. Velázquez-Martin, personal communication, 25-02-21)(F. Coenen-Winer, personal communication, 04-11-20). However, in the current situation it is not that simple, because developmental study is already a very complex and extended field, which demands time and some kind of abilities to be understood (Bekker & Antle, 2011). In fact, a participant mother explained that the common action to find answers is asking Google, still the results are so diverse and poor reliable, that findings can be more overwhelming and scarier, than useful (T. Jurgens, personal communication, 04.03.21).

This reveals that although developmental knowledge existed, it is so complicated and extensive for expecting that every parent learns it. Through this research, I realized that most papers and researchers use the proper language of the field, which is not easy to understand for those who are not involved in it (parents or designers), plus the extended number of theories and discussions generate more confusion, than clarity. In order to solve that, additional solutions have been created on the internet for providing information in a simpler (human) way, such as blogs and magazines, which bring lighter information, but at the same time is less reliable and still wide.

In that sense, two factors stand out from this insight: first, parents' guidance in children development is extremely crucial for addressing emotional communication, and second, this knowledge should be provided in a simple and progressive way.

Persuading Emotional Conversations.

Having the knowledge to have suitable emotional talks with children does not make it easier, especially for those who are not used to doing it. As Marc Brackett states (2019), feeling free to feel and accepting the vulnerability after expressing those emotions, it is something that needs to be trained, similarly as strengthening any muscle. In the exploratory stage of this research, I asked some kids to draw emotions and explain to me, what they feel. Their answers help me to notice how likely they were to feel again what they were mentioning. In that sense talking about any emotion is to relive the situation and the feeling, so that comfortless of some emotions is something people do not want to speak out. Therefore, most of these conversations occur when something triggers them, more than by a conscious decision motivated from the importance of doing it.

Parents who participated in the probe activity mentioned that behavioral problems and uncomfortable situations are most likely to provoke conversations about children's own emotions. However, sometimes this happens when the emotion is still in high arousal and the child is not ready for thinking yet. The psychologist and teacher interviewed suggested that parents should address emotional communication only when the kid is in a calm state, so he will be able to reflect and listen (B. Velázquez-Martin, personal communication, 25-02-21).

Parents also use stories and fictional characters for reflecting about emotions during reading time and movies. This is likely to happen, if the adult sees those as opportunities for talking about it, otherwise they are only entertainment activities.

Finally, another option to start these conversations is when the caregiver is having the emotion. In the interview with the psychologist Blanca Velázquez, she suggests that for toddlers, parents can make a "dramatic" performance, meaning that the most expressive the parent is with its facial signals and explanations, the child will understand better. However, as it is mentioned above, there are still a lot of doubts and lack of knowledge limiting emotional sharing from parents.

Although there are different scenarios where emotional talks happen, there is not a dedicated space or time that encourages and promotes those conversations mainly about the family members' feelings. One parent after the probe exercise said that "it was nice and meaningful to have the opportunity to talk only about emotions, instead of doing it on the side of others' conversations or activities." (T. Jurgens, personal communication, 04.03.21). In a way, it seems that the probe gave them the freedom to be emotional for that safe and calm space of time, in which different results were obtained.

Explaining Complex Topics.

In addition to the factors mentioned previously, supporting parents for explaining complex topics is another way to facilitate emotional communication. In fact, one of the probe activities asked (through questions) to discuss certain subjects with no further explanations or assistance. Some parents considered challenging the activity, but for solving it they create familiar cases for them, such as: remember when this happened? or imagining this happening to you, what would you feel? Their feedback afterwards suggested having visuals, stories or examples to support the explanation of some words that may be too abstract for young brains.

Besides explaining the nature of those concepts, what is even more important is to provide to the child a sense of protection and tranquility after exposing the situation. A psychologist who promotes Conscious Discipline method explains that the discussion of some situations could cause fear and unease to the child, but the reason for this, more than the nature of the situation, is the need to know how this is going to affect them. Thus, the recommendation is to deliver brief information, with clear expectation of what will happen next (Morales & Zuleta, 2021). For example, throughout the discussion of bullying, the most important statement is assuring that no matter what, the parent will be there for listening and helping the child.

In conclusion, for explaining complex topics to children it is necessary to provide strictly the necessary information and enhance the sense of protection from the parents.

5.3.4 Children's Requirements



Figure 6. Experimentation activity with children about emotional understanding. Photo took by author.

Although, most points described above affect and benefit children as well, it is also important to acknowledge that they also have needs for attaining a fair emotional communication, not only to learn from it, but also to enjoy it.

Fun and Playfulness

First and almost the default factor in projects involving children is the fun and play elements. Based on research, Siegel (2011) claims that playfulness during family interactions can enhance the release of dopamine in the brain, which grows the desire to feel it again, and consequently the reinforcement of family attachments. In terms of emotional communication, making it more playful could improve the experience for building an enjoyable habit, and maybe a ritual afterward.

During the interview, Katlin Valge (personal communication, 08-01-21) described how she takes practice of this for the stimulation of emotional abilities in the classroom. With strategies like games, puppets, cartoons, drawings and readings, she trains emotional expression, identification and regulation, for later having tools to use previous learnings in everyday communication. However, she also mentioned that "some parents have forgotten how to play", thus making this experience fun by themselves is not that easy, they need some prompts or guidance.

Indeed, the probe showed that some parents had trouble engaging the kid into the conversations. Although the activity was interesting for adults, some children were not attracted to it, while contrarily, others did connect better. In this concern, I noticed that since the probe was not designed as a game (or a play type experience), it was associated with school work, which may influence the children's motivation. Though, when some parents use strategies to involve the child through their favorite activities to get the probe done, it changed the experience. For example, a mother encouraged her daughter to color and draw around the probe, although it was not required (Figure 7). Another took videos and photos with the phone and included the whole family. This provided an important insight for the project: engaging requires playfulness.



Figure 7. Photo of probe analysis took by the author.

In regard to this term, Sicart (2014) explains playfulness as an attitude applied to an activity which preserves its goal, giving a different significance. It has the capacity to make it personal, so it appropriates and empowers the person with the action because it makes it fun.

On the other hand, Schell (2008) relates fun with curiosity, which becomes a motivation to engage into the activity. Either for exploring or already engaged in the flow, curiosity allows us to “play with an idea” to discover what will happen next. In respect, I find interesting to relate playfulness to curiosity, because in the understanding of emotions as information, the ideal approach to them should be through curiosity, so we look at our body signals, thoughts, mind pictures and set of situations, like clues trying to say something to us.

With this in mind, I facilitated a co-design workshop with a family aiming to find a way to involve emotional communication and playfulness. With a point based collaborative game, participants were encouraged to share their emotions (in a certain period of time), explaining what they felt, their thoughts, causes and learnings. The activity showed that by adding some playing vibe to the emotional talk, it makes the experience less serious and even more comfortable. The reward feature lifts a sense of achievement, determination and engagement, and although for some people those can be stressful, the fact that it is collaborative makes it kinder.

To conclude, stimulating playfulness, curiosity and sense of achievement into the experience of emotional communication can reduce the tension that this activity could trigger for some people, which may also enhance the possibility to make it a habit, influencing the family bonds.

Transparency and Safety

In addition to the playful element, an interdependent communication requires all the participants to contribute with listening and sharing on a similar level, including providing the same attention, time and validation to other's inputs. Still, for intergenerational conversations, being transparent with the information provided can be risky and confusing. As it was mentioned before, parents who are not sure about children's abilities for understanding some situations tend to change or deny those explanations, which may end up in providing wrong, unclear or incomplete information to them.

During the interview with psychologist and preschool teacher Carmen Soto (personal communication, 22-11-20), she mentioned that parents' willingness to talk with honesty is imperative for the enrichment of the family links, which is later an important factor for trusting each other. She also stated that children may not detect immediately what is going on, but when someone is not transparent with them, they will notice that something strange is happening, so their curiosity for knowing and understanding better gets activated. That is why being clear about any situation or feeling is necessary for avoiding the child's misunderstandings and doubts about the caregiver word.

In congruence with what was described before, talking with honesty does not mean to expose the child to everything, but answering with the exact information the kid needs to know in a brief, clear and safe way. Psychologists say that the child's real need is promising his own safety, so parents' approach must be to provide a sense of protection after the answer is delivered (Morales & Zuleta, 2021). This is to assure that having the conversation is necessary and possible, even when those seem harmful for the kids, there are ways to do it without scare them out.

Additionally, honesty is not only for considering negative and difficult situations, but also in regard to positive feelings. The interviewed psychologist emphasizes that materials such as books and movies refer mainly to unpleasant feelings, and have forgotten the need to expand the knowledge around the different types of emotions, even those that are positive. Actually, she mentioned that it is important to teach the different levels of similar emotions, like happiness, content and calm, and also cover different dimensions as grateful, caring, brave and even silly (B. Velázquez-Martin, personal communication, 25-02-21).

Sensorial Approach

The final factor children need for emotional communication is involving the senses into the understanding of their feelings. Since talking about emotions may be abstract by nature, caregivers tend to explain emotions through visible features and behavioral expression, such as crying or jumping. This justified why cards with facial signs are recurrent for emotional teaching, however, understanding emotions goes further than recognizing perpetual cues, which can be taught in everyday communication, when children connect emotions to situations that shape their feelings' meaning (Cervantes & Callanan, 1998). Caregivers can facilitate this understanding through sensorial stimulation during the conversations with the tone of voice, the body signals, the structures of the phrases and behaviors.

For example, preschool teachers use visuals for rules, strategies and watchwords, as they also set safe-places for children to have a spot where to release emotions, feel free to express, and remember coping strategies (Katlin Valge, personal communication, 08-01-21).

As the feedback from the probe, some parents suggested having visuals or examples to explain concepts. For the co-design workshop, a chart describing 36 emotions with the name and the facial expression helped to facilitate the activity for the child to remember additional emotions (different to happy, mad and sad). However, for explaining what an emotion means, it works better to expose situations to recall the emotion in the child or someone close to it, including the performance of how the emotion looks like.

This suggests that any explanation that is supported by a sensorial stimulation may help the child to understand better the notion.

Following is a sum up of children's requirements for emotional communication. The stimulation of curiosity and sense of achievement into the experience of emotional talk can reduce the tension that this activity causes for some people, which may also enhance the possibility to make it a habit and influence the family bonds. For that, participating in the interaction with honesty must make normal and accepted emotional experiences, in addition to providing a sense of protection to assures the children safety after the emotional expression. At the same time, an accurate and more assertive teaching about feelings requires that the caregiver makes use of sensorial strategies that enhance the understanding. This includes the use of visuals, the tone of voice, the body signals, the

re-structure of the phrases and behaviors. Addressing positive emotions and finding balance with the others is recommended also.

Chapter Conclusions

To summarize the design research's insights, new parents raise their children with the desire to make it better for them, so they educate themselves, accept external help and are open for change, still in practical terms, there is a lack of support for breaking old patterns. They have acknowledged the importance of improving and giving attention to children's emotional development. This is still challenging mainly for fathers, since emotional education involve a switch in their beliefs and mindset which will take time and effort. Additionally, academic achievement is still a priority, although it is combined with other activities, making every family member busy. Millennials parents listen to their children and want to have a close and honest relationship with them, although they do not always have the time or abilities to guide children through their emotions. They also need help to manage the use of screens for them and their children, since they debate between the benefits and constraints of technology.

On the other hand, Gen Alpha children will be in its majority single-child raised by parents/caregivers from different cultural backgrounds, and often in the presence of only one of the biological progenitors. They are considered the most educated and technology provided generation, but their early contact with it may generate impatience and urge to stay busy all the time due to the brain's overstimulation. Their emotional development is uncertain, not only for the limited social interactions due to children indoors/screen time, but also because part of their communication is happening through virtual channels. In the long term, all those may bring problems of self-control, lack of empathy and difficulty to express emotions. It seems this may be balance by Millennials and children tight relationship, that will help to mitigate the effects of the technology. So, this connection could enhance the discussion of emotions and complex topics, that will encourage empathy and acceptance of diversity.

The two actors' characteristics suggest that developing solutions for emotional intelligence is a necessity, for which parents are actually open for participating and talking about it. Their willingness to stay close to each other insinuates emotional communication as a good approach to promotes EI from it.

In that sense their interest to have opportunities to keep near to their children are not only in regard of their development, but there are additional motivations for encouraging

emotional conversations in the family context, such as knowing better each other and creating stronger connections. Moreover, the integration of emotional communication as part of the routine, it helps to create thinking and behavioral patterns to deal with emotions later in a natural way. This having into consideration, that the person needs to be in a state of calm, for learning, identify and integrate which one of those strategies actually works for the family and the person's uniqueness.

On the contrary, there also some factors limiting emotional communication. Firstly, families' lack of time and little attention towards emotions indicate that its stimulation cannot be presented as a task more, but rather as a moment of connection for knowing each other. A future solution suggests a progressive guidance for parents which trains listening skills, emotional validation and the welcoming attitude of emotions for every family member.

In order to achieve that, parents need support to know if the child is ready for understanding complex subjects, still developmental information is intricate and large and the abundance of sources may be confusing for people who are not familiar with the field. Nevertheless, a simple and progressive guidance in this sense would help parents to encourage emotional conversation in an easier and accurate way.

Generally, conversations about emotions occur when something triggers them, mainly problematic situations in relation with behaviors. Its proximity depends on the relation of the adult with their own and others' emotions to facilitate the space, otherwise talking about it may be uncomfortable for those who are not used to. Therefore, providing a moment during the day dedicated only for this activity seems to be necessary and it may help to integrate it as part of their life. At the same time, it may help to encourage abilities like expand the vocabulary, normalize emotion at home, create strategies for regulating.

Finally, children also require some elements during emotional conversations. The stimulation of playfulness and sense of achievement into the experience of emotional communication can reduce the tension that this activity causes for some people, which may also enhance the possibility to make it a habit and influence the family bonds. That also requires honesty and sense of protection so the child understand the communication as a safe space for releasing emotions. At the same time, using sensorial strategies such as visuals, tone of voice, body signals, re-structures and repetition of the phrases and behaviors may enhance the understanding.

6.Design Brief

According to the results described in the previous chapters, the design brief is exposed as the baseline to propose a solution that fosters Emotional Intelligence through family communication. Using the theory of change methodology from the design kit (IDEO.ORG), the figure 8 explains the shift I would like to achieve through the proposal.

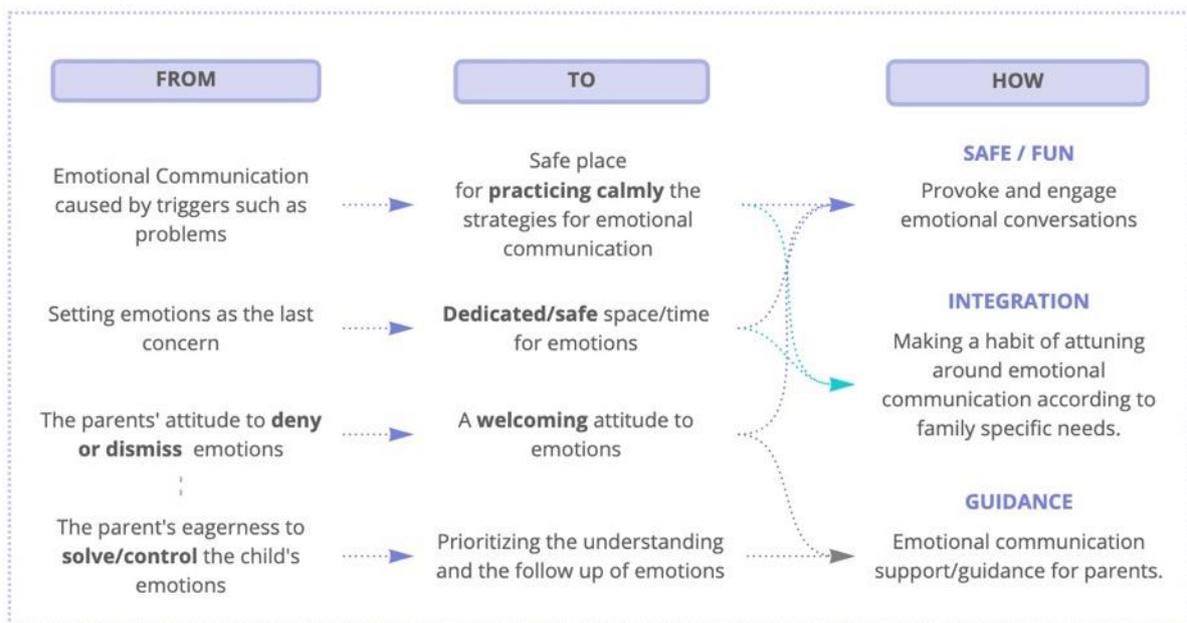


Figure 8. Theory of change model by Ideo.org. Figure made by the author.

Base on this, the design concept must have two main purposes, provoke families' emotional communication and guiding parents through the process. With the goals defined, the following are the conditions for this to happen:

- The design proposal must encourage emotional conversations for families in order to foster Emotional intelligence, this means to provide different prompts to stimulate the recognition, understanding, regulation and expression of emotions. Since emotional learning happens only when the brain is in a state of calm, abilities (especially regulatory ones) must be trained previously, before it is incorporated into daily life.

- Since the leading thought is to provide a dedicated and safe space to talk about own and other's emotions. The solution must be able to be integrated into the family routine, so emotional communication becomes a recurrent practice. Therefore, it must be flexible to be adapted into the different families' schedules, and also to use on short and longer periods of time, according to the specific interest of the moment.
- The solution must guide parents in regard to their children's emotional development in a simple and progressive way. As it also must provide feedback based on psychological researches to enhance the accuracy of the communication. In this sense, personalization plays an important role, since the solution must be suitable for the child and family level of emotional abilities.
- The fun factor is important for design proposals involving children since playing is a need for those ages (6 - 8 y.o.). Thus, delivering emotional communication as an attractive and fun experience may help to engage in the activity, by provoking curiosity and challenges.
- Since emotions are abstract subjects, children need clear and brief explanations that can also be reinforced with visuals. The emotional learning requires the company of the caregiver, so close physical and eye contact are significant for the process.

7.Design Concept

According to the design brief the concept is defined as a digital platform for the gamification of emotional communication in families. The proposal has three main components: Gamification, customization and information.



Figure 9. Concept components. Figure made by the author with icons by flaticon.com

First, the activation of emotional communication is proposed under the frame of a digital and collaborative game, looking to promote the engagement into the activity for a regular practice of emotional abilities. Second, the need for integrating and practicing requires a customizable solution for the particular needs and times of each family, so the game is responsive not only to the routine, but also to the specific EI competences of parents and children. Finally, the concept involves a component for guiding parents towards an accurate emotional communication, through a progressive understanding of children's development.

With this said, the aim of the Nebula is to promote emotional communication through a family game that propose activities for the training of emotional abilities, while parallely, parents are supported with information and feedbacks.



Figure 10. Concept look and context. Figure made by the author with illustration from Stories by Freepik.

To sum up, Nebula is a digital platform that supports families to strengthen their emotional abilities by encouraging everyday communication through play. It lets users track their achievements and it provides customized support for parents about their children's emotional development after analyzing games' answers. With Nebula, families have a dedicated and safe space for releasing their feelings while empowering them with the skills to have a better relationship with their own emotions.

7.1 System Elements

The digital platform is configured as an exchange of information between the users (family members) and the system. This would take place in three different moments: setting up, play and feedback.

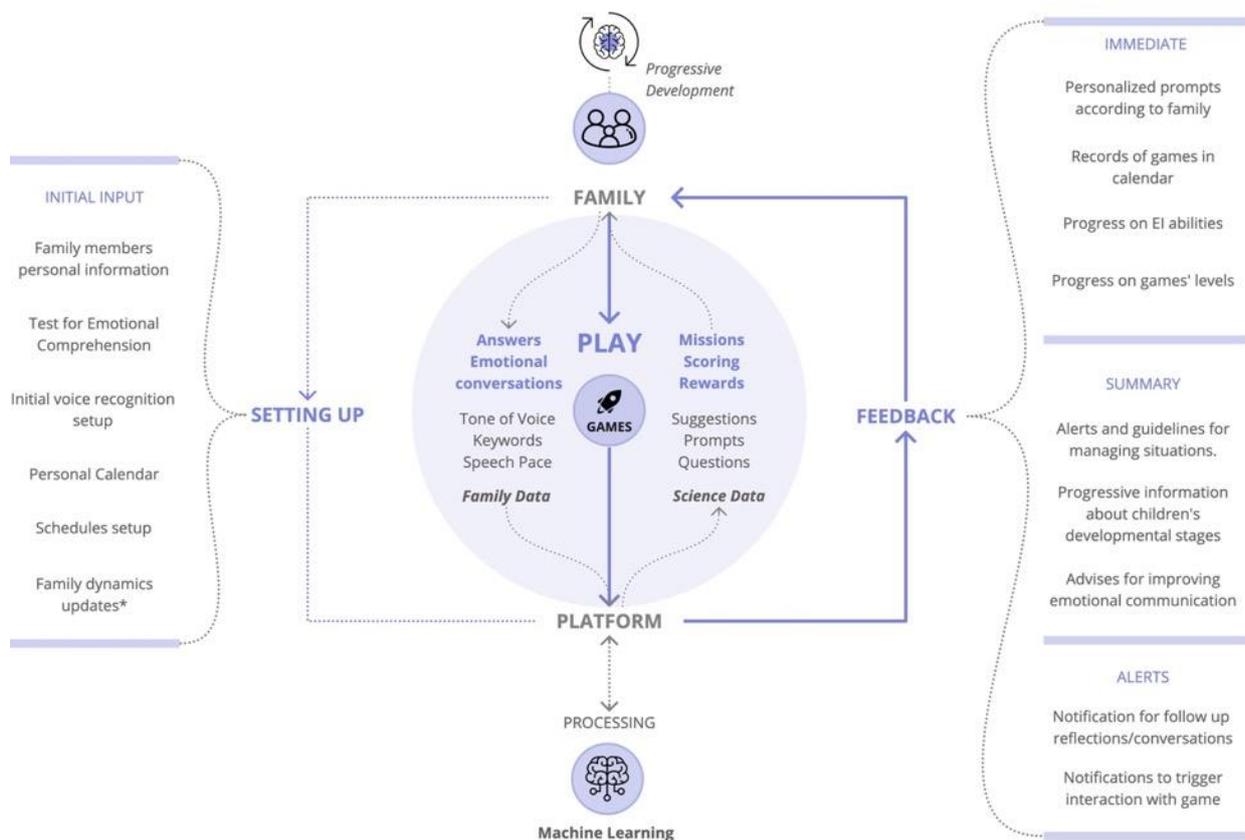


Figure 11. System elements and configuration. Figure made by the author with icons by flaticon.com

7.1.1 Setting up

The first contact with the digital platform indicates a configuration mode that leads the users through it. The inputs provided by the family members in this stage allow to fulfill the system data requirements, aiming to generate a personalized game. They were defined as:

- **General information about the family members**, including those who share the household, is collected by the system, entering age, gender, religion, cultural background and occupation. This would provide a general framework that base on the system's science data would configure the game functions according to their ages.
- An adaptation of the **test for emotional comprehension** TEC from Pons, Harris and Rosnay (2004) will be also included to have an initial knowledge of the child's emotional abilities. This test is aligned with the developmental stages presented previously in the theoretical framework, and it allows to present precise activities for the child, according to its development.
- In this onboarding stage a **voice recognition record** must be applied, so the system later will be able to identify who's the voice and messages belong to. This would be done through the previous test also.
- In addition, an initial **schedule setup** describes their daily routine, interests and habits, acknowledging the option to include the game into their lives. For this, the adult should preset the moments when the games are going to take place. The system would detect and suggest cues to trigger actions based on that schedule and their **personal calendar**.
- Finally, the caregiver has the option to enter **family updates*** that alert the system about new dynamics. For example, in the case of divorce, the system is configured to address emotions related to the subject to modify games and provide information to the parents about situations management and effects in family.

7.1.2 Play

This stage is the core of the concept as the main purpose is to provoke communication between the family members for developing their emotional abilities. The gamification of conversations is used as an excuse to created engagement, so the intention is to make of this a habit by promoting short daily interactions and constancy through the days. The following are the descriptions of the play interactions between the users and the system:

- The platform is composed by a **set of games that stimulates different emotional abilities** through the action of talking and sharing feelings. Although the prompts are provided by a digital device, the interaction is physical, meaning that the game can only be play between 2 or more people who are located in the same place.
- Based on the initial information, the system personalizes these games with suitable prompts for users' abilities and ages. Through different dynamics, each game will ask the family to share and talk about different topics, their **answers are recorded by the system**, so this analyzes the information to track progress, deliver feedback and adjust next games.
- On regular basis, the system is in constant adaptation and self-learning from the **recognition of keywords, tone of voice and speech pace**, which are all signals of emotional communication. This family data is analyzed and compared to the science data allowing to guide parents later and personalized games.
- Playing with the platform can be done through different devices and environments such as the phone, the tablet or in connection to the tv or the car speakers. Since every family is different, they should have the option to adapt the game to their own dynamics.
- **The platform adapts to the different situations throughout the day**, meaning that at the start it suggests the best games for that moment. For example, during night time the games will go slow, while during long journeys in car, they can be longer and with more emotional arousals.
- Each day the system proposed a mission with a specific goal that need to be completed by the family. This mission stimulates an ability and allows them to progress in the game with a **system of achievements** such as levels and rewards.

7.1.3 Feedback

The collected data is analyzed by the system's algorithms, which is also related to the family's and science (physiological researchers) data. This correlation of data allows the system to deliver the following outputs:

- The immediate feedback refers to the information received while playing. The game prompts and activities are suggested base on analysis of the family inputs, so the **personalization of the games** assures a suitable stimulus for the child. Those will be evolving as the users are improving their emotional abilities and performance.
- In addition, the platform informs progress in three ways: Performance in time with **the records on calendar (A-B)**, **development of emotional abilities (D)** by percentage bars and finally, **the progress in the games' levels (C)**, scores and awards, aiming to trigger curiosity and engagement to see what is coming after, and also to boost their commitment to beat their own records.

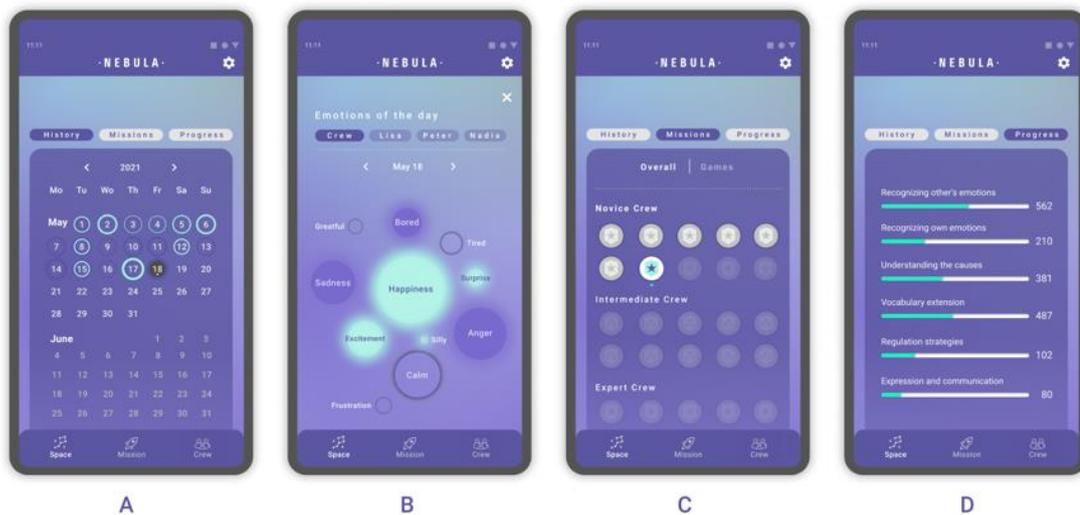


Figure 12. Interfaces. Figure made by the author.

- After the information is analyzed by the system, a summary of results and progress is provided to parents. The platform **alerts and provide guidelines** about situations that the parent should pay attention to. These do not have to be about big problematics, but in regard of factors that are caused by new family dynamics or the development itself.
- Furthermore, the system is able to deliver **information progressively** about children's emotional development, so the caregiver can be aware and prepared of possible changes, but also about the child's capabilities to understand emotional and complex topics. In this sense, **recommendations for parents to improve emotional communication** will be delivered based on collected data, attempting to enhance a welcoming and validating attitude towards emotions. This feedback

is only provide to parents, so the interface for children does not included the third button (crew).

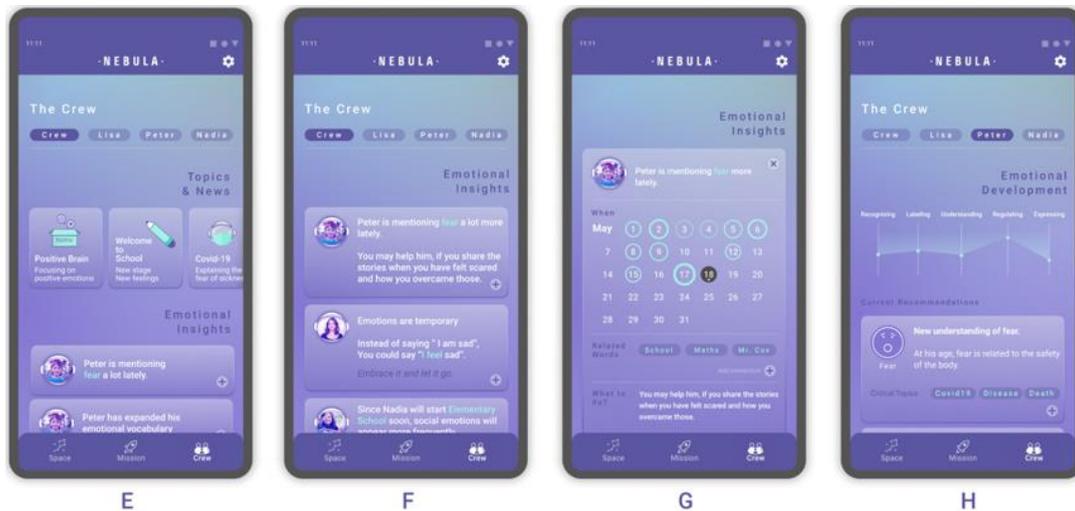


Figure 13. Interfaces. Figure made by the author with icons by flaticon.com

- Finally, the cues for triggering **follow up conversations** and reflections are provided as reminders. The notification to encourage the **interaction with the platform** will be delivered base on pre settings and the interpretation of the routine changes and personal calendars. For example, if a trip is ahead, the system may suggest activities for the car which also involved a topic in relation to it.

7.2 Game Structure

In order to explain the structure of the game, the following scheme shows a general view of the game components:



Figure 14. Game structure scheme. Figure made by the author with icons by flaticon.com

Players: Based on a collaborative dynamic, the game proposes interactions between users and with the system for achieving a common goal.

Narrative: The game was created under the narrative of a crew traveling in a spaceship to complete missions. Each family member sharing the household are welcomed to join the crew and each would have a profile space in the platform.

The purpose of this narrative has two points, first to engage the users in a collaborative game by empowering everybody as an active part of the mission execution. Second, the

use of constellations and stars is an analogy to visualized what we know is there, but we do not know exactly what it is or how it works, same as it happens with emotions.

Objectives: The games objectives are set in a constructive way for engaging the players. Each time the family start a new game a mission is presented, so the goal is to complete this, in order to level up or to unblock new features. For achieving the mission there is a system of scoring based mainly in the recognition of emotions or the answers provided by users.

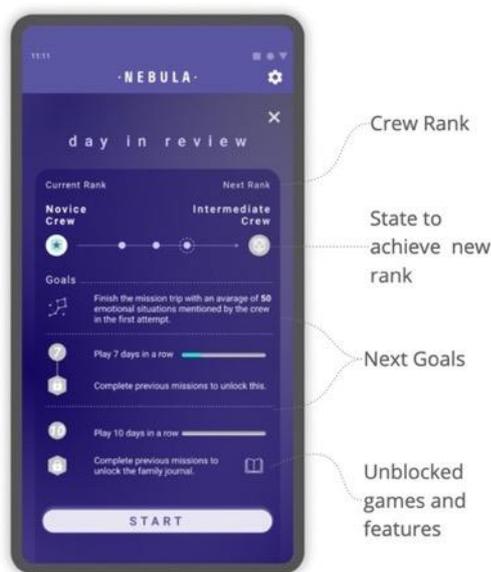


Figure 15. Interface. Figure made by the author

Achievements: A system of achievements is created for engaging users in constant use of the game. Therefore, each game has levels that can be achieved with the completion of missions. The levels' reach represents some rewards symbolized by badges and crew ranks, which means new stories, unblocked games, and new features or updates.

Procedures:

- *Players check in:* The main rule for this game is that a player cannot play alone, but with one or more players in the same physical space, so the interaction between children and caregivers is mandatory for using the game. This decision was made under the understanding that emotional abilities are only learned from a human role, so with the proposal I want to avoid the child's isolation into the device.
- *Game selection:* After the participants are checked, they are able to select one of the games or depending on their progress the system will make them mandatory in order to keep the progress. Each game stimulates one or several emotional abilities by provoking conversations between the family members that will be listened by the device. For the purpose of this project, 4 games were designed so

far, but the concept supposes the development of more games and features that will be integrated as the users advance in the game.

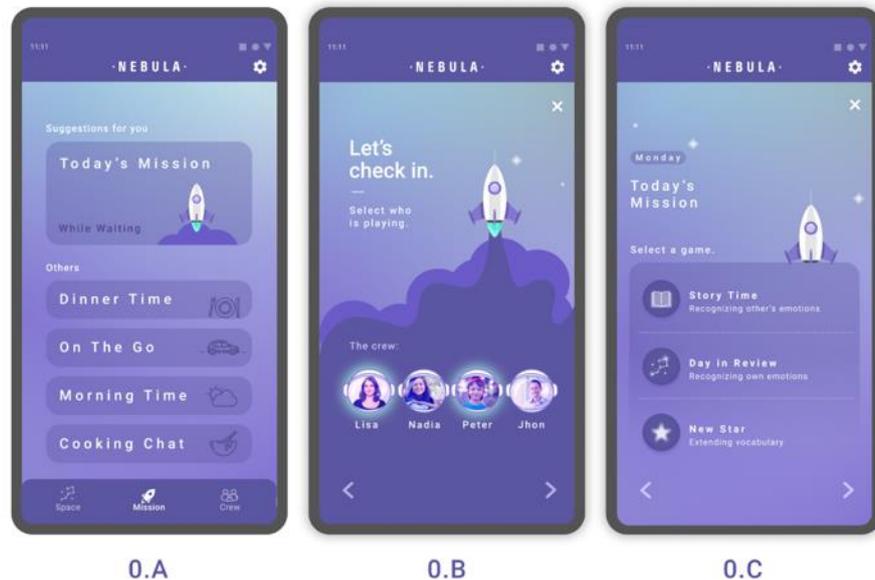


Figure 16. Interfaces. Figure made by the author. Icons by flaticon.com and Freepik.

- **Mission allocation:** Once the game is selected the platform will show the goals and the rank position of the crew on it. Then, the mission is assigned, explaining what they need to do and how much or long they need to discuss.
- **Mission performance:** The system detects the mission performance by recording and analyzing users' answers. At the same time the system provide feedback by showing in the screen the progressive shape and bright of the constellation, meaning that every star represents an emotion that was mentioned. With this, the users will be able to know how much is left to achieved the mission.
- **Mission Extension:** If the family does not complete the mission, the system provides new prompts so the game is finish.
- **Mission accomplished & Scoring:** By completing the mission the platform announces the score and what the crew gained, encouraging them to keep playing for level up.

Learning Goals: The learning goals of the platform refers to the training of the emotional abilities such as recognizing others' and own' emotions, vocabulary extension, emotional understanding, expression and regulation. The followings are the description of the games included in the platform.

Day in review / Day dream*:

Purpose: Recognizing and understanding one's own emotions.

Procedure: The purpose of this game is to connect emotions with situations the person has lived. Therefore, the prompt may suggest recalling past experiences or imagine the future ones (1.A).

Parent and children must remember and express the emotions by explaining what was the cause (1.B), meanwhile, they can help each other, ask questions or just listen. At the end if they do not complete the number of emotions for the session (1.C), the game provides new prompts to complete the mission (1.D).

The platform shows emotions by lighting up the constellation (1.E), so when it is complete the mission is accomplished. Finally, the achievement is displayed (1.F).

Score: Each emotion named or answer provides a score.

*Day in review and Day dream games have the same dynamic, but in the first one the emotions are already experienced, while the second one sets them in future situations, such as what will be the most exciting tomorrow.

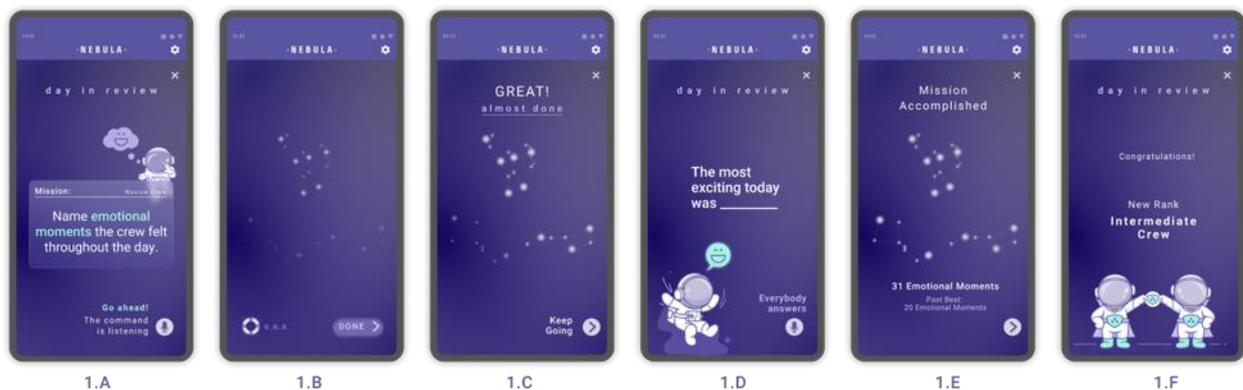


Figure 17. Interfaces. Figure made by the author. Astronaut illustration by Catalyststuff in Freepik

Story time:

Purpose: Recognizing others' emotions.

Procedure: Either by listening the story provided by the platform (2.A), or sharing / creating a new one, the family narrates it while the child identifies the emotions of the

characters (2.B), parents may help if it is necessary, or there is a help bottom (2.C) to remain vocabulary. Further prompts for reflections can be add afterwards. Score: Each emotion named or answer provides a score (2.D).



Figure 18. Interfaces. Figure made by the author. Astronaut illustration by Catalyststuff in Freepik.

New star:

Purpose: Vocabulary extension and emotional regulation.

Procedure: This game teaches or reinforces emotions for extending vocabulary (3.A) and showing some coping strategies. Each emotion learned becomes a card in the crew collection of feelings (3.F).

The game suggests the emotional concept and visuals for the parent to explain what is the emotion (3.B). Afterwards, some prompts are delivered (3.C), so they can reflect about it. Finally, according to the emotion, regulation strategies are proposed to practice all together (3.D) (3.E).

Score: Each answer and exercise provide a score.



Figure 19. Interfaces. Figure made by the author. Astronaut illustration by Catalyststuff in Freepik and icons by Flaticon.com

7.3 Nebula's Journey and Experience

In order to complement the presentation of the concept proposal, this section focus on the users' experience through Nebula. A journey/experience map was built to explain the interaction of users with the platform and those between the family members. Besides the actions provoked by the platform and those caused by the users' decisions, it is also included emotions and dialogues (To see the detailed map refer to appendix 7).

In addition, a summarize experience is exposed next to bring a visual and general understanding of the concept experience. For that, a story is narrated about Nadia, an 8 years old girl with her mother Lisa:

This family is on the first week of using Nebula. They heard from one of their friends and decided to download the platform and sing up.

One of those days, Lisa and Nadia had a doctor appointment, so while they were waiting, a notification came to her phone to remind about the opportunity to use this time to know more about Nadia (figure 18. Platform linked with personal calendar).

Nadia decided to play Day in Review since she knew they were so close to get a new badge. The mission this time was to mention the emotions they felt throughout the day.



Figure 20. Interface and notification.
Figure made by the author with icons by
Freepik

While they were answering, Nadia mentioned her concerned about the math test the teacher talked about today, to which Lisa replied:

- Really? I don't understand why you are worried about it. You are very smart.
- Yes, but I know it is going to be difficult.
- No worries, it's going to be fine. Let's finish the mission.

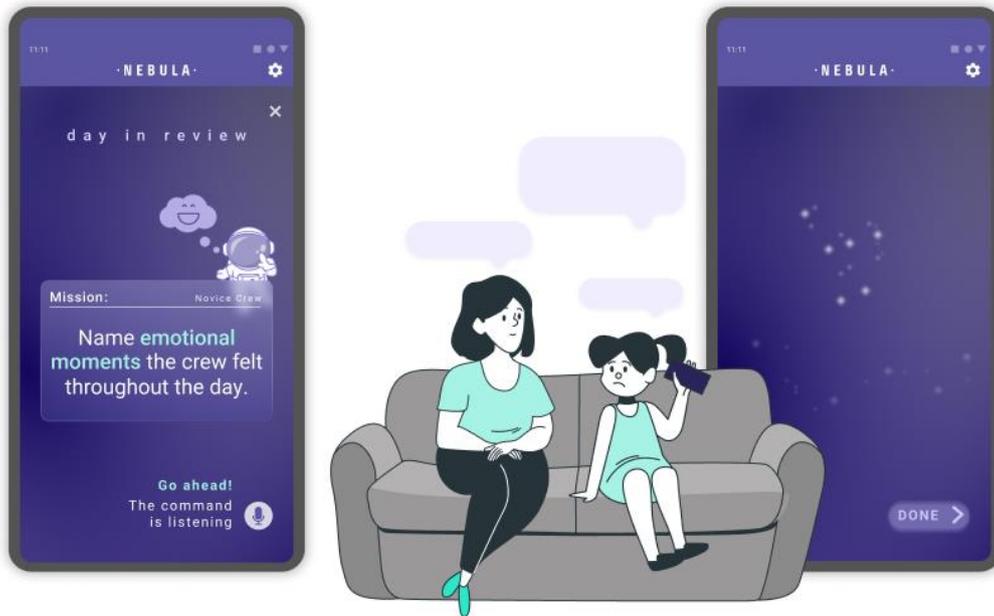


Figure 21. Family interacting with design concept. Figure made by the author with illustration from Stories by Freepik. Astronaut illustration by Catalyststuff in Freepik.

When they finished, the game gave the badge Nadia was expecting, and also unblocked a new character for the Story Time game. Nadia got so excited and curious to see who was that new character, so he asked Lisa to play again later. Right after, the doctor call to start the appointment.



Figure 22. Family interacting with design concept. Figure made by the author with illustration from Stories by Freepik. Astronaut illustration by Catalyststuff in Freepik.

Later that day, Lisa checked the feedback session after seeing the notification from Nebula. By reading that, she understood what could be a more supportive answers to Nadia's worries, so she decided to focus next games about strategies to deal with fear.

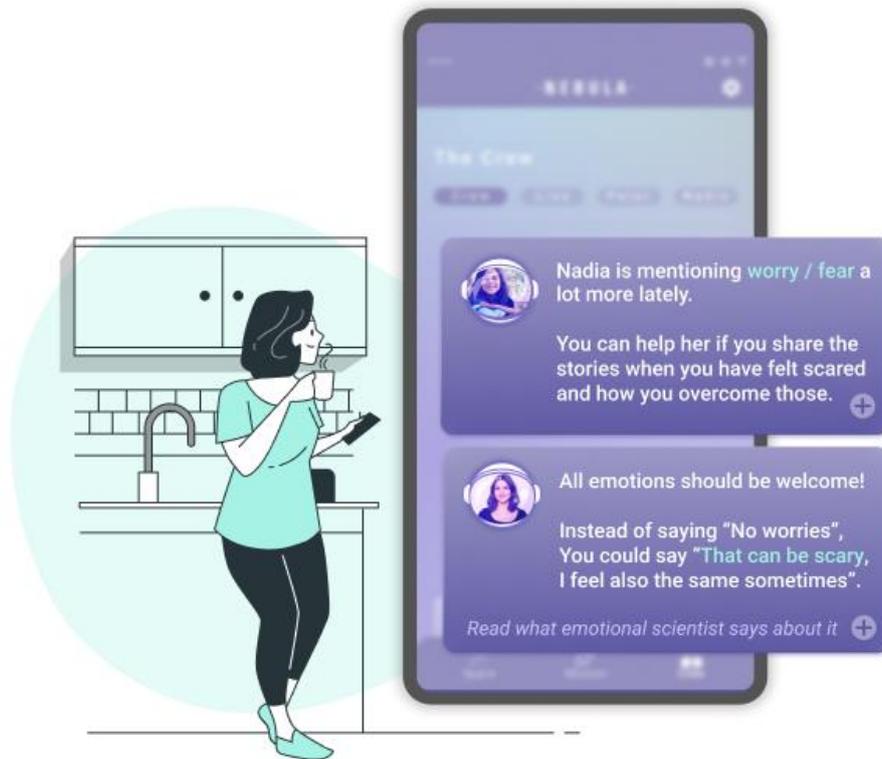


Figure 23. Family interacting with design concept.

Figure made by the author with illustration from Stories by Freepik.

Next morning, when they were on the way to school, Lisa told Nadia:

- I've been remembering that I also felt very scary before tests at school. Sometimes my belly hurts just by thinking about it. It is not a good feeling, right?
- No. What did you do then?
- Later in collage, I learned that when I feel like that, I breath and imagine what would be the feeling I would have after finishing the exam. I imagine being release.
- I don't know how to do that.
- ok, let's try together...



Figure 24. Family interacting with design concept.

Figure made by the author with illustration from Stories by Freepik.

Additional Contexts

Although the wireframes present in the document were designed with the phone format, Nebula is able to adapt to different sizes and also connect with others devices around.

Since one important characteristic of families is that each one is different and have a unique way of living and routine. The concept embraces this fact, by developing a solution that can be adapted to different situations, times and needs. In this sense, families can play Nebula in their homes while or after doing some daily activities, such as cooking, having dinner or getting ready to go to bed. It can be also used while they are waiting in a specific place or when they are on the car.

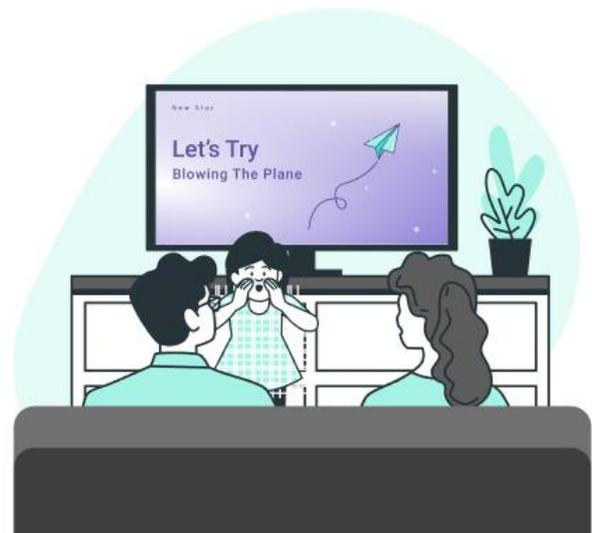


Figure 25. Family interacting with design concept.

Figure made by the author with illustration from Stories by Freepik.



Figure 26. Figure 19. Family interacting with design concept. Figure made by the author with illustration from Stories by Freepik. Astronaut illustration by Catalyststuff in Freepik.

7.4 Value Creation

With the concept, the value creation is directed for both parents and children. Therefore, the following refers to the shared values that they will find through the interaction with the platform.

Mutual Emotional Growing

Nebula allows grownups and children to enhance their emotional abilities and consequently, their self-knowledge. By practicing the recognition, understanding, expression, and regulation of emotions, the users will be able to integrate those into their daily life, which will also empower them with the tools for dealing with their feelings in a healthy way.

Family Connection

With a space for releasing emotions, Nebula strengthens the connection between the family members by promoting an interaction where everybody's emotions and needs are important and valid. At the same time, this expands the knowledge they have about each other, strengthening their bonds and the acceptance of their uniqueness.

Progressive Support

The proposal provides progressive support for parents to guide them towards the understanding of children's emotional development and the best practices to address communication with them. This is also reflected in children, as the reactions of parents

towards children's emotions will be more compassionate and flexible, so the feeling of protection and safety will increase through the use of the platform.

7.5 Privacy and Technology

Privacy

Nebula acknowledges that one of the parents' current concerns is in regard to the protection of their privacy and the impact of data compilation in the wellbeing of their children. Therefore, the platform must be under the frame on The General Data Protection Regulation (GDPR), which guards the collection, management and storage of information (Wolford, n.d.).

Although the platform records audios of conversations from the family, those can be discarded after the system analyses them, so only the general results and the performance registers remain in the platform. In that way, families can make sure their conversations are not going to be listened or share with anybody else.

Since the platform demands to be used with two or more people in the same physical space, this assures that the child interaction with Nebula will be always supervised by an adult. Finally, camera access is not required by the platform, so the image and physical integrity of the children is totally saved with Nebula.

Technology

Recognizing emotions during people's conversations can occur not only by facial expressions, but also with different factors from the speech (Pandey, 2020). Indeed, the technology proposed for the concept functioning is a mix between speech analytics and machine learning for detecting and processing the conversations' information.

Speech analytics is the process to identify speakers' emotions from their voice cues, either in recorded calls and live chats with a software that recognizes words and signals for finding patterns (Biscobing, 2018). Nevertheless, the design concept not only requires the detection and labeling of the emotions, but also the evolving meaning and interpretation of those results. That's how machine learning, as a branch of Artificial Intelligence is propose to discover key insights from the speech results and a base dataset. For that, it is proposed a supervised learning that labels the data, the machine needs to search for (Hao, 2018).

In Nebula, children' and parents' speech signals, such as tone of voice, melody, pitch and keywords compose the family data, which is processed by a learning algorithm to identify patters between those and the previous results. The family data is also compared with the science data (psychological and neuroscience research sources) aiming to identify parents' possible mistakes and misconceptions in regard to emotions, and then guide them towards a better practice. The learning nature of the algorithm allows to grow the knowledge about the family, providing them every time with more accurate prompts and feedbacks.

Currently, there are already some companies developing similar software and services like Affectiva or Imotions, mainly focus on marketing and health tracking purposes.

7.6 User Testing and Comments

User Testing

User testing was carried out in two different moments. First, during the co-design workshop conducted with a family of two children, it was possible to test the initial intention of promoting emotional communication through collaborative games. At this point, the activity involved already the narrative of the spaceship, and it suggested the games described above, but in a physical way.

This test helped to know how the children and adults respond to the games and what I needed to have in mind to enhance the experience. For example, there was the need to have the visuals of the emotions, so the children could remember some vocabulary, which was the cause of the help button. The mother who participated in the game was very interested in the subject although, until the end when I explained the purpose of the game, everything made sense for her. This showed that parents need to know that what they are doing will have a positive impact on their family. This will also enhance engagement.



Figure 27. Photos from the co-design and testing session by the author.

After that, the proposal was developed further, mainly in regard of the visuals and digital interface. Therefore, the second moment was during a road trip with a family, where I could show and use in my phone the wireframes already designed. Although the game did not work totally, the general idea was still easy to perceive.

In this, we play the Day Dream game, talking about how we imagine the trip. The result was interesting as the kids were very positive and imaginative with their answers. They were very curious as the game was in the phone, which definitely took their attention to follow the flow and answer the prompts. The mother mentioned how interesting was to have this kind of conversation that help to know each other better, but also to recognized the value of ordinary things.

Experts Comments

The reviews from experts were conducted through video calls with a psychologist and a pediatrician. During the session, after explaining how I reframed the initial problem adding emotional communication, I exposed what I wanted to achieve with the concept, which was later presented it.

The general impression of the concept was positive. First, regarding solutions for promoting Emotional Intelligence in childhood, experts saw it as an opportunity to extend and support psychologists' reach by taking care of mental health, which should be a priority nowadays. Second, they found it interesting that the proposal uses gamification for releasing and normalizing emotions, hence it suggests new ways to manage them by providing a safe space for that.

Either for experts and for parents, the spaceship narrative is positive, fun and engaging and children can easily identify with the idea of achieving through missions. One of them suggested including stories with aliens, so the analogy to discover and normalize the unknown emotions could be represented with them.

In respect of the use of technology for training EI, experts noted that involving screens is a suitable strategy for using the same language that children understand currently, since it influences how they think, have fun, interpret their own world and engage with it. Therefore, more than sticking to a value of judgment about technology, it should be recognized as a medium or a format to deliver information, or in this case provoke a physical (real) interaction. In addition, a mother said that "it is about balance between the digital and the real life, (...) which the game seems to propose very well".

The integration of the activity in the family routine had different perspectives. One expert suggested bringing awareness to the time spent, so people are aware that it will not take long, but rather it is a matter of consistency. Another one believed that since the platform proposes alternatives for different circumstances and moments during the day, families have the option to adapt it to their own needs. Furthermore, they recognized that families likely engage in activities that show and reward their progress, thus parents and children nowadays respond enormously to the measure of achievement.

More than modifications, experts suggest adding a space in the digital platform for personal entries, so the safe space for emotional release is always available. Another piece of advice was for involving mindful and stillness activities to encourage grownups and kids to learn to stay with the uncomfortable. In regards of those suggestions, I consider those could be updates and rewards Nebula can provide after progressing in the games.

Finally, experts believed the solution can be promoted by teachers, psychologists, pediatricians and in general, governments should encourage the development of emotional intelligence training solutions.

Further development.

In order to develop further the concept, an interdisciplinary team is required to build the science data which is the base for delivering accurate prompts and feedbacks. Since psychology is an important part of the project, I believe there must be a consensus of the theories to build this.

During the research, I also noticed the importance of having a different approach according to the user gender, which was not much mentioned in the research, but still considering that there are variances between women and men about emotions' perception and expression, the game could propose a different language or dynamic for each of them.

Finally, a further development could be in regard to connect this with psychological services. Using Nebula either for therapeutic purposes or for providing data to healthcare professionals to have a better understanding of the emotional development and abilities of family members.

7.7 Conclusions and Final Reflection

Emotional Intelligence is a set of fundamental abilities that help us to have good relationships with our own emotions. It provides the person the control and acceptance to know what to do when there is emotional arousal and take advantage of it. With these abilities, academic performance, social interactions, problem-solving, and creativity are some of the activities that benefit from them.

Learning how to recognize, understand, and regulate our own and other's emotions since childhood is a step ahead for having those abilities during the adult's life. Therefore, the aim of this project was to understand and analyze how current families assist their children's emotional development, and later, to explore the alternatives to propose a design solution that supports parents and children to develop their Emotional Intelligence abilities.

The research showed first the option to use family communication as the framework for the stimulation of these abilities. However, it also indicated the need to provide a dedicated space and time for this, where the feelings of acceptance, validation, and protection are the base. To achieve this, parents must be supported with information and guidance to express and respond assertively about their own and their children's emotions.

As a solution, a set of games in a digital platform promote the physical interaction between the family members for sharing and expressing their emotional experiences, while their EI abilities are cultivated. Parallely, parents received from the platform gradual guidance in regard to emotional communication and their children's development.

Through Nebula, I envisioned not only the strengthening of EI and family bonds but also the normalization of emotions to enrich a supportive family environment that honors our emotional nature. The design solution recognized also that parenthood is not an easy position. Even parents with the best intentions are still missing important factors in the child's development, thus, supporting them was a priority aiming to achieve better emotional learning in future generations.

Emotions are complex subjects with plenty of theories that lack consensus. Navigating the subject as a designer was challenging but absolutely rewarding as most of the understandings and strategies were first applied to myself and those around me. Still, as psychologists said, it takes practice for integrating this mindset and behaviors in daily life. That's why the proposal insists on providing a solution that supports the practice of emotional abilities and communication in the format of short, but constant interactions.

In addition, Nebula has preventionist approach that aims to support emotional learning during childhood, which is even better than curing the effects of the absence of it. I wish that these types of projects keep flourishing, since through the research, it was evident the lack of support from the design side, that psychology has had in the creation of their proposals. In this sense, I believe designers can intercede to provide more human and fun psychological solutions.

Finally, I also hope that designers, engineers, developers and all professionals involved in the creation of digital solutions, become more interested and aware about the impact of their decisions on people's brains and mental health. More than taking a radical position about technology, I believe that creators should start to take responsibility in this regard to propose solutions that allow us to preserve our social and emotional nature.

8. Summary

This thesis aims to propose a solution for supporting the Emotional Intelligence development in families and enhancing a welcome emotional environment at home. Under the design research methodology, this project answers the following research question: How to support parent-child communication for developing Emotional Intelligence and helping to integrate this practice into the family routine?

Through the research it was visible the direct relation between the parents' expression of emotions and the children's emotional development. Therefore, the execution of the design probe, the co-design workshop and interviews suggested that the gamification of emotional communication aligned with progressive guidance for parents, are all necessary to promote that families attune around emotions as part of their daily life.

As a solution, a set of games in a digital platform encourages parents and children to interact with each other by sharing personal experiences, while it trains their emotional abilities. Parallely, parents are supported by the platform with information and feedback.

The thesis concludes that by offering a dedicated space for families to talk about emotions, a fun and safe experience, and a gradual guidance for parents, the designed platform helps to reinforce their relation and mutual knowledge, as their emotional intelligence abilities.

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11. Appendices