



Fostering Connections: Solutions for Bridging Gaps in Modern Digital Families

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Abstract

While digital technology makes our life more convenient, they also bring some new challenges to our life. At home, some parents and children are addicted to digital products and reduce face-to-face communication, which leads to gaps between them. This study aims to increase the interaction between parents and children in the limited space based on face-to-face communication, which is of significance in children's development stage, and provide the interaction that is essential in the children's growth stage. In this study, information about the psychological and physiological characteristics of children aged 3-6 years was collected from the literature. The conceptual design was then combined with Norman's emotional design principles for implementing a design of home furniture based on the inspiration of the parent-children face-to-face interaction furniture, which contains the basic function and interesting function. To design this sofa, some inspirations were combined; starting with a hopscotch game in which the assembled cubes were locked to each other and build up in the shape of a sofa. Concerning stability and security, the sofa was developed step by step. For example, a wooden cage was constructed to protect the stability of the sofa. Then, colors and styles were included in the cubes to offer Twister gameplay on the sofa to the family. The final prototype took off the wooden cage and was redesigned with some irregular geometry objects, and a permanent connection between the structures was made using iron wires. This sofa design does not only meet the basic functions of furniture but also promotes the parent-child interaction. It can help bridge the gaps between parents and children in the modern digital background.

Keywords: *Interaction, furniture, Parent-child relationship, digital*

1. Introduction

With the rapid development of modern science and technology, digital media, such as mobile phones and the Internet, are changing our lives with powerful influence. Now, you can quickly get information and knowledge from your cellphone; you can always chat happily with friends on the Internet; you can work and shop in the comfort of your home, and so on. Such life scenarios are common in modern life, and technology has fundamentally changed our way of life.

On the one hand, technology has brought families closer together. Because of the connectivity of the network, it can connect almost everyone, and you can communicate with anyone wherever you are. As long as there is a network in the world, interpersonal communication can be carried out. Technology can be used to strengthen relationships when distance or other reasons prevent interpersonal communication. For example, when parents and children are not together due to distance, they can see and communicate with each other through cellphones or computers. As a result, technology enhances relationships between people.

On the other hand, technology brings not only convenience and happiness to our life but also some new challenges to the way our families get along. Thanks to the development of Internet technology, work can be always carried with you. When people are resting at home, they are still working. The way of working squeezes parents' time off. I believe you must be familiar with these scenes at home: parents working overtime in front of their computers while their children play with iPads; parents talking about work with their colleagues on the phones while children watching TV. Figure 1 shows an example of a parent-child current situation in which less interaction is made even though they are sitting next to each other. This situation in real life reduces the emotional communication time between them. Some psychologists say technology can disrupt communication between families. Psychologists believe that communication, especially without contacting with children, can have subtle effects (Procentese, Gatti, & Napoli, 2019). As a result, technology may make people lonelier (Kai-ning, 2014). In the context of digitization, there is little or no communication between parents and children, which may be detrimental to children's physical and mental health.



Figure 1 Parent-child current situation (Couple Parenting, online)

Figure 2 demonstrates the difference in the interaction in a family. The best interaction is the face-to-face interaction as in Figure 3. In the early childhood stage, children's thinking is in the best stage of development, and the face-to-face interaction between parents and children plays a very important role in their growth process. Studies have shown that it can lead to the release of oxytocin when talking to someone face-to-face. Oxytocin is known as the "love hormone," which is a powerful hormone, and it increases when we express emotions that can deepen feelings of attachment and trust (Liu, Cai, Wang, & Wu, 2011). The face-to-face interaction, in addition to language, conveys abundant information such as gestures, eyes, and body language, which helps build stronger relationships between parents and children. Even on a video call, eye contact is hard to achieve. Researchers agreed that parents' company with their children plays a significant role in family life, such as family shared routines and interactive activities. Shira Offer considered that the parent-child interaction is good for family life and the children's growth (Offer, 2014). In daily life, through communication and activities with their parents at home, children could learn knowledge and develop all kinds of abilities, such as problem-solving abilities, thinking patterns, language learning, emotional control, social abilities, health, psychosocial adjustment, conversational skills. Therefore, the face-to-face interaction is very beneficial for children.

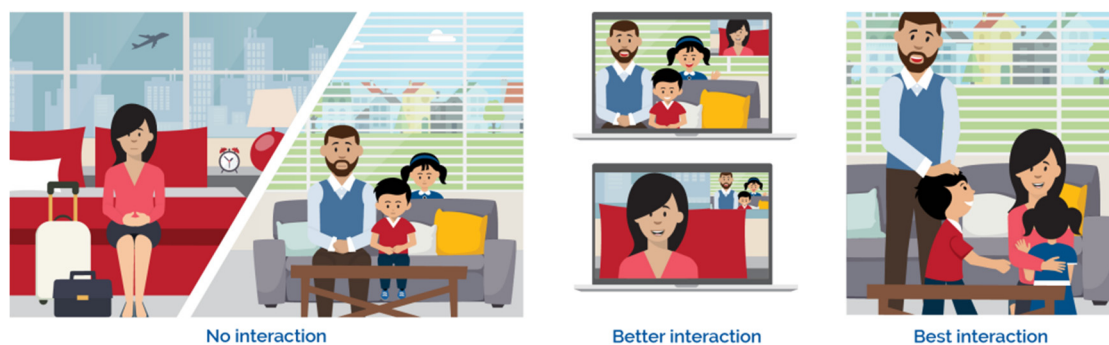


Figure 2 Different interaction in a family (Office of Educational Technology, online)

Therefore, in the author's view, digitalization has been integrated into modern society, and people have become accustomed to using it. The question we should be thinking about now is how to achieve face-to-face communication between parents and children.

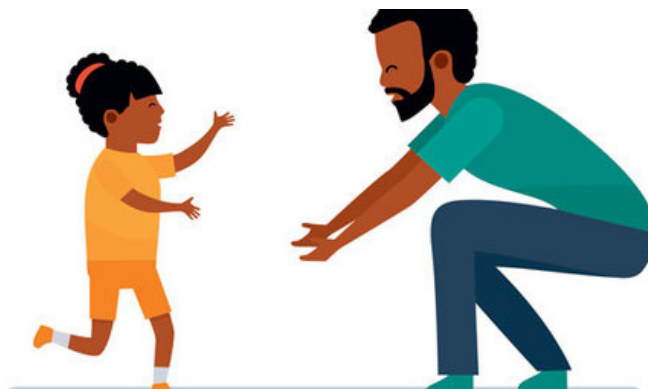


Figure 3 Face-to-face interaction (Costa et al, 2019)

Home is the place where parents communicate most with their children, and the living room is where families spend the most time together (Hui-zhong, 2017). A sofa provides an opportunity for family members to sit together and watch TV while a dining table provides an opportunity for families to eat together. Most furniture design only focuses on the basic function but neglects its aggregation function (Kai-ning, 2014). The authors argue that furniture, in addition to its basic functions, can also provide opportunities for face-to-face interaction between family members.

1.1 Parent-child interaction

“Interaction” means the process of mutual connection and interaction, and parent-child interaction refers to the interaction between parents and children that focuses on the interaction experience between them. Macroscopically, the parent-child interaction can be divided into two types: verbal interaction and behavioral interaction; each of which can promote the parent-child relationship between children and parents.

1.2 Furniture provides the opportunities to interact

Some scholars believe that interaction can be divided into three different forms, namely pure man-machine interaction, social interaction, and system interaction (Zeng, 2011). The interaction furniture refers to the pure man-machine interaction, and parent-child interaction refers to the social interaction between people. In this paper, parent-child interaction furniture, with the furniture as the material carrier, makes the three main participants (parents, furniture, and children) communicate and interact, forming a feedback loop system among them. It can finally form a complete interaction behavior, to encourage the interaction and further enhance the connection between parents and children.

- 1) Interaction furniture refers to the pure man-machine interaction.
- 2) Parent-child interaction refers to the social interaction between people.
- 3) Parent-child interaction furniture products require both users to interact with the product at the same time, and the interaction between the three has a feedback loop effect.

1.3 Physical and psychological characteristics of children

The target of this study was children of age between 3 and 6. Through children’s cognition and development, Jean Piaget, a famous child psychologist, had divided children into four stages: the perceptual movement stage, the pre-operational thinking stage, the concrete operational stage, and the formal operational stage (Piaget, 1964). The pre-2-7 stage of pre-operational thinking is also known as the preschool stage in which children are at a critical stage of cognitive development, which is a major life leap, both physically and mentally. The psychological and physiological characteristics of preschool children are as follows.

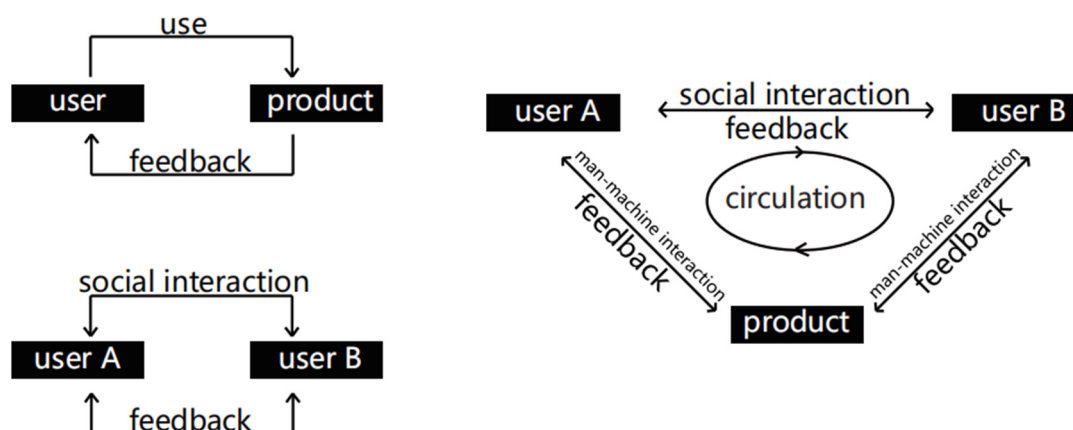


Figure 4 Three different interaction forms

Visual characteristics

Children between the ages of 3 and 6 have developed a phased understanding of color and shape (except for children born with visual color impairments). Some scholars have experimented with the development and cognition of shape in pre-school children for a long time, and it has been proved that the shape cognition of children increases linearly with age (Yan, & Ping-zhi, 1992).

Auditory characteristics

Studies have shown that the fetus has an auditory response before it is born, so new parents can communicate with the fetus across the belly. Infants begin to “understand the words” when they are 9 months old, and they can learn language by using phonological mouth imitation at 10 months old and begin to speak later. In the middle of the preschool stage (4-5 years old), they have already had a primary understanding of language.

Memory characteristics

Shen Deli of Tianjin Normal University and others conducted relevant experiments on the memory characteristics of preschoolers aged 3-6 years, grouped the children, and made a detailed analysis of the relationship between children’s memory ability through visual and listening channels (Ornstein, 2014). That is to say, a child’s memory of color, shape, and other visual aspects is stronger than the memory of hearing.

Tactile characteristics

Touch is the widest range of the human body perception system, people can feel pain, temperature, strength, and so on with their skin. From birth to death, human tissue cells continue to improve, from delicate to mature and then from maturity to failure. As a result, a child’s touch is more sensitive than that of adults, and the stimulation of furniture shapes and materials is more intense for children. As a result, products for children in the material will generally choose plush, cloth, silicone, wood, and other mild materials.

Perceptual characteristics

In the early stages of children’s cognitive development, especially in the early preschool years, recognizing new things depends mainly on sensory information to get stimuli and respond to them.

Language characteristics

A language is a tool of communication, the 3-6 years of school age is an important period of oral development for children, during which children’s sentences are relatively complete and they can purposefully convey ideas and feelings. A healthy language environment and the guidance of the right values can help children grow into a person with a sound personality.

Behavioral characteristics

Children between the ages of 3 and 6 have a dynamic nature and are good at exploring the surroundings and unknowns. You often hear some parents said: “Baby, can you calm down first.” However, the results are often disappointing.



Physical development characteristics

The bones of preschool children develop rapidly and the body data vary greatly from year to year.

1.4 Physical characteristics of parents

The parents have been physically mature, and their height has been determined. At the same time, the lumbar and cervical vertebrae of adults are the key parts of the onset of the injury. The lumbar curve of the human body from standing to the sitting body becomes arch, and this kind of movement makes the lumbar disc subject to a lot of pressure. Long-term incorrect sitting posture is more likely to cause lumbar disc injury. Therefore, the design of furniture must take into account the physical characteristics of parents so that makes the long-term interaction between parents and children.

1.5 The principle of emotional design for parent-child furniture

The emotional design brings emotion into the design results through different shapes, colors, textures, and other modeling elements; it will arouse association and form resonance in the process of users' watching, contacting, and using, to obtain spiritual pleasure and inner satisfaction (Norman, 1988). Emotional design is a complete and coherent concept that runs through the whole process that people's contact with products. It always adheres to the concept of people-oriented. Users can be attracted by the excellent shape of the product before using, have good emotional interaction with the product during use, and leave pleasant emotional experience and good memories for the users after using.

1.5.1 Norman's emotional design principles

Donald Arthur Norman, an American cognitive psychologist, is a scholar who has made outstanding contributions to the study of emotional design. Based on the analysis of emotion in modern psychology, his Emotional Design puts forward three levels related to design: instinct, behavior, and reflection (Norman, 2004). Figure 5 shows the diagram of the principles of emotional design. Concepts of those emotional designs are detailed in Figure 6.



Figure 5 Diagram of the principles of emotional design (DesignMantic, online)

- Visceral level

The feeling we get when we first touch something is instinct. They are mainly through the perception of the five senses and make corresponding emotional responses when people contact the world. Therefore, this principle requires the design to focus on the visual effect of product modeling.

- Behavioral level

At this level, it mainly focuses on the use process, a principle that requires the design to focus on the functionality of the product.

- Reflection level

At this level, feelings about what you touch often come from the good experiences and pleasures when we come with seeing it and using it. This principle focuses on the user's satisfaction with the product and the attractiveness of the product.

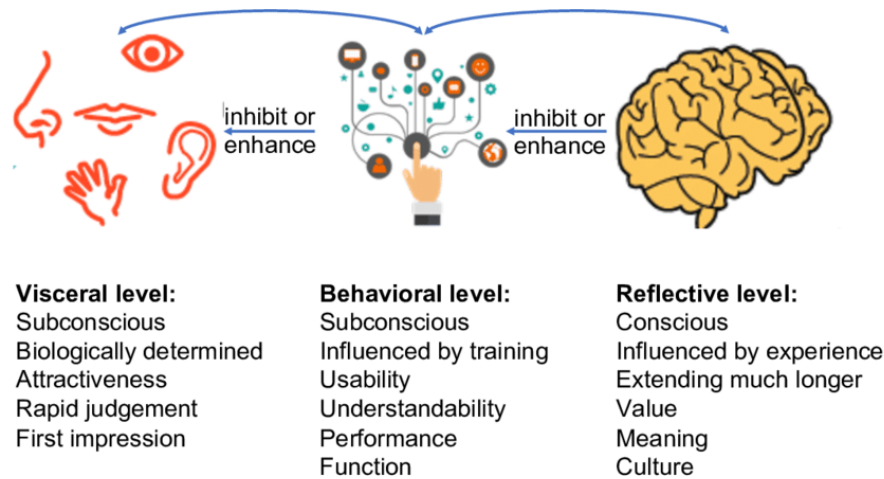


Figure 6 The principles of emotional design (Zhou et al., 2020)

1.5.2 Design case study

1) Yanyun: Inspired by contour lines and hillsides, the designer used the modeling of natural objects and bionic design methods to apply the lines of natural objects to furniture design (Figure 7). The modeling of natural objects, such as flowers, birds, wind, rain, and lightning, were integrated into the product forms. These vivid, lively, natural, and interesting shapes make children feel nature, attract their attention, and meet their psychological needs. Designed in the shape of a mountain, the sofa allows children to play around it and they can surround their parents, which encourages bonding between parents and children. To parent-child furniture products, whether modeling can attract the attention of the child is of significance.



Figure 7 Yanyun with contour lines and hillsides (Yanyun, online).

2) Climbing chair: Jaewook Kim, a South Korean designer, thought that many parents might not have enough energy to play with their children when they come home and want to read a book. For this reason, he designed the climbing chair that has a thick mesh of rope on the back and a woven seated surface so that children can play web games with adults and even climb a rope ladder onto their dad's shoulder. This furniture does not only meet the basic functions it should have but also adds the climbing function that children like. It is a tool that can be used and played with. The designers aimed to encourage interaction between children and parents.

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Figure 8 Climbing chair (Designboom, online)

3) Interaction table: I pads are so common in our life that children are attracted by their fun, interaction, and technology. Combining I pads with tea tables, it is no longer a common tea table to place items but also offers operability. When family members carry out certain operations on it, such as parent-child education and entertainment games, the interaction table will give them some feedback, so that people can continue and are happy to continue. It reflects that the feedback effect of products on users is one of the purposes for designing this interactive table, which greatly meets the emotional needs of children.



Figure 9 Interaction table (MikeyPixel, online)

2. Objectives

This study aims to increase the interaction opportunities between parents and children.

- 1) To study how to use furniture to create more emotional interaction between parents and children in the context of digitalization
- 2) To design one kind of parent-child interaction furniture that can provide opportunities for face-to-face interaction to bridge the emotional gaps between parents and children
- 3) To create the prototype of furniture to support the parent-child interaction



3. Materials and Methods

In this study, the information about psychological and physiological characteristics of children aged 3-6 years was gathered and analyzed. The information was combined with Norman's emotional design principles for implementing the design of furniture based on the inspiration of the parent-child interactive furniture.

3.1 Summarize the principles and methods of emotional design of parent-child furniture

- Visceral level design

People's most intuitive feeling about something comes from the shape of things, including shape, color, material, and so on. When people look at, smell, and touch these factors, they feel like and dislike something for the first time.

Styling: Preschool children think in an image-based way, preferring familiar shapes, and toys are a part of their lives for children of this age. Therefore, in the design of parent-child furniture form, we should consider starting from the familiar toy shape of most children, exaggerate and abstract its characteristics, and make its external forms from simplification and contouring, to cater to children's psychology and gain emotional recognition. At the same time, it is necessary to avoid the complex structure of too many connectors in the design, to prevent small gaps from hurting children. Parent-child furniture lines to be rounded, surface treatment to be delicate and smooth, exposed corners can be wrapped in cork or tampons to prevent children from bumping.

Colour: Multi-mathematics pre-school children prefer brightness and saturation of the high color, they will produce a positive and pleasant emotional experience, so parent-child furniture color design needs to be based on the color to make children have emotional resonance. Since coatings or paints may contain lead, cadmium, and other heavy metals, so for the color of the furniture, it is recommended to choose harmless high-quality paint to minimize the use of these processes.

Materials: The touch of different materials will make children feel different. Children through touching different materials obtain a real and profound experience effect and produce the initial perception of things emotion. Surface raw materials generally choose soft smooth materials to prevent children from accidental bruises when using. The main material can be wood, bamboo, rattan, and other natural environmental protection materials.

- Behavioral design

This level of design focuses on the operation and is closely related to human behavior, emphasizing that design needs to be efficient and fun. The design of parent-child furniture focuses on preschool children's behavior and is committed to creating easy-to-use and pleasant furniture works for children.

Practicality: For preschool children aged 3-6 years, their growth spans from the family environment to the social environment, and their cognitive process is also shallow and deep. If they get older, parent-child furniture can lose its meaning and only play its role in a short period, which possibly results in meaningless parent-child companionship. Therefore, parent-child furniture needs to meet the needs of children of a certain age, the design should take full account of the time extension and practicality of furniture.

Functionality: The functions of parent-child furniture should meet the emotional expectations of children, which is an emotional design that must be discussed. The functions include the material function and spiritual function of the product, an excellent product can not only meet the material needs of the user but also their spiritual needs to the maximum extent. There is a big difference between a child's perception of things and their view of the world and that of an adult. In the eyes of adults, the function of the furniture is long-established things, for instance, wardrobes to store clothes or chairs for people to sit. In the eyes of children, this furniture has other functions, wardrobes can hide cats while chairs are small tables with toys. The design of parent-child furniture must be carefully studied in children's psychology and physiology. The key to parent-child furniture is to realize the interaction between children and parents and furniture, to realize the interaction between people and things. Therefore, parent-child furniture needs to add a certain spiritual function based on realizing material function.

Interest: Good designers can quickly find the user's interest point and use the shortest time to close the distance between the product and the user. Understanding the taste of the users of different ages is also different. The parent-child interaction of the users includes parents and children, so the design of furniture



fun should take into account children and parents and both interest points of them. Less interesting products will make the users a sense of weariness in a short period, thus reducing the use of the product cycle.

- Reflect on the level of design

As modern digitalization continues to integrate into our life, people have become accustomed to the use of technology products. Although technological products can replace parents to communicate, interact, and play with their children, no product can replace the emotional attachment that parents and children have in their interactions. From the psychological and physiological characteristics of preschool children, they need parental companionship and effective interaction with them in daily life. In the limited living room space, the author hopes to make the furniture become the medium of interaction between parents and children and integrate it into the daily emotional interaction between children and their parents.

The proposed conceptual design of parent-child furniture is shown in Figure 10.

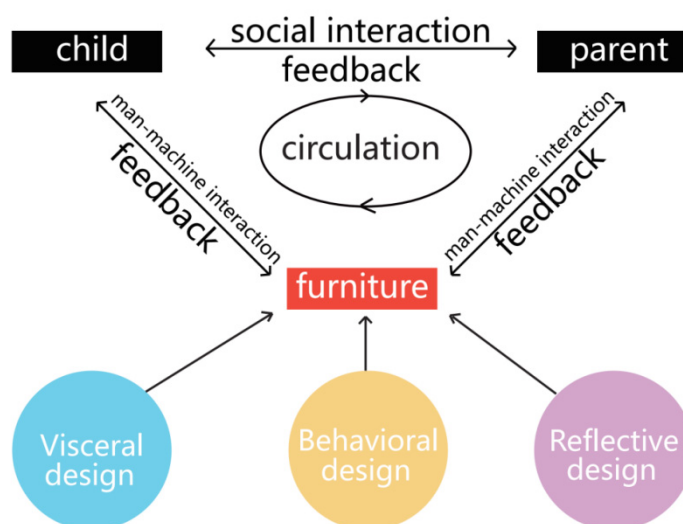


Figure 10 Design methods of parent-child furniture

4. Results and Discussion

4.1 Results analysis

Modeling: Preschool children have a certain understanding of color and shape. Among the shapes of toys familiar to children, the author considered using toy modeling of building blocks and since preschoolers love bright saturated colors, the authors thus considered using bright colors to draw children's attention. Taking into account the children's more sensitive touch and the safety of the furniture, the edges and corners of furniture must be designed with good fillets to eliminate sharp corners, burrs, metal sharp corners, and glass to avoid harm to children.

Function: According to the human-machine functions of parents and children analyzed above, the furniture designed should be easy for children as well as parents to use. At the same time, some children's familiar and favorite games or sports are integrated into the furniture, so that parents and children can use it to increase the interaction opportunities. The addition of functions is to enable parents and children to participate together, thereby providing opportunities to create interactions and creating a tacit relationship between parents and children.

Emotion: The emotional factor is an extremely important part of furniture design. The author hopes that the furniture design can act as a bond, and with the familiar toy characteristics of children integrated into the furniture, it will bring children into the scene of the play to meet their inner emotional needs and make the feelings between parents and children more closer.



4.2 Design scheme

The emotional interaction design of furniture is to meet the inner emotional needs of parents and children in daily life, aiming at creating products with pleasant moods and increasing interaction and emotion. Therefore, after the previous research and comprehensive consideration of the shape, function, and emotion of the product design, the author decided to design a sofa that contains basic functions and funny functions and is where the parent-child interaction can take place. This article started with man-machine functions, shape, material, color, and interactivity.

Most of the common sofas do not consider the height suitable for children, which means children can not easily sit on the sofa by themselves. According to ergonomics, the sofa needs to fit the heights of both parents and children, allowing them to change the heights of the seat at any time according to their heights.

In terms of shape, this sofa needs to attract the attention of children and make children fall in love with the look of the sofa. In terms of materials, this sofa should be made of materials with good softness and elasticity, and it is especially necessary to pay attention to the fact that it will not cause safety risks to children. The color of this sofa must base on the preference of children and should also consider the integral style of interior design. In terms of interactivity, parents and children can use this sofa to complete interesting parent-child interaction games, to increase the interaction opportunities.

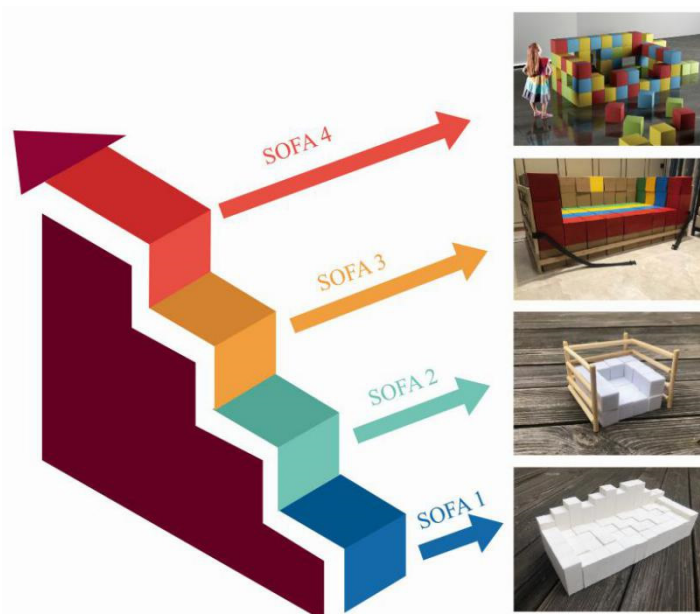


Figure 11 The development process of the sofa

The emotional factor is an extremely important part of furniture design. The author hopes that the furniture design can act as a bond, and with the familiar toy characteristics of children integrated into the furniture, it will bring children into the scene of the play to meet their inner emotional needs and make the feelings between parents and children more closer. The next section discusses how the sofa model was improved.

- Sofa 1

The sofa was inspired by the game hopscotch. The author wanted the design to offer all family members the hopscotch gameplay between children and parents on the sofa (Figure 12). The cubes were designed to be fixed with each other but it was found that, since the sofa had no frame, it was not stable. The author then continued to develop the design to overcome this problem.

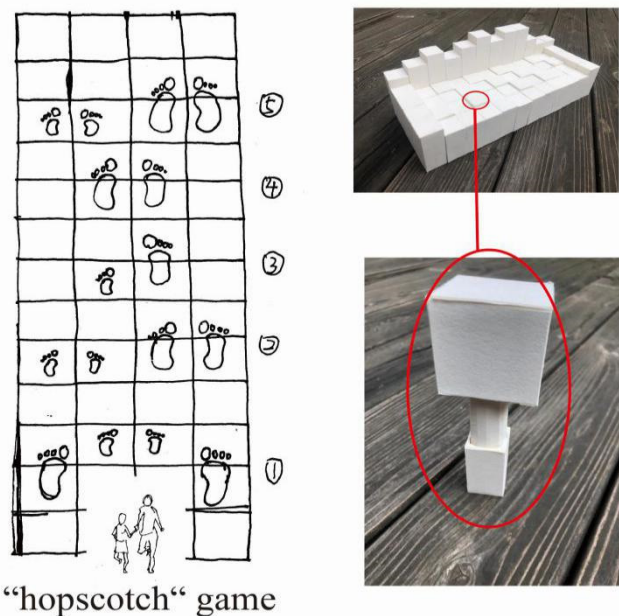


Figure 12 Design of Sofa 1

- Sofa 2

The game of building blocks is very popular in parent-child interactive games. It can both increase children's imagination and exercise their coordination ability and promote the parent-child relationship. To realize the interactive function, the author aimed that this sofa design will become a place for parents and children to build blocks. For this reason, the author improved Sofa 1 based on the inspiration of building blocks. The improved sofa was composed of a wooden frame and many small cubes. After adding the wooden frame, the whole sofa became more stable. Parents and children can adjust the height of the sofa according to their height, and the most important thing is that parents and children can use the cubes of the sofa to build blocks together.

As for the material of the sofa cushion, the author chose ethylene-vinyl acetate copolymer (EVA). First of all, EVA is light. The sofa cushion made of EVA is easy for children to move. Secondly, it has good softness and elasticity so children will feel more comfortable sitting on it (Figure 13). Thirdly, the surface is easy to clean and it has a wide range of applications. EVA is often widely used in kindergartens and early education institutions.

Figure 14 demonstrates that the sofa can be adjusted to suit each age group. For example, the cubes can be arranged in a single layer for children or add more cubes to increase their height to suit adults. However, this sofa was made up of numerous loose cubes, thus it lacked stability (Figure 15). At the same time, all cubes of this sofa had only a single color. The author decided to continue improving these two aspects.

- Sofa 3

This sofa was designed to offer the family members Twister gameplay on the sofa. Twister is a highly interactive multiplayer game with the ultimate goal is to get everyone to twist together (Figure 16). Inspired by this game, the author integrated the game Twister into this sofa to add functions to the sofa, making it more interesting, and enrich the colors of the sofa. The most important piece of equipment in the game is a blanket, which is painted with four colors; red, yellow, blue, and green. To allow parents and children to play Twister on the sofa, the author changed the colors of the cubes.



Figure 13 Ethylene Vinyl Acetate(EVA)



Suitable for children

Suitable for parents

Figure 14 The height of the sofa adjusted according to the height of adults and children



Figure 15 Sofa 2



Figure 16 The “Twister” sofa 3

The author considered adding an elastic belt in the front of the sofa to increase the stability (Figure 17). The main purpose of the frame and elastic band was to hold the cubes in place.

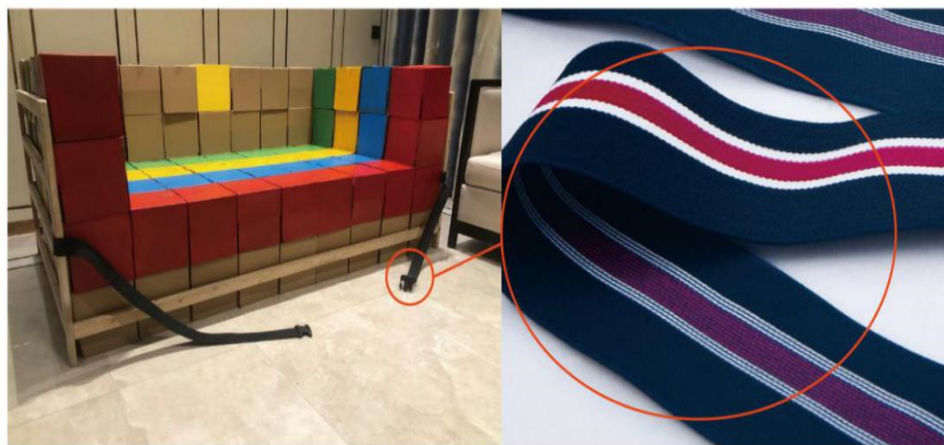


Figure 17 An elastic belt is used to increase the stability

Besides, when children are playing on the sofa, their heads can easily hit the sofa, therefore, the wooden frame would be unsafe. The security of the sofa frame is an urgent problem to be solved. The cubes should have a more positive linkage, so the frame and the elastic band can be removed.

- Sofa 4

To make the sofa more stable and safe, the author changed the shape of some cubes and added some irregular geometry objects such as Tetris (Figure 18). Using Tetris fixed with metal rods as the sofa’s structure increases the sofa’s stability as shown in Figure 19. The sofa is now able to endure sitting and playing. The shape of the sofa was designed in an irregular shape. For children, this sofa is safe and fun like a castle.

More importantly, this sofa needs bright colors that children like and also needs to fit the overall style of the modern living room.

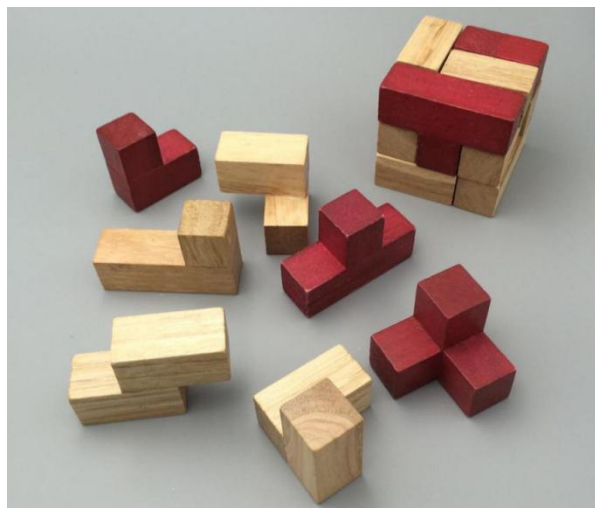


Figure 18 Tetris and irregular shape

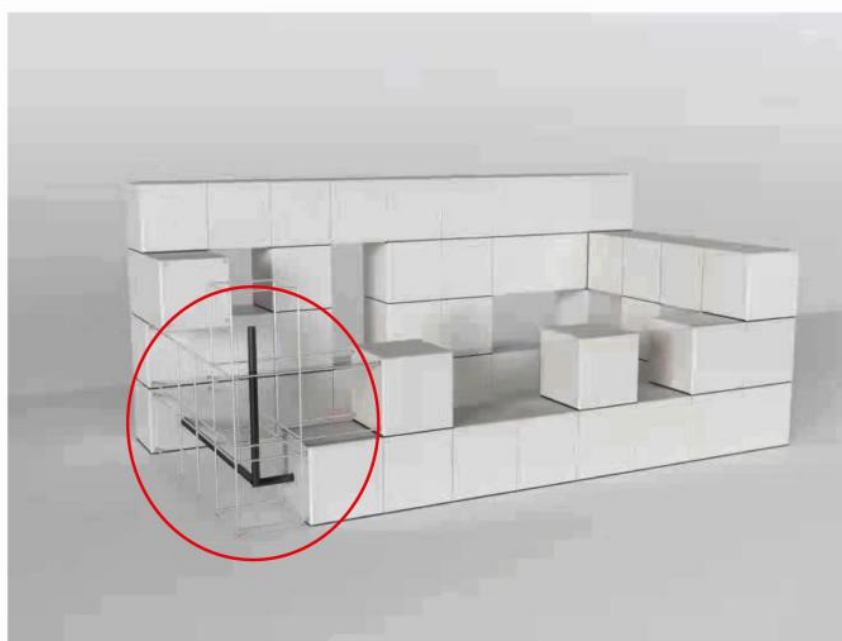


Figure 19 3D rendering: How to fix the Tetris together using a metal rod to increase the sofa's stability

4.3 Display of design prototype

Below is a prototype sofa designed by the author, which allows parents and children to adjust the height of the seat according to their height at any time to increase comfort. The shape of the sofa is like a children's castle, which is very attractive to children. EVA, the main material of this sofa, does not only ensure the safety of children but also meets the requirements of parent-child interaction. To conform with contemporary interior space, the author combined children's favorite bright colors with the living room decoration style. Because the preference of different children is different and the decoration style of every family is also not the same, the matching color of the sofa needs to be adjustable according to these two respects. The interactivity of this sofa will be shown in the usage method in section 4.4.



Figure 20 The final prototype that is strong and stable and uses cubes that can be adjusted into various styles



Colour scheme

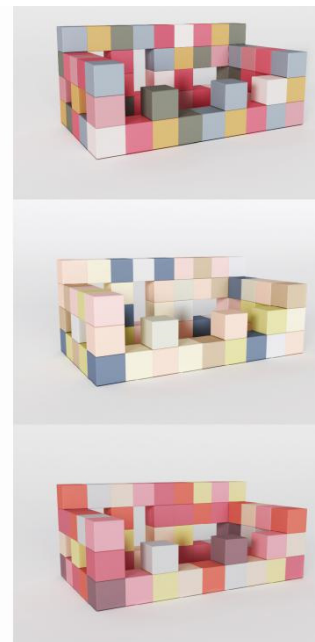


Figure 21 The colors of the sofa

4.4 The usage of the sofa

Parents and children can play on the sofa like a castle, build blocks, and play hide-and-seek and other games together, increasing the emotional interaction. Parents and children can adjust the height of the sofa according to their different heights as shown in Figure 22. Parents and children can sit on any of the irregular geometries scattered on the ground to play. Besides, they can sit in a circle to provide more opportunities for face-to-face interaction with each other (Figure 23).



Figure 22 The funny function of the sofa

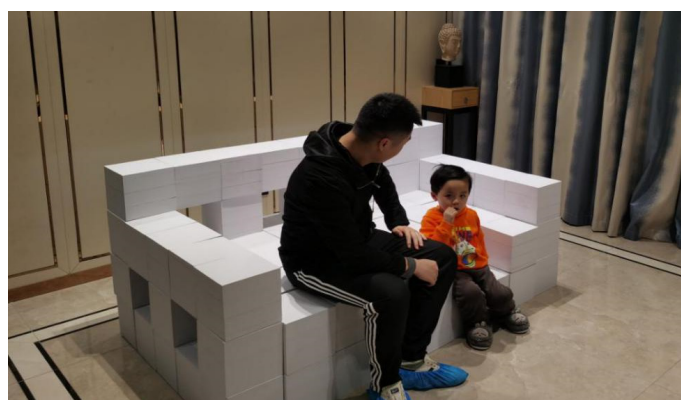


Figure 23 The different heights of the sofa cushions

5. Conclusions

5.1 Conclusion

The purpose of this study was to design a piece of furniture that encourages interaction between families. From sofa 1 to sofa 4, the author increased the interesting function and stability of the sofa by changing the shape, function, color, and connection of the sofa. The author made the final design, created a prototype of the sofa, and tested its function. Sofa 1 was inspired by the hopscotch game. However, this sofa design had no frame so it was not stable, and an improvement was needed. Sofa 2 was inspired by the game building blocks. The author designed sofa 2 by improving sofa 1 and adding a wooden frame and many small cubes. However, the stability of the cubes inside and the single color of the cubes were problems that needed to be improved. Sofa 3 enriched the colors of the cubes. Sofa 4 was composed of a lot of individual cubes and irregular geometry, and the cubes formed the sofa frame. Based on sofa 4, the author finally made a final prototype.

In the final prototype test, the sofa can meet the basic functions of furniture and also promote the parent-child interaction. In addition to resting on the sofa, parents and children can also use this sofa to play games such as stacking wood, hide and seek, and so on. At the same time, the sofa is a modular combination. It is easy to move so that the family can change the ways that the cubes are placed to increase the opportunity for interactions.

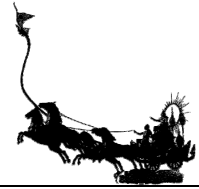


Figure 24 Increase face-to-face interaction



Figure 25 3D rendering: The use of the sofa in different scenes

At present, more and more parents have realized the importance of parent-child communication in daily life. The author argues that while technology can bridge the physical divide between children and loved ones, it should not be used instead of meaningful face-to-face interaction. Parent-child furniture can make parents stay at home and use furniture as a material carrier to easily realize the interaction between parents and children. A piece of excellent parent-child furniture is not only an industrial product but also a way of life embodiment; it is not only a medium for parents and children to interact but also a beneficial helper for



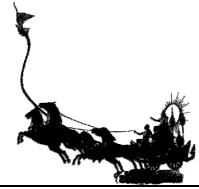
a child's growth. The parent-child interaction sofa designed by the author attempts to build a bridge for parents and children to interact face-to-face at home. To some extent, it can provide parents and children with face-to-face interaction opportunities and help foster parent-child emotional gaps in the modern digital context.

5.2 Recommendations

The entertainment function of the sofa in daily life is not sufficiently developed. The interactive function of the sofa needs to be enhanced. Further exploration can be made in geometric patterns and other aspects.

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