



Soft finishing: A safe and comfort furnikids design for preschool children

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Abstract

Furniture is inseparable from almost all human activities. It is used by individuals of all ages, both adults and children. However, the childhood period is a vulnerable period and hence requires protection. This study mainly aims to design safe, comfortable, fun, and aesthetic furniture for preschool children. This applied research aims to deliver a design through design concept, idea, and drawing stages. The concept was developed based on textual and visual data sources. The data were analyzed using interactive analysis techniques, including data reduction, data display, and data verification. The design process was carried out through the idea stage, alternative sketching stage, sketch selection stage, work drawing, and 3D drawings. The designed furnikids products include soft-furnished racks, tables, and chairs specifically designed for children. A Soft-finishing technique was applied to coat the product using foam and cloth to deliver a soft surface. The product was designed using various animal motifs, aiming to serve as media for introducing colors and animal shapes to children, in addition to serving as play equipment.

Keywords: Furniture Design, Early Childhood.

Abstrak

Furniture telah menjadi perlengkapan penting bagi manusia pada hampir semua aktifitas dimanapun berada. Furniture bahkan digunakan tidak hanya untuk orang dewasa namun juga untuk anak-anak. Anak-anak adalah masa yang sangat rentan dan perlu mendapatkan perlindungan. Tujuan penelitian ini adalah untuk merancang furnitur bagi anak usia dini yang aman, nyaman, menyenangkan dan estetis. Penelitian terapan digunakan sebagai pendekatan untuk menghasilkan desain atau perancangan melalui tahap konsep, ide desain dan gambar desain. Penyusunan konsep digali dari beberapa sumber data berupa teks dan visual. Analisis data dilakukan dengan analisis interaktif yang meliputi tiga komponen meliputi reduksi data, sajian data (data display) dan verifikasi data (verifikasi). Proses perancangan dilakukan melalui tahap ide desain/perancangan, alternative sketsa, sketsa terpilih, gambar kerja, dan gambar tiga dimensi. Produk furnikids yang dirancang meliputi rak, meja dan kursi untuk anak-anak dengan menerapkan teknik soft finishing. Penerapan soft finishing dilakukan dengan melapisi produk dengan busa dan kain untuk menghasilkan permukaan yang empuk dan lembut. Perancangan dibuat berwarna-warni dengan berbagai motif kulit hewan yang berkarakter dan bentuknya menyerupai hewan sebagai ide perancangan. Penggunaan motif dan bentuk hewan adalah sebagai media untuk pengenalan warna, alat bermain dan pengenalan bentuk binatang kepada anak-anak.

Katakunci: Desain, Furniture, Anak Usia Dini

INTRODUCTION

Individuals need equipment to support their activities throughout their life. Furniture exists anywhere and anytime to support human activities. Furniture includes equipment for sitting, sleeping, and storing, among other functions (Jamaludin, 2014). During the primitive era, before people were familiar with furniture, they used any natural materials from their surroundings (Hayward, 1981). Over time, furniture began to play a vital role in supporting human activities. It even becomes more specific and can be categorized based on the materials, types of activity, position, profession, gender, and the user's age, among others. One of the types of furniture interesting to study is those specifically built for children or known as furnikids.

Children between 0-4 years of age are in a golden period and should be given special attention as it can significantly affect their development (Muliawan, 2009). On the other hand, children in this period are physically weak and vulnerable. In this regard, safe furniture is necessary to support and protect their development (Hasimjaya et al., 2017). Previous study conducted by (Farooq, 2016) has designed child-safe furniture using the ergonomic approach, taking consideration specifically to the anthropometric aspect. (Bülbül et al., 2018) Also study the importance of avoiding toxic chemicals that can harm children

In addition to chemical aspects, it is also important to pay attention to the physical aspect of the product by considering the users' safety and comfort. (Pile, 1979) Suggests that product comfort is the primary aspect to consider in designing modern furniture. Science and technology development have been known to promote discoveries and emergences of new main, supporting, and finishing materials to build more comfortable and safer furniture. The finishing phase is known to play a pivotal role in delivering a comfortable furniture product. This phase determines the decorative and protective functions of a product (Lensufiie, 2009). A product's protective function aims to protect users from possible dangers caused by product use. The protective function relates to the physical aspect of the product. In this regard, the designers should avoid materials that can cause physical harm.

Being selective is necessary when choosing finishing materials. As (Peraturan Menteri Kesehatan (Permenkes) RI No 66. (2014), 2014) defines, defines, 8 months old children begin to involve in more active physical activities. During the 8-12 month period, they begin to crawl and try to stand and walk with their parents' assistance. In the 12-18 month period, children begin to learn to throw balls, crawl, or climb stairs. In the next stage, i.e., 18-24 months period, they begin to walk, climb a chair, stand with one foot, drive a toy car, or kick a ball. At 24-29

months period, they begin to walk like adults, run, and jump. While at 29-36 months period, they begin to learn to ride a tricycle.

Although being physically, emotionally, psychologically, and intellectually active, children in this period have not fully understood a product's danger. Therefore, it is necessary to avoid dangerous equipment, play, and products. In this regard, the present study aims to describe child-safe furniture materials and finishing techniques. This study also aims to design aesthetic, safe, and comfortable furniture for children.

METHOD

The present study was categorized as applied research. It focused on designing furniture with soft finishing, commonly known as furnikids. (H.B. Sutopo, 2006) Argues that applied research investigates a problem and develops a practical solution to the problems. This study involves a spiral cycle involving systematic planning, action, observation, and reflection stages.

The design object in this study was the child-safe furniture. The data from verbal and written information and images relevant to the child furniture were collected using textual and visual review. Data were triangulated for validation purposes. The interpretive interactive analysis technique was applied, comprising data reduction, data display, and drawing of conclusion stages.

According to Pile (1979), several stages were involved when designing furniture, including programming, sketch, modeling, drawing, work drawing, model finishing, mockup, prototyping, and project stages. However, it should be noted that there is no single design that fits all purposes ideally (Green et al., 2015). The design process mainly consisted of analysis, synthesis, and evaluation stages. This process is heavily contextual and situational in nature.

First, the animal became the design idea and was used as a medium to introduce animals to children. Second, making sketches or alternative designs, i.e., a rough drawing to briefly describe a product (Olofsson & Sjolen, 2006). Several sketches were made as alternatives. Third, the sketch that meets a criterion was selected (i.e., child-safe, aesthetic, economical, and functional). Fourth, 3-D drawing. Fifth, shop drawing, i.e., a standardized, measured, and scalable picture serving as a technical reference.

Result and Discussion

Possible danger of a furniture product may arise from using the product or the users' activity. In this regard, a furniture product safety needs to consider the users' activities, position, and product lifetime. The design process should pay attention to the materials,

components, assembly, and finishing aspects (Smardzewski, 2015). Finishing is one of the most crucial stages in delivering a useful product.

Some aspects to consider during the finishing stages include (a) finishing types; (b) working stages; (c) tools and materials; (d) human resources skills; (e) cost; (f) negative impact of the production process and product lifetime. Finishing stage deals with the application of the coating on the product surface (Iensufiie, 2011), (Sunaryo, 2001), (Yuswanto, 1999). In terms of performance, finishing stage commonly use product coating with transparent and solid color. In terms of materials, the materials commonly used in this stage include paint and laminate-based materials, and sticker coating. These three types of materials deliver a product with hard surface, making it less recommended for preschool children. Products specifically developed for children are usually known as soft toys (Anonim, 2020). In the interior context, soft furnishing architecture deals with the room fillings and decoration. It refers to creating a soft atmosphere through color composition and material use (Chen & Wang, 2013).

Material use can be highly influential in determining the success of a furniture product design (Sumarno et al., 2019); Budiwiyanto & Sumarno, 2018; Kilmer & Kilmer, 1992) Furniture product coating using soft clothes is known as upholstery and is commonly found on products requiring a high level of comfort, as found in a sofa. Soft furnishing refers to space fillings using furniture or other products. In a more specific context, soft furnishing is known in the production process, especially the finishing stage, as opposed to hard-finishing. Soft finishing is a technique with which an interior product is done using soft covers (Weston, 2003).

It is interesting to apply soft finishing to furniture designed specifically for children (furnikids), as this can protect physically weak children who need safe equipment and tools to support their activities. Muliawan, (2009) Divides children's play activities into several categories, including physical, creative, imaginative, and manipulative playing activities. Playing is children's most dominant activity. Crawling, walking, running, jumping, climbing, swinging, sitting, and drawing are among children's dominant play activities. Active playing activities are those involving various body movements. These activities include (a) free, spontaneous play activities and (b) constructive play (Ismail, 2009).

A good play equipment can be characterized as follows: (A) having a simple design; (b) multifunctional; (c) attractive; (d) easy-to-use; (e) durable; (f) child-safe; (g) meeting children's needs; (g) safe; (H) motivating children to play together; (i) developing children's imaginative ability; (j) not merely pleasant visually; and (k) made from affordable materials (Ismail, 2009). Furniture design, as an equipment to support children's play activity needs to consider the followings:

Materials:

1. Material is an important aspect to consider. It is necessary to avoid materials that are too big and heavy or too soft, slippery, sharp, fragile, and flammable.
2. Poor material quality can adversely affect the product's durability, operational risk, and toxicity.
3. The selected materials should not be dirty easily, soft, and suits the furnikids purpose. Velvet appears to meet the criterion, yet its thick, downy surface can store dust that may harm children's health (Wu et al., 2014).
4. Full-colored, aesthetic materials can attract children to learn about their surroundings. Bright and colorful materials can also attract children's sight while making them familiar with various colors.
5. Less durable materials such as styrofoam, papers, and particle boards should be avoided or safely covered, preventing
6. children from touching, inhaling, or swallowing toxic chemicals. Toxic chemicals that should be avoided are mentioned in government regulation no. 18 of 1999 on Hazardous and Toxic Waste Management (Habibie, 1999).

The shape of furniture and preschool children's play should consider the followings:

1. Furnikids should be equipped with accessories. The hole size on the product should pay attention to the children's mouth, head, foot, and fingers' size, preventing them from being stuck in the product.
2. The size and the weight should be adjusted to the children's physical ability.
3. It should be designed following the children's anthropometric size.
4. It is also necessary to avoid sharp edges (Muliawan, 2009).
5. Play activities that emit fluids, gas, heat, and electric shock should also be avoided as they can harm children.
6. The design structure and construction should also be robust and stable to hold static and dynamic loads. A proper structure and construction can prevent unexpected accidents due to falling and being stuck, among others.
7. The product should be aesthetically designed by referring to children's favorites, such as animals, flowers, plants, and vehicle shapes.

Soft finishing allows children to play safely. Soft materials for children's play product can include foam, rubber, silicon, cloth, kapok woods, etc. Considering that messages,

technique, materials, equipment, and environment are among the children's learning sources (Nurlaili, 2018).

Finishing is one of the most important stages in the production and design process. Finishing materials that are commonly used to cover children's play products and furniture include paint, HPL, PVC laminate sheet, skin, and cloth. The coating materials include cloth, skin, and vinyl, among others. The following figure shows a wooden chair, table, and desk with soft finishing, specifically designed for children. The soft finishing is in the form of colorful foam with animal motifs. This product is designed to safely support children's activities while introducing them to animals. The design process is done to make this product include design idea, alternative sketches, design selection, 3D drawing, and simulation.



Figure 1: Storing Rack, table, chair, board, and book shelf design with foam and cloth soft-finishing.

CONCLUSION

Preschool children are in the golden age period and should be facilitated and protected from potential harm due to the facilities around them. Furnikids can help support children's physical, psychological, and intelligence. In this regard, soft finishing is known as a technique to make a product with safe and comfortable surfaces. This technique applies soft materials to furniture designed specifically for toddlers and children. It is also necessary to develop this technique on other products.

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