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APPROACHING BEHAVIOUR TREATMENT ON A PLAYSET FURNITURE

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ABSTRACT

Good Dino is a concept that develops playset furniture to functions as educational equipment with storages, playground, and space decoration. The concept was approached through behaviour control to suggest kids keeping their things (like toys and equipment) and playing the slide as a reward. The Dino approach is recognised as a behavioural treatment for children who may have problems with attention span, following instruction, making careless mistakes, inattentive and hyperactive. Emotional Design concept from Interaction Design was adapted to conceptualise the approach. .

Referring to Don Norman's emotional design concept, there is a need to have a good interaction between human and product. Three levels of Emotional Design by Don Norman are i) Visceral, ii) Behavioural, and iii) Reflective. This paper describes each level of the design concept that demonstrates the interaction between human and product.

Keywords: *Behaviour treatment, emotional design, interaction design, playset furniture, kids behaviour*
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RESEARCH / PROJECT INTRODUCTION

Children have extremely difficult and challenging behaviours that are outside the norm for their age. These problems can result from temporary stressors in the child's life or represent more enduring disorders. The most common disruptive behaviour disorders include oppositional defiant disorder (ODD), conduct disorder (CD) and attention deficit hyperactivity disorder (ADHD). In China, Jessor *et al.* (2003) found that the risk for behavioural problems increased significantly with increasing locus-of-control. Locus of control is a psychological concept that refers to how strongly people believe they have control over the situations and experiences that affect their lives, which means that the behaviour problems might occur due to internal factors. Abikoff *et al.* (2002) added that kids with ADHD demonstrated different objective behaviour patterns, and treatment planning needs to be considered.

Parents might think that their children with deficiencies had matured enough for unsupervised time alone, but apparently, they still need constant surveillance. Parents can observe their children's core behaviour through symptoms such as inattention, impulsivity and hyperactivity. These behaviour are part of the childrens' observable development milestone. As typical children gradually begin to grow out of these troubling but normal behaviours, children with deficiencies do not. This difference becomes increasingly apparent as the years pass. Farran (2020) had demonstrated data that twenty per cent (20%) out of forty-three children with ADHD had a severe motor impairment.

Considering the differences, researchers implement behaviour control through interaction between the children and furniture. Hartson (2003) suggested affordance (sensory, cognitive and physical) concept throughout the user's interaction with the product. In an effort to keep interactions simple and easy, goal-driven interaction design emphasises the minimum necessary interaction placed in front of users in order for them to complete a task.

Each of the performed behaviour is, therefore, 'controlled' by the product interaction design. According to Hourcade (2008), interaction design and kids are a relatively young field, but it has a strong foundation to build on. Decades of works on child development provide the starting point. He added that research on children's motor skill could guide the development of interaction design. Thus, this research explores the interaction design concept of playset furniture.

METHOD / PROCEDURE

Interaction Design (IxD) is defined by the structure and behaviour of interactive systems. Interaction designers strive to create meaningful relationships between people and the products and the services they use, from computers to mobile devices, appliances, and beyond (IxDA, 2020). This research dwells into the deeper part of Interaction design, called emotional design. Emotional design, described by Norman; (2002), (2014), (2020), is as shown in Figure 1 below.

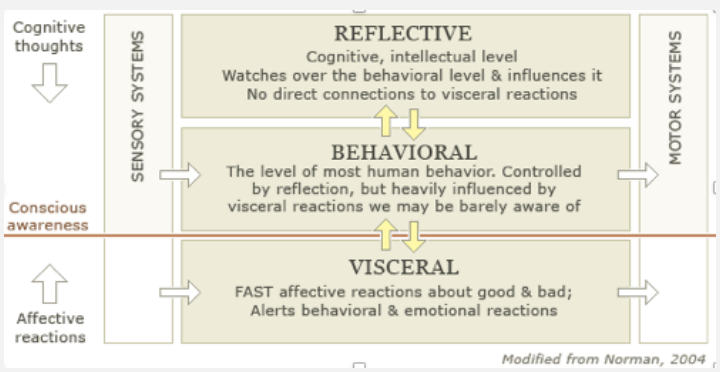


Figure 1: Emotional Design framework. The process starts from visceral to behavioural and to reflective. Each of the steps is reflective.

METHOD / PROCEDURE

Visceral

The visceral level is 'the look' of the product. It facilitates personality and cultural values that influence users to perceive something. Reactions to the visceral level of design should be immediate and powerful. It can take seconds to determine if the 'look and feel' of a product on users. The elements of the Visceral are attractiveness, pre-consciousness, initial impression and feelings.

Behavioural

Behavioural level is all about the use of the product. The important matters at this level are function, performance and the physical feel of the product. The behavioural design needs to be understandable and usable. To ensure a good behavioural design of the product is achieved, the product needs to facilitate the user's needs. The elements of behaviour design are usability, product function, performance, and effectiveness of use.

Reflective

On the reflective level, the user will interpret and understand some things from the product. They reflect on themselves after performing the task. The reflective level facilitates extensive reasoning, thus resulting in mechanical behaviour and emotional impact to the user. The elements of the reflective level are the meaning of the product, the impact of thought, sharing the experience, and cultural meaning.

The overall process demonstrates influences from sensory to motor, unconscious to conscious awareness, and affective reactions to cognitive thoughts.

RESEARCH FINDINGS

Children love to play outdoor, and they usually intend to leave the playing area messy. A messy outdoor would endanger the children and people around. A regular existing playset design focuses on playing purpose and not teach them about discipline.
In his famous book, "Design of Everyday Things", Norman (1990) explained that good design is actually a lot harder to notice than poor design. In parts, this is because good designs fit our needs so well that the design is invisible, serving us without drawing attention to itself. Bad design, on the other hand, screams out its inadequacies, making itself very noticeable.

Designing is not an easy process. Discussion among peer designers had resulted in the following emotional design concept of proposed playset furniture as 'Good Dino'. 'Good Dino' design supports parents/teachers/paediatricians and children about behavioural education such as discipline, focus, and organising skill. Good Dino elements have designed for behaviour control. The 'survival' element found in this furniture is when the kids survived to clean up the toys they played with without any instruction from their parents. They then award themselves by playing the slides, which is the tail part of the Brachiosaurus.

As a piece of behavioural-control educational equipment, Good Dino can be crucial for parents/teachers/paediatricians to observe red flags or indicators of developmental behaviour delays such as disorderly conduct, impulsiveness, inability to follow instruction, inattentiveness, disorganised, distracted, unfocused, and frequently misplacing items.

Visceral
The children can learn about colours as there are four types of colours applied to the furniture. The colours are dark green, lighter green, orange and red. Contrast colour (like green and orange) is widely used on childrens' product for attraction purpose. The dark green is used for the outer form of the dinosaur, while the lighter green used inside the storage as a pre-consciousness concept. Orange is applied onto the surface that they interact with - the steps area and the slides. Meanwhile, the red colour as the initial impression concept is for safety concern. The red colour is applied at the handlebar and the bungee cord of the ball storage to prevent the ball from falling as the feeling concept.

The various sizes of the storage help the children learn the sensory of sizes by arranging the toys according to the toy sizes that would fit the storage area. Additionally, the storage also functioned as the staircase for the children to climb up to the higher storage space whenever they have completed the storage tasks. While climbing up the orange stairs, they held the red handlebar to help them up and cling for precautions. These colours were chosen as part of Norman's signifier concept to signify the required task to be performed, such as storing, noticing (by colour), climbing the staircase, and holding the handlebar when climbing.

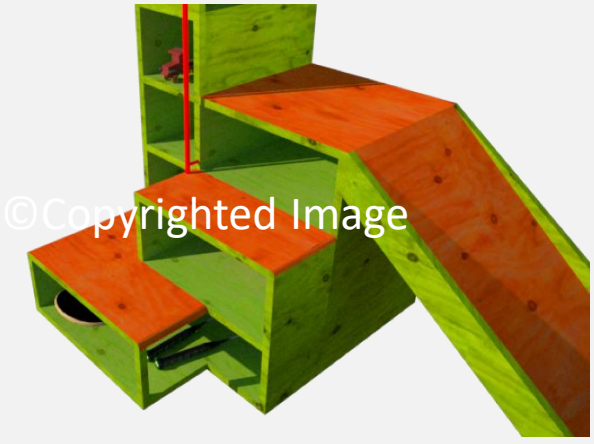


Figure 2: Visceral concept applied on colors and shapes

Behaviour
The big storages placed at the bottom of the Dino (Figure 2) is to ease the kids from bringing the big toys up. Smaller storage spaces are at the top of the Dino structure as children can easily bring up the smaller toys. For the ball storage, it is placed at the dinosaur's neck with a red bungee cord. The red bungee cord is a safety precaution to prevent the ball from falling and make it easier for the children to store the ball through the bungee cord gaps (product function concept). Each of the storage sizes represents the usability of the structure.

Figure 3: Behavior concept applied on shape, forms, and materials

After the children stored their toys, they would reward themselves by going down the slide. The slide brings joy to the children, making them eager to store their toys without being told (performance concept).

Good Dino (refer Figure 3) is an outdoor playstation with the material used that can withstand the outdoor weather. The material used for Good Dino is mostly made from 'Meranti' wood for the form of the dinosaur, stainless steel for the handlebar and wood stains for the colours. 'Meranti' is a hardwood with features of withstanding hot and rainy weather. Stainless steel is chosen for the handlebar due to its durability for outdoor (effectiveness of use concept).

Reflective

Reflective described the slide design (refer Figure 4). The moment the children goes sliding down, they will feel the joy and understand the meaning of the product. Behavioural learning theory happens because positive reinforcement performed. The slides positively impact the children's' thinking, such as knowing where to store things on Good Dino as a fun thing to do (sharing experience concept).

The regular width that can fit children from 3 years old to 12 years old is 90cm and more. The height for the usual stairs at the playground is 15cm to 20cm. For Good Dino, the width of the slides should be 43cm. It is designed for four years old to seven years old. The height of the steps is only 20cm which is suitable for the children. The long handlebar, 580mm, supports them on the stairs. With these features, Good Dino can assist the parents/teachers/paediatricians observe red flags or indicators of developmental behaviour delays- including disorder, impulsiveness, inability to follow instruction, inattentive, disorganised, distracted, unfocused, as well as frequent misplacing items (cultural meaning concept).

Figure 4: Reflective concept applied on the slide

DISCUSSION & CONCLUSION

Good Dino (Figure 5 & 6) provides storage that functioned as the staircase. When children store items in storage where there are colours and size indicators, behavioural education begins. This activity demonstrates self-education as follows:

- Firstly, they will store items according to size and colour. The staircase design allows the children to ergonomically store the items before stepping on them.
- Secondly, they will climb the staircase with safety in mind, as the stepping area has a handlebar designed with Signifier and Affordance concept. Non-slip surface material, colour indicators are also considered in the user experience.
- Thirdly, they will be on top and happy to slide down safely as the slider has been designed with the appropriate posture to slide down.

These three basic steps can encourage the children to repeat their behaviour and consequently become a possible behaviour treatment for those with behaviour issues.

In support of Good Dino functions, it is recommended for a behaviour developmental observation checklist be part of the playset. The uniqueness of this playset furniture is the function of playable, educating and its aesthetic attributes. Good Dino helps to provide a storage management system. As educational equipment, Good Dino can support parents to observe and educate children about behaviour control such as discipline, focus, and organising skill. As a potential behaviour treatment equipment, Dino can be useful at home during the pandemic, paediatric clinics and schools. As a decoration, it has a great looking survival concept that all children are eager to play with at most time.

This concept is new in the market. This is due to its limited educational-observational-equipment for children developmental milestone.

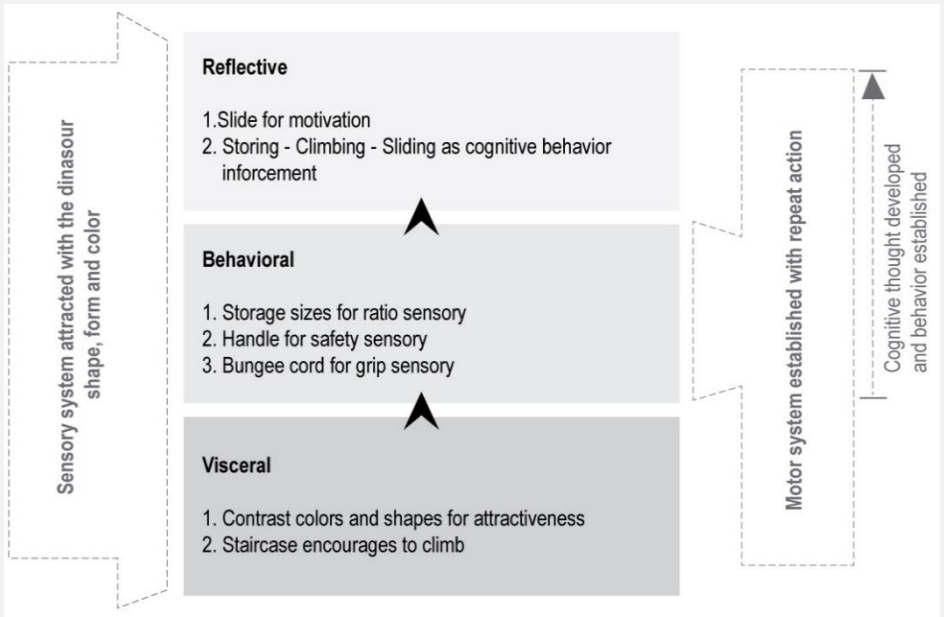


Figure 5: ”Good Dino” Emotional Design Framework

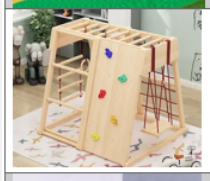
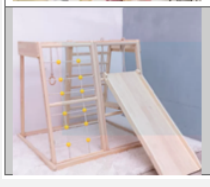
The Design Innovation	Details (forms / model making technique / Systems / shape and form / educational approach / behaviour control)	Possible Solution Recommendation
	Wooden Slide Climbing Frame Swin Climbing / Adhesive technique / Modular / Colours	Offers an educational approach during playtime up until kids behaviour control including: Reflective for motivation and cognitive behaviour enforcement, behavioural for sensory and visceral for attractiveness and encouragement.
	Kids Fitness Equipment Wooden Climbing Slide (Indoor) Climbing / Adhesive technique / Modular / Colours	Provide an educational approach during outdoor playtime up until kids behaviour control including: Reflective for motivation and cognitive behaviour enforcement, behavioural for sensory and visceral for attractiveness and encouragement with interesting shape and form.
	Children Wood Playground (Indoor) Climbing and Sliding / Adhesive technique / Modular	Extend as an outdoor playground furniture for outdoor playtime up until kids behaviour control including: Reflective for motivation and cognitive behaviour enforcement, behavioural for sensory and visceral for attractiveness and encouragement with interesting shape and form.

Figure 6: ”Good Dino” Line Up Study for Design Development

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