

Toy Industry and Its Tools

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Abstract— Is it something playing thing? We General play with it. What is that thing we always love to spend time with it? It is the toy. This Paper relates the basic concept of toy making and manufacturing. It will give a research related of toy making. Research relates the basic concept of toy making and manufacturing. Brief explain of toy industries, the various process of toy manufacturing available annual income, design, type, what is toy, history of toy, famous toy in the world, etc. how the Channapatna Toys are made. Where is Indian toy industry stand? We will have brief research inside of toy industry.

Keywords: Toy Industry and Its Tools

I. INTRODUCTION

What is a toy? Is it something playing thing? Is it something that keeps children busy or make to spend time? Is it something to take up the slack of a boring and lonely afternoon, to spend time in a boring period? Is something to have fun with, enjoy the beautiful time if life? Is something to fan the spark of creative idea and creative play? [1] According to dictionary Toy can be define as an object for a child to play with, typically a model or miniature replica of something. Toys play important roles in the lives of young children, younger, adult, etc. They stimulate pretend play, social play with other children, and the development of cognitive skills. Toys are also highly gendered. Girls and Boys generally have different toys [2]. Toys, survive from the most remote past and from a great variety of cultures. The kite, doll, yo-yo and ball are assumed to be the oldest objects specifically designed as toys. Toys are vary from the simplest to the most complex things, from the stick selected by a child and imagined to be a hobbyhorse to sophisticated and complex mechanical devices. Coordination and other manual skills develop from cumulative childhood experiences received by manipulating toys such as marbles, jackstones, and other objects that require the use of hands and bodies. Mental agility, beginning in childhood, is challenged by puzzles of spatial relationships. [3]

India has rich tradition of Toys. Right from the very ancient times Indus Valley civilization. Many figurines of dancing girl, animals, board games like chess of today times etc. have evolved from the ancient games of Indian Sub continent. The commercial production of toys has long history. Thus India has a long and rich history of toys and games [4] Toys and games are synonymous with PLAY. Almost everyone likes to play and such a desire continues throughout an individual's life. Psychologists inform us that play is not just a filling in of an empty period, or just a relaxation or leisure activity, but it is an important learning experience. [5] Toys are the greatest things in the world! They engage and excite. They combine joy, beauty and wonder. They create happiness and let fans, collectors and clients play and share experiences.

II. HISTORY OF TOY

Objects with animal and human forms may have been toys been found in deposits from ancient Sumer dating to 2600 BC. Some of the earliest toys date around 2000 B.C. and were produced in Egypt. The earliest-known written historical mention of a toy comes about 500 BC in a Greek reference to yo-yos made from wood, metal, or painted terra-cotta. In addition, the kite, still a popular plaything in China, existed as a toy there at least as early as 1000 BC. In India, clay animal-figures on wheels and other animal toys date to about 2500 BC. Later, brass and bronze horses and elephants were common playthings among Indian children from wealthy families. [3]

In Ancient Greece when boys were not at school and girls were not working they played ball games with inflated pig's bladders. They also played with knuckle bones. Children also played with toys like spinning tops, dolls, and model horses with wheels, hoops and rocking horses. Roman children played with wooden or clay dolls and hoops [6]

III. THE TOP FIVE MOST FAMOUS AND INFLUENTIAL TOYS IN THE WORLD

There are many toys which are famous in the toy industry. Here top five toys are list which made history.

A. Cabbage Patch Kids

Originally known as Little People, these dolls were created by Xavier Roberts in 1978. The dolls came with adoption papers and birth certificates, encouraging the idea of adoption.

B. GI Joe

Hasbro created the action figures in 1964, targeting young boys. Four figures were initially launched to represent the army, the navy, the air force and the marines, and within two years, the toy was bringing in more than half of the company's profits.

C. Rubik's Cube

According to the National Toy Hall of Fame, the 3-D cube is the most popular puzzle in history. Rubik's Cube retail sales figures were \$250 million in 2017.

D. LEGO

It has spawned action figures, TV shows, a fan conference and a hit film. Since its debut in 1958, LEGO has redefined the potential of playthings, allowing kids to build permanent structures from scratch, in all kinds of shapes and sizes.

E. Barbie

Launched in 1959, this fashion doll transformed the toy business by becoming a vehicle for the sale of related erchandise accessories, clothes etc. She also had a significant impact on social values by conveying characteristics of female independence, diversity etc.

IV. TYPE OF TOY

They are classifications follows

A. Toy Product Categories

- Action Figures
- Arts and Craft
- Battling Toys
- Building and Construction
- Collectible Trading Cards and Toys
- Costume and Dress-Up
- Dolls
- Educational
- Games & Puzzles
- Infant Toys
- Miscellaneous
- Models
- Musical Instruments and Toys
- Outdoor Seasonal Toys
- Plush
- Preschool Toys
- Ride Ons
- Sports Toys
- Vehicles – Powered
- Vehicles- Non-Powered
- Youth Electronics

B. Non-Toy Product Categories

- Apparel/Fashion Accessories/Cosmetics
- Books/Music
- Software, Electronic Accessories and Video Games
- Gift, Party Goods and Paper
- Seasonal
- Room Décor/Children's Furniture
- Other

C. Type of Buyer

- Parents
- Gift Purchasers
- Buyer to buyer customers

V. STEPS IN TOY MANUFACTURING

The step involve in toy manufacturing are as follows

- Idea
- Design
- Prototypes
- Feedback
- Testing
- Manufacturing
- Certification
- Success

A. Idea

Toy manufacturers make great efforts to create the next innovative toy. Looking trends in technology, school curriculums, fashion, entertainment, as well as personal family experiences. A great idea is hashed out to identify play value, developmental appropriateness and marketability.

B. Design

After the idea is sketched out, features specified, functions and target users identified. Toy Designers have the challenge to transform what started as an idea, to a tangible product that can be mass produced. The step is to develop detailed engineering drawings specifying the shape of the pieces, size, parts assembly, materials to be used, etc.

C. Prototypes

Next step, using 3D modeling software, the toy designer creates a scaled, organic surface model with all the dimensions of each component. Many manufacturers use 3D printers to create models this helps the manufacturer efficiently and economically produce a prototype. If the manufacturer does not have a 3D printer, a digital concept is sent to a lab for prototype development.

D. Feedback

Designers then work to gain qualitative information about their concept through direct observations with children, parent, groups and human factors assessments. Analyze the concept and identify how a child will play with that toy both intentionally and unintentionally. The outcome of these events will identify possible suggest design changes. Then the product must be tested on safety standards. Once the information is receives both about the toy's safety requirements and about how children may interact with the toy, again modify the design. This will provide the end user, the child, with the optimal play experience, and will mitigate problems that might cause injury or result in a recall of the product.

E. Testing

The toy is tested in a lab referencing safety standards. Physical, Chemical, and mechanical test will be conducted, as well as use and abuse testing, to ensure the quality, durability and safety of the product.

F. Manufacturing

After all modification and testing the toy is put into production. Pattern and Molds are made, materials are prepared and the process of producing, painting, stuffing, assembling, packaging and inspecting takes place. The toy is ready to be packed and shipped to warehouses. During this process, regular "interventions" take place where a select quantity of products are taken from the manufacturing line and tested to ensure compliance and safety.

G. Certification

After manufacturing the toy it is need to get certification to highlight their attention to safety and quality. A Toy Certification Mark demonstrates to consumers that the product they may be considering has been tested for quality and safety.

H. Success

At the end of this long process stand curious, energetic children who learn by playing. They discover how their world works; they learn to figure out cause and effect, to take turns, to develop fine and gross skills, and grow intellectually and physically. Behind all that childhood development, accomplished through simple interaction with a toy, stand

designers, engineers, lab technicians and human factors specialists who collectively brought that toy to life.

VI. MANUFACTURING PROCESS - CHANNAPATNA TOYS

We will see a traditional Channapatna toys are made. There are various steps and manufacturing skill is required to make a traditional toy like Channapatna toy. Channapatna toys are basically wooden toys; they are manufactured in the town of Channapatna. Traditional Channapatna toys are made of ivory-wood, has diversified over time; in addition to the other woods including rubber, sycamore, cedar, pine and teak are now used as well.

Manufacturing stages include procuring the wood, seasoning the wood, cutting the wood into the desired shapes, pruning and carving the toys, applying the colors and finally polishing the finished product. The process can be done on lathe which is machine or hand operated. For turning slender and delicate items, hand lathe is suitable

A. Manufacturing steps of Channapatna Toys

- Procuring the wood i.e., hale wood or ivory wood
- Seasoning the wood
- Cutting the wood into desired shapes according to the design
- Pruning and carving the toy on the lathe
- Applying the colors using lac colours which are vegetable dyes
- The finished workpiece is filed and finished using a sandpaper
- The workpiece is coated with wax for sheen and luster
- The detailing of the figure is done using a permanent marker

B. General Process of Channapatna toy making

- The mallet is used to beat the work piece into the desired form.
- The piece is then cut in various parts and shapes using the saw machine.
- The work piece is turned on the lathe machine using tools to outline the surface.
- Incisions and Cuts are made on the surface using chisels.
- Sandpaper is used to smoothen.
- Measuring tool is used measure to the work piece with reference to the design.
- The surface is smoothened for the process of coloring.
- The colored lac sticks are used to impart the colors to the work piece.
- Different vegetable dyes are used manufacture various colored lac sticks.
- The heat produced by friction melts the colored lac stick on the surface

VII. INDIAN TOY INDUSTRY 2017-2018

UK is rated as No 1 in toy industry where as India is ranked 8th in the world in toy industry. The Indian toy industry is around to Rs 800 to Rs 1250 billion. Where it is in the form of 10 % is organised and 90% is unorganised. Funskool is the leader in organised sector with 30%. An estimated at about 400 million US dollars is Indian toy industry and forms

only 0.5 percent of the global market. The share of internet retailing in sales grew from 1 % in 2007 up to 18 % in recent years. In 2017, traditional toys and games in India grew by 6% and further growth is expected. In recent years, cities like Ahmedabad, Bangalore, Hyderabad and Pune have become the most important manufacturing sites of the Indian toy industry. Among the local manufacturers in India about 59 % focus on the production of cheap and unbranded toys

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