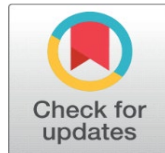
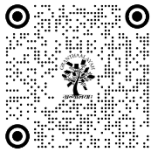


EXPLORING NEW TOYS SERIES AND PROPOSITIONS IN THE CONTEXT OF SAWANTWADI WOODEN TOYS

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ABSTRACT

India has an extensive heritage of traditional arts and crafts. Artisans delicately create handicrafts featuring traditional themes using artistic techniques and locally sourced materials. Among these, handcrafted wooden toys form a significant segment. Sawantwadi is one of the areas where the Chitrari community practices indigenous wooden toys. Artisans produce toys such as vehicles, fruits, vegetables, and cooking-sets, which are their primary source of income through sales in local markets.

A growing segment of children's wooden toys focuses on open-ended play, which helps them to increase their imagination and creativity while playing. Also, Wooden toys have less carbon footprint in manufacturing, and the material used, and durability of toys make them eco-friendly. Leading competitors in the toy market are mass-produced wooden toys imported from various countries and plastic toys, which are cheaper. Limited designs and visibility are significant concerns with Sawantwadi wooden toys. Given this scenario, the study explores customer purchase behavior and proposes a new toy series by integrating contemporary design elements and themes while preserving traditional craftsmanship.

This study, conducted in India, investigates market trends and customers' purchase behavior through surveys. Two hundred thirty-nine participants from across India voluntarily took part in the survey. The study explores the potential of creating a new design series of Sawantwadi wooden toys based on customer preference. Furthermore, new toy iterations were developed for children aged 5–12 and tested for engagement. While testing, existing and iterated toys were given to play. The result shows that kids enjoyed playing with iterated designs more. Further research is needed to explore more design innovations and market strategies to enhance the reach and sustainability of Sawantwadi wooden toys.

Keywords: Eco-Friendly Toys, Purchase Behavior, Sawantwadi Toys, Toy Design, Responsible Design Innovations

1. INTRODUCTION

India has a rich history of traditional arts and crafts. Artisans make handicrafts creatively with traditional motifs and art styles using locally sourced materials [Yadav \(2020\)](#). Sawantwadi is one of the places where the Chitrari community makes Indigenous wooden toys and ganjifa. Evidence of these significant wooden toys is available from 1837 [Gupte \(1889\)](#). They make toys such as replicas of vehicles, trains, fruits and vegetables, and cooking sets and sell them in nearby markets

[Mangaonkar-Vaiude and Joshi \(2021\)](#). These businesses are the source of their income. It also helps to provide seasonal employment to laborers in toy-making workshops.

In history, the art of making Sawantwadi wooden toys dates back to the 18th century during the rule of the Sawantwadi royal family. This craft was preserved and promoted in large part by the Sawant Bhonsle family. The Sawantwadi royal family supported the craftspeople by giving them the resources and encouragement they required to advance and sustain their craft. During the 18th and 19th centuries, the Chitairi community became a Royal Patronage for lacquerware under the rule of Sawant Bhosale. Many craft schools were introduced during this period. This lacquerware was introduced as a wooden toy and became a geographical indication of Sawantwadi. The Chitari artisans of Sawantwadi are also one of the prominent groups which have been specialized in the traditional arts and crafts sector particularly in the wooden toys, ganjifa cards and lac work. The very name Chitari is an acronym to the Marathi word 'Chitra' which means painting or art this is an indication that work done by the Chitari is artistic in nature.

These toys were used locally in festivals like the Ganesh festival and traditional rituals. Another segment of toys is made for kids. These toys are open-ended, which helps them to increase their imagination and creativity while playing. Also, these toys are eco-friendly [Madar et al. \(2012\)](#). Leading competitors of these toys are mass-produced wooden toys explored from various countries and plastic toys, which are cheaper. Limited resources, designs, and finances are the significant concerns with Sawantwadi toys.

Along with that, the identity of the artisans needs to be visible in the market. They are not getting any appreciation for their work. Also, Sawantwadi toys are mainly sold in the local market, which does not provide global access and visibility. The visibility of these toys could be much higher globally. Crafts are the traditional and cultural representation of rural areas. Those are the sustainable sources of self-development and employment generation [Bhat \(2016\)](#). Wooden toys are eco-friendly and safe to use. Also, it has very positive points that make it more useful. Their sustainability and non-toxic nature make them a preferable alternative to plastic toys. As ecological products, wooden toys are gaining value in society due to their environmental benefits [Petrović \(2023\)](#). Unlike plastic toys, which may release harmful chemicals, wooden toys contribute to improved indoor air quality by reducing formaldehyde, total volatile organic compounds (TVOCs), and particulate matter (PM) emissions [Aykan et al. \(2024\)](#). Consequently, they help create a healthier environment for children while promoting sustainable consumption practices.

Beyond environmental advantages, wooden toys offer significant developmental benefits; the form and material of wooden toys make them more open-ended while playing. The tactile experience of these toys provides critical learning without boundaries, which helps kids to be more creative while playing [Moon Toys \(2023\)](#). The material used to make toys takes them near nature, and these toys produce positive physiological outcomes when interacting, leading to self-expression, which helps kids and older adults [Cameron \(2015\)](#).

Considering the advantages of wooden toys further the study aims to introduce new design elements or themes in Sawantwadi wooden toys, considering the contemporary market and tradition together.

1.1. VARIETIES OF SAWANTWADI WOODEN TOYS

Wooden fruits and vegetables plates, Bullock karts, replicas of vintage cars, animals and moving toys like railway, truck etc are the famous toys of Sawantwadi [Baral et al. \(2016\)](#). That diverse variety of products goes into various categories, as mentioned below [Chandrashekhar \(2024\)](#):

Miniature Objects: Miniature models of moving objects like carts, bullock carts, and palanquins (Palkhi) represent the region's rich cultural history [Chandrashekhar \(2024\)](#).

- 1) **Animals and Birds:** These represent the region's fauna, such as elephants, horses, peacocks, and more, each meticulously detailed.
- 2) **Fruits and vegetables:** Replicas of regional fruits and vegetables [Mangaonkar-Vaiude and Joshi \(2021\)](#)
- 3) **Cooking sets:** Miniature models of cooking vessels and utensils for kids [Mangaonkar-Vaiude and Joshi \(2021\)](#)
- 4) **Dolls:** Artisan-crafted dolls, often representing traditional Indian culture
- 5) **Religious Figures:** These include idols of Hindu deities, showcasing the deep spiritual connection of the region [Chandrashekhar \(2024\)](#).

Those toys are used for various purposes like playing, decoration, gifting, or rituals.

Figure 1



Figure 1 Sawantwadi Wooden Toys

1.2. MATERIALS AND MANUFACTURING PROCESS

Sawantwadi toys are made using locally sourced materials such as Pangira wood, Mango wood, Jackfruit, and Jamun [Baral et al. \(2016\)](#), [Mangaonkar-Vaiude and Joshi \(2021\)](#). Wood selection depends on the toys' availability, function, and form. Due to environmental conditions and the availability of wood in nearby jungles, these locally sourced materials need to be stored longer. Also, the cost of the raw materials varies in quality and availability; it also affects the toy-making business.

The first step is selecting the wood to be used, collected from the sawmill or storage where raw material is stored. The wood is left to dry to remove moisture and prevent the wood from cracking. This involves drying the wood for several months and even a year, ensuring it is adequately cured and ready to use. Once the

wood is dried, it is cut and put onto the lathe and made into the desired design using tools such as a chisel and filler; after this, the toys are smoothed to remove rough edges and imperfections. This is done using sandpaper and other smoothing tools, ensuring a flawless surface ready for painting [Sarogi et al. \(2018\)](#).

1.3. COLORS

Previously artisans were using colors made by using natural elements to make Sawantwadi crafts as mentioned below (Census of India, Handicrafts in Maharashtra Wooden Toys of Sawantwadi and Coir Ropes of Achare District Ratnagiri, Part VII-A (4and5), 1968) :

- 1) **Khal or Chikki:** Made by using tamarind seeds and used as glue
- 2) **Lambi (Putty or Glue):** It is an adhesive material used to fill up wood cracks. By combining "Pili Mati" with tamarind seed pulp, lambi is created.
- 3) **Lac-color pieces:** These sticks were made in various colors and are available on the market.
- 4) **Varnish:** Red kerosene oil is used with a resin type known as "Rat" (shellac) to manufacture varnish locally. It was extremely robust.
- 5) The "Khara Kewada" leaf was used to give the colored object turned on the lathe its final touch.
- 6) **Brushes:** Goat hair was used to create brushes.

In recent times, synthetic paints have frequently been used due to their vivid hues and durability. Nevertheless, artisans tend to opt for environmentally sustainable and non-toxic alternatives to uphold the sustainability of their craft. Also, White primer from Asian paints was used to give the wood a smooth and finished surface to paint over.

2. LITERATURE REVIEW

Similar investigations for handicraft were conducted regarding the toy industry in Varanasi. The principal threats to the woodwork crafts of Varanasi encompass insufficient financial resources, a deficiency in skill sets that hampers employment progression, and inefficiencies in production methodologies. The absence of funding and loans for business expansion deters artists and craftspeople. Artisans attempted to experiment with various materials and forms to come out of that. They are working hard to develop innovative products to satisfy customer demand [Faisal \(2016\)](#). Here, Design professionals can try to break social inequality between stockholders and craftsmen from various levels of society. It helps to work together for the development of craft methodologies. It will be helpful for the co-design of tools, products, environments, businesses, and social institutions toward democratic societal outcomes. Designers are supposed to contribute to financial, social, and cultural aspects. Design practice needs to facilitate social changes for craftspeople which will create a better outcome of design practice [Mamidipudi \(2018\)](#).

Indian handcrafted toys are used to train children in life's nuances and entertainment. Those toys are simple and inspired by nature [Jayan \(2018\)](#). From the Indus Valley civilization, various toys were made for kids using various forms like human and animal figures [Mohan \(1977\)](#). Kids select toys based on their favorite characters, technologies, and colors, depending on the age group and gender [Chawla and Mehta \(2020\)](#). However, in the current scenario, wooden toys are available in

limited colors, which limits attractiveness and potentially discourages kids from using them. There is significant potential to enhance wooden toys by using various colors, making them more attractive [Gumulya and Gunawan \(2023\)](#).

3. METHODOLOGY

The survey was conducted to check the customers' purchase intention, where questions were asked regarding their current wooden toys purchase, their experience with Sawantwadi toys, features they like, and customers' future perceptions of purchasing wooden toys. Likely, a scale containing from strongly agree to disagree strongly was used. All collected data were segregated and compiled into the pi-charts for better representation.

The face validity of the Questionnaire was assessed before proceeding with the survey. Face validity is a measure used to check the test, i.e., the Questionnaire is relevant to the constructs and objectives [Patel and Desai \(2020\)](#) Questionnaire was shared with five subject experts for review and feedback. Feedback given by five experts has been considered. Before conducting survey researcher assured participants that answering the enclosed questionnaire is voluntary. Participation and any data collected will be anonymous and the responses will only be presented in an aggregated form and no single name will be disclosed.

The survey was conducted in India, with participants from various states and union territories. Two hundred thirty-nine responses were received from 21 states and union territories. Total 144 male and 95 female were participated into the survey. Demographic information of participants is shown in [Table 1](#).

Table 1

Table 1 Demographic Information of Participants			
Sample size (N)		N	%
Age			
Below 20		6	2.5
20 to 30 yrs		94	39.3
30 to 40 yrs		76	31.8
40 to 50 yrs		27	11.3
50 yrs and above		36	15
Total		239	100
Gender			
Male		144	60.25
Female		95	39.75
Total		239	100
Location			
North India		50	20.9
South India		6	2.5
East India		14	5.8
West India		169	70.7
Total		239	100
Exploration of Sawantwadi wooden toys			
Yes		182	76.15
No		57	23.84
Total		239	100

Source The Researcher

4. RESULTS AND DISCUSSIONS

To introduce new design elements or themes in Sawantwadi wooden toys, it's necessary to check the consumer perception, purchase behavior and current market trends. Purchase behavior is a process and act performed by a customer while purchasing wooden toys. To check purchase behavior preference for the various segment of the wooden toys were asked.

Figure 2

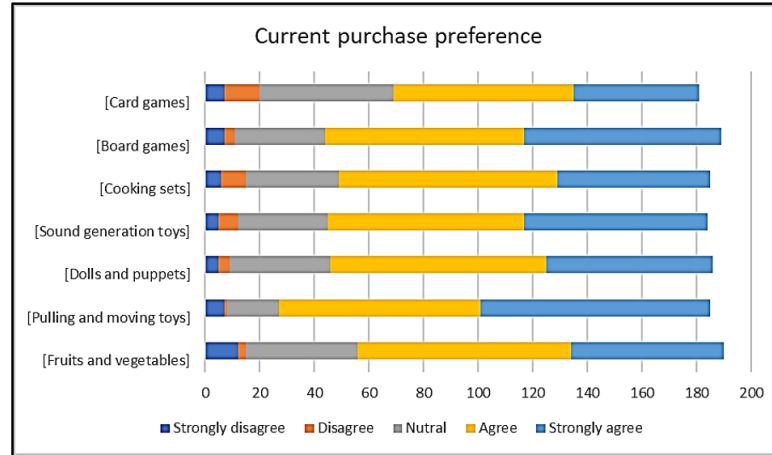


Figure 2 Present Purchase Preference of Customer

Source The Researcher

People are purchasing wooden toys made in various segments, inclination of those are towards moving and pulling toys are more. While sharing the opinions participants have shared their experiences with existing wooden toys. Consumers like to purchase toys for various purposes. As mentioned earlier Sawantwadi wooden toys are traditionally made and used locally for rituals, but customers are preferring those toys for decoration purposes and gifting more.

Figure 3

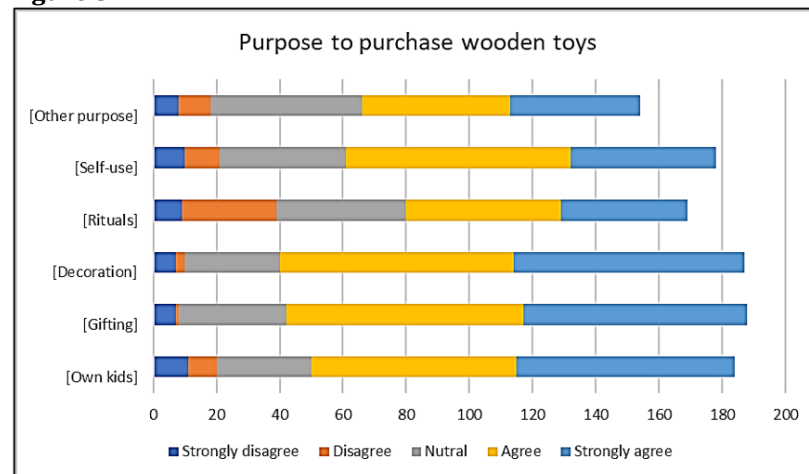


Figure 3 Purpose to Purchase Wooden Toys

Source The Researcher

While explaining the purpose of purchasing wooden toys further one of participants has shared his view which will help to increase the visibility of Sawantwadi wooden toys,

“Maharashtrian people should buy the toys, and artefacts and gift those to their dear ones in other states. Also, these items are good for gifting to people abroad.”

Maximum participants are concern about the visibility of the toys and shared their opinion, such as availability of wooden toys in various platforms such as digital market, global market.

Figure 4

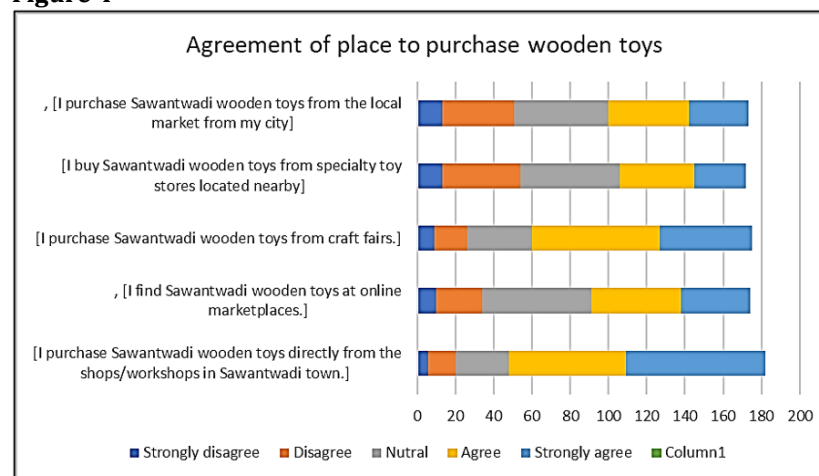


Figure 4 Places to Purchase Wooden Toys

Source The Researcher

Maximum customers are preferring to purchase these toys from craft fair and local market of Sawantwadi. Since limited options of these toys are available digitally and physical market.

Main competitor of these toys are toys exported from various countries such as China, Taiwan. . Since traditionally made toys are sustainable practices and open-ended which helps child to become more creative If traditionally made toys comes gets more visibility it has potential to compete globally. One of participant has given his opinion over that,

“Better branding as in If they come up on a global market it would be beneficial for the community as well as it has the potential to overtake Made in China Toys”

Along with that, Customers are expecting more varieties in various sizes in market. Currently, in organized market 10% of traditional toys are sold through government sponsored stores and 60 % toys are imported from China, Taiwan, Korea, Singapore, US and UK [Jayan \(2018\)](#). These toys are creating tough competition to traditional toys [Yadav \(2020\)](#). While sharing similar opinion one of participant has given one example,

“Sawantwadi toys carriers traditional value due to which I feel the variety of toys gets restricted down the line. The quality of toy can be enhanced by making it more educational and multifunctional maybe by adding numbers, shapes and figures into it so that it can support early learners. Separate DIY kit’s can also be made to foster learning skills and child engagement.”

Considering that opinion about new toys series were asked to participants. They are more inclined towards new series, to go more deeper into this segment for future purchase were asked to customer.

Figure 5

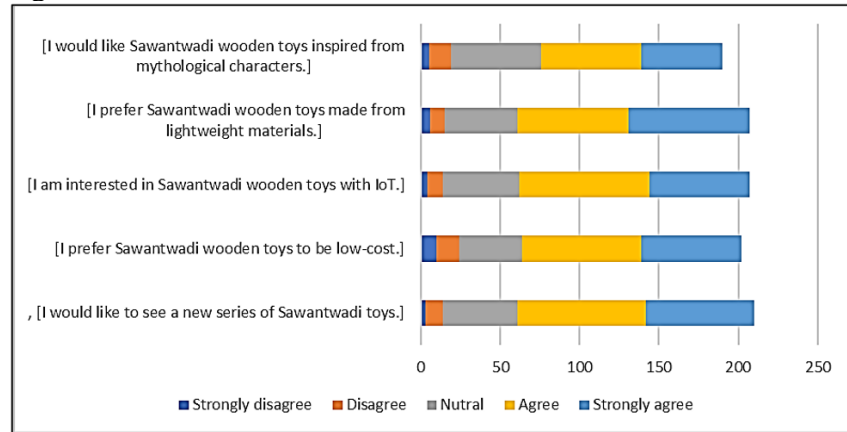


Figure 5 Preferences While Purchasing Wooden Toys in Future

Source The Researcher

Figure 6

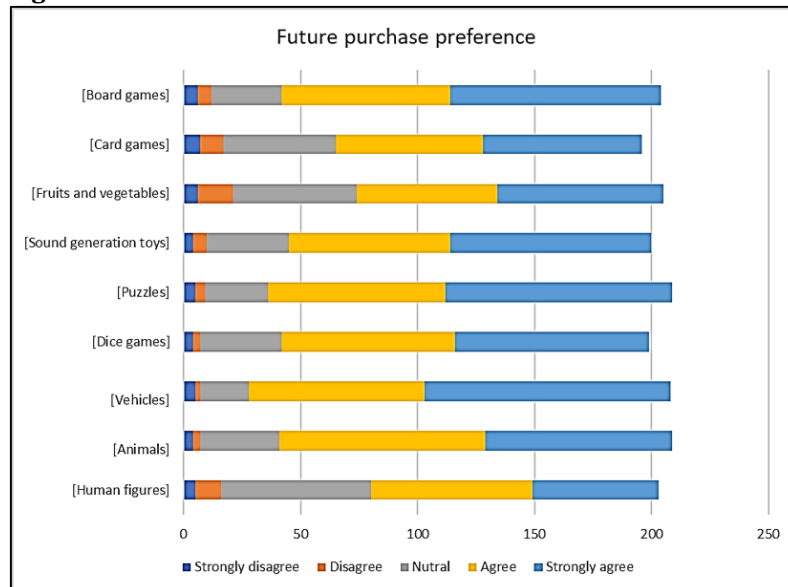


Figure 6 Future Purchase Preference

Source The Researcher

While sharing their opinions one of participant has focused over the collaboration with designers,

“Collaborating with contemporary designers to infuse modern elements while preserving the traditional craftsmanship could attract a wider audience.”

This collaboration is required because, craft is a sustainable activity that generates employment and tourism in rural areas, government and non-governing institutes are fighting against the migration of the rural population and promoting rural development [Fernández Bellver et al. \(2023\)](#). Same concern is with Sawantwadi wooden toys, there are vely limited craftsmen are practicing this and

their younger generation is moving out because they are not able to sustain in the market [Jadhav \(2020\)](#), [Jain \(2017\)](#).

For collaboration, Considering the preferences and feedback given by participants and with the help of design aspirants, two iterations of designs were made to test further. Design thinking processes were used while generating new iterations. Considering the output received, a puzzle was created for educational purposes, which provides logical and creative exercise with moving toys and puzzles made for the kids. The largest group of toy consumers are aged 5-12 years [Misra and Gupta \(2015\)](#), [Singh and Singh \(2024\)](#). They prefer toys such as puzzles and building sets [Fortune Business Insights \(2023\)](#). Therefore, the same age group was considered for iterations. An actual-size model was made with different colors and the traditional essence of Sawantwadi toys and given to kids to play with. This experiment was conducted in Maharashtra, India, where consent was obtained from their parents, who assured them that the kid's identity would not be disclosed. Ten kids participated in an experiment where existing wooden toys and iterations made by researchers were shared to play, where the maximum number of kids selected iterated toys to play with and tried to solve puzzles. The selection criteria for the new iterated designs by kids were the size of the toy, engagement while solving the puzzle for making moving trains or vehicles, and colors. As they suggested, vibrant colors need to be explored further. They enjoyed playing with those toys [Figure 11](#). Users have explored toys by themselves with various functions and features of toys. Iterated toys and existing toys used in the study are shown in [Figure 7](#), [Figure 8](#), [Figure 9](#), [Figure 10](#).

Figure 7



Figure 7 Replica of Existing Toy in Alternate Material
Source The Researcher

Figure 8

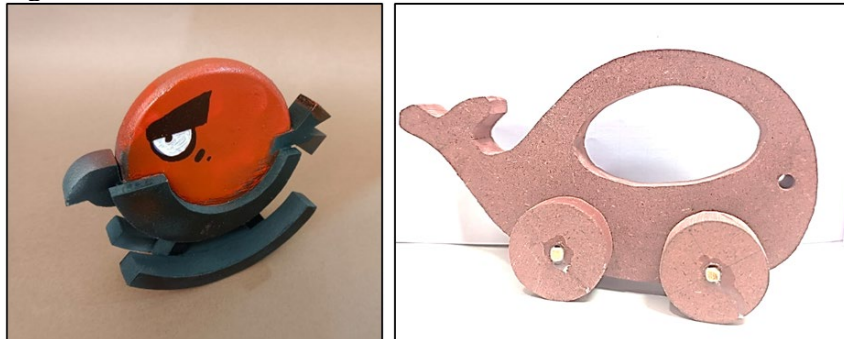


Figure 8 Iterations of Toys
Source The Researcher

Figure 9



Figure 9 Existing Wooden Toy (train)

Source The Researcher

Figure 10



Figure 10 Iterations Made by Design Students

Source The Researcher

Figure 11



Figure 11 Kids While Exploring Iterated Toys and Existing Toys

Source The Researcher

5. CONCLUSION

The market for wooden toys is increasing day by day, and the current generation is demanding more designs in various segments, such as puzzles and moving toys. Wooden toys are open-ended and make kids more creative. Currently, a limited variety of wooden toys is available. Hence, craftsmen from Sawantwadi must explore more designs that consider their skill sets and traditional essence. This exploration will help meet customers' growing interest in purchasing handcrafted toys in different sizes and segments. Also, designers need to collaborate with them. They can help them explore and tap new market segments through the design thinking process.

Additionally, the visibility of traditionally made wooden toys needs to increase. Toys must be available digitally and physically in the market with more designs and sizes. If these toys come with more designs, then customers may prefer those. This exercise will help develop the Sawantwadi area and provide a better livelihood for craftsmen. Also, wooden toys benefit users of various age groups; these do not harm the environment and users [Madar et al. \(2012\)](#). Interaction with wooden toys makes children more creative and helps them think.

6. FUTURE SCOPE

Safety regulations and color iterations need to be explored. More segments and features need to be introduced as per the customer needs, which are changing day by day. While the current study centers on Sawantwadi wooden toys, similar research could be applied to other craft clusters. Iterations were made for kids during research, and similar exploration is possible for different age groups.

Additionally, the current study focuses on the customer preferences for wooden toys; further study could explore digital transformation and G.I. promotion strategies. Expanding these areas could provide actionable insights for both policymakers and industry leaders.

CONFLICT OF INTERESTS

None.

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