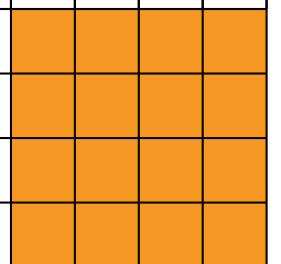
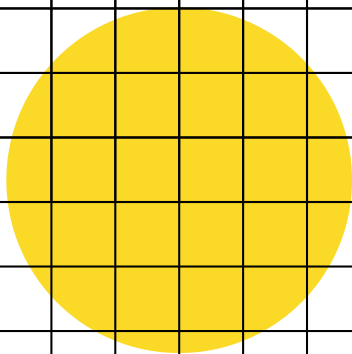
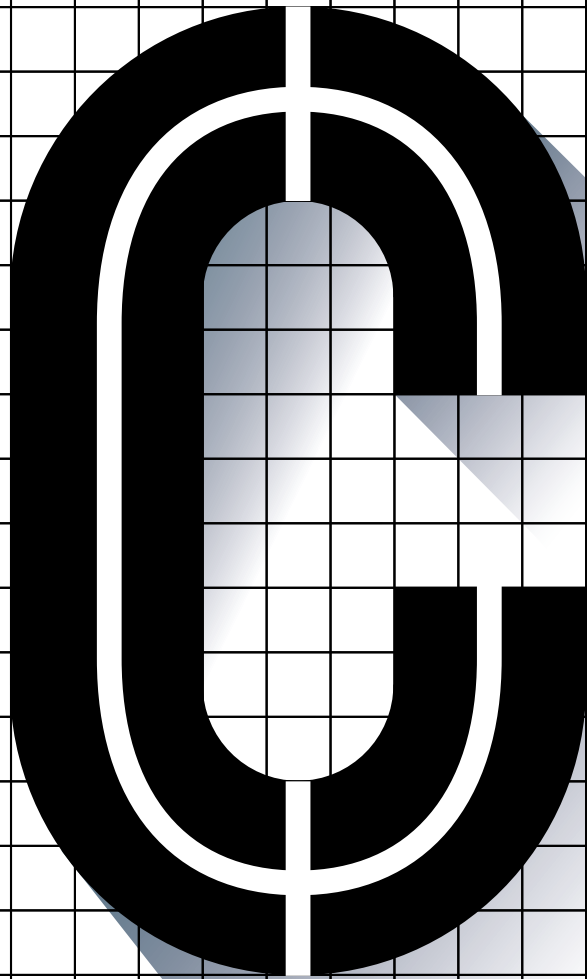
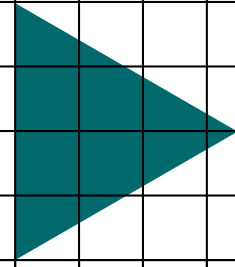


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Product Design

THE SOCIO-EDUCATIONAL ROLE OF TOY DESIGN ON GENDER IDENTITY.

ANALYSIS OF CURRENT TRENDS AND PILOTING OF USER QUESTIONNAIRE

Plaything design - educational toys - gender identity - children's education
inclusion - transgender

Abstract. Childhood is a crucial stage in individuals' development, and toys play a fundamental role in forming bonds, preparing for future challenges, and developing gender identity. Awareness of transgender identity typically emerges around the age of 8, although there may be earlier signs. Parents and educators need tools that enable them to effectively address these situations to promote healthy child development and foster acceptance of diversity in childhood environments.

In this context, it is necessary to investigate the impact of toys on childhood and the design characteristics that should be considered in addressing gender identity development. This work approaches a mixed methodology. On one hand, a typological study was conducted on a wide sample of toys, and on the other hand, a questionnaire pilot study focused on inclusive toy design and its impact on transgender childhood was carried out, targeting parents, children, and transgender individuals.

The results indicate that there are key characteristics in toy design, such as body representation, chromatic variety, and mixed gameplay mechanics, that can contribute to improving integration and the development of transgender childhood. Furthermore, the need to further explore the relationship between gender identity and toy design is confirmed, as it is demonstrated that toys are essential tools in children's development.

Resumen. La infancia es una etapa crucial en el desarrollo de los individuos, y los juguetes desempeñan un papel fundamental en la formación de vínculos, la preparación para desafíos futuros y el desarrollo de la identidad de género. La conciencia de la transexualidad generalmente se manifiesta en torno a los ocho años, aunque puede haber indicios previos. Padres y educadores necesitan herramientas que les permitan abordar estas situaciones de manera efectiva para fomentar el desarrollo saludable de los niños y promover la aceptación de la diversidad en entornos infantiles.

En este contexto, resulta necesario investigar el impacto de los juguetes en la infancia, así como las características de diseño que deben tenerse en cuenta para abordar el desarrollo de la identidad de género. Este trabajo aborda una metodología mixta. Por un lado, se llevó a cabo un estudio tipológico en una amplia muestra de juguetes, y por otro lado, se realizó un piloto de un cuestionario enfocado en el diseño de juguetes inclusivos y su impacto en la infancia transexual, dirigido a padres, niños y personas transexuales.

Los resultados obtenidos indican que existen características clave en el diseño de juguetes, como la representación corporal, la variedad cromática y las mecánicas de juego mixtas, que pueden contribuir a mejorar la integración y el desarrollo de la infancia transexual. Además, se confirma la necesidad de profundizar en la relación entre identidad de género y diseño de juguetes, dado que se demuestra que estos últimos son herramientas fundamentales en el desarrollo de los niños.

1. INTRODUCTION AND OBJECTIVES

Childhood is a crucial time in a person's life, when doubts arise about their own identity, there is a lack of information and little capacity for action on the part of adults and reference figures in children's lives. This may cause them not to understand and to isolate themselves when they feel that what is happening to them is outside what is commonly accepted in society or, on the contrary, they judge those whose development is not normative from ignorance (Moreno, 2022).

One example is transgender people, who do not feel identified with the sex they were assigned at birth. In this regard, the role played by the educational sphere in normalising this reality is important, as it must guarantee the free development of each individual and the acquisition by children of empathetic and respectful behaviour (García, 2017).

At this important stage of growth, stereotypes and gender roles are inculcated, consciously and unconsciously, at the same time as one's own gender identity is discovered: a judgement that each human being makes internally and leads him or her to identify biologically as a woman or a man (Zaro, 1999).

The experiences at childhood play a decisive role in our development, especially the affection shown to children and the objects with which they interact in our daily lives. This becomes the driving force that allows a child to grow, socialise, understand and build a person with his or her own criteria (Torres et al., 2018).

An example of such objects are toys, a fundamental element in children's education, tools that serve as transmitters of knowledge and socio-cultural values (Martínez, 2005).

Following studies such as those of Pérez (2016), we can say that in all cultures and at all times, games and toys have been fundamental for the social and psychomotor development of children. In addition, on many occasions it allows children to relate to adults through toys that have rules to be followed. Through these games and toys, children can learn by imitation of adults and learn the existence of limits and conditions. Furthermore, through play and toys, children are able to experien-

ce, without risk, situations and roles of older ages. In a similar vein, we have studies such as Şalgam (2014) which points out how toys send messages to children and influence the way they relate to others.

Two factors motivate this research, the respectful and conscious growth of trans children and the importance of toys in the development of children, which aims to highlight the value of toy design as an educational component and an element of transmission of values that can allow us to advance in the integration and visibility of the trans collective in the early stages of a person's development.

In this work, video games and toys aimed at other educational purposes, such as those focused on improving school performance, will be excluded. Furthermore, the research will have a territorial focus in Spain for accessibility to data, information and cases.

PROJECT HYPOTHESES

- **Hypothesis 1:** Toys influence in children's personal development.
- **Hypothesis 2:** Parents and teachers do not know how to deal with transsexuality, nor do they have enough tools to manage it in childhood.
- **Hypothesis 3:** There are characteristics in the design of toys that allow them to be non-gendered.
- **Hypothesis 4:** Gender-neutral toys can help in the non-discrimination of transgender children.
- **Hypothesis 5:** The evolution of toy design grows in tandem with social movements.

PROJECT OBJECTIVES

- **Objective 1:** To investigate the influence of toys on children's childhood.
- **Objective 2:** To detect possible positive and negative features in toy design to facilitate the inclusion of transgender people.
- **Objective 3:** To raise awareness of the importance of toy design in the integration of transgender children.

2. METHODOLOGY

The methodology adopted in this project is mixed research, which involves the analysis, collection, and integration of both qualitative and quantitative research methodologies.

The study for the research project is divided into two parts:

In the first part, we have done a typological study of toys where we analysed the twenty-five best-selling children's toys in the year 2022, selected from the ranking generated by the online sales platform Amazon. We have analysed physical features, advertising, and how they are seen in society, as well as what they generate in children.

We have also analysed, in the same way, ten children's toys that reinforce gender stereotypes and ten toys that promote gender diversity, with the aim of extracting positive and negative characteristics, which have served to determine different essential aspects when it comes to fulfilling the objectives set and affirming the hypotheses.

In the second part of the research, a pilot study was carried out, using three questionnaires as a data collection tool, each focusing on a different sample. In addition, two transgender people were also interviewed, who shared their personal experiences in response to a question. The pilot study was carried out in the same way as the real study but on a smaller scale, with the aim of detecting failures or problems with regard to the real study (Díaz-Muñoz, 2020).

We have carried out a mixed study in groups of interest through four questionnaires, each focusing on a different sample:

- Questionnaire to parents of children aged seven to nine years old, with the aim of discovering the degree of information these parents have about transgender children and their opinion about the inclusion of transgender people in toy design.
- Questionnaire for children aged seven to eight years old, with the aim of finding out about children's tastes in toys.
- Questionnaire to professionals in the field of child development, to find out the importance and influence of toys on children.
- Collection of testimonies from transgender people about their experiences with toys in their childhood and how they consider that these have influenced their self-perception and emotional well-being.

2.1. TYPOLOGICAL STUDY OF TOYS

A first sample used for the analysis will be the twenty-five most sold toys in the year 2022 by

the online retail platform Amazon. This first sample will allow us to achieve objective two of the project: to analyse the adaptation of toys to the evolution of society in terms of gender. It will also help us to know the most demanded design trends currently on the market.

And a second sample of ten toys was identified as products that reinforce gender stereotypes and ten toys that promote gender diversity. From the first ten, we will obtain negative physical design characteristics and, from the last 10, positive physical design characteristics. These characteristics will help us to achieve the objective three of the project: To detect possible characteristics in the design of toys, which link them to a specific gender or are gender-neutral.

These last twenty toys have been selected from specific platforms for the sale of children's toys, following the guidelines offered by the Ministry of Consumer Affairs in the guide for choosing toys without sexist stereotypes (Ministerio de consumo, 2020), to find out whether a toy promotes gender diversity or not.

The typological characteristics analysed are the following: shapes, assigned colour, sizes, socially gendered activity, the character of the game, and social focus.

2.1.1. RESULTS OF THE TYPOLOGICAL STUDY

From the analysis of the forty-five samples and the study of the relationship between the social focus of advertising in each of them and the shape, colour, size, the activity socially assigned to the gender and the character of the game, we obtain the following data, crucial for our research.

Samples with a female social advertising focus:

- **Shape:** 70% belong to group A, rounded and curved shapes, adaptable and insinuated with a negative character expressing bodily sexualization.
- **Colour:** 75% belong to group A, light and pastel colours.
- **Size:** 70% belongs to group C, where neither superlatives nor diminutives are used in the name of toys.
- **Socially gendered activity:** 70% belong to group A, activities socially seen as feminine.
- **Character of the game:** 75% belong to group A, games that work on emotions and effectiveness (vulnerability and entertainment).

Table 1: Analysis matrix of samples one and two from the typological study of toys. Own elaboration (2023)

Analysis sheet matrix					
Forms A: rounded and curved. Flexible and soft materials. Smooth and shiny surfaces (adaptable and seductive, body sexualization). B: angular, peaked, and square. Rigid and hard materials. Disproportionate compositions C: another	Assigned color A: light and pastel shades (pink-white) B: dark and saturated tones (blue-brown) C: wide range of colors	Sizes A: use of diminutives (mini, peque, little...) B: use of superlatives (super, mega, ultra...) C: no use of superlatives or diminutives.	Activity socially assigned to gender A: feminine (glamour, fantasy, chic, fairytale, adorable...) Static and slow activities B: masculine (explosion, battle, revenge, monster, rescue...) Speed, action, violence and competition	Nature of the game A: emotions and affectivity (vulnerability and entertainment) B: science and technology (superiority and command) C: another	Social approach (advertising) A: female (f) B: male (m) C: neutral (n)

Samples with a male social advertising focus:

- **Shape:** 66.6% belong to group B, angular, peaked, and square shapes. Disproportionate body composition.
- **Colour:** 83.3% belong to group B, dark colours with saturated tones.
- **Size:** 66.6% belong to group C, where neither superlatives nor diminutives are used in the name of the toys.
- **Activity socially assigned to gender:** 66.7% belong to group B, activities socially seen as masculine (action, violence, and competition).
- **Character of the game:** 66.7% belong to group B, science and technology games (superiority and command).

Samples with a socially neutral advertising approach:

- **Shape:** 78.9% belong to group C, shapes without a concrete definition, no bodily representation is made.
- **Colour:** 84.2% belong to group C, a wide chromatic range.
- **Size:** 84.2% belong to group C, where neither superlatives nor diminutives are used in the name of the toys.
- **Activity socially assigned to gender:** 68.4% belong to group C, neutral.
- **Character of the game:** 63.2% belong to group C, among others.

2.2. MIXED STUDY IN INTEREST GROUPS

In our pilot study we sampled people and schools in Seville and Barcelona.

Twenty parents, aged between thirty and forty-five, with children between one and seven years old, living in Barcelona, were included. Twenty-five boys and girls from the primary class of the San Agustín school in Écija, Seville, aged six and seven. An educator, a psychologist, and a professional social integration technician from the same school, San Agustín de Écija, and two transsexual boys aged twenty-four and seventeen from Barcelona.

This pilot will allow us to get a first insight into parents' views on the incorporation of trans-inclusive toys in schools and homes. It will allow us to better understand children's preferences about toys. It will show us the opinion and experiences of professionals in the field of education. It will give us the testimony of two transgender children about their experience with toys in their childhood. And, fundamentally, it will allow us to pilot the study questions in order to see their relevance and favour a subsequent wider study.

2.2.1. RESULTS OF THE QUESTIONNAIRES

Below, we show the most relevant data extracted from the mixed study in groups of interest in a synthesized form, divided by the three different questionnaires:

Responses to questionnaire 1, a sample of fathers and mothers:

- **80%** of the sample acknowledged that they were not informed about the inclusion of transgender people in the design of toys.
- **55.5%** of the sample consider it important that toys reflect gender diversity.
- **75%** of the sample said that they have never bought toys that represent gender diversity for their children.
- **55%** of the sample believe that inclusive toys should be promoted and supported by toy companies, closely followed by 40% who are not sure.

Responses to Questionnaire 2, a sample of boys and girls:

- Of the female sample, **69.2%** said dolls were their favourite toy, while **66.7%** of the male sample said cars were their favourite toy.
- **69.2%** of the female sample preferred role-playing games and **41.7%** of the male sample outdoor games, closely followed by video games, with **33.3%**.
- **83.3%** of the female sample prefer the colour pink in their toys and **75%** of the male sample prefer the colour green.
- **53.8%** of the female sample said that what makes them happiest when they play with a toy is being with friends, followed by ima-

gining and creating, with **46.2%**. **100%** of the male sample said that it was playing with friends.

- **38.5%** of the female sample would not like to have more characters in their games, a result very similar to the male sample (**30.8%**). **66.7%** of the male sample would like to have a greater variety of characters in their toys.

Responses to questionnaire 3, a sample of professionals in the field of education:

- The three professionals agree that inclusive toys help the acceptance and normalization of trans children's gender identity.
- The sample considers that the characteristics that inclusive toys should have with trans children are: representing a variety of gender identities, avoiding gender stereotypes by encouraging mixed play, encouraging cooperative play and empathy, and promoting diversity and inclusion.
- The sample affirms that inclusive toys can help transgender children develop greater self-esteem and self-confidence by seeing themselves reflected in toys and taking refuge in them.
- The sample considers of great importance the training and sensitization of professionals in the use of inclusive toys with children with possible transgender childhoods.

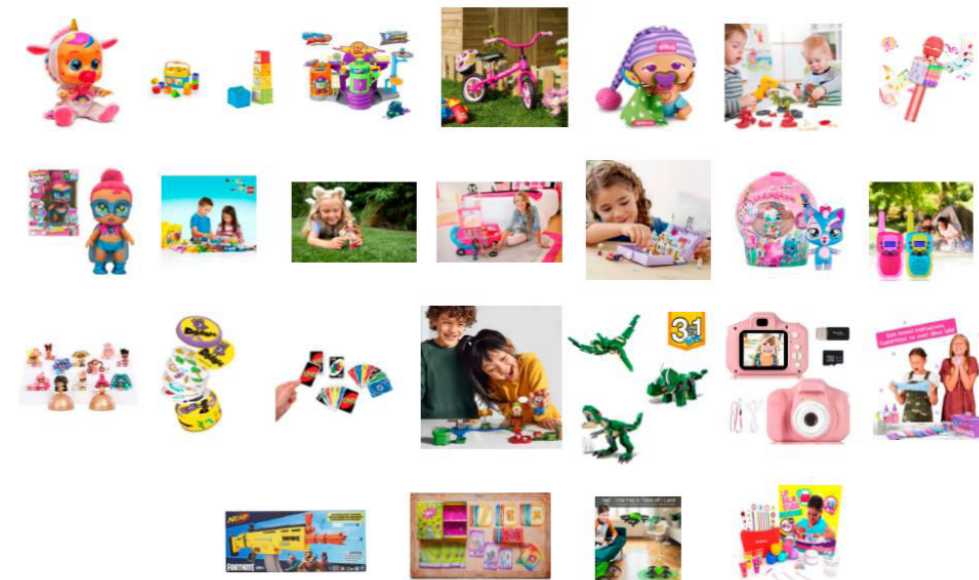


Image 1: Best selling toys on Amazon. Own production (2023).

- The majority of the sample affirms that inclusive toys can help to break down gender stereotypes in society.
- The full sample confirms that they have not received specific training or education on the inclusion of children with possible transgender children in their work.

3. RESULTS AND/OR CONCLUSIONS

For the interpretation of the results in relation to the hypotheses and objectives of the research, we will divide the analysis, as well as the study, into two parts.

HYPOTHESES AND OBJECTIVES ACCORDING TO THE TYPOLOGICAL STUDY OF TOYS

- **Hypothesis 3:** There are features in the design of toys that allow them not to be gendered. The hypothesis is partially confirmed, as the study has been able to address design features, compared only to its advertising approach.
- **Hypothesis 5:** The evolution of toy design is growing in tandem with social movements and struggles. The hypothesis is confirmed. There is a clear correlation between the evolution of toy design and social movements and struggles. Thanks to the study of the toy industry market, we have witnessed a remarkable growth in social awareness reflected in the adaptation of these products to society of the moment, with notable examples of major brands that have opted for the introduction of new options in the market.
- **Objective 2:** Detect possible positive and negative features in the design of toys to facilitate the inclusion of transgender people. This objective has been fully achieved by providing a detailed table of positive and negative characteristics applicable to toy design.

HYPOTHESES AND OBJECTIVES ACCORDING TO THE MIXED STUDY ON TARGET GROUPS

- **Hypothesis 1:** Toys influence children's personal development. The hypothesis is confirmed. As we have been able to verify in our research, the role of toys is fundamental in the personal development of children. During the key stages of their childhood, toys have a significant influence on their emotional, social, cognitive, and physical growth.

- **Hypothesis 2:** Parents and teachers do not know how to deal with it, nor do they have enough tools to manage transsexuality in childhood. The hypothesis is confirmed: both parents and teachers are challenged when it comes to addressing and managing transsexuality in childhood. Society is moving forward and with it, the awareness and promotion of respect for the diversity of gender identities is growing.
- **Hypothesis 4:** Neutral toys can help the non-discrimination of trans children. The hypothesis was confirmed according to the data from the questionnaire to professionals.
- **Objective 1:** To investigate the influence of toys on children's childhood. This objective has been achieved, having obtained data from different sources of information that have allowed us to deepen our knowledge about the impact of toys on children.
- **Objective 3:** Raise awareness of the importance of toy design in the integration of transgender children. This objective will be verified once this study is published and reaches the knowledge dissemination networks.

3.1. PERSONAL APPRAISAL

In conclusion, the project has been an enriching and challenging experience. Throughout its development, it has addressed the complex and sensitive issue of the influence of toy design on the construction of gender identity, focusing specifically on the context of transgender people.

One of the main difficulties encountered in this project has been the need to clearly differentiate that this was research exploring the experiences and perspectives of transgender people in relation to toys and not an analysis of gender inequality in toys traditionally associated with masculine and feminine. This distinction was crucial to accurately and respectfully address the impact of toys on transgender people's gender identity and to understand their specific needs in terms of representation and social acceptance.

In addition, limited access to professionals in the field of education and limited generalized societal understanding of the issue at hand represented other major challenges. These limitations highlighted the urgent need to promote greater awareness and knowledge around gender identity and diversity in the

field of toys, as well as to foster inclusion and respect for transgender people in society and in education.

Despite these difficulties, the project has managed to generate significant contributions. Patterns, perceptions, and experiences have been identified that have enriched existing knowledge on this particular topic and provided a solid basis for future research and action in the field of inclusive education and gender equality.

It is essential to highlight the importance of continuing to work on the promotion of inclusive and respectful education, where the diversity of gender identities is recognized and valued. This implies the implementation of educational policies that encourage diverse representation in toys, the training of professionals in the field of education, and raising awareness in society in general.

Ultimately, this project has reaffirmed the need for further research and action to build a more equitable and prejudice-free environment for all people, regardless of their gender identity. Collaboration between researchers, practitioners, educators, and society as a whole is essential to make significant progress in this

area and ensure a more inclusive and respectful future for all.

PRACTICAL IMPLICATIONS AND RECOMMENDATIONS FOR INCLUSIVE TOY DESIGN

A generic table for the design of toys from a gender perspective is presented below, showing the applicable positive and negative characteristics.

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Table 2: Positive and negative features in toy design. Own elaboration (2023)

RECOMMENDATION FOR INCLUSIVE TOY DESIGN

POSITIVE CHARACTERISTICS	NEGATIVE CHARACTERISTICS
Toys without gender labels: gender flexibility.	Toys that emphasize aggression and violence, such as guns and swords promote the idea that children should be violent and aggressive.
Diversity in toy choices: toys that are adapted to the individual preferences of each child.	Toys that emphasize physical appearance and beauty, such as dolls promote the idea that girls should be slim and have long blonde hair.
Toys without body representation.	Toys that feature gender-stereotyped designs, such as dolls that exclusively represent girls and trucks that exclusively represent boys.
Toys with a wide range of colors.	Toys that use anatomy as a gender marker, such as dolls that have exaggerated features that are considered feminine, or action figures that have exaggerated features that are considered masculine.
Mixed toys and games: role play, where children are given a platform to explore different situations and develop social skills as well as express emotions.	
Neutral game character: science, nature, and creativity.	
Juguetes representados de distintas formas. Ofrecer un mismo atributo a ambos sexos.	

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