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## **Color in Child Spots: Chromatic Prevalence and Relation with the Brand Logo**

### **El color en espots infantiles: Prevalencia cromática y relación con el logotipo de marca**

Color is a crucial element in achieving effective and efficient communication. This article presents an analysis of the color elements used in TV ads aimed at children broadcast during November 2009 in Spain by the Disney Channel children's network which, according to Kantar Media, is the audience leader in open-to-air television programming. The convenience sample included the group of advertisers that Infoadex classifies as part of the «sports and leisure» sector, which includes products and services traditionally aimed at children, such as toys and leisure parks, as well as self-promotion ads for other television networks. The analysis quantifies the use of color in ads aimed at children and concludes that brands use color in very different ways. This study also examines the relationship between the color combinations chosen by advertisers in their ads and logos, confirming that the use of color combinations in ads and logos is arbitrary. Most advertisers who target children prefer to apply a range of colors to create contrast and highlight the product and its features and benefits, instead of strengthening the brand's corporate image. The study highlights the randomness in decision-making on the use of color.

El color es un elemento básico para la eficacia y la eficiencia comunicativa. Se realiza un análisis de contenido de los elementos de color en los espots dirigidos a niños emitidos en la cadena temática infantil Disney Channel, líder de audiencia de la televisión en abierto según Kantar Media, durante el mes de noviembre de 2009 en España. La selección de la muestra de conveniencia agrupó a los anunciantes considerados por Infoadex dentro del sector «deportes y tiempo libre» que comprende los productos y servicios tradicionalmente considerados infantiles, como juguetes y parques de ocio, además de la autopromoción de otras cadenas de televisión. El análisis cuantifica la prevalencia del uso del color en los anuncios televisivos dirigidos a la infancia y concluye que las marcas gestionan el color de forma muy diferenciada. Por otro lado, se estudia la relación entre la prevalencia cromática en el spot y en el logotipo del mismo anunciante. En este sentido, se comprueba un alto porcentaje de incoherencia en la prevalencia cromática en ambos formatos. La mayoría de los anunciantes del mercado infantil prefieren utilizar el color para provocar el contraste y resaltar el producto, sus características o bondades en detrimento de la coherencia en la imagen corporativa de la marca. El estudio realizado pone de manifiesto cierta arbitrariedad en la toma de decisiones sobre el color.

Television advertising, children's audience, TV ads, consumer, creativity, commercial television.  
Publicidad televisiva, público infantil, anuncios, consumidor, creatividad, televisión comercial.

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## 1. Introduction

Television advertising is worth billions of dollars a year in the world's leading economies and is the focus of a wide range of investigative analyses. This research develops a descriptive study of the use of color in television ads aimed at children by closely examining the three key elements of television advertising, children, and color.

Television is still one of the most important and widely consumed media among children in Spain. According to the study by the Fundació Audiències de la Comunicació i la Cultura (Audience Communication and Culture Foundation) cited by Crescenzi (2010), television is the medium most frequently used by children, who watch it on an average of 2.4 hours per day. Toscano (2005) points out that television consumption increases to 3.7 hours a day on weekends. These television consumption levels explain the substantial investment in advertising in Spain, which in 2009 reached 2,368,200 euros [1]. Outside Spain, children in the United States watch more than 40,000 ads per year (Aysen & Kay, 2010).

## 2. State of the art review: research hypotheses and objectives

The complexity of color has been addressed by various disciplines, such as Physics, which studies the nature of light and color, its organization, perception and children's chromatic capacities, their flaws or chromatic pathologies (Julio et al., 1995). Other disciplines have approached the study of color from the point of view of the human eye's reception of signals and perception of color. In the study of signal reception there are common points of interest between Physics and advertising, which should be consistent with the physiological aspects. Other researchers have addressed the study of color based on the sensations it produces. Psychology has developed several theories that associate certain colors with sensations that occur in the human brain when perceiving color.

To consolidate the definition of children as consumers of TV ads we need to examine a number of psychological issues that clearly identify children as subjects in training. Any attempt to communicate persuasively should consider children's psychological characteristics and their reactions to the received message. However, this is not the main focus of our research, which examines the color of the product advertised and its attributes as an element that enhances the act of persuasion, according to Bringué (2001).

The relationship between color and communication is also important. The emergence of color television in the 1970s promoted the study of color in advertising and reinforced the power of the moving image. Color increased the reality and informative potential of television, rendering its images more attractive and expressive. The study of color as a communicative feature, in regard to its acceptance or rejection among young people, was undertaken by Del Olmo-Barbero (2006: 112-116), whose study based on 130 surveys of young people aged between 18 and 30 in the province of Madrid, concluded that, the most favored colors were blue, red and black, while the least agreeable were brown, yellow, dark grey and pink. Green was not among the favorites, but the survey results placed it fifth in the category of most desirable colors.

We can see that color, as a significant element of the advertising discourse, has acquired an interesting role that has been investigated from different areas and disciplines.

Degrado (2005: 1-9) has pointed out that advertising is introduced in our lives through color, among other things. If the form makes the first impact, color is essential to consolidate the attention and act on the emotional capacity of the individual.

Color defines and identifies the product, highlights it and provides information on its features and benefits. Color is also used as an extension of the tones of the product and as an extension of the advertiser's corporate image. However, according to Nó (1996: 13), we define the color through our perception of it; without it, color is just wavelengths rejected by different materials.

On the other hand, Del Olmo (2006: 112-116) suggests that color is an excellent coding system. Used correctly, color infects emotional sensations and allows the generation of relationships of brand affiliation and loyalty. The use of color in advertising responds to a dual purpose. On the one hand, it has a phatic function of visual impact with aggressive colors, sharp contrasts, color reduction, harmony, visibility and readability. It can also play a significant role since colors work as symbolic, cultural, thermal, temperamental, sexual, ideological, elegant and pompous languages.

We must not forget that the advertising message incorporates a set of ideas that the advertiser wants to transmit to a previously defined audience in order to achieve the established objectives. The advertising message must be consistent with the content of the advertiser's communication strategy and, as a result, the previous creative processes should take into account the chromatic aspects involved in working documents such as the story board or story reel. The set of variables that must be assessed when planning an advertising strategy must include the advertiser's corporate image and identity, in which colors play a really important role.

The advertisement must take into account the characteristics that are essential to achieve a communicative success. According to León (1996), color occupies the first place on the list of elements a message needs to achieve a communicative success.

Other researchers have demonstrated how the position of the advertisement within the TV sequence, its duration and brand repetition highly influence the viewer's memory, but have also confirmed that the factors related to color, contextualization and music have a strong influence on brand recalling (Sáiz et al., 1999: 891-900). Indeed, there is a higher percentage of brand recall when the product is presented in a realistic context, when the music is attractive or when colors are alive.

The communicative functions of color, according to Tena Parera (2005: 151-159), include drawing and maintaining viewers' attention, and transmitting information and emotions. In addition, this use must meet some qualities with regards to its organisation: to keep the balance, highlight the dominant and regressive elements and to establish an orderly and complex hierarchy. Jiménez (2006) shows that children are extremely sensitive to stimuli such as music, color, animated characters or images that highlight the social success of the child through the consumption of the product. Bright colors and rapid action changes in a scene lead to consumption, causing in the receiver of the message the need to buy the offered products because they awake the mechanisms of persuasion, seduction and conviction (Hierro-Rincón, 2006: 63).

Children have special physiological, psychological and sociological features. They are a very dynamic target and are in constant evolution. The short duration of childhood, together with the different forms of behaviour, the changes in values, rules and parenting styles have resulted in different generations of children with desires, tastes and needs that evolve as they grow and mature, and which are also affected by the changes and continuous innovations that occur in the field of technology (Tur & Ramos, 2008: 169-170). Other studies on the use of color in advertising have been developed by Pitchford and Mullen (2001), who have demonstrated the difficulty of studying the meanings suggested by color in children. Scholars have also analysed the effects of print advertising's dominant colors in the emotions of adult subjects and the attitudes generated towards the advertisement (Lichtle, 2007). The relationship between the high use of color and the attitude towards the advertisement (arousal level and preference) has been addressed by Gorn and others (1997).

One of the few studies on color and advertising in Spain has been conducted by López and Monserrat (2009), who show that the use of the corporate identity and, in particular, of color is intentional and is subject to the corporate communication strategies defined by the sector of fast-food franchises. The authors examine the cultural meanings associated with colors.

Research on the impact of outdoors advertising has defined the concept of «visual neuromarketing» as a science that uses tools to discover how certain parts of the brain react to an advertising stimulus, with the aim of predicting consumer behaviour and developing more effective impact strategies; by enhancing the visual effect of advertising through the mixing colors, visual perceptions, and impact of sizes and perspectives (Vera, 2010: 155-174). In this regard and as previous steps for a posterior analysis that leads to a coherent decision-making process, it is a priority to objectively quantify and inventory the use of color in advertising. This is the ultimate goal of our approach.

This research is guided by three hypotheses: 1) Each advertiser uses a preferred color combination; 2) There are dominant color combinations in advertising targeting children; 3) The use of color in TV advertisements corresponds to the main color ranges used in the brand's logo. The objective of this research is to perform an objective measurement of color that allows describing its use in audiovisual advertising aimed at children and to compare it with the use of color in the logo of each advertiser.

### **3. Materials and methodology**

Different techniques were used to undertake this research. Firstly, a literature review was conducted to build the theoretical framework. This was followed by a content analysis of a sample of TV advertisements. Finally, the obtained data was processed and analysed.

With regards to the literature review, it included primary and secondary bibliographic sources and periodicals in order to establish the latest theoretical and empirical advances in the subject under study and to define the significant communication variables in relation to the use of color in TV advertising in Spain.

The research team firstly reviewed the selected ads as a whole and later analysed them through screenshots taken every five seconds (zero, five, ten, fifteen and twenty seconds to be precise). Thus, five screenshots of the each ad, which lasted about 20 seconds, were examined. Then the most appropriate color measurement system was identified. The research team tested several video editing programs such as Final Cut Pro and noticed that while they showed a color map, they did not quantify each color separately, and only provided an overview of the color range and dynamics of values in the histogram.

The program called Matlab has been used as a validated system in research on artificial vision and image processing. Matlab's function is to automatically divide the different color regions in black and white images, which results in an image in which the color regions are labelled with the percentage in which each color appears. This program was chosen to perform the objective measure of color in the sample of ads.

To carry out the study it was necessary to create a database of color images to train, test and validate the system created for the identification of the different colors. This database consisted of the original images selected from each of the analysed ads. The ads' screenshots were selected with the program called «MPEG Streamclip» Video Converter for Mac OS X (version 1.9.1.) and captured with the program called «Instantánea» for Mac OS X.

After the database of color images was created, Matlab<sup>2</sup> was used to identify the different colors. The design of the different algorithms was based on different RGB color spaces. Thus, each color under study was defined through a series of parameters that included different tonal variants of each color.

The system was programmed and tested so that once implemented it could provide efficient and effective results. An inventory of the predominant color elements in the sample of commercials was developed. To be precise, the variable that defines the predominant concept is obtained from the result achieved for each color that was defined and confined by the researchers, applied in each case to the analysis made with Matlab. The research team established a variable for each color to develop the inventory in each of the selected screenshots, which are treated as temporary spaces.

Afterwards, Matlab was used to determine the presence of each color in percentage terms, as well as a graphic image of each analysis and the black and white images that graphically indicate the color under analysis.

The data analysis included all the images selected from the commercials. A top ten ranking was created for the use of each color in the temporary spaces taken in the 0, 5, 10, 15 and 20 second marks.

### 3.1. Sample Design

The selection of the convenience sample grouped all advertisers considered by «Infodex» as part of the «sports and leisure» sector, which comprises 15 advertisers of products and services traditionally considered as targeting children, such as toys, toys retailers and leisure parks, as well as self-promotion ads of other television networks. The total number of ads analysed is 184. The children-aimed Disney Channel network was chosen because Kantar Media identified it as the leader of open-to-air television audience during November 2009 in Spain. In November there is a great advertising investment in the children's market because it is close to the Christmas campaign.

**Table 1: Audience of theme channels**

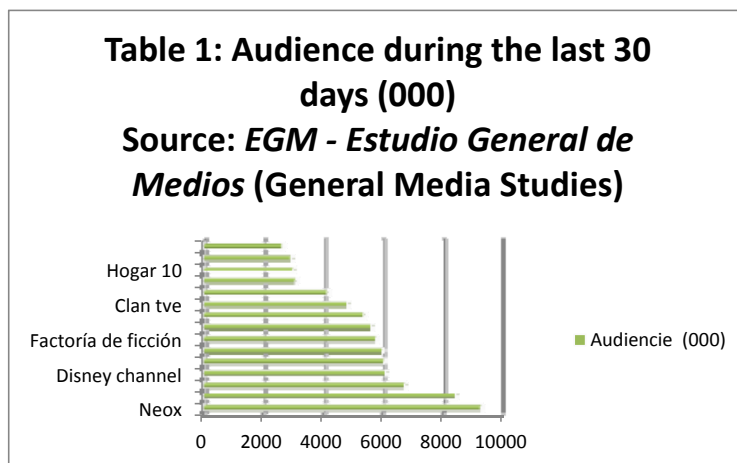
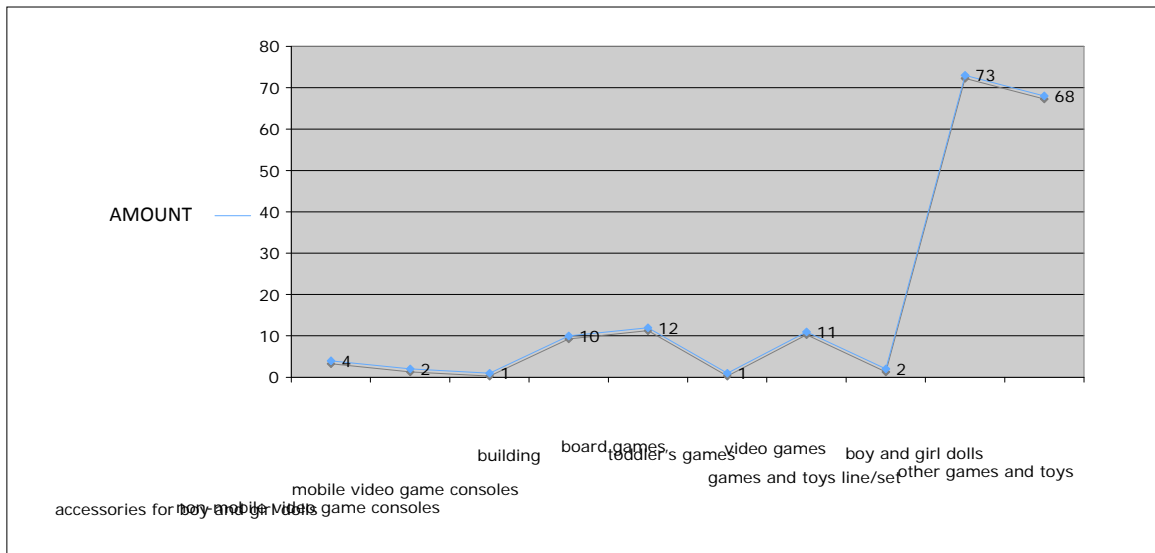


Table 1 shows the privileged position occupied by Disney Channel in comparison to other theme channels targeting young audiences<sup>3</sup>.

**Table 2: Number and types of ads from the sports and leisure sector on Disney Channel**



#### 4. Results

More than 5,500 data and image elements were analysed. To be precise, the use of six colors was examined in 184 TV ads divided into 5 temporary spaces, i.e. screenshots taken in the 0, 5, 10, 15 and 20 second marks of the ads.

The analysis firstly provides data on the dominant advertiser in each advertiser and the total sample of ads. Then it focuses on the color composition of each advertiser's logo, and compares it with the use of color in their TV ads.

Thus, the advertiser that uses the color red in their ads the most is Cuatro (98%). This advertiser is followed by Bizak and Famosa, whose use of red slightly exceed 80%. Finally Bandai and Giro slightly surpass 60%.

Regarding the use of green in TV ads, Giochi Preziosi stands out with almost 70%. This advertiser is followed by IMC and Mega Bloks (65%-60%). Finally, the use of green by Playmobil, Cefa Toys and Bizak ranges from 50% and 60%.

The color blue is used to a greater extent by IMC, in about 78%, followed by Bandai with 61% and Bizak which uses blue at different percentages that oscillate between 60% and 52%, according to the analysis of their ads.

The use of the color yellow is dominant in the ads by Giro, with a presence of 76%, followed closely by Mattel with 74%. The presence of yellow in ads by Bizak and Simba ranges between 60 and 70%. Finally, the use of yellow by Famosa and Zapf Creation ranges between 50% and 60%.

With regards to the use of the color black, Hasbro occupies the first place with 97%. Playmobil also stands out for its use of black in its ads with 94%, followed closely by Bandai (92%) and Cefa Toys (90%), and no so closely by Giochi Preziosi with 86%.

The color white is used by Nintendo DS in 97%, which is followed by Simba with 90%, El Corte Inglés and Playmobil with percentages between 88% and 90%. Other advertisers that stand out for the dominant use of white in their ads are Bandai and My Little Pony with percentages between 86% and 88%. The comparison between the use of the previous colors in the TV ads and the presence of these colors in advertisers' logos provides interesting data that deserve to be highlighted.

Firstly, Bandai's logo has white letters over a red background, but Bandai's use of red in its ads is in seventh place in comparison to the other advertisers, with a percentage slightly over 60%. Bandai's use of the color white, which is also present in its logo, is in eighth place with 37%.

Bizak's logo also has white letters on a red oval background. Bizak's use of red in its ads ranked fifth in comparison to other advertisers that use red the most, and did not ranked in the use of the color white.

Cefa Toys' logo has different colors, such as green, red, blue, white and yellow, and is by far the most colorful. However, Cefa Toys' use of black in its ads is outstanding, despite this color is not present in its logo.

Cuatro has two versions of its logo. One version has red over white and the other white over a red background. The first logo stands out in its use of the color red in its ads.

Famosa's logo uses a blue typography over a white background. However, Famosa's use of blue or white in ads is not dominant. Famosa only stands out in the predominant use of red, in 80% of the ad.

The logo of Giro Toys and Games uses blue and red over a white background, however, the predominant color in its ads is yellow (74%).

Giochi Preziosi's logo has a clear predominance of green, and uses white and black to a lesser extent. Giochi Preziosi is the advertiser that uses green the most (78%), and also one of the advertisers that uses black most significantly (86%). Hasbro, like Giochi Preziosi, stands out for the dominant use of green in its logo. However, the analysis shows that it is the leader in the use of black in TV ads, with 97%.

El Corte Inglés has a logo that uses white over a green background, but its TV ads occupy the fourth place in the use of white (89%).

Simba's logo uses red letters and white and green elements, but the predominant colors in Simba's ads are white (90%) and yellow (59%). The colors white, red and green also appear in IMC's logo, but the predominant colors in IMC's ads are blue (78%) and green (67%).

Mega Bloks' logo uses red letters with white edges over a blue background. However, the predominant color in Mega Bloks' ads is green, which puts it in the fifth place among the sample of advertisers.

My Little Pony's logo has two versions, but both of them use white (67.5%) and red (32.3%). However, My Little Pony occupies the ninth place in the use of white in TV ads, and almost always as a background color.

The logo of Nintendo DS is predominantly white (94%) and uses black typography (4.7%). Regarding the use of these colors in the ads, Nintendo DS occupies the first place in the use of white, with 97%.

Playmobil's logo is colored blue (with 89.6%) and white (10.4%). However, Playmobil's ads stand out for the predominant use of black, which occupies the second place in comparison to other advertisers with nearly 94%.

The logo of Simba (MB and SMB) is colored white in 82% and red in 11.7%. According to the analysis, Simba is the third advertiser that uses white the most in its TV ads (in 89%).

When compared to the other advertisers, Educa, ActiVision, Lego, Meccano, Fisher Price, Parker, Planet 51, Rescue Pals, nor Zapf Creation stand out for the predominant use of any of the analysed colors in their ads. With regards to their logos, Educa uses black, red, yellow and white. Meanwhile, ActiVision's logo has black letters over a white background. LEGO's logo has red, white and black colors. Meccano's logo has red letters over a white background. Fisher Price's logo has white letters over a red background but the use of these colors is not predominant in ads. Parker predominantly uses black and white in its logo but not in its ads. Planet 51 uses white (63%) and green (23.4%) in its logo, but does not use any of these colors predominantly in its TV ads. Rescue Pals uses a white background and yellow, green and black in its logo, but does not use any of these colors predominantly in its ads. Zapf Creation uses white (98.9%) and red (1.9%) in its logo, but does not use any of these colors predominantly in its ads.

By examining the predominant colors in the whole sample of ads we can identify the following dominant percentages: black 22.71%, green 20.72%, white 16.75%, red 14.55%, yellow 11.54% and blue 8.82%.

The following table presents the results of this research on the use of color by advertisers, by comparing the colors used in the logo and the TV ads.

**Table 3: Use of color by advertisers: comparison between logos and TV ads.**

Advertiser	Code	Logo's main color	Logo's secondary color	Ranking of red	Ranking of green	Ranking of Blue	Ranking of yellow	Ranking of black	Ranking of white
Activisión black	CTV	Black	White	x	X	x	X	x	x
Activisión White	CTV	White	Black	x	X	x	X	x	x
Bandai	BND	Red	White	7 <sup>th</sup> /8 <sup>th</sup> /10 <sup>th</sup>	X	2 <sup>nd</sup>	X	6 <sup>th</sup> /7 <sup>th</sup>	8 <sup>th</sup>
Bizak	BZK	Red	White	5 <sup>th</sup>	10 <sup>th</sup>	3 <sup>rd</sup> /4 <sup>th</sup> /5 <sup>th</sup> /6 <sup>th</sup> /7 <sup>th</sup> /8 <sup>th</sup> /9 <sup>th</sup> /10 <sup>th</sup>	3 <sup>rd</sup> /8 <sup>th</sup> /9 <sup>th</sup> /10 <sup>th</sup>	X	x
Cefa Toys	CF	White	Various	X	9 <sup>th</sup>	X	x	8 <sup>th</sup>	x
Cuatro	CTR	Red	White	1 <sup>st</sup> /2 <sup>nd</sup> /3 <sup>rd</sup> /4 <sup>th</sup>	x	x	X	X	x
Educa	DC	White	Red	x	x	x	X	X	x
El Corte Inglés	LCR	White	Green	x	x	x	X	X	4 <sup>th</sup>
Famosa	FMS	White	Blue	6 <sup>th</sup>	x	x	6 <sup>th</sup>	X	x
Fisher Price	FSH	White	Red	x	x	x	X	X	x
Giochi	GCH	White	Green	x	1 <sup>st</sup> /2 <sup>nd</sup> /7 <sup>th</sup>	x	X	10 <sup>th</sup>	x

Preziosi									
Giro	GR	White	Blue	9 <sup>th</sup>	x	x	1 <sup>st</sup> /4 <sup>th</sup>	X	x
Hasbro	HSB	Green	Blue	x	x	x	x	1 <sup>st</sup> /9 <sup>th</sup>	x
IMC	MC	White	Yellow	x	3 <sup>rd</sup> /4 <sup>th</sup> /6 <sup>th</sup>	1 <sup>st</sup>	x	X	x
Lego	LG	Red	White	x	x	x	x	X	x
Mattel	MTT	Red	White	x	x	x	2 <sup>nd</sup>	X	x
Meccano	MCC	White	Red	x	x	x	x	X	x
Mega Bloks	MGB	Blue	Green	x	5 <sup>th</sup>	x	x	X	x
My Little Pony 1	MPQ	White	Red	x	x	x	x	X	9 <sup>th</sup>
My Little Pony 2	MPQ	White	Red	x	x	x	x	X	9 <sup>th</sup>
Nintendo DS	NNT	White	Black	x	x	x	x	X	1 <sup>st</sup> /2 <sup>nd</sup> /10 <sup>th</sup>
Parker	PRK	White	Black	x	x	x	x	X	x
Planet 51	PLN	White	Green	x	x	x	x	X	x
Playmobil	PLY	White	Blue	x	x	x	x	2 <sup>nd</sup> /3 <sup>rd</sup> /4 <sup>th</sup> /5 <sup>th</sup>	5 <sup>th</sup> /6 <sup>th</sup> /7 <sup>th</sup>
Rescue Pals	RSC	White	Yellow	x	x	x	x	X	x
Simba	MB	White	Red	x	x	x	5 <sup>th</sup>	X	3 <sup>rd</sup>
Simba	SMB	White	Red	x	x	x	x	X	3 <sup>rd</sup>
Zapf Creation	ZPF	White	Red	x	x	x	7 <sup>th</sup>	X	x

## 5. Conclusion

Color can be element of communicative efficiency if it is used in optimal conditions of vision and is managed communicatively in the right way. Otherwise, color will become a mere decorative element.

Advertisers that use one color dominantly exhibit a percentage of use comparatively unequal according to the advertised product, which indicates certain arbitrariness. Thus, we can affirm that the first hypothesis has been proved: each advertiser uses a preferred combination of colors. It can be inferred that this practice demonstrates that advertisers take into account the differential position of their brands and take strategic decisions in relation to the use of color.

The second hypothesis, which proposed the existence of dominant color combinations in advertising targeting children, has been also demonstrated. The most widely used color is black, although its use secondary, as background. Green is the color mostly used in the main elements of the ads, with a percentage of 20.72%, and red is the third most used color. The use of blue occupies the last place behind yellow. However, the percentages achieved by each color do not indicate significant differences. The analysis did not detect a dominance of pink or blue, which are colors culturally associated with children's products.

Regarding the third and last hypothesis, the comparison between the brands' logos and TV ads has confirmed that advertisers do not take coherent decisions in relation to the use of color. Thus, a brand can use different color combinations in its logo and its TV ads. The majority of advertisers targeting children use color to create contrast and highlight the product, its features or benefits at the expense of the consistency in the brand's corporate image. However, the approach of this descriptive research has not confirmed these aspects, which could motivate a future line of study.

The study proves that the advertisers Cuatro and Giochi Preziosi use colors with certain consistency in their logos and TV ads. Regarding the use of the color white in logos, it serves as background for most advertisers. The color white only provides contrast to another color that is aimed to identify the advertiser and is placed on the foreground of the logo. The analysis neither detected coherence between the use of the logo's main color (apart from white) and the dominant color used in the TV ads of each advertiser, except in the cases described above.

Therefore, it must be pointed out that the third hypothesis is demonstrated: a brand's use of color in TV advertising does not correspond to the main color combinations used in its logo.

We have identified certain limitations in the research. It would have been interesting to incorporate some type of measurement or analysis of children's color processing, reception and preferences. It would have been also



useful to investigate the views of the sample of advertisers on the strategic decision-making on the use of color and the intentions behind it.

In relation to the possible future lines of research, we understand that the quantification of color and its comparative study could be extended to other media and platforms in addition to television and brand visual identity. Another line to be considered could include the use of color in texts created for communication and education purposes, either in written or audiovisual form.

## Notes

<sup>1</sup> Media advertising investment reached 12,699.4 million euros in 2009 and 14,915.7 million in 2008. ([www.infoadex.es/estudios/resumen2010.pdf](http://www.infoadex.es/estudios/resumen2010.pdf)).

<sup>2</sup> Matlab's official website ([www.mathworks.es](http://www.mathworks.es)).

<sup>3</sup> Theme channels targeting children in open-to-air television: Boomerang, Clan TV, Disney Channel and Disney XD.

<sup>4</sup> Prior to the analogue switch-off dates.

<sup>5</sup> Determination based on the obtained audience data.

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