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José Luis Caivano and Mabel Amanda López
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Caivano, José Luis

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Secretaría de Investigaciones FADU-UBA

Ciudad Universitaria Pab. 3 piso 4

C1428BFA Buenos Aires, Argentina

Tel. (54-11) 4789-6289

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Packaging design for food: Teaching color and cesia in designers' education

Paulina BECERRA, Javier A. CASTILLO CABEZAS,
Lucía MAILLO PUENTE, Matías CASTELLA ESPLUGAS
Programa Color, Luz y Semiótica Visual,
Facultad de Arquitectura, Diseño y Urbanismo, Universidad de Buenos Aires

ABSTRACT

The present work is included within the research project “Design, development and production of didactic material for teaching color and cesia”. It has the aim of revising the main issues in the comprehension of both color and cesia phenomena –perception of spectral and spatial distribution of light, respectively– in order to design and develop new material for theoretical and experimental support in courses related to design education. In this occasion we will present preliminary findings related to package design for food products, involving revision of curricular programs, observation of theoretical and experimental lectures and the design of practical applications from students.

1. INTRODUCTION AND FRAMEWORK

The characteristic of global production and distribution model, in which several food products are produced nationally but often targeted to global markets, requires a higher preparation of designers, as they have to work for a much more informed and prepared audience. In this context, package design –considering it as the creation of visual codes with strong semantic value– has become a complex field in which concur diverse abilities and knowledge.

Within this field, color and cesia – perception of spectral and spatial distribution of light, respectively– play a fundamental role, as highly pregnant variables for visual communication. Though, design professionals must be adequately formed to be able to develop and articulate specific knowledge in order to deliver an appropriate answer for a competitive package.

This work is presented within the frame of the project “Design, development and production of didactic material for teaching color and cesia”, in which the authors aim to revise the main aspects involved in the comprehension of these visual phenomena in order to elaborate materials for both theoretical and experimental support in courses related to design education, specially within the Faculty of Architecture, Design and Urbanism, at the University of Buenos Aires.

The project starts from the hypothesis that a greater systematization of specific knowledge, associated with proper didactic tools introduced in workshop dynamics and curricular activities could improve the learning opportunities, the incorporation and adoption of more sophisticated methods and concepts in the management of color and cesia variables, elements of high importance for designed object's performance.

In this opportunity, we will present preliminary results of the project, focusing particularly in those aspects related with packaging design for food, and including among other contents: a) compilation and analysis of curricular contents in subjects as morphology, technology, design, etc.; b) interviews with head professors and teachers directly involved in color and

cesia lessons; c) observation of theoretical classes and practical applications developed within these courses.

As it was defined on the main project, we will take as work field both Graphic and Industrial Design careers in the Faculty of Architecture, Design and Urbanism at the University of Buenos Aires. Nevertheless, it is expected that the final results could be useful broader, including not only the rest of careers of the Faculty but also other institutions.

2. PRELIMINARY FINDINGS

As the project is on its first stage of development, we will present just the preliminary survey of the field. In such order, we have organized this stage in three lines of work: collection and revision of curriculum, interviews with professors and observation of lectures and exercises, and –particularly for this paper– detection of relation to package design for food, or other food related application of exercises.

2.1 Revision of curriculum

Our first step in this research project was to collect and revise the syllabus of color related subjects in both Graphic and Industrial Design careers (see Table 1). In this corpus, *color* appears with different levels of relevance and treatment. These differences are even more evident in the comparison of both careers.

Table 1. Color related subjects in GD and ID careers. Between brackets it is pointed out how many approaches are offered for each subject.

Level	Graphic Design	Industrial Design
1	Morphology I (7)	Morphology (2)
	Technology I (2)	Physics I (1)
2	Morphology II (7)	Special Morphology I (2)
	Technology II (2)	Physics II (1)
3		Special Morphology II (2)
	Graphics for Product –elective– (1)	
	Graphic design for products an package –elective– (1)	

In Graphic Design *color* is considered a central instrument, being treated more intensively within the first levels –appearing as topic of theoretical lectures, and issue for exercises, and seen in the higher ones tangentially– embedded as requirement in formal exercises and included among other items in theoretical expositions.

We noticed that in both Morphology and Technology, hue, value and saturation variables, from the Munsell color solid, are the most recurrent terms in curriculum. In the latter subject, color is an important aspect and it is always seen in relation to printing systems. In its syllabus are remarked the importance of the knowledge of both color models CMYK and RGB; its related color spaces CIELAB, Munsell, etc.; color catalogues and atlas as Pantone; and color measurement, and the particularities of each printing system as offset, rotogravure, silk-screen, flexoprinting, etc.

Within Industrial Design career, *color* is not treated as central, but it is present explicitly in two subjects: Physics and Morphology. In the case of Physics, *color* appears as a secondary issue, as it is included as part of larger groups of knowledge –such as optics (in case of Level II). In Morphology *color* appears as a theoretical topic in curriculum on all three levels, but

not always has associated exercises, and even in those cases they are limited both in time and depth.

As far as elective subjects (for both GD and ID) such as Graphic Design for Products and Packages and Graphics for Products, we have seen that color is highlighted as a key element within the issues on curriculum. In the first case, two of central topics in the subject are all related with color, with the aim of developing the capability of selecting adequate colors for each product. It is also included as discussion and exercises concerning color and shape, meanings of color, optical illusions, color and identification, color in marketing strategies, creative guides of color, the synesthesia phenomenon, color and taste, legibility, etc. In the latter subject, color is mentioned across the curriculum, in aspects such as “how to apply color to a product or manage correctly brightness, transparency and opacity”.

Among the cited bibliography we have found the theories of Johannes Itten, Jean Paul Favre and André November about color and communication; the *Harmony color* by Ideaki Chijiwa and *Interaction of color* by Joseph Albers. In several subjects bibliography about color was recommended. The most named authors were Itten, Ostwald, Munsell, Arnheim.

It has to be said that in none of these cases it is specifically included *color* in relation to *food package design*. Nevertheless, we have seen that some of the exercises are applied to such end (see 2.2).

2.2 Observation of lectures and workshops

In our visit to classrooms for observation of didactic approach of *color and cesia* issues, we have seen that in most cases professors choose to start with a theoretical introduction and later apply those concepts to a practical exercise, to train students in the work with color. Also, each course try to relate theory with its core problem: i.e. in Morphology (GD) it is of interest to teach how color modifies structures, or in Technology (GD) exercise how to produce and reproduce color in different systems. In general, we have observed that a common concern is focused on how color determines perception.

2.3 Linkage with food package design

As long as we observed, there are just a few explicit linkages with package design. One of the topics mentioned as extremely relevant to package design is the work on color codes related to specific product segments, as they represent a key factor in the relation with consumers.

This issue is approached in some of the courses intuitively and linked to certain tacit conventions, but with no real theoretic fundaments. Another strategy is to study the existing package within the segment, and build conclusions from them in order to propose new combinations. A third type, work on the linear metonymic linkages such as ‘red’ for ‘tomato’, or metaphors such ‘green’ for ‘natural’. In other case, students work based on their own ‘feelings’ for colors, from a set of sympathetic pictures such as sunsets and natural or artificial landscapes.

On either of these cases the approach are highly informal and spontaneous, and work more on the preconceptions –even prejudices– of color signification than on a systemic analysis of socio-cultural codes related to color and food products.

Nevertheless, we noticed a high interest in deepening on color knowledge –both theoretical and practical–, but we also detected that it is necessary to develop new material in order to facilitate the teaching process.

Table 2. Didactic strategies in first sample observation (Graphic Design career).

	Theoretical introduction		Exercise		
	Main topics	Didactic material	Aim	Concepts	Didactic approach
Morphology / A	There was no theoretical introduction.		To control color variables (hue / value / saturation)	Color perception Color variables Munsell color system Chromatic palettes	A game using color t-shirts as vehicle for experimentation and training. Encouraging students to make their own chromatic palettes.
Morphology / B	Color perception Color variables Munsell color system Monochromatic, analogous, alternate, complementary colors Simultaneous contrast Color temperatures	Oral presentation. Sheets of paper with chromatic circle and Munsell charts	To sensibelize color perception To understand how color modifies structures	Color perception Color and structure Color dominance / subordination	An observation exercise with a black box and a fruit or vegetable inside to analyze how light affects it. Structuring with color by painting same pattern with different color combinations.
Morphology / C	Color palettes, harmonies, contrasts Interaction of color Chromatic circle Color as an element	Power point Oral presentation	To understand how color modifies structures	Color and structure Figure and ground	An exercise of painting polyhedrons and producing different visual readings.
Graphics for Product (for both GD/ID)	Introduction to color thinking Light vs. pigment Ostwald system Pantone Matching System	Power point Oral presentation	To see how culture affects color decisions To control color variables	Color and taste Color and perception Chromatic variables (hue / value / saturation)	Students try to produce specific colors from acrylics, based on some qualitative attributes. Then, they make two more samples with different hues while keeping up the same value and saturation
Technology/A	Color spectrum Color temperature RGB and CMYK models Colorimetry Color spaces How to reproduce color	Experience with three lights (red, green and blue each one) and colored filters. Teachers bring print samples to visualize how each system reproduces color.	To understand how the subtractive and additive synthesis work.	Color synthesis. Color spectrum Color spaces	Based on 4 color markers (CMYK) students work on a full color image, by synthesizing color mixes with different intensities of markers. One of the aims is to visualize printing techniques for color synthesis.

*ID color related subjects have programmed their color lectures and exercises on the 2nd semester.

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*Address: Paulina Becerra, Programa Color, Luz y Semiótica Visual, Facultad de Arquitectura, Diseño y Urbanismo, Universidad de Buenos Aires, Ciudad Universitaria Pab. 3 piso 4, C1428BFA Buenos Aires, Argentina
E-mails: becerra.paulina@gmail.com, castilloc.javier@gmail.com, lucia.maillo@gmail.com, queljoeur@hotmail.com*