

14 Label and packaging design for sustainability checklist: a tailored tool for graphic design students and designers, co-designed by all stakeholders across the workflows

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Introduction

The starting point for this checklist was the perceived need that students of the degree in communication design at Politécnico de Portalegre need to broaden and make current the practice of design for sustainability. Strategies, tools and best practices for sustainability are discussed in different subjects throughout the course, especially in sustainable design, in the penultimate semester. However, once this stage is passed, students tend not to transport or deepen, in a natural and autonomous way, this knowledge and skills in the projects developed in last semester's subjects.

On the other hand, in education, the need to increase the number and quality of interdisciplinary work is always present. This practice helps to strengthen the idea that each design project must involve knowledge, skills and aptitudes that, despite being taught in different subjects, have to be understood globally and used together. This understanding is crucial to leverage design solutions that better understand the context of the problems raised and can provide them with more tailored answers. Strengthening this idea in students is central to design education and is also a premise of this work.

Another important dimension is the current European social, environmental, economic, cultural and political context. The European Union is stimulating structural reforms, defining the present decade as one of transition at different levels – environmental, energy, digital, and also cultural and creative – where the European Green Deal or the New European Bauhaus are outstanding examples.¹ Search for concrete and consequent actions in these areas, for European countries and for their citizens, is urgent. It is necessary to find balances in environmental and social matters, and designers, educators and other players in the education and production chains must also contribute.

Finally, it should be noted that the trigger for this list was our students' participation in an international label design competition, carried out by FINAT, an international label association. This seemed to us a good opportunity to develop a deeper work and greater involvement of students in best practices in graphic design, inter- and multidisciplinary and civic awareness. It was also an opportunity to intensify the relationship with some local and regional printing companies, fostering joint work in training new graphic design and production professionals.

This work is carried out within research teams and centres to which the authors belong. Among them, we highlight the Polytechnic of Portalegre's Laboratório Circular do Alentejo, which, also with the Forum of the Circular Economy of Alentejo, contributes to debate and to make new proposals towards sustainability in this region.

Objectives and premises

It follows from the context in which this checklist has been developed that the objectives are varied. Firstly, it is intended that students can evolve more and better, contributing to sustainability when they enter the labour market. We also want this learning to take place in a more dynamic and collaborative environment, especially together with companies and institutions in the region specialized in some of the areas we work, such as communication design and graphic production. Many of these companies have ex-students, so this partnership between academia and the professional world becomes more obvious and potentially fruitful. In the end, as the checklist is gradually more used by students, designers and others, we will all be able to make a better contribution to the region's sustainable development. The use of the checklist intends to be a practical and easy-to-use tool to minimize negative impacts mainly on the design, production and use levels of products. Its application leads to a reflection about all life-cycle stages of artefacts, aiming to save resources along the production line and improve their use and end of life towards especially recyclability. Part of our goals would be accomplished if future young graphic designers and micro regional companies might use this tool regularly, benefiting also from a financial perspective.

Why a checklist?

The form of the checklist as an answer to all these needs arises from our conviction that this type of instrument can be easier to use, whether in an academic or professional environment. Unlike other tools too focused on strategies and new concepts, which tend to be more difficult to understand and implement in the day-to-day design practice, checklists lend a practical dimension and sometimes quite closer to the reality of current practical needs of students, designers and companies; but also because many of the small and micro companies need simpler tools to use, on the one hand, and on the other, tools that can visualize and propose more tangible results for their real needs.

Radical vs incremental innovations

For these reasons we also prefer smaller, incremental measures to radical measures. Smaller and gradual changes are much easier to implement, while radical measures usually create great resistance when applied, as they imply large financial investments and/or deep social changes, in production and/or consumption. Especially in the context of micro, small and medium-sized companies and, in particular, in peripheral regions of a country, such as Alentejo, in Portugal, incremental measures turn out to be much more realistic and bring more tangible results in the immediate term.

A product-specific checklist

This checklist proposes to focus on packaging, labels and their application, unlike the overwhelming majority of checklists we are familiar with. We believe that the wide scope of a list has positive aspects, but this generality makes its use difficult, as multiple adaptations to specific projects will be necessary. Issues such as materials to use, production processes or others related to particularities of a graphic artefact vary a lot from project to project, so the existence of a checklist directed to these specific problems helps users to better master the variables that they will have to deal with. On the other hand, the checklist items will be closely adapted to the specificity of each artefact to be designed.

A checklist focused on labels and packages

The labels and packaging area arose in the aforementioned design competition. But more important than that, it is an area of great importance in developed or developing countries, due to the large amount of production and consumption, use of materials, energy, waste and residues that this entails. This is also one of the areas of design and graphic production that has seen a continuous and significant increase, reflecting its growing social and economic importance in capitalist societies.

Methodologies

Therefore, as a macro methodology, so to speak, to achieve our goals of contributing to greater environmental and social equity, we propose a label and packaging for sustainability checklist. The design of this list has started and has been applied and tested; but its refinement is underway as we intend to involve more stakeholders in production and consumption chains, in an ongoing work of dissemination and improvement. Methods described next were and are used to develop the checklist and to test its utilization. In fact, we understand this process as an ongoing work, needing continuous improvements and requiring adjustments to different kinds of users, according to their needs, objectives or level of expertise.

Literature review

The starting point was a literature review, gathering different ways of solving sustainability problems from content and form points of view. At this stage, we

analysed some checklists or tools with similar purposes to ours, such as the design guides by TUDelft (Boeijen et al., 2020), UNEP (2007), INETI (Frazão et al., 2006) or design collectives, such as Design Can Change (undated) or AIGA (2010). We studied other more complete works that could bring us other insights, such as works by Vezzoli and Manzini (2008, e.g.), among others on graphic design, such as Jedlička (2009, 2010), Benson and Perullo (2017), Sherin (2008) or Dougherty (2011). Some more specific works by Matos and Delfino (2015) or Delfino et al. (2015) were also considered. More recently, we have been looking for information focused on labels and packaging, such as the Suez.Circpack (2021) and the Portuguese Sociedade Ponto Verde (2021) guides.

Interviews with lecturers and professional experts

The revision of the following versions of the list will follow mainly in terms of production and recycling, reflecting technologies and materials evolution. On the other hand, we want to have a broad group of experts from different areas giving their contributions. This work has been done, based on structured and semi-structured interviews carried out in person or by email. In a first phase the interviewees are national and foreign higher education institutions lecturers, mainly from design, sustainability and packaging areas, but also from graphic technology or chemistry. Three other groups to be consulted are environment and recycling professionals; professionals from local and regional printers, with in-depth and practical knowledge in prepress, printing and finishing areas; and a fourth group made up of national designers with activity mainly in the field of labels and packaging. This extended list of experts leads to a real co-creation, strengthening the multi- and interdisciplinary character of the study, in an attempt to better face the variety and complexity of this area.

It should be noted that the external contacts that we have been carrying out, although not exclusive, are mainly centred on the Alentejo region. This is the area of influence of our educational institution, so it is essential that we understand this production context, seeking to contribute and collaborate with these partners, proposing solutions that can best fit these realities. Companies in the region, whether those seeking printing services (most of them in the food sector) or those providing them (printers), are mostly micro and small companies. However, in the graphic area, two groups are clearly distinguished: a majority of micro companies (fewer than 10 workers²), with relatively modest equipment, offset and digital printing and limited finishing possibilities; and a minority of small companies (fewer than 50 workers),² with state-of-the-art flexographic printing and other high production equipment, a good variety of finishing processes, and a relatively high turnover (most of them with important foreign capital). It is important to consider this huge difference in production forms and processes, as the working logic and possible application of different, and possibly innovative, processes varies between these groups; the degree of work specialization or diversification is big among these companies, so the needs and solutions must be equally different.

Conferences, debates and field trips

In addition to interviews with experts, some of them have been invited to present lectures addressed to students and teachers, focusing on specific themes. Lectures take place at school, in person or via the Internet, simultaneously with the application of the list by students in classes. By doing so we seek to encourage direct dialogue between all stakeholders, professionals and academics, taking the advantages of teachers and students to clarify doubts, which arise in the development of their school projects. Direct visualization of production processes and debate with professionals also take place through field trips to specialized companies in the region. These experiences not only improve the use of the checklist but also help to envision improvements to be introduced.

Focus groups with students and consumers

The assessment of the checklist, in its practical application, is carried out by our students, after having used it in academic exercises. For this we use two tools: focus groups and questionnaire surveys. Focus groups are carried out with small groups, from 4 to 6 students, with a semi-structured script, which allows us to collect more spontaneous and sincere opinions, and therefore more truthful, in a quicker way. Questionnaires, in turn, allow for more concrete suggestions, focused on certain specific items. Even with low response rates, opinions and suggestions are given

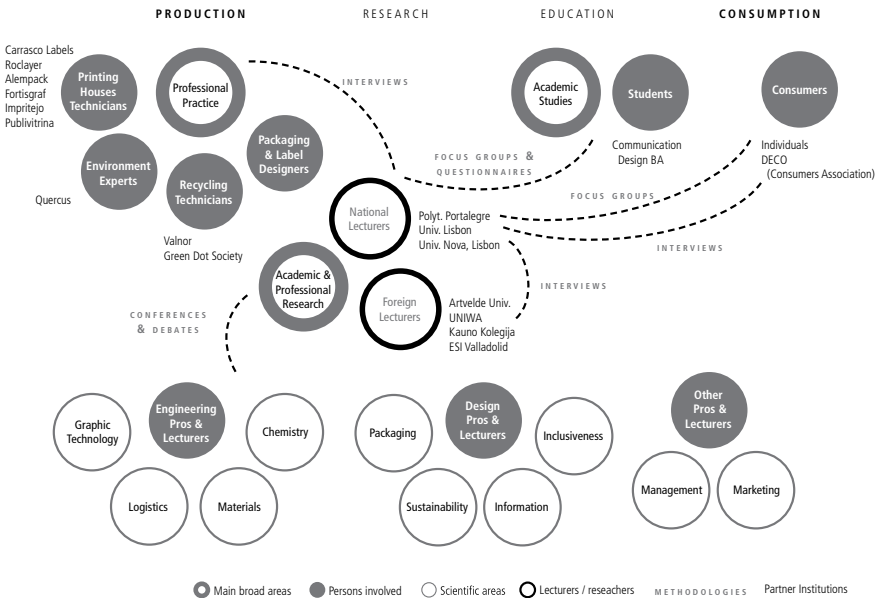


Figure 14.1 Diagram of partners, methodologies and forms of contact

by some of the most interested students, so they come to be objective and useful. At a later stage we will hear consumer representatives, also using focus groups.

Results

Currently the list has a total of 77 topics. In general terms, the checklist necessarily includes several topics that we can find in other lists, even if they are shown in a different way, more simplified or broken down into more than one item. However, we chose to go deeper into other items, mostly related to graphic design, to its formal dimension, in its relationship with social and environmental aspects. The structure of the list itself reflects a different position compared to others, as a general rule of thumb, of a much more technical nature and related to engineering. We tried to meet our students' practical and immediate needs, but also direct the list to graphic designers' centre of activity and decisions, rather than leaning towards areas that are often dependent on the decisions of others professionals in the production chain.

Organization and contents of this list assume that aspects related to strategy, general and communicational concepts, or others related to design methodologies or design thinking, were discussed prior to its application. In academic exercises, this discussion takes place in the classroom, with lecturers, students and, eventually, other partners internal or external to our institution – in our case, with professionals or researchers from companies or institutions that participated in the conferences and debates. In a professional context, these questions of principle are defined between designers and clients, eventually involving several other professionals from technology and/or social sciences areas.

Checklist overview

The checklist is structured into three major groups:

- Label and/or packaging form and layout, with 23 items
- Label and/or packaging form and materials, with 42 items
- Graphic production, with 12 items

The first group includes many aspects related to the shape of graphic elements, usually associated with saving space and resources. This includes questions related to the size of graphic elements; the use of colours and images; organization and display of mandatory and non-mandatory information; composition of the different text elements related to the product; as well as the importance of considering the inclusion of extra information related to recycling or reuse of labels and packages. We emphasize the importance given in this list to the dimension of information to consumers, but not only regarding the consumption of the marketed product, a dimension that has been treated for a long time in information design. This also includes the dimension of information and awareness regarding consumption and the importance of consumers and companies for concrete actions that contribute to

sustainability. Attention is also given in the list to issues of inclusiveness considering limitations such as vision problems or comprehension difficulties.

The group on materials is closer to other existing checklists. This includes issues related to the forms of labels and packaging and the attention that has to be given to problems such as oversizing, transport, disassembly or separation of different materials that constitute packages at the end of consumption or at the end of life. Regarding the packaging and label materials themselves – paper or plastics – several recommendations are included in the sense of valuing simpler, lighter, mono-material, non-fossil, recycled or compostable solutions. For these and especially for the other types of materials, attention is drawn to the importance of raw materials of certified origin and to the consideration of integrated end-of-life systems. As for inks and glues, following the same logic, it is recommended to select printers that have solutions with fewer chemicals, heavy metals favouring recycling, composting or reuse of packaging and labels.

The group on graphic production emphasizes the importance of valuing local or regional companies; with environmental or other certifications; or the involvement of printing companies in the decision-making process on materials and production methods selection. Finally, more concrete aspects about printing and finishing are included, highlighting the importance of opting for solutions that involve fewer colours, processes and chemical products.

Specialized and other regular checklist items

In all three large groups on the list the importance of standards and certifications is highlighted. Here we can find references to the most important and recognized supranational certifications, of an environmental and social nature, such as EU Ecolabel and FSC. PEFC certification was also included, even though some environmental groups consider it less demanding and less impartial, either because of its connection to paper producers or because of lesser inclusion of social aspects. ISO standards in the areas of quality and environment, such as 9001 and 14001, increasingly used in Western countries, were necessarily included. Also other still lesser known ISO standards are here, helping to raise awareness among all professionals, such as 26000, in the social area, and 19603–4–6, for recycling, composting and reuse. Due to its importance, other internationally and nationally recognized labels were also included, such as Cradle to Cradle and SIGRE, the Portuguese national packaging waste management system.

Other common items on other checklists could not be missed. As mentioned before, all good practices related to recycling are valued here: reuse; simplification of materials and processes; reduction of materials, time and energy; or the use of mono-materials, at all stages, from design to production to consumption to the end of life of artefacts.

Graphic design-specific items

Aspects related to graphic design play a key role in this checklist, even though it is not the group with the largest number of items. Not only do they occupy the top

positions on the list, but also they are among those who can contribute the most to a more rational occupation of space, considering environmental and social aspects. Text composition has several variables that must be properly taken care of: from the selection of space-saving fonts, to a way of formatting that strictly controls values such as leading, tracking and kerning, or hyphenation and justification, also contributing to savings.

The issue of images is necessarily addressed, whether their function can be mainly as an element of seduction and, therefore, their use and dimension should be used sparingly; either when they can replace parts of text, improving communication and functionality and, if possible, helping to save space. Along the same lines, there are still items that draw attention to the need for a good organization of information, contributing to communication and saving resources; and/or sometimes combining printed information with information available through digital media, to which consumers can access through QR codes, augmented reality or other types of hyperlinks.

Inclusiveness and collaborative items

Issues related to inclusiveness and collaborative design are increasingly investigated and considered in project development. However, in other sustainability design lists there is a bias to consider more issues related to the environmental dimension. In this list, however, some items that consider some of the most frequent limitations in our society were added, such as those of vision, including severe or extreme ones, or, the most frequent among men, colour blindness. Comprehension difficulties, such as dyslexia or others of a psychological nature, are also taken into account. The suggestion of replacing certain types of text with images also leads people with limited time for reading, or even limitations in understanding and interpreting written texts, in their mother tongue or in foreign languages, to better understand certain messages considered more relevant.

Along the list it is suggested that representatives of consumers and producers can include the design teams, namely in an initial design phase and in the production adaptation phase. Inputs from third parties in the different phases of design can be decisive in order to solve some issues that would otherwise end up creating barriers or problems in communication or in the printed matter production.

Discussion

Among the aspects that we consider distinctive in this checklist, compared to the ones referenced here, is its focus on design practice, on graphic design, and less on production processes, energy, and other issues related to engineering or management. Materials and production processes are certainly critical to sustainability, but some of the items we find on certain checklists are often not within designers' decision-making range. Even in the strategy area, designers often do not have great decision-making power, either in situations where the client or the production context imposes most of the variables on them, such as in cases where the designer is a mere executor of pre-defined marketing strategies. The structure and organization

of our proposal precisely reflects this attention to graphic design; but also its content, that is, the large number of items that focus more on variables that designers control and less on those dependent on the companies they work with to produce what they design.

Another central aspect is the emphasis of the list on functionality. In contemporary graphic design practice, issues related to savings have often been overlooked in relation to expressiveness, visual impact, and seduction. Here, we seek to sensitize future designers to the need of balancing these premises of visual communication, of a commercial, aesthetic or symbolic nature, with practical, functional solutions that contribute to sustainability. The dimension of seduction and style may be a central aspect of visual communication in Western, capitalist societies, but a judicious use of space is also increasingly necessary. In this sense, the shape and size given to graphic elements must be in balance with economic and consumption needs, but also with environmental and social needs at a more humanistic level.

For these reasons this checklist contains more items related to graphic design and space, which are the first and main tools that graphic designers have in hand to be able to contribute to improvements aimed at sustainability – typography and text composition, visualization or organization of information in order to save space. The space occupied by text, for example, is extremely important, especially on packages with a large amount of mandatory information, such as food products, especially processed ones. This has to be an aspect that appears among the most important ones that designers have to deal with, rather than being overlooked, sometimes forgotten on the back of packages.

Directly related to this aspect of information are all issues concerning citizenship, rights and respect for consumers. This checklist also that pays more attention to the power of information and consumer empowerment, including their responsibilities: information about the product, about its production; but also about how to consume; or how to deal with the end of life of the product or packaging. And going further, it also seeks to be an inclusive checklist in the usual, more objective sense: one that doesn't let minorities be forgotten.

In this line of thought, this also intends to be an inclusive and collaborative checklist, both in its application and in its own construction: involving in graphic design, but also in the construction of the list itself, the largest number of members of the education community, production and consumption, bringing different perspectives, involving different stakeholders from different areas of knowledge, enriching the final result both of the list and the design that it intends to help build.

Conclusions

Our labelling and packaging design for sustainability checklist is in the early stages of application and assessment. It was applied in the classroom, during a school year, with results that we consider promising. In the students' assessment of the list, in focus group sessions and in the questionnaire, some of the main criticisms and improvement suggestions are related to the need for complementary information, useful during its application. The importance of greater synthesis and

ease of application was also mentioned. Complementary information requested by students can be part of the list or take the form of external links (or hyperlinks, in a digital version) mainly for extra information on more technical data. Some of these topics are addressed during the classes of the involved subjects, but often they cannot be properly studied. Discussions with experts and field trips to companies seek to complement these issues. Student feedback is being introduced in a subsequent version of the list.

At the moment, contributions are being received from lecturers and specialist professionals from different scientific areas related to labels and packaging. This process of assessment and improving the list is, for the time being, considered continuous. In this sense, all interested parties are invited to contribute to this construction and improvement of future versions of this list. The list will be made available by these authors to those who request it and wish to apply it in classrooms.

In the future, we would like to create three versions of this list, aimed at undergraduate students, master's students, printers and designers. Each of these lists will have increasing degrees of complexity: from a simplified version, always focused on design, with special emphasis on inclusiveness and other social issues, and with a strong support of technical issues, for first-cycle students; for students in the second cycle, a more complex version with more technical data related to materials and production; and a version aimed at professionals, less didactic and more in-depth, which may be available online or made available by service providers to their clients or designers.

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Notes

- 1 According to the UE. https://ec.europa.eu/reform-support/what-we-do_en, for example, consulted on 26/10/2021.
- 2 According to Portuguese law in *Decreto-Lei n.º 372/2007*, published on 06/11/2007.

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