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Senac Symposium on Materials: an experience to give guidelines for a “Cartography of Materials”

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On the importance of thinking about the material / raw-material nowadays.

The discourse on the objects and their materiality has had ever increasing interest in the academic world where research is carried out on Design, most of all focused on its position as an element which is part of the material culture. That is so because of two strategic opposite aspects in the contemporary world:

- diversity, indicating variety in terms of offer and production of materials. There has been more types of material available for designers and for the industry in the last 30 years than ever before, both in quantity and in variety.
- scarcity, indicating lack in terms of the indiscriminate use of materials and natural resources, driving the consolidation of thinking towards sustainability.

In this context, both the researcher and the designer have a much harder task: knowing and selecting materials for the implementation of their projects, most of them objects of everyday use (such as the FMCG – Fast moving consumer goods) and printed ones, which have a shorter life span and are produced on a larger scale. Nowadays the “correct” selection of material (or of raw-material) can be decisive in the implementation of the project in a production line.

Premises for a Cartography of Materials

The relevance of such questions ended by forming a group of teachers/researchers from the Design Graduation School at the Senac University Center (São Paulo – Brazil), with the initial intent to study questions related to materials, both in the conceptual and theoretical aspects as well as in the practical-experimental ones, thus promoting a dialogue between both approaches.

Right in the first meetings the group was mobilized by questions concerning some aspects of the designer’s field of activity, such as: where to look for information about new materials, which are available and are viable



for the Brazilian market and, above all, the difficulty in collecting data which emphasizes the material's design qualities, and not the engineering ones.

Concerning the teaching activity, some questions were raised about the students' repertoire in relation to the new materials available, the relation between the creation process and the material's adequacy to the project and also how to make information about the subject available.

Such questions were the starting point for the proposition of the *Cartography of Materials Project*, whose proposal consisted in studying questions related to materials, both in the theoretical-conceptual aspects as well as in the practical-experimental ones, promoting a dialog between these two possibilities of approaching the subject.

The concept of cartography used here is intended to refer not to geographical charts, but in a wider sense, to a "record of the landscape", which indicates the methodological procedures that will be borrowed from that investigation practice in the making of this research.

In order to contemplate objectives of the project *Cartography of Materials*, it proposes the setting up of a library of materials destined for the use of designers; an annual holding of a "Symposium on Materials" and the establishment of a research nucleus on the language of materials applied to new – experimental and conceptual – objects.

Such actions are aimed at searching for a cartography which considers not only questions related to engineering (the reference in the study of materials), but one that guides the eyes towards Design, thus allowing the elaboration of new forms of mapping. A research on materials, when carried out in relation to Design, considers humanist and socio-cultural questions besides the common numerical, quantitative and technical aspects it also contains. Because research on materials has always been based on empirical and technical data, one ends up adopting an uncritical attitude in relation to the socio-cultural aspects which are an intrinsic part of it. This attitude then configures a tendency to think about the world as nature, when instead it has been transformed into "*materialeza*" (Santos, 2000). When considered as a part of a cultural universe, the material becomes the concrete form which envelops human life and, therefore, is directly related to the ways of production and reproduction of material existence. A "valorization of the quotidian element as self-evident and undeniable" (Pichon-Rivière and Quiroga, 1998) brings the material to an occult and inaccessible platform, an almost mystical one, which is understood as an element which "is simply there", then becoming absolute reality.

In this perspective, the search for new methodological procedures became unavoidable in the construction of such cartography which does not ignore any technical requisites, but one that includes the indispensable questioning in a cultural research.

Considering that "for cartographers, cartography – differently from a map, the representation of an static whole – is a drawing which follows and is made at the same time with the movements of landscape transformation" (Rolnik, 1989) the first action of the group was the realization of the "Senac Symposium on



Materials”, a space for reflection and the exchange of experiences as a methodological procedure. Considering the mutant character of the object of study, the main characteristic of all cultural research, the symposium aimed at bringing to surface indications that could facilitate the creation of a more careful eye in relation to the “transformations in the landscape”, thus composing a cartography through the analysis of an environment designed for the experience and the debate of the subject (Dantas, 2005).

In its first edition, the event had as its premise investigation and fostering the discussion about materials so as to provide the Cartographies project with a panoramic perspective to guide the actions to come.

Treating the event as an object of study, the description of the processes of conception, organization and participation were considered key-elements of the experience in itself, so as to find in the related facts their own meanings (Forghieri, 1993).

This article presents the process of the project’s conception, realization and outcomes, and also of subsequent considerations and reflections established with and by the lecturers invited to participate in the discussions. The gotten data constitute valuable empirical material for a reflection on the characteristics and necessities of Brazilian design, as well as for the elaboration of other strategies of mapping this scene. The material derived from the event’s descriptive process is considered a part of the data evaluation.

The Event’s concept and conception: a search for a hybrid format to build a different design-related proposal and approach.

To attend to one of cartographies’ premises, that is, a mapping of the main elements of the landscape’s constitution, it was adopted a strategy of confrontation of different points-of-view as one of the event’s elements. Such confrontations should regard the different points-of-view intertwined in designing: teaching and research (academy), the industry and the commerce (companies) and independent professionals in the field (designers and design firms).

Thus articulated, our proposal was conceptually different from a scientific congress, an exhibition as well as a business fair, which generally favor only one of those aspects.

It was presumed that a hybrid format should be more adequate for the construction of knowledge on the subject by directing it to Design. So it would be possible to infer, based on the professionals’ presentations, their necessities regarding information on materials, as well as the identification of new projectual methodologies derived from the selection or intimacy with the use of specific materials. The presence of the companies, in their turn, would bring information on new materials and products, applications, technical and commercial practicability. Lastly, the research nucleuses would present the development and the result of studies and of new expertise, thus broadening perspectives both for companies and for professionals.

In face of the magnitude of the material universe and of the intended diverse views a thematic core was defined, one capable of connecting the many subjects presented so as to promote dialogues between the parts.



Thus the event – “*Senac Symposium on Materials: Design and Identity*” – was conceived, whose name is an attempt at translating the inquiry into the potential of materials as directors of design projects. Several historical examples of famous designers and their works – such as Michael Thonet’s bentwood furniture, Marcel Breuer’s curved steel tubular structures and Alvar Aalto’s curved plywood – demonstrate the innovative use of materials characterized by the maximum investigation of their potentialities, thus leading to new plastic identities.

However, the objective of these researches was not an esthetic distinction, but above all a new approach in regard to human necessities and the industrial-scale production (Heskett, 1995). The same way such professionals defied the traditional way of working with materials in their time, the present technological development and the appeals made by the conditions and lifestyles in the post-industrial society invite us to rediscover the possible relations between materials, design and identity.

In order to organize such considerable universe proposed, it was adopted the construction and articulation of thematic discussion forums guided by criteria intimately linked with design and not engineering. Thus it would be inadequate to list the categories related to the physiochemical nature of materials or their production process.

Starting from the idea of creating an identity through the different use of materials, three were the approaches considered in the investigation of the principles which today guide the research in Design: sustainability, technology and the treatment of surfaces. Each of them should then be discussed at a different round table.

On the configuration of the forums and the guests selection

Present discussions about **sustainability** refer directly to Design, firstly because the cultures of creation, distribution and consumption of the artificial environment are based on the endless exploitation of the planet’s natural resources. It is necessary that notions like limits and interdependency are added to such cultures: one reacts to the other in a net of unending cause and effect (Malaguti, 2000).

The adequate use and choice of material in this context must be considered in relation to the resultant natural impact. Moreover, the sustainability requisite, besides its environmental dimension, also comprises the political, economic and socio-cultural aspects. According to the context and the priorities different strategies are adopted. To discuss such strategies allows us to have a more critical eye for the choice and use of diversified materials. Research and practical experiences in the field bring important empirical and methodological data to redirect the projectual practice.

The undeniable advance of research and application of **technologic** materials in the contemporary world showed us that this question could not be overlooked. However, considering the importance of a humanistic approach in relation to the use and the impact of such technologies in the quotidian, the symposium aims at emphasizing questions related to the quality of life, and not to Material Engineering.



The technological development allows the designer to work on the development of new products in a way as to make them more adequate for the users. The impact of the adoption of a certain technology on a mass product goes necessarily through the choice of materials and their performance, as well as the socio-cultural assimilation of such innovation. Therefore the technology and design round table tried to present a reflection that could include the “non-apparent technologies”, that is, the use of materials with a better performance in the place of conventional materials, the construction of tendencies based on the development of new materials and the efforts to provide technical information about materials by fostering industrial growth in different regions.

Working with **surfaces** means understanding the relation between appearance and the apparent, frontier that separates the exterior aspect from the inside objects content. Understanding the material as a factor responsible for that duality allows us to utilize it at the maximum of its potential, as the generator of a language of its own. Therefore the Surface Design round table tried to emphasize this “new” area in design projects, proposing new approaches for old areas of application in Design. These were hybrid areas, between Product Design, Visual Communication and Interface Configuration, which before were lacking in proper definition and identity.

The **identity** theme, which names the symposium, had its own discussion forum, bringing into the territory of materials questions about their own identity, the construction of projectual thought and of new languages, through the constant breaking of paradigms of their uses and applications. Each material possesses specific potentialities and to explore its characteristics as the principal motto of professional production is extremely challenging. For this reason there is space to discuss the relations of the material with the creation process of the designer, between esthetic and technique and the possibility of devising language and identity.

The guests selection to compose each of the forums was also intended to contemplate the items mentioned above, bringing a researcher, a designer and a representative from the production sector, considering the presence of speakers from different regions of the country and an international guest providing a foreign view over our identity.

The criteria for the selection of the researchers were their importance in the discussion, taking into account the researchers' previous experience, considering the sub-themes selected for the event. Therefore, it was considered important to know about the field of housing realized by the NOMADS group (USP - São Carlos) represented by Tatiana Sakurai; in the surfaces area, the many researches coordinated by Wilson Kindlein Jr. of the Material Selection and Design Laboratory (LdSM) from the Engineering School of the Rio Grande do Sul Federal University (UFRGS); and in the technology area, the partnership between design-company in the application of new raw-material or the implementation of new applications coordinated by Ricardo Scura do São Paulo Design Center (CSPD).

The invited companies were the ones that worked in a way that matched the chosen themes, that were known in the national or international market, and that had product development politics of a national character.



Therefore we could count on the participation of representatives from the following fields: communications technology (Siemens), sports (Fila), coverings (Schattdecor), besides natural dyes for the textile industry (textile designer Eber Lopes Ferreira and Cognis Brasil).

To complete the round tables renowned professional designers of the national market were invited, whose work was focused on a peculiar and expressive way of handling materials, and who could show their design experiences and reflexions on the proposed themes. Fabíola Bergamo (a designer specialized in the working with crafts artists), Renata Rubim (surfaces designer, author of the first Brazilian book on the theme), Antonio Bernardo (jewelry craftsman and designer, winner of many design awards: Selo Rio com Design 1997, iF Design 2004, Red Dot 2004, International Jules Award 2004, iF Design 2005) and Nido Campolongo (architect that works for more than 20 years with tridimensional projects, building paper fabrics, and applying this material in interior design in an innovative way).

After the themes were configured and the guests chosen, the event took place at the Senac University Center – SP on November 8 and 9 2005, in the Santo Amaro Campus. Such initiative was in accordance with the integrated teaching-research-extension action proposed by the Institutional Pedagogical Project of Senac, addressed especially to students, even though it had, due to its innovative themes and format, wide participation of professionals in the Design area as well as neighboring areas, such as Architecture, Decoration and Engineering.

The Event - description as a methodological aspect

Forum 1: Design and sustainability – strategies in the selection and use of materials

Mr. Ferreira presented his extensive research work and synthetization of natural dyes from the Brazilian flora, which are presently starting to be used in the big textile industry, based on the development of a methodology to work with such dyes at an industrial level, keeping an acceptable high quality standard for the diverse types of fabrics to be dyed. Working with several types of Brazilian dyes, Mr. Ferreira showed the viability of their applications in great-sized companies – a way of breaking the existing resistance against the implantation of such type of dyes on an industrial scale, most of all in what refers to metrology and color quality.

Ms. Bergamo presented her work with the many communities of artisans from different regions of the country, utilizing local renewable material resources valorizing the cultural region. Her work has been of great impact on the local communities, adding value to products and improving the quality of life of the people. Trying to maintain the identity of such communities and of their art craft, respecting their origin and diversity, Ms. Bergamo strives to introduce concepts from design which do not endanger the character of the local craft tradition, also optimizing the use of the natural resources present in the regions visited by her.

Ms. Sakurai presented her work with the Nomads Group, a group that performs research on the use of eco materials in reduced housings, presenting to the participants the recent developments of the study on the subject.



It was possible to realize that, beyond political or partisan discourses, the referred initiatives applied to the three segments mentioned, that is, industrial production, art craft production and research, have had positive and verifiable results, which validates the proposed processes.

It is important to realize that more than just being sustainable, the design made from materials chosen consciously together with sustainable processes allow a real improvement in all the life cycle of the product and in the life quality of all the communities involved. Besides theoretical and critical discussions, the lecturers brought their experiences and showed the viability of their projects in the field of design, pointing out to new potentialities in the search for sustainability.

Forum 2: Design and Technology – materials for a better quality of life

Directing technology to the improvement of life quality, the forum brought up discussions on methods for the development of new objects and technologic materials, as well as making them available for Design professionals. Mr. Elcio de Moura opted for presenting a product development case of Siemens when technological improvements are not apparent elements for the consumer, bringing both more quality and safety to the user. Thus he demystifies the use of technology as a magical element and presents its dark side: the characteristics of the materials and their functionality when applied to products.

Mr. Paulo Zugaib presented the methodology utilized by Fila in the development of new sport shoes based on trend analysis, working on the language of technology which appears as the identifying element in the contemporary day-to-day life. Answering many questions on technologic fabrics, Mr. Zugaib explained the integration between research in the textile area and the development of new sports products, focusing on the necessary characteristics of each activity performed by athletes.

Mr. Ricardo Scura presented the Centro São Paulo Design and its catalog of materials and projects, giving the participants and audience access to such information and also showing diverse objects produced by known designers in the national scene, who exemplify the use and the plastic and the aesthetic potential of the many materials available in the Brazilian market.

In sum, the three lecturers qualified the image of technology, always vulgarized by the media through excessive emphasis on the digital elements present in the products, aiming at introducing the concepts of technologic materials and also of procedures and methods utilized to have access to this information and how to apply them on a design project.

At the end of the first day, Giulio Vinaccia's conference contributed with a foreign view on the Brazilian identity. Son of Italians, he spent his childhood and teenage years in Venezuela, today lives in Milan and works as a Sebrae consultant (both national and regional) in many programs of integration between art craft and design, and also works on the rescue of regional iconographies for application in surface design. Mr. Vinaccia presented two works concerning the development of products with regional identity, one performed in Brazil and the other in Spain, both solicited by the local governments, aiming at valorizing the regional products with



a contemporary language, he was able to demonstrate the viability of the union between design and art craft through rare intervention which respects what is produced by the local community without limiting to its already consolidated language. The search for the new, in this case, at the same time starting from a previous knowledge of pre-existing materials and techniques, challenges its limitations exploring different techniques to interfere on different types of surfaces, almost subtracting the value of the material from the object. The presentation had great importance in making public what has been done by governments, inside and outside Brazil, to develop and promote art craft and its cultural manifestations striving to improve the life quality of communities and to strengthen their identity in a globalized world.

Forum 3 – Design and Surfaces – the skin of the products and their visibility

Starting from this point, the questions raised in this forum dealt with the projectual possibilities for this “new” project field of Design, Surface Design. The aim was to bridge the professional practice (often referred to as Textile Design, Print Design, and, in some cases, in an unspecific way, Graphic Design) and the industrial production, mostly in the field of Materials Engineering.

Mrs. Renata Rubim spoke about relevant questions of her projectual activity in the area. She presented the project methodology and the creative processes by her adopted, well illustrated by her own works, many of them extremely known in Brazil – as the surface project for thermal bottles (Termolar), also dishware, porcelain (Porcelanas Schmidt) and textile projects in general (Tok Stok).

After her the designer Sandra Morh, representative of Schattdecor, a company that produces special and laminated paper. She presented the new technological possibilities for the creation and production of high pressure laminates appropriate for application on furniture, in replacement of the wood ones, more expensive and less sustainable. She highlighted questions related to the surface configuration potential in the design project, emphasizing the application on furniture, finish and others.

Concluding the cycle of presentations, Design PhD Wilson Kindlein Jr. presented a series of results of the researches conducted in his laboratory. Among them we point out the results from the researches of topological mapping of surfaces, a study that locates chronologically and cosmologically the use of the main productive materials used by human societies, as well as the result of the mapping of industrial processes in the field of Industrial Design – a hypermedia which presents 3D animations of all the processes found in the Brazilian industry. The researcher also presented the results of researches on topological mapping of surfaces for the use in Design projects, from the three-dimensional digitalization of diverse materials and of the treatment and re-design of these digital textures, which have been used as pattern matrixes by many industries in the Brazilian state of Rio Grande do Sul, from textile and shoe industries to jewelry industries.

Forum 4 – Design and Identity – the differentiated use of materials in Design

This forum had as guests Nido Campolongo and Antonio Bernardo. The heart of the discussion was until what point the material can be considered an indicating element of this identity.



Mr. Nido Campolongo started his lecture presenting images of projects developed in architecture and interiors and spoke of some of the steps of his creative process interpolating them with the construction of his own career from his father's workshop, who was an artisan. His projects of furniture, lamp, finish, besides his modular fabrics, oppose the idea of frailty and disposability inherently associated to this material so common in our day-to-day life. This way, Nido Campolongo subverts our obvious way of looking at this raw-material, which he correctly qualifies as ecological on two aspects: recycled and recyclable. Through the reuse of industrial scraps and chips to construct some of his objects, he exerts the concept of sustainability, taking it to the extreme on a social project in partnership with the city hall of Sao Paulo in the years 2003 and 2004. His proposal in this case was the construction of an environment and furniture at low cost for homeless shelters, besides their capability for the construction. As to the possibility of being recycled, paper is very suitable in these cases, being one of the predecessors among recycled raw-materials.

Mr. Antonio Bernardo started his presentation telling his story as a jewelry designer, which started when such name was not commonly used in Brazil. He started as a goldsmith, became a jeweler and today is considered a designer. The son of a watchmaker's shop owner, in Rio de Janeiro, his frequent presence at his father's shop allowed him to become familiarized with the tools and with the people. He went on to study engineering, which he did not conclude, having been sent by his father to Switzerland to improve his technical knowledge in the area. There Antonio Bernardo learned the "trade". His relationship with the raw-material, noble *par excellence*, is very interesting, because he prioritizes in his projects the idea of the whole piece, which, in turn, becomes a jewel not only due to the material of which it is made of, but also, and most importantly, because of the configuration which expresses a concept, the veritable soul of the object, its more precious aspect. In his creative process he utilizes different resources to represent his ideas, and we quote: "*everything which is at hand can be used to express*". On top of that we should add the knowledge and intimacy he possesses with the material, which helps in its transformation into a feasible concrete object made in metal. As to the precious stones, an unavoidable subject when talking about jewelry, Mr. Bernardo says that it is necessary to have great responsibility to use something that took years to be produced by nature. He also points out his preference for semi-precious stones, more attractive as a creative challenge.

At the end of the presentations, some similarities became evident, such as the presence of an identity composed by the material (its inherent potential) and for the material (creative exploration). In spite of the crucial differences between the presented materials, we could note some very similar attitude of the designers' part: not only a functional relation with the raw-material, but an affective and intimate one, thus revealing a great respect for the raw-material independently of its cost. This perspective pointed to an intrinsic value of the material, making its expressive potential to prevail over the common sense perspective. When Nido speaks, it is not only paper, it is THE PAPER. When Antonio Bernardo speaks, it is not gold, but the materialization of a precious idea which shall be executed in gold.



Final considerations

The reflections presented in the following paragraphs aim at bringing to this last part of the paper impressions from the symposium. The *Senac Symposium on Materials – Design and Identity* should be understood as an object of study which is closed in itself, our objective thus is not to take any further actions based on generalizations from the symposium (such generalizations normally fail for they are based on a limited universe of reference). Therefore, the aim of such reflections is to highlight the elements which are capable of being rationalized and analyzed in several aspects so as to draw a possible cartography, a form of having more than one conclusive answer, but evident possibilities.

Considering the diversity of the experiences presented at the event, one may notice that the discussions on the materials for design can be very broad and not restricted only to a productive question of engineering. The introduction of questions which pervade humanistic areas, that showed us the richness in adding to the academic and commercial discourse elements about the consumer, society and culture, in a way that the material starts being considered as an operating element of construction in our material culture. Beyond the physical questions of resistance, cost or appearance, the discussions which took place in the four forums contributed to the interaction of the three segments of thinking and designing.

The presence of the researchers was a small sample of what is currently being made in Brazil in terms of study of materials and their diverse application fields. The ulterior reflection on the many approaches discussed allowed the expansion of the internal research projects of the group and also new richer reflections.

The presence of the companies afforded us an up-to-date discussion on the industrial production and their objects and research and project methods, thus integrating the technical and productive questions with the introduction of new materials and their application, working as an evidence for the teaching of Design.

The presence of designers and professionals in the project area, all of them with significative production, allowed us to verify the application of the concepts presented by the discussion in the day-to-day work of the designer, as well as revealing empirical discoveries. The narration of personal experiences represented a great contribution for the individual growth of all participants and audience, deepening the critical reflection on the materials and their uses in every-day life.

We have realized that the great profit on the proposed configuration for the event came mainly from the fact that we aggregated experiences from diverse areas of the material culture and of the Design, which allowed us the exchange and complementation with what each area has of most singular.

It is worth pointing out that some specific observations made on the three fields of thinking and designing mentioned which might direct the work of the research group. In the first place, a synchrony was observed between the mentioned segments in terms of a concern about the ephemeral; a search for solutions focused on sustainability, not only environmental, but also social, cultural, reflecting on the process of construction of identities itself starting from the work with materials.



The elimination of frontiers in the applications of materials, supported by innovative conceptions of lifestyles more compatible with the sustainability issue, as well as the discovery of new semantics from the dialog between form and material, were other features of the event, among the results of experimentations presented. Moreover, different researches start to be transposed into the market and on industrial scale of production, what evidences that the relation research/practice or university/company already occurs on a more systematic form in Brazil, representing a potential for a much bigger development. It is worth pointing out the importance of the empiric work in the field of research of materials as an important source of reflection to formulate new hypotheses and to develop projects concerning the “materials and design” relation.

On the design/art craft contact, the object of so many debates and worries, the experiences related demonstrated that the designer has understood such contact as an important opportunity of learning and sharing, both in relation to cultural as well as technical aspects. On the other hand, the artisans have taken advantage of this contact to better qualify in relation to methodologies and market views of their work. One can also notice a bigger social sensitivity of the designer and a change of attitude, the result of such interaction being the co-design.

Both the authorial view of the material-design work and the entrepreneurial one were confronted in the event, the final result depending on the strong interaction between multidisciplinary teams deriving from diverse departments. In the last case, in which generally the development and/or the application of materials involves high technology, industrial secrets, legal protection and multinational companies, the information between the area of materials, project and marketing, do not flow in an adequate way, generating a fragmented vision of the process of each of them.

Finally, we have tried, from the experience acquired in the event, to analyze the material collected, to conceptualize what was pointed out, to establish relations between the experiences observed and to re-elaborate concepts, thus constructing new hypotheses.

The descriptive enunciation chosen for this presentation considers the writing of this article as a part of the methodology which will permit its enlargement and rationalization. The Symposium, leaving a blank space in the pre-defined hypotheses stated at the beginning of this research and considered as a part of the chosen methodological process, allows their revision based on an experienced model which is favored by the analysis of the reported data to build the guiding knowledge for the next actions of the Cartography of Materials Project.



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