

Rhetoric on scientific dissemination of life and health imagery: a proposal for methodological analysis

Madel Therezinha Luz^(a)

Alcindo Antônio Ferla^(a)

Anderson dos Santos Machado^(a)

Rafael Dall Alba^(b)

(a) Programa de Pós-Graduação em Saúde Coletiva, Universidade Federal do Rio Grande do Sul (PPGCol/UFRGS). madelluzz@gmail.com; ferlaalcindo@gmail.br; andersonsmachado@gmail.com

(b) Rede Governo Colaborativo em Saúde. Porto Alegre, RS, Brasil. rafasaudecol@gmail.com

This paper analyzes the symbolic role of Biosciences in the imagery of life and health, presenting results of observational research of science magazines found on newsstands in three Brazilian cities: Rio de Janeiro, Duque de Caxias and Porto Alegre. It presents a synthetic analysis of the observation of newsstands and the set of covers exposed in them, using illustrative tables, according to a scheme of interpretation of the rhetoric present in these covers. We note that the meanings resulted of image/word symbiosis spread by periodicals, are persuasive tools on the universe of representations and social practices concerning a supposedly healthy lifestyle.

Keywords: Social imaginary. Biosciences. Midia divulgation. Rhetoric of life and health.

Introduction

This article summarizes interpretations of the activities of the project "Culture in the contemporary world: Media dissemination of scientific knowledge and building the social imaginary", developed between 2012 e 2014^(e), the Federal University of Rio Grande do Sul (UFRGS), with researchers from the Federal University State of Rio de Janeiro (UNIRIO) and State University of Rio de Janeiro (UERJ), presenting a methodological proposal of analysis of selected magazine covers, considering the symbiosis image / word as original nucleus of the rhetoric senses and meanings assigned to life and health as the central focus of our analysis.

(e) Data analysis happened between April 2012 and March 2013 and a second round of field searching for complementary data in the second semester of 2013 and first of 2014.

We favored the illustrative analysis of recurring meanings and representations in the scientific dissemination of vehicles present on newsstands. Our focus was on the science and technology information produced and published by scientists / experts in the publishing scene of newsstands, aiming science education from the sharing of knowledge^{1(f)}.

We understand the importance of observing the transition from the scientific debate to the publishing scene, recognizing the social role of the media reporting as a representative construction of reality, capable of producing practical effects, whether they are related to mobilization / demobilization, control / social release². Therefore, we aimed to interpret this rhetoric present in these practices and the ways in which this particular production of meanings can influence the imaginary, assuming occasionally a normative character³⁻⁵.

We tried to identify the symbolic power of Biosciences, generated through continuous reproduction of knowledge on the regulation of health and illness. It constitutes an *imaginary* impregnated with scientific information, full of *senses* and social *meanings*, generated and disseminated through representations, ways of thinking, feeling, acting, and evaluating⁶⁻⁹.

Although bearers of meanings, the resulting messages are not always made up of words, but also images in a symbiotic process. We understand that to treat them separately, as the linguistic and the semiotic traditionally do, would be insufficient to identify the meanings that emerge from the shared and processed collectively messages. In this process, social representations advocating collective and individual mental schemes, drawn from existing social relations are reinforced^{10,10}. In this way, patterns of attitudes, feelings, actions and interactions are conditioned. We realized that a rhetoric that produces subtle (but strong enough to consolidate life conducting models) suggestions is generated, in addition to the tacit coordination of the discourse or shared imaginary symbology.

Thus, this necessarily interdisciplinary study fit such questions: what role does the Biosciences dissemination on health and life in contemporary culture fulfill? Would we be on the threshold of a culture of prevention with strict parameters of life normalization? Would there be projects such as a social health culture present in Collective Health¹¹? Or would it be to establish, such as Sfez postulates¹², a *perfect health*, idealistically glimpsing the maximization of biological life? Or, a scientific overcoming of the human limits, in search for a "transhumanism" made possible by the machine?

(f) We make a difference between *scientific dissemination* and scientific journalism made by journalists from information coming from scientific sources. The scientific journalism adds journalistic verification to the circulation of scientific-technical information. We also distinguish scientific dissemination and scientific diffusion (scientific communication). Scientific diffusion is done through publications oriented towards specialists with familiarity with the issues, concepts and scientific production processes, shared among peer groups that have in common the research objects. It is through scientific diffusion that the research production becomes the raw material for the scientific development following the rigor and rites typical of the academic model¹.

The daily dissemination of essays, temporarily proven, aligned with representations, conceptions and ideologies persistent in the Biosciences, tend not only to ratify, but also to *reinforce* truths in research / technological innovation. The sharing of the productions generated from the Biosciences transposes the academic space. The science magazines sold in newsstands are powerful diffusion channels for these researches.

Observing the environment where these magazines are exposed, we noticed other publications, so-called "popular", which also feature reports on alleged health research and quality of life: healthy eating, exercise, chronic disease prevention, etc³. These publications were object of analysis, in fewer numbers, by way of comparison with the degree of proximity of the scientific discourse.

From a methodological point of view, we are more interested in the most convincing tone of the image / word combination than in the veracity of the content expressed by the discourse, in informative, communicative or ideological terms. We are concerned, above all, to understand how this symbiosis image / word about life, health and disease can exert a rhetorical pathos on subjects, originated in the discursive repertoire of Biosciences³.

Development of the field stage

Cities and local newsstands chosen for observation are situated in places of great daily movement of people: residential neighborhoods or shopping centers³. The sites are major urban centers, which help describe the nuances of the Brazilian publishing market.

For the research, 26 newsstands were visited in nine districts of the cities of Rio de Janeiro, Duque de Caxias and Porto Alegre^(g), during two semesters between 2012 and 2014³. We synthesized the fieldwork in summary tables (Table 1), providing relative analysis on the observation of the newsstands. For the interpretation of the collected material³, synthetic illustrations of the conceptual scheme and its categories were prepared (Figures 1 and 2), applied to the analysis of magazine covers.

Initially, the approach to the rhetorical content of the periodicals was by *fluctuating reading^(h)* of the covers and some articles closer to the themes of the covers. Informal conversations with the responsible for the newsstands served as an initial parameter to approach the socio-cultural universe of newsstands. This allowed for a better understanding of the layout of the periodicals in

(g) We added in 2014, points of observation in the city of Duque de Caxias and a suburban neighborhood of Rio de Janeiro, to compare the socio-cultural aspects of sites, and considering the type of magazines.

(h) Fluctuating reading means to watch, following with attention the whole in the pages of the magazines, without a focus in the content of the article, searching for recurrent keywords that are important for the study. Once the keyword was identified, there is a search for the context in the phrase to apprehend the possible "rhetorical induction" in the paragraph.. It is a qualitative technique for analysis that serves the purpose of apprehension of the system of norms, through the convincement that is implicit in the mass media discourse, such as in publicity or advertisement¹³.

the shop windows and inside the newsstands. It was pointed out that covers with the health theme receive spaces with greater visibility, as consumers often demand them.

To describe social inclusion of newsstands and its various functions in the territory under observation, and the disposition of newspapers and magazines in it, photographic records were made, notes and informal conversations with the ones responsible for the newsstands. Other items sold and the relationship with the surrounding community were observed, making them places of urban sociability. In this period, about 200 photos were collected, of which 25 were selected, focusing on newsstands and magazine cover pages with the theme of life, health and food, seeking to understand and describe the disposition of the magazines in the space⁽ⁱ⁾, being irrelevant to the analysis of the sample representativeness¹⁴ of the covers^(j). The research did not intend to identify the amount of newsstands or frequency of the issues. We sought to visually grasp elements of social space in which the newsstands are inserted, and the meanings that stood out as a common message in the magazines mosaic that make up the display case. The photographs served to support the description of the social context of the media scene.

Therefore, obtaining the data collected on newsstands lead us to the realization of the demand for an approach and specific methodological treatment³. First, it was ratified the consensus in the media that the public generally decide to buy the publications by the interest aroused by what is suggested on the covers²: the themes and its graphical presentation mobilize customer choice. It is not a significant criterion in the study to include subscribers and "virtual" readers of these magazines. For us it is not the *demand* that is relevant, but the supply of messages and convincing strategies to capture the readers for what they "see".

(i) A virtual search was performed in cover pages in the scientific dissemination magazines' websites to characterize the specificity of journals, its periodicity and the kind of publisher and editions.

(j) We consider a small systematic sample to be more accurate than a large sample of randomly selected materials. Bauer¹⁴ states that 12 selected editions randomly chosen in a daily journal give a reliable estimate of the profile of its annual news. Representation, sample size, and thematic unit division are dependent in last analysis, of the *research problem* that conditions the theoretical referential to be used. In this project we opted for a qualitative approach for selecting and analysis of the *rhetoric* that is present in the media.

Table 1. Period of research and characterization sociospatial by location

	RS PORTO ALEGRE	RJ ZONA SUL – RIO DE JANEIRO	RJ BOTAFOGO	RJ NORTH ZONE	RJ DUQUE DE CAXIAS	VIRTUAL SEARCH
Period of research	3 months	12 months	4 months	4 months	4 months	2 visits per website
Districts visited	Centro, Independência, Bom Fim, Farrroupilha	Catete e Flamengo	Botafogo	Jardim América	Centro de Caxias	Sites of publishers
Social profile of districts visited	Middle-class area; residential areas; big influx of people during the week (business hours); two large hospitals in the region.	Intense tourism (domestic and international); abundant trade; clinics of all kinds; Parque do Flamengo (park with sporting and musical events).	Intense tourism (domestic and international); abundant trade; clinics of all kinds; gastronomic and cultural zone.	Lower middle class neighborhood; surrounded by poor communities; border Vigário Geral District.	Middle-class area; residential and commercial areas; big influx of people during the week (business hours).	Virtual space organized by publishers.
Description of newsstands	Loads of newsstands in the area.	Loads of newsstands in the area.	Brazilians and foreigners newspapers; magazines of philosophy; psychoanalysis and history; periodicals of musical with CDs; magazines facing the body, health and aesthetics.	Little diversified; at the outside of newsstand: newspapers and popular magazines and publications about contests; other journals are uncommon.	Large benches installed in the city center, similar to the central and southern zone RJ; various types of magazines, including those focused on body, health and aesthetics.	Observed the signatures section, created to new readers.
Newsstands visited	11 visited: 3 at Farrroupilha district; 2 at Bom Fim district; 2 at Independência district; 5 at Centro Histórico district	10 visited: 5 at rua do Catete; 1 at Correia Dutra street; 1 at Dois de Dezembro street; 3 no Largo do Machado		3 newsstands: 2 at Franz Liszt Street; 1 at Avenida Brasil.	1 newsstand	
Disposition of periodicals	Magazines about health are exposed in the shop windows and outside of newsstands. Inside, this periodicals are exposed at entrance.	Scientific dissemination magazines exposed at entrance and in shop windows of newsstands. Magazines of similar thematics are disposed near each other.	Magazines of health are disposed at level of visual field. Some periodicals are exposed on highlight, visualized at long distance.		Popular newspapers and contests thematical periodicals are on highlight. Scientific dissemination magazines are rare, they are hidden inside the newsstand. There is not publication of the humanities.	

The covers are made of images enhanced by words. They create a symbolic power process that suggests to the reader the **persuasion**, in which what is being said / shown is credible in terms of truth and must be *followed* by the consumer².

The rhetoric is uncompromised with the production of truth, having as objective to attract and persuade, whether in politics, law or even in art^{15,16}. We proposed that the interpretation should be based on the methodological procedure in which the question of the message content (its "truth" or "untruth") was not the core of the analysis¹⁷. This is evident when looking at pictures (not always photos, often sophisticated photomontages, generated by computer graphics). This image production reiterates the implicit normativity in the rhetoric of the covers, in the course of its issues. We do not care so much about the theme, but its persuasion strength, given the specific ways of life guided by the Biosciences.

Conceptual orientation and analysis of field work

The symbiosis image / word, core of this analysis, makes reference to important cultural signs³, allied to keywords that work with meanings that symbolically reinforce them, in a reiterated communication of messages, within a context of transmission of "persuasive" senses¹⁸. We denominated as *life and health rhetoric* the set of meanings of imagistic messages concerning the

normalization of life and living, to the body and its biological maintenance, considering the cluster *picture / word* as a **whole rhetorical imagetic**, that is, in symbolic symbiosis. We understand that this process is worthy of a specific methodological approach, for not even the usual discursive content analysis, or classical semiotics, respond to the issues raised by the project^{3,6}.

In theoretical terms, this social diffusion process situates us in the **symbolic universe**, the irreducible dimension of culture, according to Levi-Strauss¹⁷⁻²⁰. It situates us in the collective production of senses, meanings, **social representations**^(k) and discourses^{2,10,21}, that vary through the civilizations in history, but having its own diffusion *lexicon*, never powerless⁷. Socially produced and shared, they refer to the set of cultural significance recurrently present in complex cultures, in which there is a plethora of messages transmitted in the form of information. Although bearers of meanings, such messages are not always composed of words^{19,22}. In contemporary culture the image assumed a predominant role on the transmission of meanings and social representations, having a strong impact in the social imaginary.

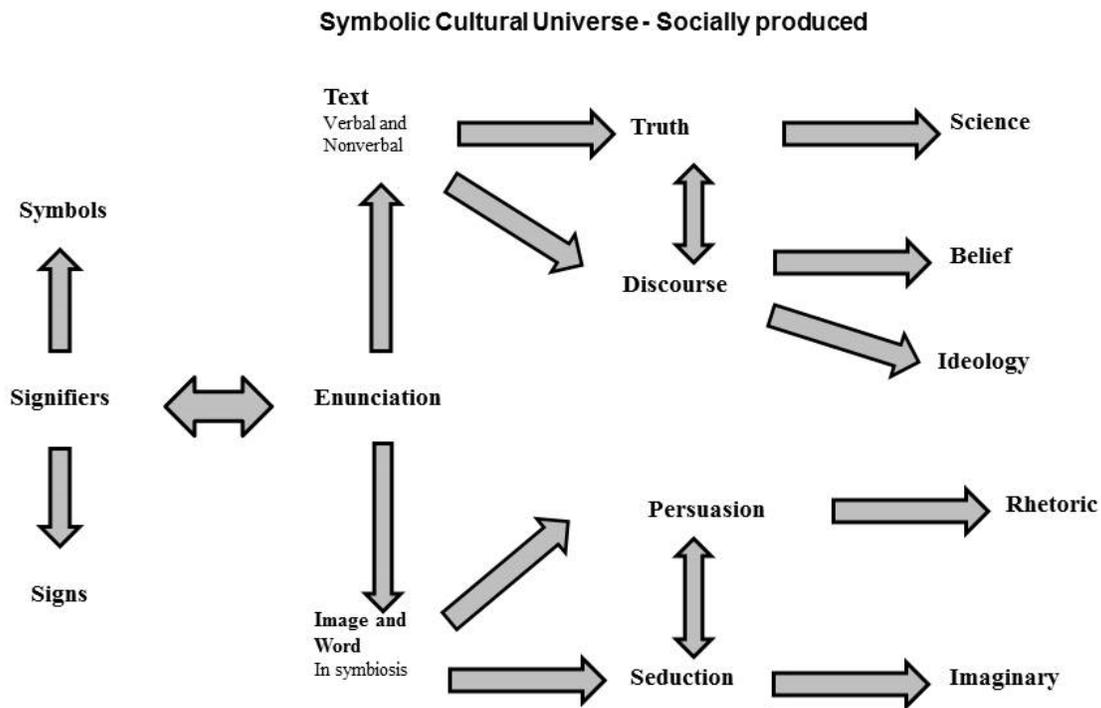
In this manner, the **social imaginary** in cultures is constituted⁶, which leads us to the socio-anthropological approach of meanings and social discourses, its origin and the roles they fulfill in every culture. It also refers us to the *ways* in which they are socially *widespread*, placing us at the interface of the fields of Social Communication, Communication Sociology and Collective Health².

It also plays a significant role in the communication between individuals, groups, networks and social institutions, multiplied by the possibilities of working the image in virtual media. In our study, the image becomes important as the symbiosis with the word, generates rhetoric to life and health^{2,14,22,23}.

This symbiotic union between images and keywords, in a seductive discourse about living¹¹, that is, a *discursive rhetoric of life* can be analyzed according to the proposed schemes, preserved the connections between the conceptual elements of our theoretical and methodological basis. The symbolic universe can be schematically represented as lines / arrows as follows:

(k) The concept/category **social representation** acquired growing importance in Social Sciences since the classic Durkheim in the 20th. Century. It was further elaborated through different authors in several disciplines such as Sociology, Anthropology, Psychology and Social Communication.. In this article, we follow the sociological approach, as initiated by Durkheim, and then by Gurvitch, Bourdieu and other classic authors. In spite of the existence of authors linked to Social Psychology such as Spink^{5,13}, we use a conceptual definition that is coherent with our research object, due to the complexity of theorizing the contemporary imaginary.

Picture 1. Scheme for analysis of observation of newsstands

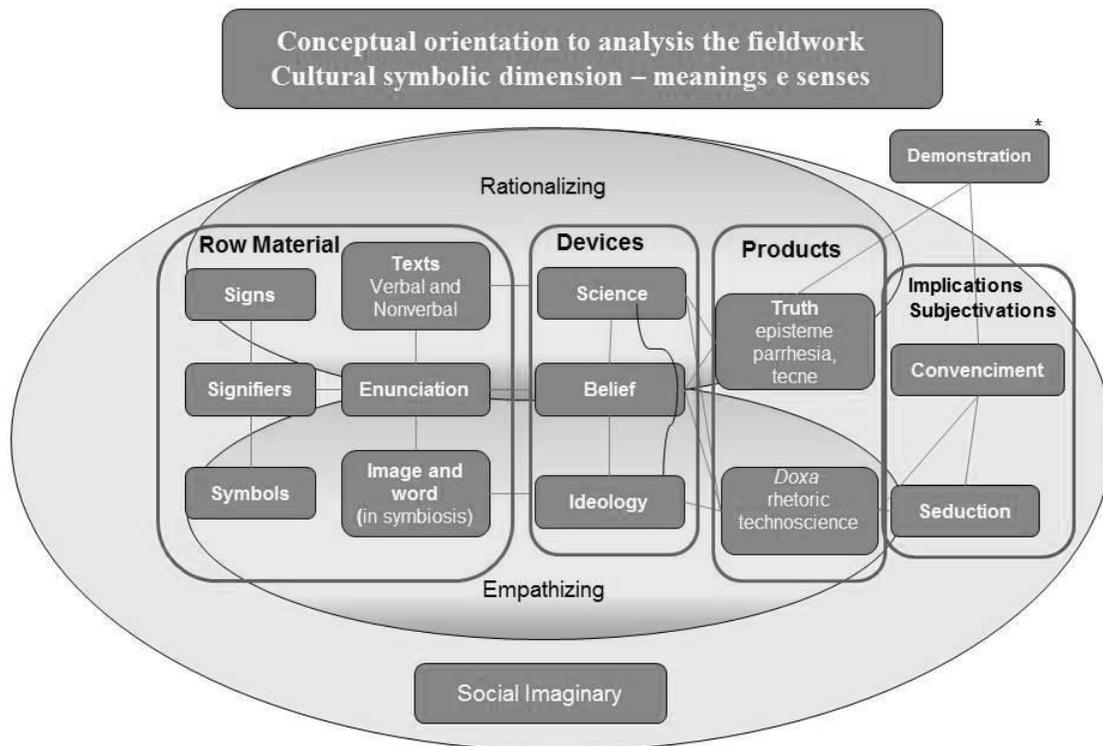


Sources: Luz et al.³; Luz, Sabino⁶; Silva,¹⁵ Barthes,¹⁶.

In the picture we propose that symbolic elements (symbols, signifiers, signs) act in connection with the statement, constituting interfaces with the text (verbal / nonverbal) and in connection with the image, working in symbiosis. From the relation truth and discourse, bases are generated for the action of science (truth), belief and ideology (discourse), although truth and *discourse* are related, in a lesser degree, with those other instances. The symbiosis image and word, *persuasion* and *seduction*, underlies the rhetoric (persuasion search) in the imaginary (seduction process), working in correlation, although varying in degrees.

At the theoretical level of analysis, we restructured the basic conceptual elements, previously illustrated, in order to establish connections between them, in function on the core of the research object. Thus, we reorganized, the whole, aiming to give more organicity and movement to the analysis process, illustrating the persuasion of the reader about the popular science themes present in the selected cases. The analysis / interpretation of the note considers the conceptual elements aligned schematically in Picture 2.

Picture 2. Conceptual scheme for analysis of fieldwork



Sources: Luz et al.³³; Luz, Sabino e Mattos⁶⁶; Sfez¹²¹²; Silva¹⁵¹⁵; Aristóteles¹⁶¹⁶; Moles¹⁸¹⁸; Barthes¹⁷¹⁷; Epstein¹⁸¹⁸; Joly²¹²¹.

We characterize here as a cluster of *truth producing devices*^{24,22} discursive production fields in which the **truth** has a predominant role in their knowledge and practices. We emphasize, in this sense, *science*, the *ideology* and *belief*, either religious or laic. Although not represented in the proposed schemes, there has been growing role of the media initially operator of truth devices, becoming itself a production device of truth / science, and especially *Biosciences*.

Foucault states that the truth production devices act as a decidedly heterogeneous cultural group, comprising speeches, institutions, architectural organizations, laws, administrative measures, scientific statements, philosophical and moral propositions. In short, the said and the unsaid are basic elements of the device, which is in fact a network that can be weaved between these elements²⁵.

The truth production devices act as structural processors of symbolic *raw material*, made by both *language elements* (text, statements and image / word) and *semiotics* (signs, signifiers and symbols). For these truth production devices to be constituted as such, it is necessary to analyze this symbolic raw material. It can be described as the symbolic substrate, which provides basic interpretive elements both for the imaginary output, as for the analysis of the materials collected in the field.

We suggest, in Picture 2, that the symbolic raw material, processed by the devices, assumes different configurations of meanings that can put it in the discursive production of truths: *episteme, parrhesia and techne*; or, in doxa production plan: *rhetoric and technoscience*^(l).

Scientific products seen as free, neutral from the point of view of truth, have only epistemological weight, generating conviction after the process of experimentation/ demonstration that is characteristic of the scientific method. We stress that ideology and belief also generate conviction with equal magnitude or even higher than that coming from science in terms of truth production.

However, science as knowledge rooted in implicit doctrinal principles, can feed the discursive way of *rhetoric* and its processes, influenced by currents, doctrines and ideologies, evanescent the symbolic value of *scientific demonstration*, and epistemological basis of the Cartesian tradition. Approaching thus the demonstrative character of science to belief and ideology, leading to *convincement*, through dynamic *rhetoric*.

Analytical description of magazine newsstands

For the socio-spatial characterization of newsstands, we highlight the frequency and persistence of topics from the Biosciences on the covers, and its repetition in time and locations of newsstands. We believe, as part of the methodological progress, that in the process of research, the field indicates tools and steps required for the analysis²⁶. Going to the field was necessary to understand the social inclusion of newsstands and the context in which the messages emerging from the covers were inserted. Bourdieu²⁷ tells us of the generation of socio-anthropological knowledge, of humanities in general, in the ongoing construction of the "subjects" (topics) of research, in a process in which the conceptual and methodological tools optimize themselves in the development of the research, conceptual or empirical. The activity of research, seen as a social practice in construction, is the generator matrix of the conceptual and methodological tools useful to the social sciences, used in the research process as a toolbox (*boite à outils*).

In order to do this, we developed a "silent" observation of the selected locations, watching from a distance the movement of sales. The objective was to compare the newsstands from the different places, in order to assess the best selling publications to socially characterize their consumers. Informal talks with the people responsible for the newsstands helped identify possible specific alignments in the space, which were the top-selling titles and in which time periods (weekly, monthly, etc.).

(l) We see technology and technoscience in particular, as having a powerful discursive conviction as strong as the one of modern science, establishing true "laic dogmas" even temporary ones. It is a powerful true-producing device.

The newsstands usually offer, aside from selling newspapers, services in the area where they are located, being a point of reference and sociability. The person responsible for the newsstand is generally seen as someone knowledgeable of the region, an informant of urban social places (streets, tourist and commercial spots, health institutions, restaurants, etc.).

We note, as well, "*social functions*"^(m) that usually happen in the newsstands in the socio-spatial context. These functions vary considerably, accounting for the demands of the population in the surrounding areas. There is a constant **social demand** for various products as well as magazines and newspapers, as well as a number the items of products for sale⁽ⁿ⁾.

Based on the variety of products available, we did a socio-cultural approximation to the American drugstores of the first half of the twentieth century, both from the point of view of consumption and the sociability characteristic of those places where the consumer movement allows access to the desired item, being that newsstands are located in an open environment, while drugstores are in large enclosed spaces such as warehouses^(o). The newsstands can be seen, dare we say, as "*compact drugstores*".

Magazine covers captured in field work

150 magazine covers were observed, the titles being ordered according to decreasing proximity of scientific discourse. This classification was used to empirically identify the relationship with sources of scientific and academic production, differentiating them from those intended for popular media-commercial use, with or without reference to research. The description included a representative sample of the magazines available in the market; not all of the magazines available in the market, but some identified with our thematic interests during field trips.

Classification of Magazines by Proximity Grade to the Scientific Discourse

Biosciences: magazines focused on science, with emphasis on health. With more informal language, they are amongst the genres in the media space, closer to the academic production of the researchers that are displayed as authors of texts, as well as a source, and directly accessing the university production. Included in this segment: *Scientific American Magazine* (not restricted to the biosciences); *Mente e Cérebro* magazine; "Doenças do Cérebro" Selection (Mind and Brain); *Ciência*

(m) Quotes in "social functions" mean that we do not assume it as a functionalist concept but as group of references and social tasks that the newsstands may perform in their environment.

(n) Products that are sold as extras in newsstands: CD and DVD, collectibles, books, non-alcoholic drinks, cookies, sweets, electronics, sim cards,. In a few newsstands here are medicines as aspirin and paracetamol, by the unit, as well as cigarettes. In Rio de Janeiro, close to the beach, there were also bathing apparel for sale.

(o) We did not include in the observation newsstands in closed sites, such as airports, shopping malls, stores, bookstores, etc.

Hoje magazine (SBPC); Rio Pesquisa magazine (FAPERJ); Superinteressante magazine; Galileu magazine;

Human Sciences: magazines linked to psychoanalysis, sociology, philosophy and education. Magazines included: Psiquê; Educação; Cult; Sociologia; "Chega de Estresse!"; Psicologia e Vida.

General-Journalism: weeklies with journalistic disclosure content, addressing a specific condition, such as diabetes, hypertension, obesity, or bringing some "new" science as a sponsored source. Highlighted: *Veja; Isto É; Época; Carta Capital.*

"Popular" Magazines: weekly/monthly periodicals with markedly commercial language, large entertainment exploration, curiosity and controversy about what may have more appeal to the audience. In them there usually appear some spectacular events related to Biomedicine and its branches, including:

a. **Pathologies:** a considerable number stand out with statements: "All about ..." a particular disease. Examples were publications titled: "Respiratory Diseases"; "Diabetes"; Revista "Sua Saúde" ("Your Health" Magazine).

b. **Nutrition:** usually they highlight healthy foods and miraculous diets. Among them: "Dieta Já" ("Diet Now"); "Saúde é Vital" ("Health is Vital"); "O Poder dos Grãos e Cereais" ("The Power of Grains and Cereals"); "Pense Leve" ("Think Light"), Revista "Corpo a Corpo" ("Body to Body" magazine).

c. **Fitness:** magazines concerning physical activity. Included: *Women's Health; Men's Health; Runner.*

e. **Phytotherapies:** magazines about herbal teas in special editions. We examined magazines like: "Poder do Limão" ("The Power of Lemon"); "Importância da Linhaça" ("Linseed's Importance"); "Alimentos que curam" ("Foods that cure").

f. **Magazines about soap-operas and celebrities:** issues that address television celebrities also bring in their covers an emphasis on health issues. For example: *Revista Viva Saúde.*

Magazine Cover Analysis Proposal

We noticed the suggestive reinforcement of values conveyed by studies of Biosciences, footwear in images, countersigned by the "key" word/image. Among the 150 covers observed, 50 of them were selected to implement the data collection tool for the identification of words/most recurring key images, as well as the description of the symbolic elements. Five of these, underwent an in-depth analysis to illustrate how the image/word symbiosis generates the suggestion process we call rhetoric health and life.

As an illustration of the methodological analysis proposed, we describe the cover of one of them with the title (Picture 3): "*Hyperactivity: Considered as a disorder in itself, it is actually a symptom. Learn in which disorders it is present (and other symptoms treated as a disease)*"^(p).

Picture 3. Psiquê Magazine - Hyperactivity



Rhetoric message suggests hyperactivity as a multiple production of a brain in action, indicating *something wrong with it*. Even if the text addresses hyperactivity in addition to the pathology (as a result of body action), the image of the brain highlighted in blue, raises this organ as the center assigned to hyperactivity.

We would not say that there is a contradiction in this cover, but the production of a normative sense that gets a rhetorical tone from the image/word symbiosis. This symbiosis consolidates in the imaginary of the brain as a center for health and life.

Here we highlight three covers for comparison, such as the one showing the control of food by nutrition criteria associated with what is meant by health: *we are the calories we eat*^(q). (Picture 4). In another example (Picture 5), the brain is presented as a machine that manages mental functioning (software)^(r). Finally, the prescription of what should be consumed to prevent cancer^(s). (Picture 6), a clear denial of natural aspects of food and the biological body.

(p) As keywords we highlight *brain/neurons, life, illness/chronic/pathology machine/technology, performance, anxiety/stress disturb, symptom, trouble, sickness*.

(q) Scientific American Special issue: "All that you know about calories is wrong: The fascinating universe of food: The measuring system ignores the complexity of digestion."

(r) Psiquê Magazine, special issue "Mental Software: Brain structures and modulations show a possible synergy between computers and human brains and become focus of cognitive sciences".

Bacteria, ways of preparation and the energy used in the process, radically alter the quantum of energy absorbed from food”.

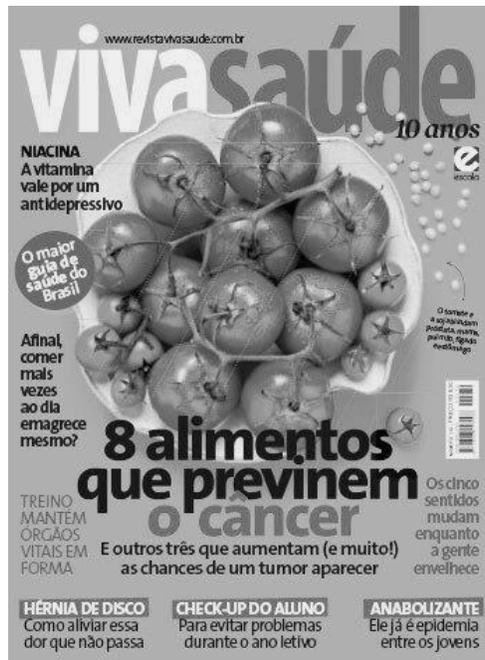
Picture 4. Scientific American Magazine – Calories



Picture 5. Psiquê Magazine - Mental Software



Picture 6. Viva Saúde Magazine



(s) Viva Saude Magazine: "8 foods that prevent cancer. And another three that increase (a lot!) the chances of appearance of a tumor".

In these cases we proved the rhetorical force of the image/word symbiosis. Analyzing only the text of the headlines, we learn the intention of those who designed the cover. It is at the *junction* image/word that a suggestive message comes up stating that both food and psychoanalysis should be subjected to specific criteria, which place the "biological" (nutritional and neurological) as the basis of a *specific* conception of what health is. It is not only the natural, but the human and **its lores**, which are subtly dropped in the illustrated suggestions on magazine covers.

We observe a subtle suggestion process appearing, conducting our lives in terms of health from the perspective of the Biosciences. In the examples examined the strength of the *health and life rhetoric* reinforce the hygienistic popular imaginary guiding the way of living. As the dominant device of truth production, Biosciences reinforce this bias, discarding thematic possibilities to accept and incorporate proposals coming from other knowledge/disciplines.

Results of field work analysis

Analytical actions observed in the field allowed us to describe with more relevance the complexity of the object under study and led us to expand the focus on the methodology of the analysis in the pictures of the covers, in order to allow a more elaborate interpretation of the effects in the popular imaginary of the meanings emphasized in the rhetoric of health and disease, present in messages from the journals analyzed, considering its diversity of media language.

In this analytical phase we had some indications derived from the observation that allowed us to point out some conclusions:

a) Diversity in the composition of the newsstands in a socio-spatial location function:

We observed that the availability and distribution of science magazines in the physical space of newsstands varies considerably according to the socio-cultural region in which they are located: suburban, middle-class residential area, urban periphery, and even between cities.

Peripheral neighborhoods exhibit and sell in their newsstands popular newspapers more than anything, fitness journals, soap-opera magazines and civil servant test bulletins. Middle class newsstands on the South area of Rio de Janeiro and the residential and commercial districts of Porto Alegre, sell a wide variety of periodicals - including those who belong to our research universe. The configuration and distribution of the items seen inside the newsstands also changes according to the socio-spatial location, varying according to the demand of publications and items sold in these stands (newspapers, magazines, small businesses).

b) Images and imperative words emerging from the covers:

In the analysis of the periodicals' covers, we identified keywords, usually expressed in a commanding tone, imperatives looking to guide the audience in life and health practices in order to preserve them or to prevent deterioration. As an example, there is a recurring call for expressions such as "healthy life", associated with *good nutrition and physical activity*.

In addition, it was found in the covers a recurrence in dominant culture verbs, such as "can", "fight", "combat", "win". The imperative tone tends to legitimize attitudes and behaviors proposed regarding health changes and the presence of acute or chronic diseases of body and mind, such as obesity, hypertension, depression, heart attacks, diabetes, cancer, Alzheimer, etc.

It becomes clear the support for issues and solutions from experts studies, reaffirming the continuing reference to the results of advanced scientific research, whose variation of themes and outcomes is at times the character of a "trendy issue" due to the repeated recurrence of certain subjects in evidence.

This stance was reaffirmed by the appeal to the authority of terms such as science or *research and scientific* studies present in most of the examined covers, reinforcing the perception already mentioned that *technoscience* is presented as a relevant producer device of *doxa* in contemporary society. It is worth noting that the further from the scientific dissemination (news magazines, popular, advertising or propaganda), the greater the recurrence to the authority of science and to what is "scientific". Magazines of scientific diffusion, as they are already being characterized as disseminating researchers/experts texts, develop the issues without calling on the scientific validation of information.

As for the images, we identified the recurrence of symbolic constructions with specific pictorial elements such as photomontages and graphic illustrations of organs, especially the heart and brain, usually related to chronic diseases. These organs appear on the covers "transfigured" by image technology with machine-like appearance or clearly mechanic^{21,28}.

In many cases, the image of the organs is crafted graphically according to the message on the subject, like a "turbo" brain, alluding to lightning and electric power, clearly associated with the idea of strengthening the maximization of its power²⁶. Not infrequently these associations and assemblies appear linked to cutting-edge diagnostic tests, in which the image has an important demonstrative role for medical diagnosis.

The convincing power of these technoscientific images in building a *doxa* that values the mechanism in the imagination of readers is considerable, because they "demonstrate" graphically health values and disease. As an example, the photomontages organs "in movement" with "four-dimensional" virtuality pointing to a material reality more advanced than analog tests such as x-rays, electrocardiograms and encephalograms.

This virtual demo has an aesthetic appearance that is undeniably seductive, appreciated by professionals and lay people, assigning the image a symbolic power in relation to the biological body, stripping it of its tangible aspects, such as blood, tissues, systems, and fluid volume. Ultimately, through the preponderance of the imagetic discourse, we are dealing with *transcorporeal organs*, transcending symbolically from the biological nature of the human body, as we represent it since the late XVI century, during the nascent scientific modernity²¹.

We found that the evidence clearly shows the strength of analysis of the *life and health rhetoric*, central in our study, relevant to the interpretation of the current discursive production of Biosciences, as has been conveyed to the validation of certain statements in the media space.

c) Role of scientific dissemination of printed media in the current pedagogy:

A role not only informative but also *educational* emerges from the analysis. In fact, some popular science journals presently fill, regardless of the discipline in which they are located - whether in life sciences, the physical sciences or humanities - a lack of information, and even in regular training, with topics and encouraging debates in various disciplines both in high school and in undergraduate, revisiting theories and concepts of classical and contemporary authors, contextualizing them in new issues and current scientific issues.

Conclusions

The interpretation of the analyzed magazine covers highlighted preliminarily, that the photos/images that illustrate the *image/word* symbiosis³, communicate a process of persuasion/convincement that reinforces the hegemony of Biosciences in the current culture of health, disease and life. The messages convey specific meanings about the body and health, physical activity, nutrition, prevention and control of diseases, proposing further medicalization practices of life, contributing to the reproduction of specific ways of conducting health and life of the population.

The social search for a culture of health, similar to *the utopia of perfect health* from Sfez¹², manifests itself in healthy practices, including preventive hygienism present in the speeches of Biosciences, combined with a health promotion project supported by practices bioscientifically influenced.

These practices include propositions about the body, emotions and subjectivity of individuals and groups. It includes a range from nutrition, movement (or activity) of the body, to a certain mental hygiene, seeking to *harmonize* people's lives and social relations. They constitute, in a sense, a diffused global project of health, not made politically or conceptually, but tending to utopia, albeit in a different paradigm from that described by Sfez¹².

The full development of an interdisciplinary interpretative approach of the rhetoric of content served by the science magazines escapes from classical analysis of discourse and structural semiotics, situating image/word rhetoric as a strategic category of examination of the symbolic function of bioscience journals on the popular imaginary of life and living.

Hopefully, the resulting interpretations of this methodological approach will contribute to the development of new ways of theorizing the symbolic contents, to identify relationships between the *rhetoric of life* and social imaginary, and shed further light on how certain representations of Biosciences of life and health work in contemporary culture.

Collaborators

Madel Luz, Anderson dos Santos Machado and Rafael Dall'Alba wrote the first version of the paper and did the field work. Alcindo Antônio Ferla made the critical review of the text and organized its final version.

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