Article

Linguistic Repertoires of Interdisciplinarity in Brazilian Journals in the Area of Psychology[1]

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Abstract: This paper is about manners in which linguistic repertoires of interdisciplinarity for dissemination of scientific knowledge are coordinated. It starts with a contextualization about interdisciplinarity and ways in which disciplines are organized for administrative purposes in Brazil. It seeks to answer the question: how these forms of ordering, controlling and coordinating interdisciplinary operate in the dissemination of scientific knowledge? The analysis of the ways of coordinating interdisciplinarity in scientific dissemination was based on the editorial proposals of journals classified as A1, A2 and B1 in the Qualis of the area of Psychology. The conclusion of this analysis is that scientific journals enact interdisciplinarity in different manners because they use various forms of association based on themes, related areas, and theories or theoretical frameworks. We conclude the analysis with a discussion of the implications of the various manners of coordinating knowledge for the dissemination of information for the public at large.

Keywords: interdisciplinarity, psychology, scientific research, discourse analysis, scientific communication

Repertórios Linguísticos de Interdisciplinaridade em Revistas Brasileiras da Área de Psicologia

Resumo: O objetivo deste artigo é discutir os modos de coordenação de repertórios linguísticos sobre interdisciplinaridade para divulgação do conhecimento científico. Parte de breve contextualização histórica sobre interdisciplinaridade e sobre as maneiras como as disciplinas são organizadas para fins de gestão no Brasil e busca responder à pergunta: Como operam essas formas de ordenar, controlar e coordenar saberes interdisciplinares na divulgação científica? A análise dos modos de coordenar a interdisciplinaridade na divulgação dos conhecimentos teve por base as propostas editoriais das revistas da área da Psicologia, classificadas no Qualis como A1, A2 e B1. Conclui-se que as revistas performam interdisciplinaridades distintas, pois utilizam formas diversas de associar saberes: por temas, áreas e teorias ou referenciais teóricos. Finalizamos com uma reflexão a respeito de como se desenvolvem essas formas de coordenar saberes para a divulgação de conhecimentos para o público.

Palavras-chave: interdisciplinaridade, psicologia, pesquisa científica, análise do discurso, comunicação científica

Repertorios Lingüísticos de Interdisciplinaridad en Revistas Brasileñas de Psicología

Resumen: El objetivo de ese texto es discutir las maneras de coordinación de los repertorios de interdisciplinariedad para la difusión del conocimiento científico. Empieza con una breve contextualización histórica sobre interdisciplinaridad y sobre la organización de las disciplinas con fines de gestión en Brasil. Intenta contestar la siguiente pregunta: ¿Cómo operan estas formas de ordenar, controlar y coordinar los conocimientos para la divulgación científica interdisciplinaria? El análisis de las formas de coordinación interdisciplinaria en la divulgación del conocimiento se basó en las propuestas editoriales de las revistas clasificadas como A1, A2 y B1 en el Qualis del área de Psicología. Se concluye que las revistas desempeñan interdisciplinaridades diferentes al utilizar formas diversas de relacionar conocimientos: por temas, campos relacionados, teorías o marcos teóricos. Finalizamos con una reflexión sobre las implicaciones de estas formas de conocimiento para coordinar la difusión del conocimiento al público en general.

Palabras clave: interdisciplinaridad, psicología, investigación científica, análisis de discurso, comunicación científica

The objective in this article is to discuss modes of coordination of linguistic repertoires about interdisciplinarity in the editorial proposals of journal in the area of Psychology. The argument we defend is that the manner in which these proposals are organized presupposes different ways of combining knowledge areas and, therefore, distinct versions of interdisciplinarity. Hence, they do not refer to one but to multiple interdisciplinarities.

The theme of interdisciplinarity and, more recently, transdisciplinarity (without mentioning the more radical branch of indisciplinarity) has been discussed at international congresses and has given rise to important considerations by authors like Japiassu (1976), Morin (2002) and Santos (2006), among many others who have questioned the fragmentation of knowledge in disciplinary molds.

This is a complex theme that involves at least three areas of discussion. The first relates to the organization of

knowledge areas in disciplinary fields. The second is related to the production of knowledge when disciplinary boundaries become blurred, giving rise to the question: how can the disciplinary boundaries be controlled when they are not as delimited as one thought? The third refers to the dissemination of the knowledge produced in these disciplinary interstices, that is, how do these forms of ordering, controlling and coordinating interdisciplinary knowledge operate in the process of scientific dissemination?

In this discussion, we position ourselves within the theoretical and epistemological ground associated with a Social Psychological approach that is focused on the discursive practices present in daily life, whether these are contemporary productions or resonances from the long time of history (Spink, 1999). Mixing linguistic repertoires that derive from different knowledge domains, these practices constitute versions of phenomena, including scientific practices.

The performative nature of discursive practices implies that each new description of the phenomenon produces a new effect, a different phenomenon. In other words, there are multiple versions of phenomena that coexist at a certain time. This coexistence, however, is not always pacific. Specially with regard to scientific practices, these versions might compete for different statutes of truth: versions are always fighting with one another, which does not mean that they annul one another (Mol, 1999). Ordering these versions requires coping with complex processes. According to Mol and Law (2002),

> There is complexity if things relate but don't add up, if events occur but not within the process of linear time, and if phenomena share a space but cannot be mapped in terms of a single set of three-dimensional coordinates (p. 1).

Complexity is a process that denies existing logics of exclusion, of history as a continuity of facts and of the possibility of a panoramic view for providing an intelligible system. When dealing with complexity in the field of science, attention must be payed to the simplification processes used to talk about a certain phenomenon; in this case, with regards to the dissemination of multidisciplinary, interdisciplinary and transdisciplinary knowledge. The option to analyze the journals' editorial proposals is justified as they are channels through which scientific knowledge is legitimized and disseminated in a network. The way they organize, select and present their interdisciplinary proposal will largely define which, among the multiple forms of interdisciplinarity, one is talking about; what performance of interdisciplinarity is being presented; which studies can and which cannot be part of the narrative the editors are proposing. In other words, how are the multiple versions organized, ordered and simplified in order to cope with the complexity of interdisciplinarity in scientific editorials?

To answer this question, the article is structured in three parts. In the first, a short historical account is presented concerning the gradual questioning of the disciplinary model.

This short historical account also allows for the identification of the different ways that interdisicplinarity is present in the literature concerned with overcoming disciplinary fragmentation. The second part addresses more specifically the complexity of knowledge production and the consequent overflow of disciplinary boundaries. It is in this context that the task of organizing knowledge areas as a management strategy of funding agencies will be discussed. In the third part, based on the research that was carried out, the problem of dissemination of this knowledge without borders will be addressed, analyzing how journals that are open to trans or interdisciplinarity define their scope.

Notes on the Questioning of the Disciplinary Model

There is a vast bibliography about the theme of inter/multi/transdisciplinarity, that provides access to analyses about the search for agreement on the definition of terms – from disciplinary to transdisciplinary, through to its multi and inter variations –, derived from international congresses on transdisciplinarity.

The recent history of this awakening of researchers, professors and managers to the issue of interdisciplinarity started in the second half of the 20th century. This landmark is obviously a simplification. One can always find forerunners or even return to the scholarship tradition that marked most of the knowledge production before its organization into compartments for management purposes.

But let us stick to the more recent history. Gusdorf is an important actor in a network that comes together at international conferences. In the 1970's, Gusdorf participated in a colloquium organized by UNESCO and his notes on interdisciplinarity influenced one of our eminent epistemologists, Japiassu, who spearheaded this discussion in Brazil. This colloquium was followed by other conferences, involving researchers and philosophers whose thoughts were based on systemic and structuralist perspectives. Among the consensuses one can find definitions of the various disciplinary interfaces that are widely accepted nowadays.

The definitions included in the Summary of the Locarno Congress, held in 1997, with the thought-provoking title *What University for Tomorrow? In Search of a Transdisciplinary Evolution of the University* (Alvarenga, Sommerman, & Alvarez, 2005) can be taken as an example of this consensus. According to that summary, multidisciplinarity refers to the study of an object that pertains to a single discipline by different disciplines at the same time. Thus, the crosfertilization of different disciplines can enrich the object under study. Interdisciplinarity, on the other hand, has a different ambition. It refers to the transference of the methods from one discipline to the other. Three levels of interdisciplinarity can be distinguished: (a) a level of practice, like in the case of the transfer of methods from Nuclear Physics to Medicine, which might allow for the emergence of new cancer treatments; (b) an epistemological level, as in the transfer of the methods from formal logic to law, producing analyses on the epistemology

of law; and (c) the promotion of new disciplines, like in the transfer of methods from mathematics to physics, which created mathematical physics. Like multidisciplinarity, interdisciplinarity goes beyond frontiers, but its purpose remains inscribed in disciplinary research.

Transdisciplinarity, as the prefix trans- indicates, refers to what exists at the same time between the disciplines, through the different disciplines and beyond all disciplines. Its goal is to understand the complexity of our current world, and one of the imperatives for this purpose is the unity of knowledge (Alvarenga et al., 2005). It is basically about addressing the multidimensional nature of phenomena and working with complexity in research. In other words, dealing with the coexistence of multiple realities, each of which is addressed at a complexity level.

These thoughts, derived mainly from epistemologists and educational policy makers, go beyond disciplinary spheres and, for different reasons – including the perception that science has no disciplinary boundaries, and the monumental task of organizing and assessing these knowledge overflows – create turbulence in the management spheres responsible for the assessment of knowledge areas and/or for research funding.

One must also take into consideration the contributions of post-modern epistemology to the problematic of interdisciplinarity, particularly with regards to the Social Sciences and Social Psychology (Woods, 2009). The authors cited so far are identified with the human sciences, however, the contributions of authors from the physical sciences, such as Prigogine and Stengers (1997), in their book *A Nova Aliança: Metamorfose da Ciência*, also challenges the resistance to dialogue between different fields of knowledge in contemporary science (including the human sciences), in their hegemonic branches marked by neo-positivist empiricism or structuralism. With this book, the authors attempted to show that, in view of the complexity of the problems addressed by sciences that are focused on the human societies, the sciences of nature also face difficulties to "(...) understand some of the meaning of certain questions expressed in myths, religions and philosophies" (Prigogine & Stengers, 1997, p. 25).

In the book *A Invenção das Ciências Modernas*, Stengers (2002) returns to the theme of complexity, emphasizing the political dimension of the scientific practices. The book is dedicated to Félix Guattari and Bruno Latour, "as a reminder of a meeting that did not happen" (Stengers, 2002, p. 8). In it, the author exposes the power games that define what counts or not as science and discusses the participation of citizens in public and scientific affairs giving as example the discussions about genetic research undertaken at Harvard University and the participation of drugs users in the definition of public policies in the Netherlands. She also highlights "the role of homosexual groups in the negotiations of measures taken with regards to the Aids epidemic" (Stengers, 2002, p. 194).

Another focus of the questions regarding disciplinary areas concerns researchers in cultural studies, who clearly show that the choice of transdisciplinarity is also a political position in view of the power practices in the academic world "submitted, mainly in Latin America, to technocratic and neoliberal knowledge processes that more strongly affect what used to be called 'humanities'" (Richard, 2010, p. 68). In this sense, transdisciplinarity is considered as a convergence of studies on "culture, power and hegemony" (Richard, 2010, p. 68). According to that author, cultural studies promote an epistemological disequilibria in the established academic debate, as

> They permit naming a problem zone that goes beyond the establish knowledge limits and frontiers, questioning the academic conventions of belonging and disciplinary relevance and favoring the convergence of theoretical bodies that did not use to mix in the traditional study programs (Richard, 2010, p.77-78).

Interdisciplinarity in the Funding Agencies: The Classification of the Knowledge Areas

One way through which interdisciplinarity reaches the funding agencies is through the discussion about what is a knowledge area. According to information from the website of the Coordination for the Improvement of Higher Education Personnel (CAPES), the classification of areas is aimed at providing science and technology agencies with an agile and functional manner of aggregating information.

The original classification of the areas includes a ranking of four levels, from the most general to the most specific. The first level is the Greater Area: agglomeration of different knowledge areas due to the affinity of their objects, methods and instrumental resources. The second level, called Area, is the set of interrelated knowledge defined according to the nature of the research object for the purpose of teaching, research and practical applications. The third level refers to the Subarea: A segmentation of the established knowledge area deriving from the object of investigation and its standard methodological procedures. Finally, the fourth level refers to the specialties, to the theme that is focus of the research and teaching activity (Ministério da Educação, 2012).

In 2005, the Presidents of CAPES, CNPq e FINEP constituted a Special Study Group to propose a new classification table of the knowledge areas. The area representatives were asked to cooperate and, in Psychology, a committee was organized for that purpose. For many committee members, this was a very disappointing experience, as a broad consultation among peers was held to produce a proposal only to discover that the established powers had already accomplished this exercise and had completed a preliminary version of the new table.

Other areas must have had equally disappointing experiences, to the extent that the new table was never adopted. It should be observed, however, that this preliminary version of the new classification was much more interdisciplinary

than the one developed inside the areas. The notion of greater areas and subareas was maintained as originally defined, with the possibility of cross-reference among subareas through a considerable list of specialties. In the preliminary version of the new table, the list consisted of 22 pages. It was extensive and incomplete because it included themes from a variety of subareas. For example, here are some specialties that started with the letter "S" (in Portuguese): Community Services, Sex and Gender, Sexology, Sexuality, Sexualism.

Despite keeping basically the same classification system, for CAPES, the interdisciplinary challenge was posed. New graduate programs that did not conform to the disciplinary cannons were created, leading to the establishment, in 1999, of the multidisciplinary area, which in 2008 was renamed as the Interdisciplinary Area.

According to CAPES documents, this change in name was based on an understanding of what is considered as interdisciplinarity, that is, the "Convergence of two or more knowledge areas, which do not belong to the same class, so as to contribute to the advancement of the frontiers of science and technology, transfer methods from one area to the other, producing new knowledge or disciplines" (Ministério da Educação, 2012, p. 3). This is an example of the acknowledgement of a new form of knowledge production, resulting from theoretical and methodological exchanges, with the generation of new concepts and methods and increasing levels of intersubjectivity, deriving from the specificities of more complex phenomena.

At present, there is a wide range of examples in which the disciplinary boundaries are blurred, as happened in collective health. Whether in public policy documents, service experiences or research, the discourse here is always interdisciplinary. In fact, collective health is defined in opposition to public health precisely because it accepts the interface between biological and social phenomena, both defined in the broadest possible sense. Hence, the production of knowledge is necessarily interdisciplinary.

That is also the case in environmental education, originally defined as a branch of the biological sciences. It is important to clarify that, at least in Brazil and in other Latin American countries, researchers in this area initially came from the Physical and Biological Sciences and then moved towards the Social Sciences, particularly towards education. The trajectories that characterized environmental education as a clearly interdisciplinary field oriented towards transdisciplinarity acquired legitimacy in the field of education. This fact was marked by different events, among them the constitution of the Workgroup on Environmental Education at the Associação Nacional de Pesquisa em Educação (ANPED), the launching of specific calls for research by funding agencies, the welcoming of studies by environmental educators at different associations (ANPEPP, ANPOCS, ANPPAS) and the accumulation of books and papers published in journals from a wide range of areas (Reigota, 2011).

These events and the constitution of environmental education as a scientific field with the characteristics expressed above, are related to the introduction of the theme at different graduate programs, as demonstrated in studies about the state of the art in Mexico and Brazil (Gaudiano & Lorenzetti, 2011).

Disaster studies in tandem with Civil Defense Policy traditionally also follow an interdisciplinary orientation. The association between technical and structural knowledge derived from the hard sciences and the history of events as well as the experiences of the population that suffered or suffers from disaster situations, focus of research in the soft sciences, demonstrates this trend.

The manner in which the technicians at the *Centro Nacional de Monitoramento e Alerta de Desastres* (CEMADEN) forward an alert to the *Centro Nacional de Gerenciamento de Riscos e Desastres* (CENAD) can be used as an example, of the manner in which heterogeneous knowledge is combined in practice. In the operations room, experts in Geosciences, Hydrology, Meteorology and Disasters analyze data, talk, discuss, assess and perform a phenomenon, each according to his/her knowledge. They make phone calls, talk to other experts, search for information on the current condition of each city being monitored. They associate with a heterogeneous network of actors to produce a hybrid product: the alert.

Specially in areas where the knowledge is produced without boundaries, the dissemination of knowledge should be questioned. Based on the psychosocial perspective of discursive practices and on the authors' long research trajectory in this framework (Hutz, Rocha, Spink, & Menandro, 2010; Spink, 2011; Spink, Lisboa, & Ribeiro, 2009), we take as a starting point the premise that the dissemination of inter/transdisciplinary knowledge is intertwined with questions related to the social languages used in specific contexts of knowledge production.

These languages are forms of discursive organization of knowledge areas that are associated with specific segments of society. They are associated with the discursive genres that are typical of these social segments, i.e., the relatively stable types of utterances, in order to produce discursive permanencies at a specific time and space. Thus, social languages are "linguistic consciousness, separated by time, by social differences in languages (or both)" (Bakhtin, 2002, p. 156). It is important to understand that these languages organize the production of interdisciplinary knowledge.

The SCARR project serves to illustrate the gap between research practices that move beyond disciplinary frontiers and their dissemination. SCARR stands for the Social Contexts and Responses to Risk, a research project supported by the British Economic and Social Research Council, and chosen because of the resonances with the research we have been carrying out here in Brazil about themes related to life in risk areas.

Between 2003 and 2008, studies were developed that involved a wide range of disciplines – including Sociology, Psychology, Economics, Social Policy, Media and Law – and

researchers from 14 universities. However, based on what can be deduced from the final report, the different disciplines developed specific projects, with little interlocution among them. Interested in this experience, we contacted the project coordinator, Dr. Peter Taylor-Gooby, by e-mail and asked what the interlocution experience with that many disciplinary areas had been like. This was in fact a multidisciplinary experience, replicated in the publication vehicles and in the authorships and co-authorships:

> SCARR was fun to do and I learnt a lot. Interdisciplinarity was our big thing. Real problem is to get sociologists and economists to take each other's' work seriously. Social psychologists, who had methods that appealed to both sides, were very useful in making this work. (P. Taylor-Gooby, personal communication, April 26th, 2012).

Interdisciplinarity in Scientific Journals in the Area of Psychology

Following the clues of SCARR, and considering that we are gradually encouraging the participation of other disciplines (including Geoscience) in this project on risk areas, one should ask the question: as results are produced, where will they be published? The aim of the present research was to identify how interdisciplinarity is presented in the editorial proposals of scientific journals. Adopting a discursive perspective, we considered that the way in which the journals organize, select and present their interdisciplinarity proposal will largely define which of the multiple forms of interdisciplinarity are being addressed; what performance of interdisciplinarity is being presented; what studies can and cannot be part of the narrative the editors are proposing. In other words, the research aimed to understand how multiple versions are organized, ordered and simplified to cope with the complexity of interdisciplinarity in scientific editorials.

Method

A document based study was carried out through the analysis of the editorial proposals of scientific journals. The analysis included journals classified as A1, A2, B1 in the Qualis ranking of the Psychology area, which were also classified in the Qualis of the Interdisciplinary area. The Qualis system was introduced in order to evaluate the quality of the bibliographic production of graduate programs. It is an indirect form of evaluation based on the analysis of the quality of the publication vehicles, especially scientific journals (http://www. capes.gov.br/avaliação/qualis). The ranking is specific to each area of knowledge with the following distribution: A1; A2; B1; B2; B3; B4; B5; C – corresponding to zero. Our analysis was restricted to the ranks A1, A2 and B1 because of the number of journals in the Qualis for the area of Psychology. According to information published in March 2012 regarding the update of the Webqualis, 2,057 journals in use in the graduate programs in Psychology in 2010 and 2011 were assessed and included in the most recent version of the Qualis (Ministério da Educação, 2012).

Procedure

Data collection. In total, the editorial proposals of 85 journals were analyzed: three classified as A1, 19 as A2 and 63 as B1. The analysis focused on the linguistic repertoires of interdisciplinarity present in the scope, missions and/or objectives of Brazilian Psychology journals that were evaluated and qualified as interdisciplinary. This procedure was aimed at understanding the manners and strategies through which the journals make their interdisciplinary nature public, as well as its scope and limits.

Data analysis. Our analysis strategy was based on a mix of sociotechnic studies and discursive practices. We opted to focus on linguistic repertoires because of their role as units for the construction of discursive practices. They define the possibilities for discursive productions, considering the context in which these discourses are produced and the relatively stable types of utterances, the speech genres (Spink, 1999). In other words, the way in which interdisciplinarity is presented in these journal engenders and restricts, at the same time, specific publication possibilities for certain disciplines and interdisciplinary work, which will depend on the linguistic repertoires used by the journal and their respective production contexts. We selected those phrases, terms and linguistic constructions of the objectives/missions/ scopes that allowed us, directly or indirectly, to envision the journal's interdisciplinary proposal, and attempted to contextualize their use, linking these repertoires to the areas or fields indicated by the journal.

Results and Discussion

Our aim was to understand how interdisciplinarity is performed for the purpose of publication. The analysis indicated that the interdisciplinary character of the selected journals is not always explicit. It is explicit when they position themselves as interdisciplinary and use terms like interfaces, interdisciplinary. Journals such as *Psicologia e Sociedade*, *História, Ciências e Saúde* and *Cadernos Pagu* present this interdisciplinary vocation in their mission statement, although they restrict the fields with which they establish dialogues. *Psicologia e Sociedade* makes it clear that its interdisciplinary interest is focused on Social Psychology, while *História, Ciências e Saúde* is focused on the health area and *Cadernos Pagu* on gender studies.

Psicologia e Sociedade: Publishes original articles that favor research and discussions at the interface between psychology and society that can promote the development of a type of Social Psychology that adopts a critical, transformative and interdisciplinary attitude (http://www. scielo.br/revistas/psoc/paboutj.htm).

História, Ciências e Saúde – Manguinhos: The general profile of the journal rests on the tripod history-sciences-health. In this equation, history does not refer to the actual discipline, but to the option for a perspective, a way of observing, interpreting and acting that is shared among different academic and professional specialties. Health operates as a framework: it circunscribes a universe of possible objects and, at the same time, defines the place where we find ourselves as subjects of knowledge and social actors. Sciences is always used in the plural. Because of the multiplicity of disciplinary areas that deal with processes of life and death, because polyvalence is a characteristic of the institution we belong to and because interdisciplinarity is a conditio sine qua non for the advancement of knowledge in the life as well as social sciences (http://www.scielo.br/revistas/hcsm/paboutj.htm).

Cadernos Pagu: is a biannual interdisciplinary journal whose objective is to contribute to the enlargement and consolidation of the gender studies area in Brazil, through the publication of original research results and texts not yet translated in the country, thus permitting knowledge dissemination in the area and the critical reading of the international production.

Thus, by assuming their interdisciplinary nature, these journals also restrict the fields they establish dialogues with. This is a strategy to preserve the journal's identity. However, not all journals are explicit about their interdisciplinarity. Some use less precise terminologies, such as *related/correlated areas*. Examples: *Estudos em Psicologia (UFRN)* and *Psicologia Escolar e Educacional*.

Estudos em Psicologia: Publishes original research in Psychology and related areas, which fit into the following categories: (1) research reports based on empirical data, (2) theoretical studies, (3) critical literature reviews, (4) reports on professional experience (description of procedures and strategies, or case studies), (5) technical notes (description of original research instruments and techniques) and (6) essays on outstanding books (http://www.scielo.br/revistas/epsic/paboutj.htm).

Psicologia Escolar e Educacional: Its aim is to create a space to present original research in School and Educational Psychology and serve as a vehicle for the dissemination of knowledge produced in the area, as well as for updating information for psychologists and professionals from correlated areas. Original papers on studies in areas related to School and Educational Psychology are considered for publication, including basic, experimental, applied, naturalistic, ethnographic, historical processes, theoretical articles, policy analyses and systematic research syntheses, among others. Also included are critical reviews of books, diagnostic instruments and software (http://www.scielo.br/revistas/pee/paboutj.htm).

What is interesting about these designations is that they allow the inclusion of areas with which interlocution is possible, but do not clarify what are these areas. After all, what is an area "related" to Psychology? The use of these comprehensive terms makes possible the participation of different disciplines and the restriction of participation derives from the journal's general theme, as was the case with journals that explicitly indicated their interdisciplinary nature.

In short, depending on the focus of the journal, these related areas can refer to the Greater Areas of the Sciences, known as Human, Health and Exact Sciences. Areas like Public and Collective Health are constantly mentioned as areas that integrate different disciplines and themes, as can be seen in the mission statement of *Cadernos de Saúde Pública:* To publish original articles that contribute to the study of public health in general and related disciplines, such as epidemiology, nutrition, parasitology, ecology and vector control, environmental health, public policies and health planning, social sciences applied to health, among others (http://www4.ensp.fiocruz.br/csp/).

Some journals use the sum of different disciplines to indicate the possibility of publishing multi and interdisciplinary studies. To give an example, the mission of *Physis* is to "disseminate the production in the field of Collective Health, with emphasis on the areas of Human and Social Sciences and Health Policy, Planning and administration" (www.scielo.br/physis). It is important to point out that in the case of *Physis* this opening to multidisciplinarity derives from the area's characteristics, but it does not guarantee articulations among the disciplines. In other words, several disciplines can participate, but without necessarily establishing dialogue between them.

Another strategy used by journals is to use themes as interlinking agents. Authors from different disciplines can publish in a journal, provided that they address a similar theme, like in the case of the *Revista Mal-Estar e Subjetividade*, whose interlinking theme is mental suffering, the subject, society and culture: the objective in this publication is to disseminate the most significant academic, scientific and artistic productions developed around the theme of the subject, mental suffering, society and culture, presented as articles, communications, research reports, reviews and resonances (http://pepsic.bvsalud.org/revistas/malestar/paboutj.htm). As in the case of the Greater Areas, that is a way to create space for interdisciplinary publications; nevertheless, it does not provide any guarantee, as it also maintains the focus of a multidisciplinary journal.

Finally, interdisciplinarity emerges in relation to the possibility of creating opportunities for dialogue. *Fractal: Revista de Psicologia* expresses this viewpoint when stating that its objective is to "stimulate dialogue with different knowledge areas, whose themes are related to the studies of subjectivity" (http://www.scielo.br/revistas/fractal/paboutj.htm). This journal's objective is to disseminate and discuss the academic and scientific production. In this manner, it acknowledges the need for coexistence of different research branches in psychology, nurturing a constant debate as a way to encourage the scientific production. At the same time, it aims to stimulate the dialogue with different knowledge areas, whose themes are related to the studies of subjectivity.

In sum, in the research about environmental risks, publication of themes that are intrinsically interdisciplinary would be welcomed. However, there is a problem: whether positioned as multidisciplinary or interdisciplinary, we are still confronted with the specificities of social languages. In the practice of research, as in the case of SCARR, we can work together, and use methods or concepts as dialogical bridges. However, when translating these experiences into texts, we are prisoners of the discursive traditions of this fragmented science. Either the research is divided and each team member publishes in journals in his/her area, or we create a meta-language to handle the mixture of disciplines in the interdisciplinary modality. Yet, it is difficult to free ourselves from the disciplinary shackles.

Furthermore, the effects of these strategies are on the agenda not only for the sake of publication in scientific journals, but also for the dissemination in non-scientific contexts, especially in view of the increasing communication between scientists and journalists. This was the theme of a seminar promoted by the São Paulo Research Foundation (FAPESP) in April 2012. At the time, according to the press release by *Agência FAPESP*, the biologist Thomas Lewinson, from UNICAMP, declared:

> Researchers used to give a lot of importance to publications in scientific journals, which provided them with academic prestige and funding, and hardly payed any attention to the dissemination of scientific information, which simply served to enhance their popularity. Today, we are approaching a balance between the two branches (Toledo, 2012).

According to him, one of the signs of this transformation is that renowned scientific journals like *Science* and *Nature* started to include sections with more accessible language. In this context, we are confronted with the need to translate disciplinary languages and with the consequences implied in this decision. A famous case is what happens to books, like *A Dança do Universo: Dos Mitos de Criação ao Big Bang* (Gleiser, 1997). The book was successful but, by trying to translate complex physics concepts to a more accessible language, this famous Brazilian scientist was severely judged. Martins (1998), one of Gleiser's harshest judges, wrote two papers criticizing what he called distortions of modern physics.

> There are some basic conditions to write a book to disseminate modern physics: to possess an excellent conceptual understanding of the theme, perceiving the conditions of validity and the limits of each idea, its similarities and differences with ideas from classical physics; to have a good collection of comparisons, analogies and illustrations, using them carefully and alerting the reader to those points where the similarities cease to exist; and be capable of writing in a style that captures the reader's attention. One needs

> to know how to simplify the most complicated ideas, but without distorting them as, once assimilated, an error is hard to eradicate (Martins, 1998, p. 300).

If an author's text about specific and classical knowledge like physics can create controversies for the citizens, polemics about interdisciplinary studies can run the same risk. As in the old Italian saying: traduttore, traditore. To translate is to commit treason. However, this is a necessary strategy. The utopia of clear communication should be sought, keeping in mind that it is not fully attainable. It does not have an end to itself. As the poet Eduardo Galeano would say, that is what utopia serves for: to move.

Final Considerations

At present, we are confronted with a clash between the need to order knowledge areas for the purpose of management of funds, of professionals practices, of diagnoses of social development needs, and the growing perception that the complexity of problems, we might even say the complexity of multiple realities, calls for approaches that might overcome disciplinary limits. On the one hand, the disciplinary based organization process imprisons and reduces the associative possibilities of the multiplicity of existing knowledge. But, on the other hand, the idea of transdisciplinary knowledge that would allow for the unification of knowledge is hard to operationalize given the disregard of epistemological antagonisms and the power struggle in the discursive arena of science in the contemporary world. These opposing forces would make the alleged consonance and harmony of transdisciplinarity unfeasible. It is obvious, therefore, that the way for the disciplines is neither reduction nor unification, but multiplicity. In short, in this brief discussion of such a complex theme, our conclusion is to propose that it is important to analyze the question of interdisciplinarity from the perspective of communication, understanding the long history of knowledge segmentation into areas from the point of view of the creation of equally specialized social languages.

The issue of communication gains further urgency when considering the dissemination of information beyond peers, an aspect that is increasingly present in the forums that assess the socially responsible use of research funding. The most recent example comes from the National Council for Scientific and Technological Development (CNPq) that in March, 2012 made adjustments to the Lattes Platform. Two new tabs were included: one focused on information about innovation, and the other concerning scientific dissemination and education initiatives. On that occasion, according to the release by the Social Communication Service, the president of CNPq, Glaucius Oliva, proposed that it was not sufficient to take scientific information to society; it should also be acknowledged that the country needed a science that was increasingly involved with society. And, obviously, it should be added that to promote such engagement, it is essential to strengthen communication channels.

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