



SOCIEDADE  
CRISE E RECONFIGURAÇÕES

# VII CONGRESSO PORTUGUÊS DE SOCIOLOGIA

19 a 22 Junho 2012

Universidade do Porto - Faculdade de Letras - Faculdade de Psicologia e Ciências da Educação

---

ÁREA TEMÁTICA: Conhecimento, Ciência e Tecnologia

---

**MODES OF THOUGHT AND COLLECTIVE BEHAVIOR IN THE SCIENCES**

---

AGUIRRE, Benigno

Professor in the Department of Sociology and Criminal Justice and a core faculty member of the Disaster Research Center

University of Delaware

[aguirre@udel.edu](mailto:aguirre@udel.edu)

---

DIEGO GONÇALVES, Carmen

Doutora em Sociologia da Comunicação, da Cultura e da Educação

NECES-CES

[cdiegogoncalves@gmail.com](mailto:cdiegogoncalves@gmail.com)

---

DORES, António Pedro

Agregação em Sociologia

Instituto Universitário de Lisboa (ISCTE-IUL)

[antonio.dores@iscte.pt](mailto:antonio.dores@iscte.pt)

---



#### Resumo

Em Ciência, o termo *estilo* é frequentemente usado casualmente, de passagem, sem definição e sem reflexão sobre a inter-relação entre *modos de pensamento* e estruturação social de pensamentos e comportamentos no âmbito de disciplinas e sobre o seu impacto no tecido social, através, nomeadamente, da divulgação científica, e muitas vezes negligenciando a influência do quadro social nos *modos de pensamento*. *Modos de pensamento* e manifestações de *comportamento coletivo* são indissociáveis em ciência e estão na base da popularidade de alguns conceitos, tais como: *desenvolvimento sustentável* e *resiliência*. Ideias tornam-se populares ou decaem em popularidade, no tempo; são o que denominamos de *modas intelectuais*, podendo representar formas recorrentes de comportamento coletivo em instituições como as ciências e as artes onde frequentemente ocorre a mudança de valor, de criatividade e na linha de desenvolvimento. Partindo da visão de Aguirre & Best sobre *modos de pensamento* e *modas intelectuais* em Desastres, debruçar-nos-emos sobre o conceito de *estilos de pensamento* em ciência, sobre os aspetos cognitivos e sociais do pensamento coletivo e sobre as *modas intelectuais*, referindo também a importância dos conceitos de resiliência e de desenvolvimento sustentável tanto para o campo científico como político. Finalmente sugere-se desenvolvimento de investigação sobre *um modo de pensamento sociológico*, aberto e transdisciplinar, que claramente não existe neste momento.

#### Abstract

In Science, often the term *style* is used casually, in passing and without definition, and more specifically without any reflection about the interrelationship between *modes of thought (mot)* and social structuration of thoughts and behavior within disciplines and also its impact on social tissue through, namely, scientific vulgarization, and frequently neglecting the influence of the social frame in *mot*. Modes of thought are very much behind the expressions of collective behavior (*cb*) in the sciences and, also, behind the popularity of some concepts; such as *sustainable development* and *resilience*, for example, where the ideas, from time to times, become popular and at some point decline in popularity; and in this sense, they are what we call *intellectual fads*. *Fads* can also represent recurrent forms of collective behavior that often occur in institutions such as the sciences and arts where value, creativity, and improvement see changes over the time. Based on the vision of Aguirre & Best on *modes of thought* and *intellectual fads* in Disasters, we shall dwell on the concept of *styles of thought* in science, cognitive and social aspects of collective thought and *intellectual fads*, referring also to importance of the concepts of resilience and sustainable development for both the scientific and political fields. Finally it is suggested development of research on a *sociological mot*, open and trans-disciplinary, which clearly does not exist at the moment.

Palavras-chave: modos de pensamento; modas; resiliência; confiança; incerteza

Keywords: modes of thought; fads; resilience; reliability; uncertainty

[PA P1040 ]



## **1. Modes of thought and fads in Disasters learning - Aguirre & Best View**

According to the recent work of Aguirre (Aguirre & Best, 2012), science is one domain exceedingly open to faddish behavior, for it labors in the uncertainty of what constitutes new knowledge. Faddish behavior has both generations and targets. Groups of scholars, many of them searching for tenure, make claim that a new theory or method constitutes real progress for their discipline. These claim-making processes have the characteristics of propaganda (MacKenzie, 1984). The new model is repeated in different social science journals, professional meetings, and other settings; new interpretations repeat much that is already known but claim to present something entirely new and important or the opposite, their advocates attack the logical soundness and point out methodological faults of previous interpretations. The new interpretations may contain worthwhile ideas but they are inflated out of proportion, in part through the introduction of new concepts, metaphors and other rhetorical devices and their association with scholars and centers of learning of some renown. These practices convince others in the profession that the new scheme is a real advance. The popularity of the new model also depends in the creation of a slogan or a short phrase that is easily repeated and remembered. Often it is not the initial writers but those who follow them who engage in ridiculing their presumed opponents, rejecting the value of the writings of social scientists that previously labored in their field of specialization.

Learning about disasters is an important goal of society and of the educational systems of nation states. Due in part to their responsibility of not misleading their students and the general public, specialists in disaster science should be able to identify the characteristics of fads and refrain from accepting faddish concepts. Their research and teaching is one the most important instruments available that can change the worldview of the public and public officials, and educate them about their responsibilities in minimizing the impacts of disasters. An educated public is one of the preconditions of civil society being able to pressure the political system in adopting needed measures to protect the environment and improve society's adjustments to it, which would include creating disaster-related laws and programs. In the case at hand, a significant proportion of the literature on resilience to disasters shows faddist traits, with authors who are members of scientific communities throughout the world acting under the influence of the emotions of fear and hope and showing enthusiasm in the belief that they have found or are in the way of finding a program with lasting and effective solutions to the pressing societal problems caused by disasters (for a similar fad in the sustainable development literature see Aguirre, 2002).

Several other contributions for raising problems to fuel this field of scientific research can be resumed by authors like Dombrosky (2010) who comments on the culture and power elements embedded in the concept of resilience, for the current emphasis presents it as a "grand" narrative or solution to the social problems caused by disasters, and Easterly (2006, 17 ff.), who stress the worldwide problem of poverty, or Schuller (2008), who mentions what some call the disaster capitalism (for further reading on these issues see Aguirre & Best, 2012).

For these, among other reasons, there is no agreement among social scientists about what resilience is, how it is different from vulnerability, whether resilience includes both institutional and structural elements of the built environment as well as individual and community levels of analysis, and how it is possible to move from metaphorical understandings of resilience to its measurement (see for example Dombrosky (2010); Carpenter et al. (2001); Klein et al. (2003); Manyena (2006); Norris et al. (2008).

This is a problem to people with the responsibility of building responses to the needs of government planners rather than dealing with scientific problem (Hewitt, 1995). The difficulty with resilience to disaster is also due to the vagueness of definitions of disaster (Quarantelli, 1998). For most of human history disaster has been equated to the action of the gods or to ill fortune; it is only very recently that patterns of human action have been understood, unevenly as it is in different societies, as causes for disaster and as part of the solutions to the problems they create (Alexander, 1993). The collective understandings, traditions, myths, and definitions of disasters in vogue in a society and the ways to protect against hazards change over time (Dynes, 2005).

New types of hazards also challenge older interpretations of disasters and resilience arguments. Bio- and cyber-terrorism, epidemics, nuclear accidents and terrorist acts that involve multiple levels of geography, crossing local, regional, state, national, and international boundaries, with effects also indeterminate over time. The 1986 Chernobyl nuclear accident is a good example of the new hazards occupying indeterminate spatial and temporal dimensions, with predictions ranging from 200 to 500,000 deaths distributed over nearly a century in a number of countries outside Ukraine. Cyber-terrorism attacks are yet another example of the new hazards. These attacks occur at a distance from their sources; with multiple effects diffused over space, time, and computerized systems, going beyond established political boundaries. New hazards exacerbate the effects of technological or man-made hazards. They often combine technological, weather-related and other natural hazards; or may be caused by human error or intentional foul play. They generate lack of confidence in the relevant systems of the society (Rubin, 1998). The increasing complexity of society and the built environment amplifies these effects.

### **1.1. Normative and Indicator Approaches**

The existing definitions of social resilience to disaster are vague and difficult to use to orient scientific research. This is made clearer by the criticisms of the normative and indicator conceptualizations of community resilience described below. Normative definitions of community resilience to disasters indicate what people must do to enhance the resilience of the community in light of the writers' hopes and values. Community is either implicitly or explicitly defined in geographical terms as being composed by a considerable number of people residing in a specific physical place and engaging in non-conflictive interactions. Pfefferbaum's (2004) is one of the most recent efforts along these lines (see also Chandra et al., 2011 for a recent report of the Rand Corporation using the normative approach). The Community Assessment of Resilience Tool (CART)(c)'s (available at <http://tdc.ouhsc.edu>) is a very popular view of resilience, endorsed by a panel of experts at the 2004 Community Resilience Mini Summit of the Centers for Disease Control and Prevention and the Terrorism and Disaster Branch of the National Center for Child Traumatic Stress. It claims to be both a measurement of resilience and a way to build resilience in a community. (CART)(c)'s seven attributes (and their associated indicators) are: Connectedness, Commitment, and Shared Values; Participation; Structure, Roles, and Responsibilities; Resources; Support and Nurturance; Critical Reflection and Skill Building; and Communication. Paraphrasing Pfefferbaum, connectedness is presumed to be the cornerstone of community resilience. It exists when there is widespread "connection to a place or group of people with shared history, laws, values, and social mores... (as well as) a sense of belonging and commitment to community". Participation exists when people are members of "community organizations and activities... (have a) sense of belonging, ownership, and personal contribution". Structure, roles, and responsibilities assume that community resilience is based on "equity rather than discrimination, with community standards, rules, and procedures that foster social interaction and governance... (and) identify and address concerns through frequent, supportive, and collaborative interactions". Resilient communities have "the capacity for preparedness and decisive and timely response to crises, thereby diminishing adverse secondary consequences". Widespread social cohesion is yet another community resource that creates resilience. Sufficient community resources allow "essential community operations to be maintained even in the event of major disasters". The above brief description of the scale is sufficient to convey its main features. (CART)(c) presumes that communication in disaster resilient communities must be honest and open, that community members "should have opportunities to identify and articulate their views, attitudes, and needs...(and that)...Open and productive communication in the disaster context can build trust in leadership, enhancing preparedness, compliance with safety directives, effective response, and successful recovery... (as well as help solve) existing and emerging unmet needs in other areas".

This and other normative definitions of community resilience are based on an idealized view of the past and of community life. While there may still be instances in rural America and elsewhere in the world in which Gemeinschaft-like, small rural communities exist that can be strengthened through the application of (CART)(c) or other similar directives, national policy for enhancing the resilience of contemporary Gesellschaft-like societies such as the United States and other developed countries cannot be based on such premises. It is implausible to make community resilience to disaster depend on people sharing common

histories and shared values and traditions as the normative approach intends. Furthermore, many of the assumptions made by normative definitions of community resilience are quite doubtful. Connectedness to a place often stifles life chances. Further, it is the lack of open conflict in a community that is at times an important indicator of unresolved and chronic difficulties, masked by the apparent peacefulness of place. Open communication, in the absence of other institutionalized mechanisms to solve community differences, often bring about greater rather than lesser social conflicts and difficulties. Agreement on a set of values is frequently used to stifle individual and minority opinions and ways of life. Normative definitions of resilience will fail if they are used as the foundation for contemporary disaster mitigation policy.

Hahn et al.'s study (2003; Peacock et al., 2010, is an even more recent use of the indicator perspective on resilience), done for the Inter-American Development Bank, is arguably one of the best examples of indicator approaches to resilience. It emphasizes small and medium-sized communities in the developing world and obtains information from key community respondents. From its perspective managing community risks is a function of the dimensions of hazards, exposure, vulnerability (or its opposite resilience), and capacity. 47 individual indicators measure these four dimensions. The vulnerability dimension has 4 sub-fields: 1. Physical/demographic, includes indicators measuring population density, demographic pressure, unsafe settlements, and access to basic services; 2. Social, includes indicators measuring poverty level, literacy rate, attitude, national decentralization, and community participation; 3. Economic vulnerability, includes indicators measuring local resource base, economic diversification, small businesses, and accessibility, and, finally, 4. An environmental sub-field that includes indicators of the proportion of area under forest, degraded land, and overused land.

The difficulties of the use of indicators to represent concepts in social science studies of resilience such as this and others of its type are well known, having to do with the ontological and epistemological challenges to the validity and reliability of the findings of indicator-based research on resilience. One set of problems has to do with the selection of proxy variables to represent important concepts and the difficulty of creating scales in the absence of theory. Another problem is the lack of an algorithm that could be used to aggregate the indicators of resilience for different levels of geography, for example, family, neighborhood, community, state, region, and country, to form valid scales. At this time it is not possible to calculate, using the logic of the indicator approach, a resilience score of middle-sized cities, not to mention medium or large metropolitan areas. Unknown are what are the proper weights that should be given to the many variables used in the various sub-levels that are needed to estimate an overall numerical score of community resilience. While the mathematics is straightforward, the logic behind it is anything but. Probably all of the criticisms of environmental vulnerability indices identified by Barnett et al. (2008) apply here as well, centered on the difficulty of selecting, standardizing, weighting, and aggregating indicators selected to represent the key concepts; also appropriate are their recommendation to reduce the scale of analysis of such studies and the amount of money devoted to them, and their unwillingness to use such scales to rank and compare communities.

Indicator approaches to community resilience have in common with normative approaches the limiting assumption that communities are defined as geographical nodes and that the institutional networks of the communities are small and not highly developed, usually done to simplify the task of finding key informants and defining the boundaries of communities and their key sub elements. They also have a problem in demonstrating validity, or showing that the indicators measure the concepts that they claim to represent. Take for example the practice of assuming that people satisfying a given definition of poverty-based income are vulnerable, for example, the widespread assumption that elderly and disabled black people who died in the aftermath of Hurricane Katrina's disastrous effects in New Orleans did so in large part because they were black and poor (Tierney, 2008). While in some specific cases this argument has merit, most old, disabled, black, and poor people in New Orleans did not die during Katrina. They were able to evacuate together with the more than a million and a half people who escaped the worst effects of the storm. Thus, it is not poverty per se but other dimensions of people's lives such as differences in their social capital, absence of kin, friends, and inability to obtain needed resources from the black community and its institutions, i.e., the black church, that may have been the immediate cause of their victimization (Eisenman et al., 2007).

Multiple theory maps exist summarizing the conceptual elements of the normative and the indicator approaches to community resilience. However, even the best among them (Birkmann, 2006) only serves to describe the hypothesized causes of vulnerability in dimensions of community organization, rather than to provide workable understandings of the patterns of social interactions that make up the social reality behind such evaluations. Absent from them is a causal understanding of the social mechanisms creating the risks faced by communities as understood by people in them; accurate historical accounts of the reasons why such risk-related arrangements were adopted and how they have changed; and what mitigation measures are more likely to be adopted by community organizations participating in creating the risk. What can be called “the theory and geographical map stage” in resilience conceptualizations must give grounds to a deeper understanding using qualitative analyses that would allow us to understand the relevant patterns of social interaction in the organizations impacted by disasters.

## **2. The concept of *style* to *styles of thought* in science**

The concept of *style* was introduced to classify the cultural patterns of specific characteristics observed in the arts (Shapiro, 1953; Gombrich, 1968). The styles exist when particular, but recurring, elements are present in several sectors of cultural production *and* when these elements are distinctive, allowing to identify regular patterns within one or more cultural domains, under the assumption that the specificity that marks the style can repeat in many times and spaces.

Discussions about *style* have been very connected to the notion of national style or tradition. Since JJ Winckelmann interpreted the Greek artistic style as an expression of the form of Greek life, art historians have widely used the term in this sense. But ideas about *style* also influenced the national discussion of scientific styles. Historian of science Mary Jo Nye, write that cognitive and social styles exist in science. In her view style plays a role in the emergence and perpetuation of scientific ideas, institutions and ideologies; style is invoked even to explain the success or failure of individuals and institutions, national scientific objectives, and scientific creativity more broadly (Nye, 1984; 1993).

Karl Mannheim extended the concept of style of art history to other cultural sectors, including groups that are engaged in the articulation and identification of styles of thought (Mannheim, 1953). The key question that the author raised was: why a style of thought with specific characteristics is associated with a particular group, at a specific time and place? He argues that a style of thought had a propositional nature, that is, to understand how a style emerges and persists, it is necessary to examine the goals of a group is trying to obtain, and such goals must include social interaction within and outside the group. Thus, to understand what holds together the various characteristics of a style, it is insufficient to examine the patterns that characterize it in isolation, instead, we must analyze these patterns in interactions with other factors in their environment, to try to understand how and why particular groups emerged, in which circumstances, and whether they were able to achieve their specific objectives. Following the reasoning of Mannheim is possible to say that scientific styles of thought exist when certain ontological and / or epistemological assumptions emerge and are repeated in a scientific field or in a variety of scientific fields and if these assumptions differ from group to group. In this sense, Mannheim, like many sociologists of knowledge, until relatively recent times, approached the analysis of scientific thought through cognitive psychology (Diego Gonçalves, 2004).

### **2.1. Cognitive and social aspects of collective thought**

The concept of style of thought includes the assumptions from which a group builds its stock-specific knowledge. A style of thought formulates not only the knowledge that is taken for granted, but also the methods and tools used in the examination of evidence and criteria to judge results (Diego Gonçalves, 2002). The style of a particular community of scientists frames the "scientific facts" (concepts, objects or methods) produced by this community (Fleck, 1979), thus contributing to what is considered a scientific problem and the appropriate ways or methods to deal with this problem. Each style emerges under a set of assumptions that makes the facts from the experiment appear as representations of a previously existing collective



thought. In this perspective, "facts" depend on scientific "viewpoints." "Real problems" are problems confined to the possible objects of study under the collective thinking that defines styles of thought of groups. In one of the most emblematic statements of Fleck, he said, that "cognition is the human activity most socially conditioned, and knowledge is the paramount social creation" (Fleck, 1979, p. 42). He insisted that the production of knowledge, even the most "hard" experimental facts, consisted of a social activity and, thereafter, was an appropriate subject for sociological analysis.

The sociological orientation of Fleck, as shown in the way he defines the concept of style of thought dates back to Durkheim's ideas that social coercion is exercised over the individual to prevent deviance. From the perspective of Durkheim (1974, 1988), to whom we owe the concept of 'collective representation,' the cognitive structures that individuals use in practice to understand the social world give meaning to the social categories that constitute the social world. The Rules of Sociological Method (Durkheim, 1988) are anchored in the notion of social facts as *things*, external to the individuals and exercising coercion on them.

Fleck wrote that style "dictates" and "coerces" the way scientists see and think. He is of course anticipated by Durkheim and other social scientists that developed the concept of collective representation as collective thinking of a group that create limits or coercion over the actors. Fleck claimed that the embryo of modern cognitive theory is based in studies by Durkheim and his students and of Lévy-Bruhl (1926) on studies examining the style of thought of primitive peoples. The schemes that generate scientific classification are real institutions, socially embedded, in the form of mental categories and collective representations. These collective representations are hegemonic, assuming an ontological status of coercion over the behavior of the individual.

The same trend of Fleck is evident in the analysis of Holton who write of *themata* as "filtering" the experience, to "guide" the job of the scientist... exerting a "power" on the scientific imagination (e.g. Holton, 1986: x, pp: 18-19, 52-53, 1978, p. 22). Nevertheless, to Holton, the original ideas (from the ontological domain), in themselves are not coercive. Wittgenstein, among others, also advocated how the ability to create, to invent, helps to evade the constraints apparently imposed by any rule.

## **2.2. Cognition and Intellectual Fads**

The concept of thinking style is closely related to the interaction of networks, since interaction networks, national and / or international, perform the function of unifying a research area, giving coherence and direction to the work of knowledge production. *Intellectual fads*, in turn, represents a case of rapid diffusion of an innovation and can be extended to individuals not directly related. In this situation, opinion leaders, deemed to have specialized knowledge about the(s) topic(s) play an important role both in relation to personal and social influence. Thus, fads impact on the direction of growth of knowledge, may impact in the construction of scientific knowledge regarding the importance attached to certain areas of research, and the individuals related to them, leading to the formulation of objects of study. Consequently fads may also function as a contingent factor in the establishment of networks of scientific interaction, subject to temporal location.

Fads are generally viewed by scientists as having a certain effect on the development of scientific knowledge, leading, in time, to an increase in the popularity of certain research areas. According to Hagstrom (1965), fads in science, are essentially a *motivational phenomenon*, related interests that lead to rapid recognition in the field, and scientists who follow certain fads select their objects of study not so much for theoretical reasons, but mainly due to the belief that solving the problems will bring a rapid recognition, which seems to embody individual strategies that combine cognitive and instrumental interests. To access to the real motivations of individuals are and will always be difficult to determine, for reasons of inter-subjectivity (Crane, 1972). Nevertheless, it seems more appropriate to consider fads as a characteristic of groups rather than the behavior of an individual.

However, the desire and the need for recognition, the function of standards (Merton, 1973) and the working constraints (Bourdieu, 1976) in the scientific field are important motivation for the development of scientific

work. In this sense, personal influence may play a role in rapid dissemination of information in a given area as well in the adhesion of new elements (Crane, 1972). Obviously, it is difficult to determine whether the new elements adhere to new areas of research because they expect to obtain quick recognition, or due to perception of the scientific importance of specific scientific problems, which obviously will contribute to the growth of scientific knowledge.

### **3. Resilience and sustainable development in Disasters**

Capturing antecedents and consequences of disasters is part and parcel of constructing descriptive and explanatory models of hazards and disasters. As pointed out by Kreps (2001), disasters are non-routine events in societies that involve social disruption and human harm. Tierney et al. (2001), refer that before, during, and after they occur disasters are physical and social catalysts of collective action.

It is difficult to quantify the amount of disturbance that a system can absorb before it changes to a new and usually unfavorable state. The vulnerability of coupled human-environment systems requires improved dialogue among several scientific disciplines and between them and decision making (Diego Gonçalves & Possolo, 2012). Understanding resilience as the capacity of socio-ecological systems to support disturbances and reorganize, the relationship between resilience and planning is very relevant, as referred by Teigão dos Santos & Partidário (2011). To preserve and advance human safety are the principal priorities of any system that should consider: (i) Vulnerability assessment, resilience analysis, risk management and adaptations strategies within linked human-environment systems; (ii) Internal displacement and trans-boundary migration due to environmental push-factors; (iii) Preparedness, adaptation, response and recovery. Within this framework, resilience emerges as a concept with potential for promoting more sustainable trajectories for policy and planning processes, reflecting the capacity of a system (a region, an economic activity, a city, a household) to absorb disturbance and reorganize without collapsing or considerably changing their identity, thus losing its fundamental features.

The application of the concept of resilience to natural disasters was initially the central argument in the evaluation of natural risks, namely by Mileti (Mileti, 1999), who suggested that resilience is the ability of a community to recover by its own means and resources. Other authors (Norris et al., 2008) have also focused on the resilience of a community, seeing it as a process of linking a myriad of adaptive capacities (such as social capital and economic development) for responses and changes after adverse events. In that sense, resilience is defined as a set of capabilities that can be promoted through interventions and policies, which in turn help to build and improve the capacity of a community to respond and recover from a disaster. Another conceptualization of resilience to disasters comes from engineering sciences, emphasizing the critical buildings and infrastructure as their resilience. Using seismic risks as an example, Bruneau (Bruneau et al., 2003) proposed a framework for resilience, giving emphasis to structural mitigation, especially systemic concepts of engineering robustness, redundancy, resourcefulness and quick recovery.

In more recent research on resilience from a homeland security perspective which gives priority to the protection of critical infrastructure from terrorism Kahan et al. (2009) also focus on the resilience of critical infrastructure, assuming that resilience is a measure of results that limit damage of infrastructure (called resistance); mitigating the consequences (called absorption) and recovery for the state of pre-event (called restore). Although it may be useful to combat terrorism and critical infrastructure protection, this operational framework ignores the dynamic nature of social communities and the process of recovery and promotion of resilience within and between communities.

The identification of metrics and standards to measure resilience remains a challenge for the scientific community. Not only is it vital to assess and compare the basic conditions for assessing the resilience of communities, but it is equally important to measure the factors that contribute to the negative as well as diminished responsiveness of a community to respond and recover from an event (Cutter et al., 2008).

Interestingly, the political community seems to be slightly ahead of the scientific community on the importance it attaches to resilience as a means of mitigating the impacts of disasters within a style of thought

based on sustainable development. However, the concept of sustainable development seems to materialize much more a principle adjective than a structural concept. At the scientific level, there is still disagreement about the definition of resilience: is an outcome or a process? What kind of resilience is ultimately considered (of the economic systems, infrastructure systems, ecological systems or systems of communities)? Some of these issues are discussed in (Cutter et al., 2008), (Kahan et al. 2009), (Klein et al. 2003), (Manyena, 2006), (Norris et al., 2008) and (Rose, 2007).

## Final Remarks

As far as we know until now the relationships between *collective behavior* and *modes of thoughts* have not been explicated. In this paper we examined some of the difficulties in existing conceptions of resilience, traced the relationship between modes of thought and fads, and how changes in modes of thoughts are associated to the emergence of fads in the production of knowledge.

A conclusive evidence of that demand could be to find a sociological *mot* open to trans-disciplinary thoughts, which clearly does not exist at this time. And that demand of forms of connection between social theory and other sciences and ways of knowing, would be useful in disasters, searching to minimize risks and enhance social resilience, both in terms of different alliance partners in preventing and combating the consequences of disasters such at the level of populations behavior.

## Referências Bibliográficas

- Aguirre, B. E. (2002). Sustainable development" as collective surge. *Social Science Quarterly* 83:101-118.
- Aguirre, Benigno & E.E. Best (2012). How Not to Learn: Resilience in the Study of Disaster. Heike Egner, Martin Voss, Marén Schorch, editors. *Learning From Calamities*. Routledge, Forthcoming.
- Alexander, David (1993). *Natural Disasters*. Norwell, MA: Kluwer Academic Publishers.
- Barnett, Jon, S. Lambert, Ian Fry (2008). The hazards of indicators: insights from the environmental vulnerability index. *Annals of the Association of American Geographers*, vol. 98 (1): 102-119.
- Birkmann, J. (2006). *Measuring Vulnerability to Natural Hazards*. New York, NY: United Nations University Press.
- Bourdieu, P. (1976). Le champ scientifique. *Actes de la Recherche en Sci. Soc.*, n.s 2-3, pp. 88-104.
- Bruneau, M., S.E. Chang, R.T. Eguchi, G.C. Lee, T.D. O'Rourke, A. M. Reinhorn, M. Shinozuka, K.T. Tierney, W.A. Wallace and D. von Winterfeldt (2003). A Framework to Quantitatively Assess and Enhance the Seismic Resilience of Communities. *Earthquake Spectra* 19(4): 733-52.
- Carpenter, S., B. Walker, J. M. Anderies, and N. Abel (2001). From metaphor to measurement: Resilience of what to what? *Ecosystems* 4:765-781.
- Chandra, Anita, Joie Acosta, Stefanie Stern, Uscher-Pines, Malcolm V. Williams, Douglas Yeung, Jeffrey Garnett, and Lisa S. Meredith (2011). *Building Community Resilience to Disasters: A Way Forward to Enhance National Health Security*. The RAND Corporation, Santa Monica, CA.
- Crane, D. (1972). *Invisible Colleges. Diffusion of Knowledge in Scientific Communities*. Chicago & London: The University of Chicago Press.
- Cutter, S.L., L. Barnes, M. Berry, C.G. Burton, E. Evans, E.C. Tate and J. Webb (2008). A Place-Based Model for Understanding Community Resilience to Natural Disasters. *Global Environmental Change* 18: 598-606.
- Diego Gonçalves, C. (2002). Estilo de pensamento na produção de conhecimento científico. Actas do IV Congr. Port. Sociologia, *Passados Recentes, Futuros Próximos*. APS, suporte eletrônico.
- Diego Gonçalves, C. (2004). Cientistas e leigos: Uma questão de comunicação e cultura. *Comunicação e Sociedade*, 6, pp. 11-34. Centro de Estudos e Comunicação da Universidade do Minho.

- Diego Gonçalves, C. & Possolo, A. (2012). Physical and Social Aspects of Seismic Risk, in Horst Kremers, Alberto Susini (ed.) CODATA, Lectures Notes in Information Sciences, *Risk Models and Applications*. Collected Papers, Berlin, pp. 49-77.
- Dombrosky, Wolf R. (2010). Resilience from a sociological viewpoint Paper presented at the International Workshop “Resilience – A new Paradigm for Civil Security in Open Societies”, Freiburg, July 8.
- Dores, António Pedro (2010). *Espírito marginal*. Lisboa: Argusnauta.
- Durkheim, E. (1974). Individual and collective representations. In E. Durkheim, *Sociology and Philosophy*. New York: Free Press, pp. 1-34. (1ª. Ed. 1895).
- Durkheim, E. (1988). *Les Règles de la Méthode Sociologique*. Paris: Flammarion.
- Dynes, Russell R. (2005). The Lisbon Earthquake of 1755: The First Modern Disaster, Edited by T. E. D. Braun and J. B. Radner. Oxford, UK: Voltaire Foundation.
- Easterly, William. (2006). *The White Man's Burden*. New York, NY: The Penguin Press.
- Eisenman, David P., Kristina M. Cordasco, Steve Asch, Joya F. Golden, and Deborah Glik. (2007). Disaster planning and risk communication with vulnerable communities: lessons from Hurricane Katrina. *American journal of public health* 97 Suppl 1:S109-15.
- Fleck, L. (1979). *Genesis and Development of a Scientific Fact*. London and Chicago: The University of Chicago Press. (1ª ed. 1935).
- Gombrich, E. (1968). Style. In D.L. Sills (ed.), *International Encyclopedia of the Social Sciences*. New York: Macmillan, pp. 353-61.
- Hagstrom, W. (ed.). (1965). *The Scientific Community*, New York, Basic Books.
- Hahn, Herwig, Juan Carlos Villagran De Leon, and Ria Hidajat. (2003). Indicators and other Disaster Risk Management Instruments for Communities and Local Governments. Inter-American Development Bank, Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH International Services.
- Hewitt, Kenneth. (1995). Excluded Perspectives in the Social Construction of Disaster. *International Journal of Mass Emergencies and Disasters* 13:317 - 339.
- Holton, G. (1978). *The Scientific Imagination: Case Studies* Cambridge: Cambridge University Press.
- Holton, G. (1986). *The Advancement of Science and Its Burdens*. Cambridge: Cambridge University Press.
- Kahan, J.H., A.C. Allen, and J.K. George (2009). An Operational Framework for Resilience. *Journal of Homeland Security and Emergency Management* 6(1): Article 83.
- Klein, R., Robert, J.T., Nicholls, J. and Thomalla, F. (2003). Resilience to Natural Hazards: How Useful is this Concept? *Environmental Hazards* 5(1-1): 35-45.
- Kreps, G. (2001). Sociology of disaster. In N. J. Smelser and P. B. Bates, editors, *International Encyclopedia of the Social and Behavioral Science*, Elsevier, Amsterdam.
- Lévy-Bruhl, L. (1926), *How Natives Think*. Trad. Lillian Clare. London: George Allen & Unwin. (1ª. ed. 1925).
- MacKenzie, John M. (1984). *Propoganda and Empire: The Manipulation of British Public Opinion, 1880 - 1960*. Manchester, UK: Manchester University Press.
- Mannheim, K. (1953). Conservative thought. In *Essays in Sociology and Social Psychology*. London: Routledge and Kegan Paul, pp. 74-164.
- Manyena, S.B. (2006). The Concept of Resilience Revisited. *Disasters* 30(4): 433-50.
- Merton, R. (1973). The normative structure of science. In R.K. Merton, *The sociology of science: theoretical and empirical investigations*, Chicago: Chicago University Press (1ª ed. 1942).

- Mileti, Dennis S. (1999). *Disasters by Design: A Reassessment of Natural Hazards in the United States, Natural Hazards and Disasters*. Washington, D.C.: Joseph Henry Press.
- Norris, F.H., S.P. Stevens, B. Pfefferbaum, K.F. Wyche and R. L. Pfefferbaum (2008). Community Resilience as a Metaphor, Theory, Set of Capacities, and Strategy for Disaster Readiness." *American Journal of Community Psychology* 41: 127-150.
- Nye, Mary Joe (1984). Scientific Decline: Is Quantitative Evaluation Enough?, *Isis*, 75, pp. 697-708.
- Nye, Mary Jo (1993). National Styles? French and English Chemistry in the Nineteenth and Early Twentieth Centuries, *Osiris*, 8, pp. 30-49.
- Pfefferbaum, Rose L. (2004). The Communities Advancing Resilience Toolkit (CART)(c). Terrorism and Disaster Center: University of Oklahoma Health Science Center.
- Quarantelli, E. L. (1998). What is a Disaster? Perspectives on the Question. London, UK: Routledge.
- Peacock, W. G. and associates (2010). Advancing the Resilience of Coastal Localities: Developing, Implementing and Sustaining the Use of Coastal Resilience Indicators. A Final Report. Texas A&M University Hazard Reduction and Recovery Center.
- Rose, A. (2007). Economic Resilience to Natural and Man-Made Disasters: Multidisciplinary Origins and Contextual Dimensions. *Environmental Hazards* 7(4): 383-95.
- Rubin, Claire B. (1998). What Hazards and Disasters and Likely in the 21st Century - or Sooner?, Natural Hazards Center: University of Colorado at Boulder.
- Schuller, Mark (2008). Conceptualizing Disaster Capitalism. Chapter 2 in Nandini Gunewardena and Mark Schuller, editors, *Capitalizing on Catastrophe. Neoliberal Strategies in Disaster Reconstruction*. New Yoek: Rowman & Littlefield Publishers, Inc.
- Shapiro, M. (1953). Style. In A.L. Kroeber (ed.), *Anthropology Today*. Chicago: University of Chicago Press, pp. 287-312.
- Teigão dos Santos, F. & Partidário, M.R. (2011). SPARK: Strategic Planning Approach for Resilience Keeping, *European Planning Studies*. 19: 8, 1517-1536.
- Tierney, K.J., M.K. Lindell and R.W. Perry (2001). *Facing the Unexpected: Disaster Preparedness and Response in the United States, Natural Hazards and Disasters*. Washington, D.C.: Joseph Henry Press.
- Tierney, Kathleen (2008). Hurricane Katrina: Catastrophic Impacts and Alarming Lessons. Pp. 119 - 136 in *Risking House and Home*, edited by J. M. Quigley and L. Rosenthal. Berkeley, CA: Berkeley Public Policy Press.