# 112. Be aware when dialling this number: your phone will cook your brain! A theoretical approach on Risk Communication and Mobile Technology

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Abstract: This article brings together the perspectives issued over the last decade on the concept of Risk Communication in the concrete case of risks related to a recent and fast-developing technology: mobile telephony and electromagnetic fields associated with it. We reviewed a specific corpus of scientific articles and identified two dominant approaches on Risk Communication: an Expert Model Approach and a Lay Model Approach. The majority of the scholars underline the unequal distribution of roles to the actors involved in the communicative processes and sustain the necessity of finding a common frame for dialogue, thus advocating for a third possible approach, based on the "democratisation of risk" as a way of accommodating the technocratic vision of the expert model with the negotiated vision of the lay model.

Resumen: Este artículo reúne las perspectivas emitidas durante la década pasada sobre el concepto de comunicación de riesgo en el caso concreto de los riesgos relacionados con una tecnología reciente y de

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rápido desarrollo: la telefonía celular y los campos electromagnéticos asociados con esta. Revisamos un corpus específico de artículos científicos e identificamos dos enfoques dominantes sobre comunicación de riesgo: el modelo experto y el modelo de la gente común. La academia en su mayoría subraya la distribución desigual de roles entre los actores involucrados en el proceso comunicativo y sostiene la necesidad de encontrar un marco común para el diálogo, abogando por la posibilidad de un tercer enfoque, basado en la "democratización del riesgo" como una manera de conciliar la visión tecnocrática del modelo experto con la visión negociada de la gente común.

*Key Words*: risk communication, mobile technologies, communication models.
*Palabras clave*: comunicación de riesgo, tecnologías móviles, modelos de comunicación.

Introduction

Since its recognition as a scientific issue in the second half of the 20th century, Risk Communication (hence abbreviated RC) has rapidly evolved from a linear process of transmitting information on a certain risk from an authorized source to a certain group of people to an interactive, circular process of information exchange between more than two interested parts. RC is not unidirectional anymore, for many actors play now the role of communicators in the assessment of risks and their impact: "from scientists to the media, to government agencies, industry and consumer groups, each of which has its own agendas to fulfil" (Smillie and Blissett, 2010: 115). As one of the most cited definitions of RC says, "[i]t involves multiple messages about the nature of risk and other messages, not strictly about risk, that express concerns, opinions, or reactions to risks messages or to legal and institutional arrangements for risk management" (US National Research Council, 1989: 21).

Generally, in its practical usage, in Latin America, as also in other territories, RC has taken the form of guides or recommendation documents issued by different state agencies, but, from a theoretical and scientific perspective, it has not been sufficiently approached by scholars. The concept of RC should be viewed in the wider context of what sociologists Ulrich Beck and Anthony Giddens referred to as "risk society", a society taken over by the omnipresence of technological risks — risks of low probability and, at the same time, of high consequence on people's lives.

For the last decade, mobile telephony was one of the fastest growing technologies. According to the GSMA Mobile Economy Report (2013), "3.2 billion people of the 7 billion on earth benefit from having a mobile phone. A further 700 million subscribers are expected by 2017, but this still leaves a huge potential for further growth" (GSMA Mobile Economy, 2013: 8). As for Latin America, the statistical data from 2000 to 2012 provided by the International Telecommunication Union (2013) revealed substantial growths in the number of mobile-cellular telephone subscriptions (per 100 inhabitants) in the majority of the countries, except for Cuba. Here are the numbers for few of the most important Latin American markets: Argentina (from 17.58 in 2000 to 151.91 in 2012), Brazil (from 13.29 to 125.00), Chile (from 22.01 to 138.17), Colombia (from 5.66 to 102.85), Mexico (from 13.55 to 83.35), Paraguay (from 15.34 to 101.59), Peru (from 4.90 to 98.00), Uruguay (from 12.37 to 147.13), and Venezuela (from 22.32 to 101.88).

Despite the significant growths, there are scarce academic or non-academic Latin American references on the topic of mobile telephony, risks associated to it and risk communication. This is one of the conclusions formulated in an ample scientific review published in June 2010 by the Edumed Institute for Education in Medicine and Health: "Non-Ionizing Electromagnetic Radiation in the Radiofrequency Spectrum and its Effects on Human

Health. With a Review on the Standards and Policies of Radiof-requency Radiation Protection in Latin America". The authors, members of the Latin American Experts Committee on High Frequency Electromagnetic Fields and Human Health, suggested there that

> of particular interest to mobile phone users, industry and government is the fact that there have been few recent studies on risks versus benefits for mobile communications, compared to many other technologies that have a strong impact on society and that the majority of existent literature is based on reports from Europe, the USA or other non-Latin American countries (Edumed Institute, 2010: 14).[3]

Nevertheless, "alarmist media reports have created a public view that is out-of-step with the scientific evidence" (Edumed Institute, 2010: 14), heavily influencing the audience's perception and spreading uncertainty and conflicting opinions among people. The authors explained:

> Science reporting in the traditional Latin American media is very restricted and, with few exceptions, lacking in excellence standards. Most of the news about EMF repercussions on human health consists simply in uncritical translation or reproductions of press releases and news pieces from foreign media and news agencies. Original reporting in newspapers and TV and radio news programs is very rare, in the sense that the reporters go back to the original sources of information (scientific journals) and the number of scientific journalist who have the ability to scan the original literature and filter out papers with low methodological quality are exceedingly small (Edumed Institute, 2010: 118).

[3] After this comprehensive review, in 2013, GSM Association published the first Mobile Economy Latin America report.

Thus, the problem behind the "risk reality" manufactured around the mobile telephony and the "risky" electromagnetic fields involved may not be defined by the solidness of the existent scientific evidence, but by the way the risk communication is managed. In this sense, the Committee underlined the fact that in Latin America the lack of risk communication and of understanding risk perception and acceptance could have led to anxiety and fear within the population and insisted that a solution to this would be

> to provide people with as much information as possible (user education). However, people providing such information should be very careful to present only well proven facts, making reference to recognized experts and organizations and, most of all, make every effort not to make the concerns worse (Edumed Institute, 2010: 97-98).

Communicating a risk requires both a certain role distribution of those giving voice to specific messages and coherent discursive forms. In the present paper, through a theoretical analysis, we examine the way risk communication shapes itself in the discourses of the actors taking part in the process. To do so, we focused primarily on the scientific literature dealing with RC in the particular case of mobile-cellular telephony. Since it is documented and previously shown that the boom of this technology has been recorded in the last decade, our analysis has been set up in the same time span. Also, due to the niche nature of the topic covered, the selection was limited to specialized academic journals with a significant impact factor and indexing that published such articles within their pages. Thus, the search results led us to the *Health, Risk and Society* journal (included in ISI Social Sciences Citation Index and with 1.122 IF in 2012) and the *Journal of Risk Research* (included in ISI Social Science Citation Index and with 1.240 in 2012). Following an advanced search in terms of

relevancy and consistency, we have concluded that *Journal of Risk Research* had been covering more extensively our specific research topic (12 items within the chosen time span) than *Health, Risk and Society* (3 items within the chosen time span). Although we are aware of the limitations our analysis could be subjected to by such multiple selections and reductions, in the end, in order to perform our analysis, we examined the 12 articles from *Journal of Risk Research*, published between 2002 and 2010.

For a better systematization of the material at our disposal, we conducted the analysis in function of the dominant perspective (which we encountered in the monitored articles) regarding RC, in the particular case of risks associated with mobile phones. Therefore, we will discuss the concept of RC as follows: on the one hand, based on the mental models approach (with its two conflicting dimensions: Expert Model and Lay Model), and, on the other hand, based on the concept of democratization of risk and democratization of RC.

## 1. Expert Model Analysis

We will further analyse the interactions between the expert groups, in order to highlight the implications of risk communication for the public understanding of risk.

### 1.1. Interactions of the experts: looking for the common ground

In the article "Communication about a communication technology", the authors include media among experts, together with politics, science, policy makers, representatives of the mobile phone industry, action group / environmental associations, local and community authorities. Analysing the types of interactions between these decisional groups, some flaws appeared, showing

a lack of responsible communication from their part when discussing about the sites of the base stations:

> On the one hand, operators were convinced that they would inform community authorities sufficiently, timely and adequately. In the other hand, citizen action groups shared the impression that the information from the operators was incomplete, biased and often misleading […]. Both parties agreed, however, that the flow of information seems to be interrupted once it leaves the offices of local authorities (Ruddat, Sautter, Renn, Pfenning and Ulmer, 2010: 268).

The lack of responsible communication can also be caused by the lack of consensus among the expert groups, which fail to become credible in the eyes of each other. For example, in some interactions between experts, politics, media and science advised the industry to offer more information about mobile phones and about health risks involved by the technology used. In change, the scientists are often criticized for their unattractive presentation of information and asked to elaborate their communications in a more simple and direct way.

The ideal communication situation is met when different expert groups go beyond dissensions and find common grounds for collaboration, like in the case of the German mobile phone operator T-Mobile, which, in late 1999, commissioned four German scientific institutions to prepare their own expert opinions on possible health risks from mobile telephony electromagnetic fields. The logic behind this agreement was that

> rather than starting a dialogue process after different risk assessments have been given by experts, the scientific dialogue should start before expert opinions are commissioned. The dialogue process should be used as a tool for organizing and structuring the risk assessment process by different experts (Schütz and Wiedemann, 2005: 541).

Still, such an agreement is difficult to achieve, since there is an inherent interdependency of interests from the actors involved in the process. In order to gain consensus, trustworthiness and plausibility, some criteria are to be extremely relevant: the experts should be independent of economic or political interests in the mobile telephony debate and, if possible, they should not be involved in the scientific and/or public debate on possible risks of mobile telephony (Schütz and Wiedemann, 2005).

## 1.2. The positioning of experts towards audiences as beneficiaries of the messages

Being aware that it is impossible to design one single message to reach all audiences, the expert group has attempted to divide the public into suitable categories, according to the level of intensity in perceiving the health risk associated with radio frequency electromagnetic fields of mobile telephony.

In one article, the scholars have identified three "target groups": low-concerned group (LCG), ambivalent group (AG), and high-concerned group (HCG). The LCG comprises of the unworried persons who evaluated the risk of electromagnetic radiation as harmless, whereas the HCG comprises of persons who expressed major concerns regarding expected health threats due to exposure to EMFs. The other group, AG, refers to people who are undecided and have not yet formed an opinion on the issue. "The distinction in three target consumer groups […] is a powerful guide for the different communicators such as industry, regulators or NGOs for designing the appropriate risk communication messages" (Ruddat, Sautter, Renn, Pfenning, and Ulmer, 2010: 275).

More than being a guide for the communicators involved in a risk management situation, such distinctions have an impact

at the audience level, granting seriousness, credibility and trust-worthiness to the expert groups who issue personalised messages for each of the three categories. Failing in doing so can result in hostility from the part of the public who feels neglected; that is, generating a unique message for all consumers can conduct to hostility from the HCG, because its members would consider that their concerns have been ignored (Lundgren and McMakin, 2004: 61).

So, the task for the risk communicators is to design a multiple target, specific yet coordinated, mix of information and dialogue in order to reach both the indifferent and the highly involved part of the population, as Ruddat, Sautter, Renn, Pfenning and Ulmer stated.

## 1.3. "Privileged" experts or categories of experts

In the reviewed articles, we have seen that the interactions between the experts as main actors of the risk communication are sometimes problematic, due to attempts of some to dominate others in the decision making process. The scientific community was most often seen as the key-holder of knowledge about the effects of mobile technologies on consumers. Also, it was seen as the most reliable source of objective information, since both politics and industry are susceptible to be seeking popularity and revenues.

The most notable remark about the experts involved in RC is the fluctuating position of the media among the cited experts: in some of the analysed articles, they appear equally important to the scientific community or industry specialists, being included in the decision making process; nevertheless, in other articles, the media are recommended as the channel through which the groups of experts should communicate their messages to the public (Ruddat, Sautter, Renn, Pfenning, and Ulmer, 2010: 267).

When this happens, media reaction can be either of acceptance of this quite passive role, or of active implication in the production of content on risk, in an independent action, separately from the standard expert groups. This could lead to conflicting information, as it happened in Great Britain, in the 90s, when the printed press started a media campaigning against the mobile phones:[4]

> The established media health danger framing of mobile technology provided a language for concern which meant that newspapers could put themselves at the head of public disquiet that would otherwise have been more diffuse and varied in its character (Burgess, 2010: 63).

On the one hand, there were the messages of the media, casting themselves as champions of public concern and, on the other hand, the government responses, setting up a public scientific inquiry that sought to accommodate and placate concern.

Because of its dual nature, as communication channel and actor at the same time, considering the media among the experts is a more complex issue: often, instead of sitting at the round table of the decision makers, the press awaits outside the closed doors to get a statement. Or, in today's society,

> the communication of risk is a complex activity involving many different types of communicators from scientists to the media, to government agencies, industry and consumer groups, each of which has its own agendas to fulfil. Such variation across the communication of the same risk can lead to confusion, misunderstandings (Smillie and Blissett, 2010: 115).

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[4] "Mobile phones cook your brain" was the message delivered by the *Sunday Times* to the public on 14th of April 1996.

## 2. Lay Model Analysis

In our opinion, the technical-scientific perspective (Expert Model Approach) in the assessment of the risk and its subsequent communication to the public is characterized by a highly restrictive manner of evaluating risk reality.[5] We also believe that the Expert Model Approach misunderstands the concept of objectivity, transforming it into a narrow vision on risk: objectivity is considered as a desideratum to build one way of thinking in risk assessment.

The "psychometric paradigm" creates the scenario for the Lay Model Approach (or "Lay Epidemiology"), where risk is "inherently subjective", and, as scholar Paul Slovic said, a concept helping people "to understand and cope with the dangers and uncertainties of life" (Zwick, 2005: 482).

The Lay Model Approach (LMA) opens the way for an even more complex direction in risk evaluation and risk communication, since from this point forward we do not deal with "real risk", but with risk as perceived by the public:

> Risk as perceived by the public turned out to be a multidimensional, frame-sensitive, context-depending mental representation. This representation is entangled in subjective preferences, values and points of view, with the consequence, that "there is no universal set of characteristics for describing risk" (Zwick, 2005: 482).

As this starting point for the Lay Model Approach analysis, we will further focus on evaluating the "other" main character in risk assessment, the public, discussing the interactions between audience members, their position towards the experts and their

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[5] In this view, risk reality excludes the risk as perceived by the public, addressing only the "real risk".

differentiations based on privileged positions in the eyes of experts.

## 2.1. Interactions between audience members

In the LMA, studying the interactions between audience members is crucial, as the construction of risk implies shared representations of the potential harming situations that people come across in the everyday encounters with their peers. We should mention that, in their turn, these existing "personal networks" interact with the wider public sphere and the media representations of formal and informal evidence, in order to shape a public understanding of health risk associated with mobile technology (Collins, 2010).

Lay model favours context-acquired knowledge over media-acquired knowledge in risk information: from this optic, family, friend networks, colleagues and acquaintances could offer information which is more relevant for those directly affected by a potential risk. Still, this does not mean that the public fully ignores or rejects the value expert systems of knowledge, but that in some occasions, people could rely on other more "grounded" systems of knowledge, which allows that risk reality be negotiated with, but not imposed by the expert communities. Citing scholars like Petts, Horlick-Jones, Murdock and Joffe, the author of "Mobile phone masts, social rationalities and risk: negotiating lay perspectives on technological hazards", notes that the most important sources for risk negotiations are personal experience, formal education, the local knowledge acquired through living and working in a particular community and occupation, but also the frameworks derived from prior media consumption (Collins, 2010: 623). Social interactions are important not only for the public understanding of health risk, but also for the individual assessment of risk, defined in relation with others. In other words, authors studying health

risks of mobile technology observed an "optimism bias", when persons view themselves less likely to experience negative events, thinking the risk applies more to others facing the same risk than to them. From this approach, optimism is seen as the difference between the risk individuals perceive for themselves and for society (Costa-Font, Mossialos and Rudisill, 2009).

## 2.2. The positioning of the audience towards experts as transmitters of information

As the Lay Model Approach suggests, in RC, the number of sources of information is significantly larger than in the Expert Model Approach, in which communication is restricted to some specific expert communities such as Science, Politics, Industry, NGO's / Civil Society and, sometimes, Media. However, one of the articles reviewed revealed a hierarchy regarding the dominance of source of information in which expert communities ("such as science, citizen action groups/environmental associations") were least credited by the public:

> More than half of the interviewed indicated that they would receive the majority of information on this topic through radio, television, magazines and newspapers. The mass media are closely followed by social networks of "acquaintances and friends". In contrast, a little more than a third (38%) of the interviewed persons had come across information by specific institutions (such as science, citizen action groups/ environmental associations) (Ruddat, Sautter, Renn, Pfenning and Ulmer, 2010: 269).

These results could be based on the public's position towards experts, in terms of credibility and trust. Regarding the concept of trust, in *Communicating Risks to the Public: International Perspectives*, Renn and Levine identify five subcomponents of

trust, which can justify the low percentage of reliability on experts as sources of information. These subcomponents are: perceived competence, objectivity, fairness, consistency and faith (Kasperson and Stallen, 1991: 179-180).

The lack of trust is often due to misconstructed messages delivered to the public, which will finally end up in increasing concern rather than placating, based on an "inexorable" logic that "there is no smoke without fire", as shown in the article by Barnett, Timotijevic, Vassallo and Shepherd. There it is also stated that: "the more people trust government, the less they will be concerned" (Barnett, Timotijevic, Vassallo and Shepherd, 2008: 528).

At this point, one non-pessimistic conclusion could be the one formulated by Siegrist: "we may have to accept that for some people, a scientific discourse is not a valid discourse, and, therefore, does not influence their perceptions of risk" (Collins, 2010: 625).

## 2.3. "Privileged" audience

Not only the interactions between audience members or their positions towards the expert communities are important, but also the way that experts look at the public. In their opinion, the theoretical approach on risk communication should start from a detailed analysis of the categories of public and their particular needs and thereafter establish a communication strategy. In this sense, Lay Model Approach should not be only seen as an alternative to the Expert Model Approach, but rather as complementary. Thus, lay people should not be mistaken for ignorant people, or their views seen as ignorant, but rather be considered a particular assessment of risk and their actions like a manner of individualizing risk by making use of comparisons to

their peers and their perceptions, adding local knowledge, social and cultural background, media stories and, obviously, expert information. In one article (Cousin and Siegrist, 2010), in the case of risk communication and mobile telephony, two main target groups are identified: on the one hand, the lay people without strong feelings towards mobile communication, and, on the other, active base station opponents.

One of the conclusions was that people in the opponent group had more knowledge than average lay people. For instance, lay people were erroneously convinced that the farther away from the base station they were, the safer they would remain. In change, the opponents showed substantial concerns about social and political aspects of mobile communication, confirming the observation that "risk communication […] cannot be effective unless it considers the emotions, beliefs, and political leanings of the audience" (Lundgren and McMakin, 2004: 57). The political involvement of the opponent group is based on a broader knowledge they have about legislation (e.g. exposure standards, base stations settings, etc.).

As we discussed earlier about trust issues in RC, we can identify again the mass-media as the most credited information source for the opponent groups, situation explained by their scepticism to the messages from mobile phone industry and the responsible authorities (Cousin and Siegrist, 2010: 613).


## 3. Democratisation of risk

The concept of democratisation of risk was coined by Kitzinger and Reilly in 1997 and it refers to a more comprehensive way of approaching risk in contemporary society. It places emphasis on the generalisation of hazard, in the sense that this is not clearly confined and restricted by probability and exposure, but liable to

more indiscriminate impact (Burgess, 2010). The democratisation of risk also implies that, since everyone can be affected, they should have the right to carry out personal judgment of the risk in question, enriching the public debate and thus contributing to the public understanding of a risk. This view is also underlined by the authors of a handbook on risk communication, who pointed out that

> [c]ommunication strategies should be organized in a dialogue forum. The audience must have the opportunity to voice its concerns to the communicators, to participate in setting the agenda, and to convey its perspective to the policy maker […]. If policy makers are not willing to learn from the public, the public will probably refuse to learn from them as well (Lungren and McMakin, 2004: 479).

## 3.1. Scientific rationality *versus* social rationality

The democratisation of risk is a concept that can also be interpreted as an important element that brought a substantial change of paradigm: in the study of risk communication, it allowed a transit from the technocratic approach to the negotiated approach.

> Critics of the technocratic conception of risk perception have therefore differentiated between a discursively dominant scientific rationality — technocratic, expert-led — and a variety of "social rationalities" (Beck 1992; Perrow 1999, 321) produced by non-expert publics […]. They engage positively with lay public perspectives through an exploration of the "social, cultural and political nature of risk" (Lupton 1999, 5). This approach can also be understood as an attempt to promote the "democratisation of risk" (Kitzinger and Reilly 1997) (Collins, 2010: 622).

The democratisation of risk, thus, justifies the contrast between a scientific rationality (technocratic, with technical-scientific accounts of risk) and a variety of social rationalities (based on non-expert judgments and understandings of risk). Scholars like Wynne and Farré Coma (2003) insist on the complementary nature of these rationalities, stating that they should not be analysed in terms of absolute opposition or as one superior to the other. Wynne argues that while not inherently superior to scientific understandings, lay knowledge offer localised, contextualised challenges which raise the possibility of obtaining public knowledge closer and more legitimate in the eyes of the public (Collins, 2010).

We could conclude that communication on mobile telephony risks would be more effective if it were based on constant negotiations between both scientific and social rationalities.


## 3.2. The precautionary principle

The processes of negotiations we have just mentioned reaffirm that risk assessment relies both on scientific and social models. Thereby, assumptions, uncertain information, or judgements based on analogies and personal experiences are also part of the RC, usually when the precautionary principle is invoked. Studying the risks associated with mobile technology, Balzano and Sheppard (2002) concluded that in this particular issue, the decisions linked to the precautionary principle are generally based on public worries and concerns, which are unjustified, for the scientific proofs showed that there were no health hazards related to mobile phones. Discussing the application of the precautionary principle in the case of decision-making process, the same authors made an observation which we consider of significant importance:

> Neither scientific nor social models exclude subjective and speculative elements that reflect value-driven considerations. Scientists, like social policy makers, politicians, and ethicists, can come to conclusions influenced by perception and not everywhere supported by confirmed data and well-defined models (Balzano and Sheppard, 2002: 353).

Therefore, in risk assessment, no view is completely objective, the perception being also part of the experts" view, not only of the public's.

## 3.3. Message flows within the meta-model of riskcommunication

To analyse the message flows within RC, we used the meta-model of communication, elaborated by Juan Luis Gonzalo Iglesia in his doctoral thesis, "L'estructuració de la comunicación de risc en entorns complexos: comunicación, comunitats i mediacions. Risc nuclear, risc químic i canvi climàtic a la Unió Europea" (2010).

Having this meta-model in mind, we identified, throughout the articles reviewed, observations about each of the actors involved in RC. Moreover, the landscape of RC should definitely include the precaution that uni-directional messages would only lead to failure when assessing a risk; communicating with the public is a misleading concept for there is not one public per se, but, as the meta-model shows, we all are part of the Public, and we all have differentiated communication needs, as follows:

a) The Scientific and expert community: experts are usually interested in technical data such as figures on dose-effect relationships, on the interpretation of exposure data, biological effects and much more;
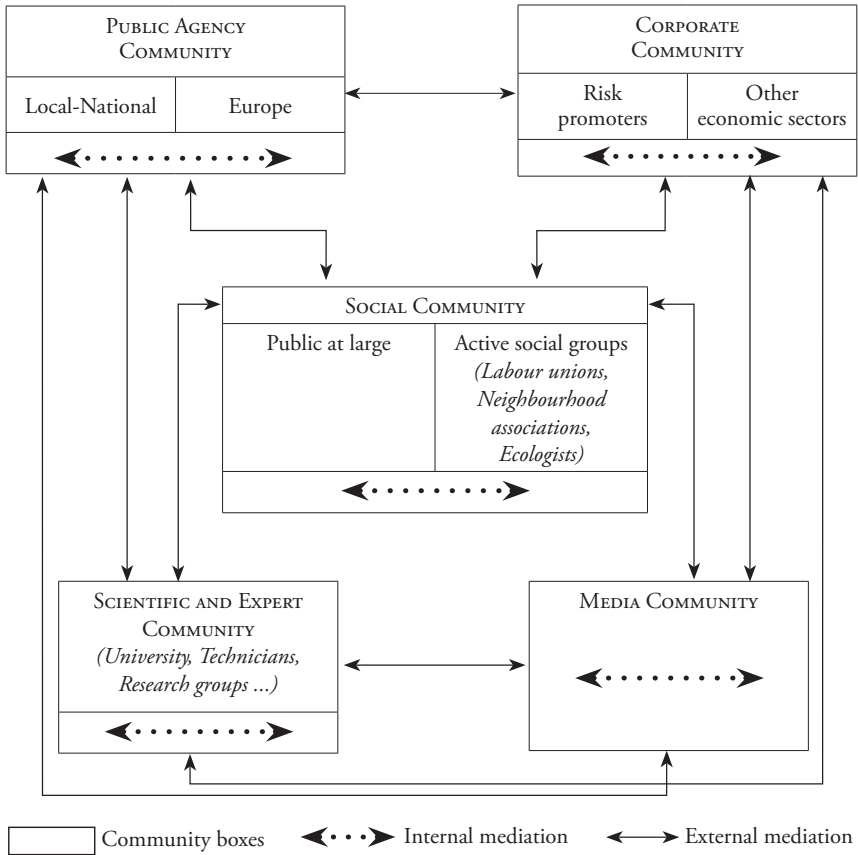
Figure 1: The meta-model of communication, elaborated by Juan Luis Gonzalo Iglesia

b) The Public agency community: governments and adminis-
   trations need some scientific data in order to differentiate
   between serious worries and public useless panic;
c) The Corporate community: industry needs to know how
   irrefutable is the evidence delivered by scientists and which
   are the cost efficient measures to be taken;
d) The Social community (active social groups and public
   at large): environmental agencies want to know what
   concrete measures are taken by industry and governance
   to protect the population, to limit or avoid the risk. The
   public at large wants to know the ways they can protect
   themselves from danger and who they can trust in receiv-
   ing information;
e) Media community: the mass-media usually play the role
   of watch-dog and want to find out who is responsible and
   should be blamed in cases of danger.

## Final considerations and future research

More than a fashionable concept, Risk Communication is a
research field that still needs to be explored, especially due to its
intricacy and its novelty to expert and lay communities alike. While
nowadays there is a large body of research on the hazards related
to mobile telephony and electromagnetic fields, the study of Risk
Communication still needs improvement. The existent scientific
literature confirms that the RC models designed so far (either
expert or lay models) have significant limitations mostly because
they put emphasis on the subject, and not on the object, namely
they are more interested in deciding who is delivering the message
instead of what is delivered and how. The meta-model designed
by Gonzalo Iglesia (2010) answers this question by shifting from

linearity to circularity (the so called "democratisation of risk") in the process of RC and by giving equal voice to all the actors involved. Even so, the fact that in the assessment of the safety and health impact concerning mobile telephony the expert judgement of the independent authorities and the lay people opinion matter equally does not automatically mean that communication is perfection. The complexity of RC goes beyond this "equality of expression" to reach the issue of ethical and professional responsibility of those involved in the process. Just to give an example, media can (and often did) fuel the public's fear towards mobile telephony by amplifying statements of ideologically or economically driven interest groups, by distorting opinions and messages, or by disseminating pseudoscientific research and poorly documented materials. Better RC strategies would lead to better public understanding of risks, just as poor strategies lead to poor risk assessment, filled with biased information and uncertainties. It is compulsory for each country to develop its own RC strategic plan and not just "borrow" the existing guidelines designed by others, as it frequently happens in Latin American countries, according to the Latin American Experts Committee on High Frequency Electromagnetic Fields and Human Health (Edumed Institute, 2010).

Overall, RC studies frame a negotiated perspective on communication, with different communities (media, expert, corporate, public agency, etc.) influencing the shaping of the general consensus. This leads us to the idea of integrating the study of RC within the agenda setting theory (McCombs and Shaw, 1972) and the model of interactive agendas (Rogers and Dearing, 1988) that suggests that the public agenda is determined by the negotiations taken place between the media agenda, the political agenda and the corporate agenda. Also, we believe that another direction for future research is to be found in the Social Media as tools for dissemination of information on risks and for improving commu-

nication. Social Media could break into the Lay Model Approach and put an end to the dichotomy "real risk" — "perceived risk" by giving easy access to context-acquired knowledge, so important to risk assessment and risk communication.

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