

## **Strategic Projects in Public Communication of Science**

Susana Herrera Lima

Instituto Tecnológico y de Estudios Superiores de Occidente (ITESO)

Tlaquepaque, Jalisco, México

[shl@iteso.mx](mailto:shl@iteso.mx)

Edith Escalón Portilla

X Balam Multimedia Lab. Agricultural and Biological Sciences Area

Universidad Veracruzana, Xalapa, Veracruz, México

[eescalon@uv.mx](mailto:eescalon@uv.mx)

### **Abstract**

The model for developing strategic projects that is presented here looks at the communication of science from a socio cultural perspective and is committed to contributing to the formation of a critical, participatory citizenry with a solid foundation of scientific culture. The model aims at developing the ability of science communication professionals to integrate theoretical knowledge and empirical data in designing and formulating strategic science communication projects. It is based on three fundamental elements: the socio cultural contexts of the intended audiences and their needs in terms of specific issues (starting point); the scientific knowledge, seen from an integrated interdisciplinary perspective, that might meet these needs (diagnosis and proposal); and the different competencies and tools that contribute to the design and formulation of a Strategic Science Communication Project (strategic communication). Knowledge of the target publics and their needs in terms of the potential use and appropriation of scientific knowledge, obtained through dialogue and observation, has helped to formulate effective projects in a variety of social settings, which has encouraged participation and deliberation regarding issues that concern the intended audiences. In this model,

participation is seen as a continuum that goes from the provision of information (as in the deficit model) to involvement and dialogue (as in the contextual model) to empowerment for participation (as in the inclusion model).

One example is discussed: the development of a strategy for the Center for Research and Applied Technology in Jalisco (CIATEJ, in its initials in Spanish) in order to link the biotechnological knowledge generated there with potential users from different sectors of the population. It was the result of a careful diagnosis that included documentary research and research in social perceptions of issues and agendas, as well as concrete guidelines for implementing the strategy in the short, middle and long term. The process was enriched by an interdisciplinary approach that integrated knowledge from social communication, scientific journalism, psychology and marketing.

## **Strategic Projects in Public Communication of Science**

### **Introduction**

The model for the developing of strategic projects here presented approaches science communication from a socio-cultural perspective in which both, the structural elements where the production and communication of scientific knowledge are developed and the meanings that are socially built by the subjects around their daily life, are taken into account. This way of conceiving and practicing science communication takes on the commitment of contribute in the developing of a more critic and involved citizenship, with a solid foundation of scientific culture. It also seeks to contribute in the setting of dialogic relationships among the actors involved in the communicative processes, without neglecting the network of power relationships that permeates the exchange of knowledge between communities and social groups.

The starting point for this branch of work in the public communication of science is the identification of social problems in which scientific knowledge, developed through different disciplines, can contribute to achieve a better understanding of the situation and at the same time promote a more adequate intervention from the implied social actors, all this in order to transform and improve their current situation. The main idea is to build links among the subjects from research centers, which are the producers of knowledge,

and the possible receivers of this knowledge, which may be found in different social groups. This is accomplished through communication strategies that enable the foundation of effective “*ties of sense*” which connect demands for knowledge with research agendas. On a wider level it seeks to influence the developing of public politics about scientific development and its entailment to society.

### **The Model for strategic projects in public communication of science**

For the achievement of the proposed objectives the model for elaboration of projects articulates three fundamental elements: the socio-cultural context of the social groups and the necessities that are specific to their situation; the scientific knowledge in an interdisciplinary and articulated perspective which can contribute to the understanding and possible solution of the problems; and the set of tools and skills that allow the design and formulation of a Strategic Project of Science Communication.

This model has been developed within the context of the Master in Science and Culture Communication of ITESO and projects based on it had been carried out in the state of Jalisco and the Metropolitan Zone of Guadalajara; these projects had been related to problems concerning environment, public health and urban design. The model is oriented to the development of joint capabilities of both theoretical knowledge and empirical references that can be applied to the design and formulation of strategic projects of science communication.

Some examples of these projects are:

-Pollution of the Santiago river with the civil organization “Un salto de vida” In this case the problem came from a damaged area next to the metropolitan area of Guadalajara, in which the Santiago river has been receiving for years the industrial disposes of the enterprises located at its shore, the loads of black water from the city and the leachate of the municipal dump next to it. The objective of the project was first to spread information of the problem in Guadalajara metropolitan area and then to provide argumentation elements to the people living there. Chemists, hydrologist and urban planners were involved in the process.

-Environment Communication for the Bosque Los Colomos. The urban forest Los Colomos is one of the main water providers for the city, as well as an important lender of

environmental services for the region. It is threatened by real estate developments and the pollution of groundwater, among other things. The objective of the strategy was to place the forest into the public agenda as part of a vulnerable eco system. We worked alongside with biologists, environmental engineers, experts in environmental ecology and economical ecology.

-Flooding in Guadalajara's Metropolitan Zone, from the project: "Guadalajara Pluvial".

- The Temacapulin affair. The problem of basins and dams.

-Science, enterprise and society. CIATEJ (Center for the research and application of technology of the state of Jalisco): strategic communication of biotechnology.

This last example approaches the development of a strategy of science communication designed for the Center for the research and application of technology of the state of Jalisco (CIATEJ), which main objective was the entailment of the scientific knowledge in Biotechnology, which is generated in the Center, with their potential users among the different sectors of the population; from entrepreneurs capable to elaborate products based on the scientific development of the Center –addressing the need of linking social requirements with research agendas- to groups of potential consumers of these same products, in order to respond to the necessity of incorporate the scientific and technological innovations in the public discussion, with the goal of building groups of responsible consumers, informed and aware of their consumption practices.

The proposal of "strategic communication of science" was the result of applying the previously described model alongside with a methodology that includes a detailed diagnosis, developed through documentary and qualitative research, of the social perceptions experienced by the actors about their problem and agenda, as well as the development of specific guidelines for the operation of the strategy in short, medium and long term; all this enriched by an interdisciplinary approach of knowledge in social communication, scientific journalism, psychology and marketing. The development of this specific project counted with the participation of professors and students from the

Master in Science and Culture Communication of ITESO.<sup>1</sup> The complete work was reported in a final document (Cauich, Escalón, et al, 2011).

### **The dialogue with the scientists and the receivers**

The dialogue with the involved actors is proposed as the starting point for the projects and it is also a practice that is maintained during their entire development, this is achieved through meetings in which both sides review the progress, share the preliminary results, and promote feedback and agreements. The objective of this dialogue is the understanding of the socio cultural context in which the scientific knowledge is produced and the practices and perceptions of the scientists, as well as the scientists imaginary regarding the social groups that would relate with their work. Also it aims to recognize the context of the possible receivers of this knowledge, the worries and requirements from where the necessity for understanding their own problems and controversy arise, all this with the aim of influence the transformation of their social environment. The transformations that are expected by the different actors are of many levels: Going from the changing of public politics, regulations and relationships with society, to the transformation of everyday practices and more specific actions.

The techniques used to accomplish this first incursion are: documentary research, observation and semi-structured interviews. Depending on the results of these interactions the obtained qualitative and quantitative data is systematized and a diagnosis for the problem is produced. (The problem is always referred to the identification of the necessary links between scientific knowledge and the receivers of that knowledge).

### **The Diagnosis and the Proposal**

The diagnosis is accomplished in terms of the relationships that exist among the two social groups, as well as the mutual needs and perceptions of communication derived from these relationships. More than simply identifying the gaps of knowledge in the receivers the idea is to identify communication problems and specific needs of information, dialog and interaction, for the social problem in which the scientific

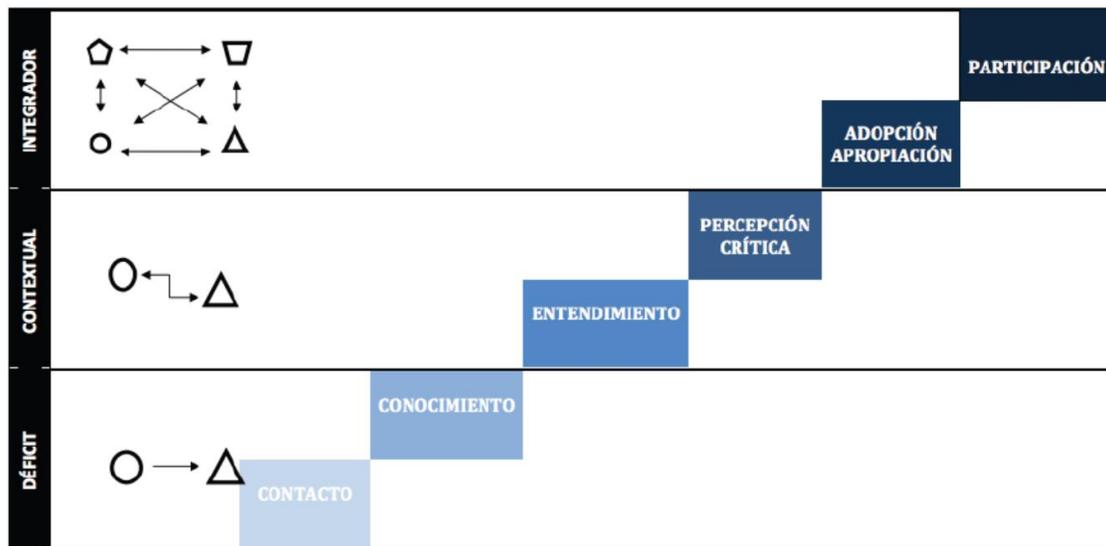
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<sup>1</sup> Professors: Enrique Páez Agraz and Susana Herrera Lima. The students: AddyCauich, Edith Escalón, Nuria García, Fabián Mora, Norma Sandoval and Miriam Vargas.

knowledge is a changing factor. In this example Biotechnology would be the specific field of knowledge involved in the process.

The result from the diagnosis analysis becomes the proposal for a model of Strategic Science Communication in which the models for science communication and the principles of strategic communication are linked together. The strategy proposes a gradual transition from a one-way data transmission relationship to a dialogue between the involved groups, looking for the interaction and exchange of knowledge as well as the settlement of collaborative networks; in other words, what is pursued is a transition from the deficit model to the contextual model and from there to the integrating model. All these working alongside with the strategic objectives that are being proposed: contact and knowledge, understanding and perception, critic, adoption, appropriation, and finally, participation. This model is shown in Figure 1.

Figura 1. Modelo de Comunicación Estratégica de la Ciencia



Del documento final del proyecto, "Comunicación estratégica de la biotecnología: CIATEI, industria y comunidad", (Cauich, A., Escalón, et al. 2011; pp. 69).

## The Strategic Communication of Science

Participation is conceived in the model as a continuous activity that goes from the supply of information (particular to the deficit model), the involvement and dialogue

(particular of the contextual model) and the empowerment for the participation (which corresponds to the integrating model). The model can be applied to different kinds of social problems, its operation and delimitation would depend on the involved social groups and on the expected reach of the specific communication strategy.

Referring to the CIATEJ project, the communication strategy that was derived from the model proposes a guiding strategy and an operative one, which combines media alongside with face to face practices. The results of the diagnosis allowed identifying the group of the entrepreneurs as an interested public, involved with the scientific developments on biotechnology and with specific information requirements about what CIATEJ is able to provide for the development of local and regional products. On the other side the group of responsible and informed users emerges from the diagnosis as an important objective for both CIATEJ and the entrepreneurs. Particularly for our work team this group turned to be fundamental, the strategy approached it as a target within the conformation of publics composed by informed citizens, whom are aware of their consumption and have the ability to argue about the possible benefits or harms that would derive from the application of biotechnology into different products such as: food, pharmaceutical and agricultural products.

The guiding strategy is derived from the model and proposes the production and the management of contents through a digital repository of the data related with the biotechnological developments that are performed in Jalisco, specifically on the CIATEJ. The repository is conceived as a *diffuser* of biotechnology for potential and actual users, through which certain objectives shall be accomplished: the providing of information, the promoting of dialogue, and the developing of collaborative networks about Biotechnology.

The repository is proposed as an interface that stores a dynamic data base which its starting point would be an electronic magazine composed of different sections related to the public communication of science: Journalist Report, Research, Current Issues, Characters, Inventions, Market, Reviews, Links, Feedback. As complementary pieces of the repository the following spaces are also proposed: links with the press; podcast: public forums to promote a dialogue with the users, the forums would be distinguished by topics and its reach according to their public; a link for CIATEJ's video channel; a link to

social networks. There would be a section devoted to the specialized research (papers) of the scientists of CIATEJ, these papers would be available for download for a cost, and the section will also count with links to the micro-websites that are related to the center.

The operative strategy works in synchrony with the leadership strategy and it is composed of two plans, one concerning the media and another one for the face to face practices. The plan for the media refers to digital media (television, online media, apps, social networks) as well as to analogical media (magazines, newspaper, newsletters, brochures, advertisements) and it is established through code messages that correlate to the previously mentioned stages and to their corresponding objectives: contact and knowledge; understanding and critical perception; adoption, appropriation and participation.

The plan of the face to face practices should work in synchrony with the plan devoted to the media, but it is also concerned with the creation and configuration of face to face networks. The proposal consists in the arrangement of a series of different events, each one with its own level of complexity, which shall conclude in a single event that unifies the dialogue, allowing the process to reach more specific proposals for the collaboration and involvement of the technologically based entrepreneurs, the university students, the responsible consumers, and the scientific and administrative community of the Center.

With the proposed configuration of both the guiding and the operative strategies, designed to develop in virtual and face to face environments, we aim to approach the strategy's main objective: to maintain a tendency of integration and collaborative participation while at the same time pursue a constant and differentiated presence of what a public research center, with the participation of concerned scientists, can offer as a developer of biotechnology within the public space.

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