



BRIDGING THE GAP: IMPROVING COMMUNICATION AND ENVIRONMENTAL MANAGEMENT IN THE CITY COUNCIL OF MADRID

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Abstract

Two complementary studies, in which experts, technicians and citizens are consulted regarding communication campaigns and environmental management conducted by the City Council of Madrid. A mixed method is developed (qualitative and quantitative techniques) with interviews, educational campaigns and review of citizens' complaints to the municipality (N = 932). The results highlight some problems within local management and communication that maintain environmental conflicts. The conclusions seek to increase the value of environmental education and their different strategies, consistent in complementarity with other mechanisms inherent to public administration (management, legislation, investment).

Keywords: environmental management; public administration; citizen participation

In recent decades, the local government of the city of Madrid has increased the material and technical resources allocated to the environmental management of the municipality. However, these measures do not translate into solutions to the environmental problems existing in the city.



New actions are promoted by local authorities that attempt to improve municipal sustainability management, in coherence with the requirements of European regulations regarding environmental governance. The objective was to analyze the local context, from a multiple perspective: citizen, technical and expert perspective. For this, a research was carried out, developed in the municipality, requested by the Department of Education for Sustainability of the Madrid City Council, to the Autonomous University of Madrid. The process was carried out by an interdisciplinary team, made up of research staff from the university, from the departments of Ecology and Social Psychology.

The importance of participation is presented as an individual and collective learning process (deliberative participation) and communication and environmental education, as a management strategy that seeks to generate processes that strengthen governance, considering citizen involvement as fundamental in the improvement of the environmental problems faced in public administration (Palavecinos et al., 2008).

The municipal budget allocated to environmental problems has been increasing in recent years, based on reports from the Government of the city of Madrid, which stated that among the aspects that worsen the quality of life of people in the city, after traffic , there were problems linked to the quality of the urban environment, such as cleanliness and pollution, even surpassing the problems of citizen safety and unemployment.

Various studies highlight the need to improve the flow of information to consolidate adequate communication, for decision-making and citizen participation in the management of their contexts (Tábara, 2006; Zube, 1984). For this reason, the management measures undertaken by the local government are, in some cases, associated with environmental communication

actions or accompanied by communication channels between the Administration and its citizens. However, the lack of fluid encounter between both agents is evident, if one observes the inefficiency of the city's sustainability management measures, especially in terms of waste management and daily cleaning. Given this context, this work is proposed on which the following research questions are developed:

- What characteristics does the communication of the environmental management of the city of Madrid present? What are the barriers to the solution of local environmental conflicts?
- What recommendations do people and experts offer to improve environmental communication (EC, hereinafter) interventions associated with municipal environmental management?

To address these questions, an applied research is structured, organized into two studies described below.

Study 1. Analysis of environmental communication strategies to improve citizen involvement in waste management and cleaning, in the city of Madrid

The importance of CA grows within a broader and more consolidated area of research and management, such as environmental education (EE). The analysis of this last discipline and its initiatives has a greater scope from the academic field, however, CA has not been sufficiently studied, and its interventions have been barely evaluated in relation to management. This trajectory coincides with the local government of Madrid.

CA is considered in the form of a campaign, program or strategic communication plan of a public or collective nature, which uses different media and supports (spots or audiovisual advertisements, banners, posters, brochures,

radio spots, etc.). The main objective of CA is the change of current psychological and/or social factors (values, attitudes, behaviors, opinions, habits, meanings, etc.) towards more pro-environmental ones (Piñeiro, 2008). This definition recognizes a wide range of initiatives.

Goals

The main objectives of this study are:

- To know the opinion of various experts in different areas of environmental management and communication to plan CA initiatives and the way in which criteria such as ethics, participation and motivation are included.
- Conclude in recommendations to propose CA initiatives in the municipality of Madrid in waste management.

To address them, the following research questions are specified:

1. What are the strategies and tools to better design, plan and evaluate environmental communication initiatives in waste management?
2. What barriers must CA initiatives overcome?
3. What role do ethics, participation and motivation play in environmental communication?

Methodology

For this study, a qualitative methodological design is proposed focused on semi-structured individual, couple, group interviews and a discussion group. The sample is made up of experts (N = 30), of which two of them intervene in two different techniques (individual interview and discussion group), so it is N = 30 and not N = 32. These have been chosen through intentional sampling, under previously established selection criteria ([Table 1](#)), which are additive for each technique.

TABLA 1
Resumen técnicas, variables y criterios de selección en muestreo intencional

Técnica	N	Criterios de selección sumativos	Variables analizadas
Grupo de discusión	7	Reconocida trayectoria en diferentes disciplinas vinculadas con la CA: gestión ambiental, psicología social y publicidad.	Condicionantes previos al diseño de una intervención de CA Criterios para mejorar el diseño, evaluación y planificación de la CA
Entrevista grupal (5) y entrevista en pareja (2)	7	Diversidad en el ámbito profesional: académico, administración pública, empresa privada y organizaciones sin ánimo de lucro.	Pasos en la preintervención Carencias en la planificación Debilidades internas Errores en los mensajes
Entrevista individual	18	Expertos en ética, motivación y participación ambiental.	Relevancia de la ética, la participación y la motivación en la CA

Fuente: elaboración propia

The methodological design begins with an exploratory discussion group to determine the main variables that will be analyzed in the in-depth interviews. In this way, an interview script is configured that includes these variables, the synthesis of which appears in [Table 1](#).

After data collection, the transcription is strictly literal of oral language, as stated by Vallés (2002). The analysis of the information is sociohermeneutical; postulates an interpretation of the text in context, based on the study of the argumentative or discursive lines.

Results

Regarding the first research question, there is consensus among the experts consulted: they all recommend that environmental awareness actions from a single institution should be oriented towards the search for an environmental management objective, using education, communication and strategies. participation that supports it. For the design of CA strategies, in support of management, a series of steps is proposed that include: improving the planning of CA actions, detecting CA needs associated with the context and the segment of the population. objective and the development of a pre-design and an

evaluation plan from the beginning, considering previous experiences of that population, other CA initiatives or the specific literature already existing.

TABLA 3
Barreras de la comunicación ambiental

Carencia de planeación ("Ausencias")	No tener las técnicas apropiadas de medición antes de comenzar la campaña.	Futerra y Pnuma (2005); Castro (2005)
	Carencia de autocrítica: "la gente no participa o no escucha" o "el problema es el político que no entiende esto".	Wynne (1995); Hesselink et al. (2007)
	Carencia de planeación y claridad en la forma de comunicar: problemas circunstanciales pueden generar campañas contradictorias.	Futerra y Pnuma (2005)
	Ausencia de diagnóstico y evaluación.	Sundseth (2004); Hesselink (1999)
	Carencia de una aproximación inicial y profesionalismo.	Hesselink (1999)
Interferencias internas	No existencia de coherencia ambiental.	Futerra y Pnuma (2005)
	Objetivos no explícitos pueden desviar los objetivos de la CA.	Hesselink (1999)
	La tiranía de la visibilidad (ser guiado por lo que es más noticioso y no necesariamente lo más efectivo).	García López (2000)
	Carencia de coordinación entre entidades con intereses comunes y mensajes contradictorios.	Futerra y Pnuma (2005)
Errores asociados a los mensajes	Mensajes generales o banales para problemas complejos.	Calvo y Gutiérrez (2007); Castro (2005)
	Mensaje a toda la audiencia.: " si esto es para todos, no es para mí".	Futerra y Pnuma (2005); Beltrand-Org- (2004)
	Desde un extremo a otro: catastrofismo o mensajes idílicos, conectados a un falso optimismo (para ocultar problemas o dificultades).	Futerra y Pnuma (2005); Sundseth (2004) Montero (2007)
	Anuncios como propaganda institucional.	García (2000) Castro (2005)
	Dar una respuesta preconcebida y no dejar espacio para la reflexión. Paternalismo.	García (2000); Hesselink (1999)
	Usar datos no verificados.	Sundseth (2004)
	Usar lenguaje técnico (tecnicismos o endogamia comunicativa).	Futerra y Pnuma (2005); Sundseth (2004) Hesselink (1999)
	Culpar a los individuos y asignar excesiva responsabilidad en los ciudadanos, que genera un efecto de "desresponsabilización".	Pol, Vidal y Romeo (2001)
Etiquetar o reforzar estereotipos.	Fueyo (2002)	

Fuente: elaboración propia

Other aspects highlighted in the results are the so-called "barriers to CA." These are common errors in CA practices, which are identified by the interviewees as



a checklist that should be avoided. These barriers are presented below, along with scientific literature that confirms the existence of such errors.

The results contribute to opening the debate on the need to reorient CA interventions. We must assume the complexity of the intervention contexts and the role played by other external factors, which should be explored in depth in future work in this line of research such as the one undertaken in this study.

Responding to the third research question, in the analysis of results, variables linked to ethics, motivation and participation appear that take on roles of interest in CA. They have a potential recognized by relevant experts in the search for social transformation. There is a consensus, in the case of participation, that a campaign without participation causes rejection in the long term. However, including participation adequately also requires quality criteria in the processes. For this reason, some experts reject the use of demanding citizen participation and involvement for all processes and areas of environmental management.

For those interviewed, ethics also plays an important role in the quality of CA initiatives. Some abuses derived from the "green marketing" of commercial actions in communication (such as green washing) need to be reviewed, as well as it is necessary to debate the ethical approach of CA implemented by public institutions, environmental organizations, associations and social movements. Paradoxically, motivation is an element that does not appear in the CA discourse, being an essential part of transformation from socio-environmental intervention models such as the four spheres model (which point to four key issues for the construction of CA initiatives: rationality, emotionality, functionality and social influence), proposed by Pol et al. (2001).



Following this model, one of the assumed premises is that change needs the sphere of information linked to rationality. Many experts consider that CA, traditionally, focuses on rational deliberation as a necessary key in the fight against the environmental crisis. However, there are other people interviewed who consider the sphere of emotion as a key learned from the advertising sector. On the other hand, there are experts who emphasize the influence of primary groups (influence and social desirability). Finally, functionality implies taking into account the greater relationship between management and CA that experts point out. In general, elements of the four spheres of the aforementioned model are indicated, which should be considered from CA initiatives, according to the management objectives and the context.

Study 2. Analysis of citizen complaints about environmental issues

Despite the city council's high investment of resources, in recent years, the cleaning and waste departments receive more complaints every day (approximately 300 daily). Complaints are received through the Suggestions and Complaints (SyR) system, implemented by institutional management as part of the legal mechanisms required in Spanish regulations (governance), to encourage citizen participation and as quality control for public management. . Considering this channel of communication between citizens and the local government, the following research question is posed: what information do these complaints provide to municipal management?

Complaints about environmental conflicts detected in the city, which affect people's quality of life, are presented in the "Complaint Form" format, created by the institution for these purposes, and are presented in the institutional channels for review. processing (digital format institutional website, telephone number 010, complaints reception offices, ombudsman). This communication



instrument between citizens and the city council seems to be an important source of communication regarding environmental problems and the needs that citizens have in this area. Therefore, they can be considered a powerful mechanism to improve institutional environmental management.

Goals

- Identify the main environmental conflicts associated with cleaning and urban waste in Madrid, reported by citizens to the city council.
- Recognize barriers and facilitators for pro-environmental behavior in this local context.
- Propose criteria for a new style of environmental management that incorporates the needs of citizens, to promote sustainability in the city.

Participants

This research collects data from two sources:

- a. Technicians and administrative staff, in charge of tasks in the city hall's cleaning and waste collection departments (2 managers, 6 administrative staff in charge of receiving complaints and 2 field inspectors).
- b. 932 Citizen complaint registration forms, SyR system received in the departments, between the months of January to March. The files were selected according to the pre-established criteria for the study, such as: identification data and description of the complete situation, date of entry, complaint verified by inspectors and responded to by the institution, file entered into the systems formally established by the institution (systems SIGSA, S-400, SyR).

Procedure

The method is structured through stages, in which the research is organized according to three elements defined in the Environmental Assessment Model



proposed by Zube (1984). The model suggests focusing on the evaluation from the institutional level, from the environmental problems detected and on the present levels of participation. The mixed method is used (Creswell, 2013), for which a qualitative analysis of the contents expressed in the complaint forms and in the transcripts of the interviews carried out with different members of the organization begins. During the analysis of the results, the different answers to the open questions were categorized and contrasted with each other. A content analysis process was carried out, through the development of categories in a round-trip information procedure with the participants, via email. We can define content analysis as a research technique whose purpose is the objective, systematic and quantitative description of the manifest content of communication or any other manifestation of behavior (Martin, 2014).

Finally, a quantitative analysis of the data provided by the cards was carried out, with a statistical analysis of the results, which corresponds to an exploratory approach to extract hierarchical functional dependency relationships between a response variable and a set of influential variables. developed by Breiman, Freidman, Olshen and Stone (1984). In the case of using a qualitative response variable, this method is called hierarchical segmentation. One of the most generic versions in terms of the measurement scales of the variables used and the balance in the selection of the segments found, corresponds to the methodology called: CART (Classification And Regression Trees). This technique was used in this study, to select the variables that presented the greatest representation of the separability of the scores of the different domains observed in the students. In the case of the algorithm used, this, as in the case of the multivariate exploratory analyzes of interdependence, presented the



possibility of imputation of missing data, from the records that had complete information vectors for all the variables (Breiman et al., 1984).

Results

The results were presented considering the objectives of the study. Therefore, environmental conflicts associated with cleaning and waste, reported by citizens, were identified, recognizing the barriers and facilitators for people's pro-environmental behavior and proposing criteria for a new style of environmental management.

Organizational analysis: interviews and documentation

During this stage, it is possible to obtain the perspective of the problem manager: data related to the operation of the institution, information channels, flow of treatment of citizen complaints (from reception to response to the complainant) and the institutional perspective regarding the problem. treatment of environmental conflicts in the city.

Facilitators

The organization is very complex and large. Considering this situation, its organizational structure and culture stands out for having a clear delimitation of functions, in the departments part of the study there are qualified human resources, their economic resources are considered sufficient for the assigned tasks and there are clear legal procedures (regulations).) that very well defines the parameters with which communication must be established with citizens who file complaints or complaints about environmental conflicts (complaints handling system); all factors that act as facilitators for the fulfillment of their functions.

Barriers

On the other hand, some barriers were observed: very complex systems persist in data processing, with few opportunities for coordination between departments and between members within each of them. The stages involved in the processing of complaints are carried out in isolation, without feedback between them. The results do not reach those who carry out the tasks or those who make decisions in environmental management. The contents of complaints or complaints are analyzed in isolation at each level, transformed only into statistical data, without being prioritized or analyzed, but rather as the number of incidents received. Therefore, there is valuable information for management that is not communicated,

Analysis of citizen complaints

In this study, the citizen perspective of environmental conflicts in the city is analyzed. The diagnosis made by reviewing the complaints in the institutional files allows them to be classified into three types: those that "require information" from the administration, represented by 1.3% of the cases. Those that give "suggestions to management" with 8.4% and "complaints" themselves and with the highest percentage, 90.3% of the incidents analyzed. The majority of them are presented by independent people, 79.8%, the rest by citizen organizations. If we consider gender, 44.4% are women and 55.6% are men complainants. When taking into account the territory where they occur, the complaints are distributed heterogeneously in the 21 districts of the city, focusing on some of the periphery and the center of the city. About 21% of people indicate that they should make more than one complaint, since, in the first instance, they do not receive solutions to their problems.

Reported environmental conflicts

When classifying the different types of problems, 14 categories or environmental conflicts are found, which, according to their frequency in complaints, are distributed as follows: 1) "street cleaning" with 32.1%. 2) "waste accumulation" with 15.6%. 3) "maintenance of parks and squares" with 14.4% and 4) state of the "facades" (scratches, graffiti, signage and advertising) represented by 10% of the cases. The results are presented in [Figure 1](#) .

Psychosocial factors linked to complaints

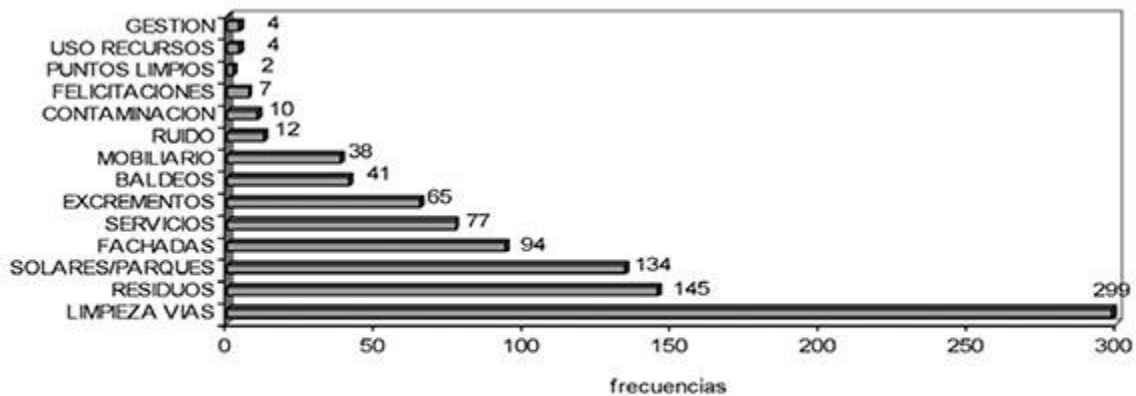


Figura 1. Temas de conflictos denunciados por frecuencia (n = 932).

Fuente: elaboración propia

Various reasons are identified why people file complaints. They indicate needs and concerns, mainly due to the psychosocial consequences or implications attributed to the existence of these environmental conflicts. It is considered that they deteriorate the quality of life in the city and prevent meeting needs that citizens are expressing as expectations. Due to their characteristics and structure, complaints seem to be articulated as a particular type of pro-environmental behavior, scarcely studied to date, involving the need for social participation (Palavecinos et. al, 2008; Palavecinos, 2014).

The complaints express concerns as a result of environmental conflicts in the city; They are classified according to frequency, as follows: "public health consequences" (48.7%); "need for aesthetics in urban spaces" (33.7%); "citizen insecurity" (14.6%) as the effects of pollution on people's lives; the need to be able to "use public spaces" (10.3%) for life in society; need to "prevent" (9%) consequences or harm to the community; "respect and equality" (6.5%) is required for citizens, since it is considered that pollution mainly affects the poorest neighborhoods and sectors in the city. Finally, some categories with lower representation emerge, but that reflect concern and demand for the "treatment of waste", especially the most toxic and complex ones; the need for there to be "trust in the authorities", "to have adequate technical tools" and for management to consider elements linked to "intercultural differences". This can be seen in the [Figure 2](#).

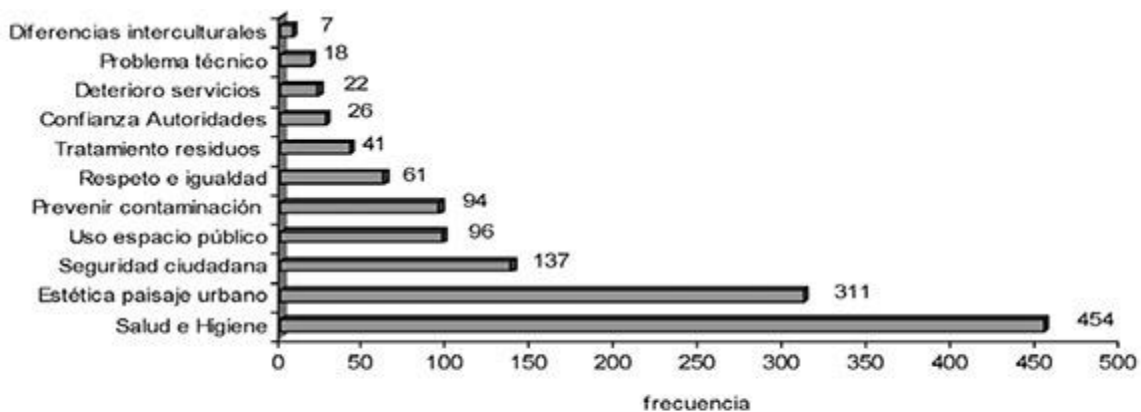


Figura2. Razones ciudadanas para la presentación de denuncias en frecuencias (n = 932).

Fuente: elaboración propia

Proposals to management

Considering these results, efficient environmental management according to citizens should be developed in an institutional framework characterized by coherence and trust in the authorities that implement it. Management must



consider citizen expectations and needs in its design and not only the vision of experts and technicians. A preventive approach should be developed, considering the characteristics of both the people and the territories to which it is directed, for the diagnosis of the environmental problems that must be resolved. In short, modern environmental management must act under standards of social responsibility and ethics of public administration, demonstrating respect for the rights of all and ensuring equal quality of services for the citizens it serves. In management,

As a summary, some of the most relevant conclusions of this study are presented in the following figure ([Figure 3](#)).

Conclusions

The city of Madrid has come to concentrate most of the environmental problems that have usually been diagnosed in large modern cities (mobility problems, different types of pollution, saturated public spaces, high energy expenditure to function, among others). Problems that, due to their magnitude and characteristics, are very complex to analyze and solve, and they affect the people who live there daily.

This situation has caused its inhabitants to feel dissatisfied with living in an environment with these characteristics. The unrest has been accumulating and channeled into different avenues, especially towards the city council and its authorities, the body responsible for the environmental management of the city. In particular, the annoyance has been expressed with the presentation of a large number of claims (complaints) towards the departments linked to



environmental management, such as; Cleaning, Quality and Waste. This general discomfort is not taken into account in CA campaigns.

Considering the results already presented in both studies, the main conclusions for the research are described. The methodology used in this research shows the value of applied research. By resorting to data that the institutions themselves possess, but that cannot be analyzed to provide feedback to institutional management. This assumes an even greater value, if it is public administration, as is the case, due to the type of issues it manages and its direct implications on people's lives.

Efficient environmental management should be developed in an institutional framework characterized by coherence, in an environment of trust with the authorities that implement the management, that considers citizen participation in its design and develops a preventive approach, consistent with social responsibility and ethics in public administration, therefore, that demonstrates respect for the environment and the role of citizens and authorities in its care.

Communication barriers between citizens and the city council generate management conflict, which helps maintain problems and concern. These must be overcome to avoid a vicious circle of further deterioration of the environment.

If communication is unilateral (information), neither persuasion nor dialogue will be possible, because other opinions or feedback from citizens will not be considered. Therefore, the CA must be designed taking into account citizen opinion, which is collected through different mechanisms, such as suggestion and complaint systems.

The emotional state that the person has as a result of dissatisfaction, when perceiving management problems, is a consequence of the evaluation or



comparison process between institutional performance and the citizen's personal expectations. Due to the importance that the situation has for the complainants, or due to unmet expectations, the state of mind that is generated in people by the environmental problem is one of annoyance and/or concern. These processes are then the origin or motivation of the decision to report or file a complaint. This hypothesis requires further investigation in subsequent studies. It is possible to consider environmental complaint behavior, not only as a behavior that helps protect the environment, but also as an important monitoring possibility from the perspective of people's social well-being. This makes it possible to improve living conditions and inequality in the population that implements them, an element that has not always been sufficiently highlighted in studies or interventions, but of great social relevance.

To involve citizens, we must ensure that all stakeholders are integrated and represented in the process, encouraging the level of responsibility given to participants. This is possible with CA campaigns that imply the opening of a citizen participation process.

Based on the results, the incorporation of training processes for public officials on topics such as: environmental education, sustainable development, citizen role in pro-environmental tasks, contributions to service quality control and social participation appears to be a vital need.

In an applied context, city councils can play a vital role in engaging their citizens to achieve the appropriate level of sustainable development. Proposals can be developed for participatory environmental management and lines of intervention based on the interrelation between communication and environmental participation. The need arises to highlight the promoting role that public institutions can play in this task.



The generation of efficient environmental policies needs to be based on real, in situ studies and diagnoses. Policies designed with these criteria are more efficient in solving environmental problems. These policies can only be applied through intervention programs directed by responsible institutions and considering the involvement of people in the problem, from the design phase to its evaluation (Zube, 1984).

Participation processes must be designed without oversaturating the public. It is important to distinguish between information, communication and participation both in the practice of institutions and in that of local governments. In information, some speak and others listen, while in communication a flow of information occurs in all directions and affects all parties involved. In the process of participation, communication tools produce purposes and action programs that distribute knowledge, objectives, meanings and specific responsibilities among stakeholders.

In this way, communication for social change encourages a better relationship between the components of the system, promotes social agreements and requires public participation in information processes. Tábara (2006) defends two dimensions in public participation: a) a degree of involvement of different social agents (level of demand for attention, effort and participation) and b) a degree of empowerment and responsibility, the level at which the different actors Social workers are capable of entering into the evaluation and decision processes.

Our conclusions indicate the need to reconsider the value of opinion and respect for the rights of people who experience environmental conflicts, in order to develop relevant and more efficient environmental management, education, communication and participation processes. Its various strategies must seek to



establish a coherent operation and complement it with other mechanisms, such as quality controls, regulations, legislation and appropriate investment.

References

- Castro, R. (2005). More than words. Environmental communication for a sustainable society. Valladolid: GEA.
- Creswell, J. W. (2013). Research design: Qualitative, quantitative and mixed methods approaches (4th^{ed}). London: SAGE.
- Fueyo, A. (2002). Of exotic paradises and diverse miseries. Advertising and (re)construction of the collective imagination about the South. Barcelona: Icaria.
- Futerra Sustainability Communications & United Nations Environment Programme. (2005). Communicating sustainability. How to produce effective public campaigns (Communication Guide DTI/0731/PA). http://www.futerra.org/downloads/Guide_Spanish.pdf
- García López, M. (2000). "Advertising and the environment: issues for debate." Audiovisual communication and environment. De la Maya, R. et al. Malaga, Junta de Andalucía. Ministry of Environment. pp:29-38. ISBN84-607-0645-1. Publisher: Junta de Andalucía, Seville.
- Hesselink, F. (1999). Communication on nature conservation. 10 common mistakes. In F. Heras & M. González (Coords.), 30 Reflections on environmental education. Madrid: Ministry of the Environment.
- Hesselink, F., Goldstain, W., Van Kempen, P., Garnett, T. & Dala, J., (2007). Communication, Education and Public Awareness (CEPA). A toolkit for people coordinating National Biodiversity Strategies and Action Plans, IUCN, Montreal.



Martin, R. (2000). Lifestyles and energy savings: a psychosocial vision of the role of the diffusion of technological innovations (Unpublished doctoral thesis). Faculty of Psychology, Autonomous University of Madrid.

Martin, R. (2014). Content analysis. Madrid: Complutense University of Madrid. Recovered: [https://www.uclm.es/profesorado/raulmmartin/EstadisticaComunicacion/ANÁLISIS DE CONTENIDO.pdf](https://www.uclm.es/profesorado/raulmmartin/EstadisticaComunicacion/ANÁLISIS_DE CONTENIDO.pdf)

Palavecinos, SM (2014). The meaning of complaining behavior on environmental issues before the municipal administration: the case of Madrid (Unpublished doctoral thesis). Social and Organizational Psychology, Autonomous University of Madrid.

Palavecinos, SM, Martín, R., Díaz, MJ, Piñeiro, C., Benayas, J., Alonso, LE, & Jiménez, A. (2008). Pro-environmental behavior: study of citizen complaint behavior. Implementation of a participatory environmental management system in Madrid. *Journal of Social Psychology*, 23(2), 243-257.

Pol, E., Vidal, T., & Romeo, M. (2001). Attitude and behavior change assumptions used in advertising campaigns and environmental promotion programs. The 4 spheres model. *Psychological Studies*, 22(19), 111-126.

Sundseth, K. (2004). LIFE-Nature: Communicating with stakeholders and the general public. Best practice examples for Natura 2000. Luxemburg: European Commission.

Tábara, D. (2006). The culturalist, qualitative and participatory paradigms in the new lines of integrated research on the environment and sustainability. In R. Castro & M. Jiménez (Coords.), *Person, society and environment: perspectives of social research on sustainability* (pp. 84-104) Seville: Egondi Artes Gráficas SA



Vallés, M. (2002). Qualitative interviews. Methodological Notebooks, 32. Madrid: Center for Sociological Research.

Wynne, B. (1995). Public understanding of science. In S. Jasanoff, GE Markel, JC Petersen & T. Pinch (Eds.), Handbook of science and technology studies (pp. 361-388). London: SAGE.

Zube, E. H. (1984). Environmental evaluation: Perception and public policy. Belmont, CA: Wadsworth Publishing Company.