Discussion groups as strategy for organisational communication. The practical example of *Tertúlias FNACiência*

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Abstract: For a science-oriented organisation to communicate with different audiences, strategies are needed at the level of external communication along with a relational approach to society. At University of Minho, the School of Sciences (ECUM) conducted a project called 'Tertúlias FNACiência', with the support of FNAC stores. The context of informal sessions, the panel of guests, and the topics chosen have contributed to confirming the discussion groups as one of the most successful communication initiatives. This article describes the communication strategy adopted by the organisation in order to bring up science (especially science produced in the region of Minho), Portuguese researchers and scientists, the public, and increasing awareness of ECUM as a reference.

Keywords: organisational communication, communication of science, scientists, public, discussion groups.

Introduction

Between science, organisational communication, strategic communication, the protagonists and the public, there are complex relations that are subject to interference, obstacles and contingencies, and fashions, which are not always easy to identify and explain. These relations are marked by time constraints, resources (human and material), and support, or lack thereof.

The School of Sciences of University of Minho (ECUM) assumes a role of strategic relevance in the context of the university's communication with the outside and has communication needs that imply a proximity and relationship with the public.

The ECUM integrates five departments - Mathematics and Applications, Biology, Earth Sciences, Chemistry and Physics - and to create a new relational energy with the public has developed a program of discussion groups (inspired by the *science café* model) to support the communicational goal. The

partnership established with FNAC[1] assured the transfer of the 'café' space, the disclosure, and the technical logistics for the session's organisation.

In order to reflect on the different aspects at stake in public science activities, we analyse the 'Tertúlias FNACiência',[2] discussing the two main ECUM stakeholders' perspectives on the event, firstly based on an opinion survey conducted in two sessions with the public, and secondly by approaching a review of individual involvement, participation, and team motivation of the ECUM elements (researchers, professors) concerning the initiative at stake and science communication in general.

Context

Science Communication in Portugal is a recent phenomenon which is directly linked to political factors (government innovation, technology, and knowledge policies as an engine of national economy), organisational factors (higher education institutions/laboratories and scientists have awakened to the necessity of opening abroad), economic factors (the need to give visibility to the internal work, seeking support and funding, competitiveness, globalization), cultural factors (demands for more students with science degrees, encouraging research and retention of young researchers in the country, building a scientific citizenship, building a scientific culture, national science perception), and social factors (citizenship requires more scientific knowledge for decision making in themes such as nanotechnology, nuclear energy, genetically modified organisms).

To achieve results (attract young people to science, debate controversial issues, expose aspects of a recent discovery still under discussion, give visi-

[1] FNAC (French acronym of *Fédération Nationale d'Achats des Cadres*) is a network of specialized retail stores founded in France in 1954. FNAC has stores throughout Europe and Brazil. The sale of cultural products (literature, music, video, photography), and technologies, as well as events in 'Café FNAC' (show cases, gatherings, panel discussions, autograph sessions and presentations) is the business axis of this brand.

[2] *Tertúlias* [Salons, gathering, discussion group, meeting of friends or regulars, usually in *cafés*, to discuss ideas on emerging issues of politics, culture, science and society. The Portuguese adopted the Paris intellectuals' tradition of gatherings in the nineteenth and early twentieth century. Some *cafés* remain historical meeting places for 'Tertúlias' such as 'A Brasileira' (Braga) where the first session of the 'Tertúlias de Ciência' took place dedicated to the theme "Science and Society"]

bility to a scientific paper in particular), it is important to create, promote, and risk new communication strategies, keeping in view the aspects related to the concept of 'public understanding of science' (Canavarro, 1999). Informing is not enough; it is essential to know how to communicate. This process involves not only communication skills but also a full understanding of organisational culture and that implies the whole public representation of the entity, in this case, the ECUM.

Alongside other activities - a science communication workshop (for scientists) focused on the needs of strategic communication (individual and organisational), a 'Science Café', a Science Festival, a master class and a set of scientific competitions for young students of different education levels - the 'Tertúlias FNACiência' were seen as opportunities to establish communication between the scientific world and society.

Considering that the University of Minho has campuses in the cities of Braga and Guimarães, the agenda included sessions in both cities, benefiting from the local support of the FNAC stores. The planning considered the mobilization of the public in both cities where the university is present and where important research projects are determinants for the development of the region. Mentioned as example of main anchors of this construction, the International Iberian Nanotechnology Institute (Braga) and the Science & Technology Park - Avepark (Guimarães) - appear as reference entities that the University of Minho helped found and in which it has an important role in terms of research and management.

I - Organisational Communication

Organisational communication is 'the process by which members of an organization add relevant information about it and about the changes that occur within it, and make it circulate endogenous and exogenous' (Kreps in Ruão, 1999: 182).

Silvestrin et al. (2006) also describe organisational communication as an open system in which communication is organised by the different elements that make up the body (organisation, entity, institution, company), namely, the source, the message, the encoder, the channel, the decoder, and the receiver.

The communication in the organisational context can be seen as a competitive factor that allows highlighting and differentiating the organisation on the

market as Santos (2010) considers by denoting the possibility of communication as a strategic tool that facilitates growth and promotes interactions and relations between the organisation and its audiences (or publics).

To Kunsch (2003), the phenomenon of communication that occurs within organisations brings together four modalities, *institutional communication*, *marketing communication*, *internal communication*, and *communication management*. In the same line of thought, Cruz (2007) adds *cultural communication*, *media* and *information system* that aggregates and manages the different contents and spreads them across the structure.

Communication is the instrument through which the organisation perpetuates its culture and its reference values and transmits it to the public that relate directly or indirectly, its message and inheritance, tuning directions, alignment, and understanding, through convergent flow toward the objectives.

This kind of *sap* seems to be a precondition for the proper functioning of the organisation as explained by Wiio in Rego (2007: 25), who says that, 'a human organisation is simply a communication network. If communication fails, a part of the organisational structure also fails'. A striking view of communication is also echoed by Kreps in Ruão (1999: 182) when he states that 'communication allows people to generate and share information, giving them the ability to cooperate and organise themselves'.

Organisational communication helps to provide visibility, increasing awareness, confirm the identity, and enhance the image of the organisation, combining its interests and objectives with public expectations (Cruz, 2007).

Much of the organisation's success can derive from communication, as suggested by Melina and Fossá (2006), in terms of *organisational commitment* (ties and bonds that the individual establishes with the organisation to which he belongs).

The authors explore the idea of *culture of commitment*, concluding that this happens naturally in a more informal system embedded with a sort of 'family spirit', proximity between individuals, participation in decisions and broader understanding.

Thus, the nature and strength of values such as loyalty and belonging (inherent to organisation culture, leading the individual to appropriate and 'reinterpret' those values and 'redesign' them) feed the motivation and involvement (Melina & Fossá, 2006).

In the case of universities, and as mentioned by Andrade (1999: 2), the

requirements of practice in terms of argument and rhetoric power 'should be a good barometer of communication skills that organizations, all of them, require whilst complex systems of action, culture and experience'.

In fact, talking about science and specifically about a science organisation such as ECUM leads us to a story of two different worlds: on one hand the **world of science**, and on the other, the **world of society**. These kind of *isolated aquariums* require the indispensable bridge of communication management to ensure interactivity between the unique culture of comfortable scientific isolation and the needs of understanding the problems of everyday life that science and technologic advances posed to citizens in particular and society in general.

II - Communicating Science: duty and social commitment

The preamble of the *Declaration on Science and the Use of Scientific Knowledge* by UNESCO (1999) expressed that the development of natural science manifests itself in a concrete social impact, and considering the twenty-first century as a century of knowledge, science must be shared and accessible to citizens who have requested decisional involvement mainly because science and technology are a driving force for economic development. However, this development must be viewed from a sustainable perspective to combat inequality and poverty, as defined in the declaration.

Along with the responsible use of scientific knowledge (framing scientific work in the field of natural sciences, physical sciences, earth sciences, biology, biomedical sciences, engineering, and social sciences and humanities), the commitment to science declared by UNESCO early in the new millennium involves all fields of science and assumes that all cultures can contribute to its enlargement and to the 'universal value' of scientific knowledge.

The document stresses the need to put science at mankind's service by contributing to an effective sharing of in-depth knowledge of nature and society and refers to communication as an essential tool to encourage participation, promote dialogue, overcome the barriers of discrimination and inequality (in access of ethnic groups, minorities and gender), and combat problems such as poverty and environmental degradation. Scientists are given the duty to share knowledge and, more importantly, communicate with the public.

There are two key movements to increase scientific knowledge of the pub-

lic, that is, *scientific literacy* and *public understanding of science* (PUS). The two movements also include the theoretical study of *attitudes toward science*, *science education* and *public engagement with science* (PES) (Wilkinson, 2010).

We cannot talk about science communication while ignoring the conceptual elements (Brake, 2010; Burns, 2003, Costa et al., 2010; Silva, 2007; Wilkinson, 2010) that make up the matrix game where all the interaction between science and the public develops. It concerns *scientific literacy*, *science education*, *public understanding of science*, and *public engagement with science*, *culture*, *science and scientific citizenship*.

Science expects from society a correspondent commitment to understanding its impact on a daily basis to be effective and facilitate decision making. According to the Program for International Student Assessment (PISA), scientific literacy implies that citizens understand science content, facts, and basic concepts of scientific methodology. Part of this knowledge is transmitted in formal education systems, but it has been proved inadequate and discouraging, considering the lack of scientific vocations, accentuated by the general disinterest of young people in scientific areas such as Mathematics, Physics, and Chemistry. Education is seen by officials as well as science communicators as complementary and an encouragement towards a more efficient public understanding of science.

There is a basic idea: to understand science is part of the condition of being a citizen. The process includes scientists who are called upon to develop scientific dissemination activities and are able to generate citizen interest in science.

The aim of these movements was to avoid the displacement of citizens and emerging 'anti-science' trends caused by the lack of information, ignorance, and alienation. In 2000, the 'Science and Society' report, written and published by the House of Lords Select Committee on Science and Technology (UK) emerged as an enhancer of the ideology of public commitment to science.

The political incentive (in the perspective of an involved citizenry, even in matters of science) and a new approach on communication matters with citizens (focused on interaction, involvement and presence in science activities), among other things, were referred to as motivational by Wilkinson (2010).

III - Portugal: from scientific backwardness to the top of excellence

'Science in Portugal' is a paperback of one of the most proactive promoters of Portuguese science. The physicist Carlos Fiolhais presents in his essay a generic overview of science in Portugal, exposes the observed change in recent years, especially in the last two decades, and critically discusses future prospects.

From the scientific, cultural, and educational backwardness of 1974, Portugal has become a country among the leaders in science and technology (Fiolhais, 2011). The researcher explains that Portugal 'has gone from a situation where science was a residual to a plan which science began to have some presence and impact on society' (Fiolhais, 2010:18). However, we are at the doorstep but still nowhere near the top.

Public investment in science increased from 0.3% of GDP in 1982 to 1.5% in 2010, a development that followed the dynamics of scientific productivity that characterized the first decade of this century in Portugal (number of people formed, number of PhDs, number of scientific articles published in leading journals, the impact of these articles, quotations, internationalization, science and technology parks, research scholarships, the number of patents, participation of Portuguese researchers and scientists in international networks of knowledge). This is remarkable progress, but it requires a constant effort that only makes sense if all the elements and individuals (universities, research centres, researchers, scientists, citizens, the state, and the economic fabric) are engaged in the same objective (Fiolhais, 2010).

In the report 'Science in Portugal', prepared by the Committee on Education and Science, under coordination of the deputy José Gomes Ferreira and published by the Portuguese Republic Assembly (2010), science is seen as a 'free field', but the public funding of science imposes on scientists the 'duty of justifying their work in response to citizen's needs'. In this report, the financial issue is recognized as one of the biggest obstacles to the daily management of some research units in Portugal, but other problems are indicated in the document, particularly in the field of project appraisal, careers, and opportunities. The report does not address the social factor nor the civic component of science, but refers to data on scientific literacy, science education, public understanding of science, and public engagement with science (at European

level), indicating some relevant data pointing to the distance between citizens and science.

Science is a human activity, inseparable from the process of social evolution; it is collective, not individual, and it is economically important action (Brake, 2010). Just as communication does not solve all problems of an organisation, so science is not, by itself, the 'holy medicine' for the health of an economy; however, consideration should be given to the depth idea that Carlos Fiolhais (2010:18) exposes when he says that it 'can't be just science to save us, but we are definitely lost without science'.

Science is gaining power to influence new behaviours and attitudes of man himself (Brake, 2010), which requires scientists to have an essential relationship with the public. The communication of science and the role of scientists as promoters of science can be viewed under the principles of social responsibility, to the extent that the assumptions inherent to these practices (such as ethics) are present.

Unfortunately, there seems to be a very difficult relationship between scientists and the public. Distressed by the problematic transfer of information and lack of enthusiasm for science and technology among young students, a group of professors from the University of Porto (UP) held a seminar on science communication to discuss the excitement of doing science (Carrapatoso et al., 2005).

Among other reasons, the group concluded that the probable causes for the reduced demand for science courses by students would be a distinct lack of vocations and demographic reasons, cultural factors, a lack of a positive discourse of science, and an 'insufficient importance given to public relations professionals of Science and Technology - communicate and knowing how to communicate is essential to create view' (Carrapatoso et al., 2005).

There is a gradual change in the relationship between the Portuguese and science. It is marked by numerous informal activities between citizens (especially young people) and science that involve 'hands on' but also the idea of 'minds on' and 'hearts on' (Carrapatoso et al., 2005).

It is unthinkable that the widespread disaffection of citizens for science resides only on individual reasons, civic attitude, or scientific culture (or lack thereof). It is also important to understand the functioning logic of the organisational structure - in this case, the entity that organised the 'Tertúlias

FNACiência' - that is, individual attitudes aimed at collective motivation and willingness to participate in activities involving contact with the public.

IV – The ECUM tradition on science communication: open arms to the public

In early 2011, the *Commission for Interaction with Society* was formally founded at the ECUM. This working group integrates representatives of the five departments of the School of Sciences, whose mission is to undertake a range of activities for promotion of science and scientific issues.

The project 'Tertúlias FNACiência' was born within this working group. It allowed for creating a space for informal discussion in a very unusual context (a shop in a mall) for contacts between scientists and the general public. The holding of monthly sessions, widely disseminated through the institutional email and reinforced by the ECUM communication resources, the rectory communication office support, and a wide range of digital media (in which we highlight the website '*Ciência Hoje*'), allowed the creation of a '*group of followers*' specially composed of secondary and university students and teachers, scientists from different fields of knowledge, teens, adults and elderly citizens motivated to science.

The ECUM activities clearly identified students (secondary and academic) and the general public as targets of the campaigns (disclosure of formative offer, students 'capture', attracting new audiences, and dissemination of science in society).

To implement the initiatives, the ECUM commission for interaction with society tried to mobilize the internal working group (especially in supporting the dissemination of informal sessions) in an effort to achieve dynamics of 'organisational commitment'.

The 'Tertúlias FNACiência' project aimed to bring out the School of Sciences from behind university walls, but there was no venue available that offered the best conditions to informally gather scientists and public. The first session of the 'Tertúlias' was held in November 2010 in the historic *café* 'A Brasileira', in Braga.

The impact was extremely positive and well received by the community (including the academic target). The following sessions were performed at the FNAC store under a partnership established with ECUM that allowed a

new opportunity for involvement around science communication activities and organisational communication practices.

Each session of 'Tertúlias FNACiência' matched a theme to be discussed by invited referenced scientists and researchers and the public. After eleven sessions (from December 2010 to June 2001), with the presence of 26 scientists, about 600 people attended the 'Tertúlias FNACiência'.

The informality of the environment, the context and the public forced the scientists to adopt a more relaxed, more open, more persuasive and less rigid attitude. In some sessions, there was a projection of slides and images collected from simulations and laboratory tests which improved the communication set contributing to motivate the audience and capture attention.

Through this initiative, the ECUM promoted science, crafted a positive image of both the University of Minho and Portuguese researchers and scientists, and added visibility to the ECUM organisational profile.

To evaluate the event, two different opinion surveys were conducted, one among the public (in order to gather information on sessions attendance, topics related to scientific issues, and general assessment of the event), and one with ECUM members (ongoing survey to appraise involvement, motivation, and participation as well as general assessment of the event).

The **opinion survey addressed to the public** was applied in two sessions (total number of sessions: 11), FNAC Guimarães (7 applications received) and FNAC Braga (28 applications received), for a total of 35 valid applications to analyse.

Regarding the public profile, we may say that is mostly female, with an average age around 37 years, academic training or attending university. It indicates, therefore, a motivated public that intentionally participates in the sessions (only three respondents in the survey admitted having attended the session by a mere coincidence). A majority attended indicated one session at least (19) and many between two and five sessions (11).

In terms of the relationship established with scientific themes, the overwhelming majority of respondents chose, from a list of 9 statements about scientific citizenship and the sessions, statements endorsing interest for science issues, importance of science to the development of the country, relevance of the science/society relationship, and the important need to be interested on science as a concerned citizen. Almost all respondents considered the 'Tertúlias FNACiência' sessions as interesting in terms of debated themes,

and the majority considered that scientists must have communication skills to interact with public.

The respondents were challenged to identify, among a set of scientific themes, the three that they considered most important and would like to see addressed in upcoming sessions. A large number of respondents indicated 'renewable energy' (16 hits), 'medicines of the future' (16 hits) and 'climate change' (12 hits). 'Global warming', 'nuclear energy', 'Science and Culture', 'natural disasters' and 'science history' were also mentioned.

Considering the overall assessment of the sessions, the respondents who attended at least one session rated the initiative as 'very good' (21) or 'good' (12).

Holding informal activities for the dissemination of science confirms that there are people motivated to participate in public sessions that involve the presence of scientists as well as open and informal discussions about 'serious' issues usually restricted to the world of science.

Assuming that communication is, above all, dialogue, there was a need to measure (in the context of the 'Tertúlias FNACiência'), whether the internal public of the School of Sciences (teachers, researchers) manifested corresponding willingness to communicate and discuss, openly and informally, matters of science. That was the goal that motivated the development of a survey (ongoing) among the ECUM teachers and researchers.

The **opinion survey addressed to ECUM internal public** as mentioned, involves a sample size of 198 people (potential respondents). The survey was submitted through an online form disposed by LASICS - Laboratory Information Systems for Research in Social Sciences (University of Minho). In this article, we only report data on inquiries received in the initial phase of the study. During the period between the last session of the 'Tertúlias FNACiência' and the first week after sending the survey, there were 28 valid forms received.

In this case, the respondents' profile slightly changes compared to the general public profile mentioned above. Predominantly it is a male audience (16 men, 12 women), with an average age of 45 years, mid-career academics, mostly teachers from the departments of Physics, Mathematics, and Biology. This is a group that turns out to have attended a greater number of sessions - between two and five sessions (9), and at least one session (8). There is also

a significant number of respondents that did not attend any session (8), which indicates a certain lack of interest.

A significant number of responses reveal that 'Tertúlias FNACiência' sessions propose discussions on interesting topics (27 'fully agree'), that the connection between science and society is important and scientists must know how to communicate with publics (17 'agree'), adding that the circumstance of positive, informal, and motivating public dialogue constitutes an enriching opportunity for contact between ECUM researchers, other scientists, and citizens (nine 'fully agree', eight 'agree').

Concerning suggested topics (among a set of 14 scientific themes), there seems to be a convergence with the data collected in the general public survey. In fact, the three most voted themes were 'climate change' (11), 'renewable energy' (8), 'medicines of the future' (7) and 'regenerative medicine' (7). It was also mentioned as important to discuss issues related to research taking place in ECUM centres.

The study that is being developed among teachers and ECUM researchers tends to examine the contexts of communication in organisational entities whose mission is to produce science. The aim is thus to analyse areas such as personal involvement, motivation, and participation of scientists in science communication activities.

Preliminary results indicate that activities promoting the relationship between science and society tend to reinforce cohesion and team spirit (34% 'agree', 9% 'fully agree', 30% 'neutral answer'). In this particular item, data also indicate a tendency to disagreement (17% 'fully disagree' that public science activities contribute to cohesion and to build team spirit). In terms of motivation at the organisational context, data point to a majority of positive opinions (35% of respondents reveal that they are eager to collaborate in the ECUM activities, 17% of respondents reveal 'full motivation').

Relative to individual participation, responses obtained and analysed to date suggest broader rates. Assessing how often respondents participate in events and activities promoted by the ECUM, the answers vary between a majority of 'agree' (35%) and 'fully agree' (26%), and an expressive 'neutral answer' (17%), and 'disagree' (17%). Most of the respondents indicate a positive tendency in terms of collaboration on promotion and organisation of activities and mobilization of colleagues and students.

As noted above, data collection to reinforce this study is ongoing so the

topics discussed here are preliminary, though positive indicators are of an affirmative attitude from scientists in terms of 'organisational commitment', indicating as well, a certain dedication to the goals (relationship between ECUM and society) and to the mission of disseminating and producing science and knowledge. After collecting all data, we expect to confirm some of these assumptions and, possibly, other correlations to validate data not covered in this article.

Conclusion

The ECUM is a successful example of an organisation with communication practices that in spite of limited resources promotes activities that involve internal and external audiences.

Science has an inescapable role in society today, indicating a dependency of modern life resulting from technology.

Bringing citizens to science, providing them with information, stimulating critical analysis of the relevant and current scientific issues (with impact on daily life) is part of science communication in an organisational context. Without alienating other goals, it includes personnel recruitment, strengthening bonds of trust, public support, funding support, and consolidation of the image, identity, and organisational reputation.

Science education in Portugal remains confined to theory and some experimental activity. In another line of action (informal education), the approach to science also develops activities aiming at public engagement with science (science fairs, visits to laboratories, summer camps, a network of Ciência Viva centres, science museums, and other initiatives).

The performance of the activities is limited by difficulties of time and financial and human resources but seeks to respond pressure promoting the movement of the Public Understanding of Science and Public Engagement to Science.

Within the framework of ECUM initiatives 'Tertúlias FNACiência' emerged as a relevant element of informal contact between science and society. The context in which the sessions occurred - a café in the historic city of Braga and FNAC stores in two shopping centres in the cities of Braga and Guimarães - provided the touch of informality, relaxation, and uncompromising approach between public and scientists (away from their usual academic

setting). This approach also allowed the open debate of ideas and opinions around scientific topics and moved the public and the scientists towards a practice of democratic civic participation.

The initiative has allowed ECUM to show management skills and to promote and organise activities that contribute to cohesion, notoriety, and a positive image withal of the individual scientific work produced at the University of Minho.

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