Museum Visitors and Media Science in Portugal

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Introduction

Taking as a departure point the mass media characteristics of museums, this research effort considers the investigation of evidence in other mass media to help define a communications policy that bears the visitor in mind. The objective is not to restrict the concept of museum communication to a traditional mass media model, but it is rather to widen the knowledge about audiences' concerns with science, recognizing the presence of shared symbolic values created by both museums and traditional mass media. The main reason that communication in museums has not been considered as mass-communication is because these institutions have taken a more reactive rather than proactive role. Museum institutions have not taken full advantage of their function of creating knowledge, and they have large possibilities if awakened to that potential. The strategies for exploring this potential of museums should evolve from new ways of conceiving their function in society, rather than through the mere application of new technologies (Budd & Rubben, 1991). Employing the tool of "content analysis" a sample of items from the print media is examined to assess the level and nature of public and political concerns about scientific issues. This data is related to the social profile of the voluntary visitors to a natural history museum. As Durant (1992) points out, science is a paradigm of complex and relatively inaccessible knowledge. The conveyors of classical mass media, journalists, and broadcasters have developed appropriate skills to communicate such complexity, together with its social context, through their particular media. The challenge of museums is to match this type of skill in their communicative approach.

Museums as Mass Media

Budd & Rubben (1991), researchers in communication studies, consider that if an institution provides information organized in a way that stimulates a network of interaction among people and the creation of widely shared symbolic realities, it is fulfilling the mass communication function of mass media. Therefore, the basic concept of the model of mass media can be applied to a great variety of public ventures that communicate to mass audiences as a means of survival. This broader view includes institutions and

activities such as libraries, museums, religions, political campaigning, architecture, theater, and visual arts. The message units and the systems of delivery may differ considerably among these institutions, but their generic processes of decision-making involving the design of messages and audience analysis are alike. Among those institutions, museums are the ones that conform more closely with the classical definition of mass communication.

The role of the curator in the museum may be compared to that of producers in television and radio, or that of the editors of newspapers and magazines. The same set of skills and processes of decision making are required in the selection, processing and dissemination of messages; resolving the dilemma between education and entertainment; and in their dependence on the audience's acceptance and support. To have a better understanding of the way in which the museum complies with the model of a mass communication institution, it can be examined by breaking the model in five operational processes that apply to museums (Budd & Rubben, 1991): (1) *information acquisition* – activity also carried out by the museum curator involving problem naming, observation and secondary research; (2) *formal information selection* – editing and giving shape to selected information is performed by the curator when selecting from available artifacts those that are most appropriate to present to the audience; (3) *message design* – layout and design for the print media, is for the curator the mix of artifacts, exhibits and labels through exhibition design; (4) *channel selection* – not of major concern for the classical mass media (e.g., the newspaper as print media) but it has a high degree of complexity for the curator because it draws heavily on several technologies; (5) *audience dynamics* - regards the nature and the uses to which the audience puts the final product, focusing upon the accuracy of the assumptions made by the decision makers regarding the nature of the audience as well as the insight of the options taken in the other categories of the process. These processes, here presented in separate parts, have to be seen in a "dynamic and interactive [way] leading to some fairly complex questions about both the phenomenon and institutions of mass communication" (Budd & Rubben, 1991:131).

Recognizing the nature of museum communication as one among other mass communication media, some researchers in the field of media studies investigate museums using methodologies with proven success in their approach to other mass media. Considering that "visitors are after all the most important element in the net of relations that give meaning to museums" (Zavala, 1993b:82), they look at the museum from the visitor's point of view. Zavala (1993) uses his professional bias from film theory and criticism and proposes an interdisciplinary approach through models from the aesthetics of reception, post-modern anthropology, and sociology of culture (Zavala, 1993a, 1993b). Silverstone (1988), also with a bias from media studies, approaches the scientific exhibition comparing it to the television documentary. These are only a few examples, as more of such

analysis is to be found in the bibliography of museum studies. Social researchers, in their studies of visitors' behavior in the museum, acknowledge the mass media nature of museums. This is the case of Treinen (1993), who considers the attitude of visitors towards museums as very often similar to the one they have towards other mass media, which he defines as "cultural window shopping." He takes his findings from the effects of television, explained by the peculiarity of how the mass media symbolic content is transmitted to the audience as aggregate groups. Therefore, mass media communication is considered "one-sided" and "asymmetrical," because participants are unable to influence or discuss directly with media representatives. He suggests that more educated people spend more time using print media and the educationally disadvantaged favor electronic mass media (television and radio). Considering the dilemma between education and entertainment, the researchers agree that the role of the social context of the visitors is the determining factor of their attitude to the museum. The nature of interaction of the visitors with the museum experience is a result of their cultural representations and the conditions of the visit itself. This would apply to all the possible situations, from voluntary visiting and school visits to voluntary non-visiting. The findings by Bourdieu & Darbel (1991) in the late 60s had already indicated evidence to this effect.

Some researchers in mass communication have considered that the narrow view of mass media as synonymous with television, radio, newspapers, and magazines has resulted in a restriction for the understanding of mass communication itself. They propose a broad definition of mass media that includes institutions such as museums. Some researchers in museum visitor studies are looking at museums as mass media or comparing them to the other mass media in order to understand the nature of museum communication and its audience in a wider context.

Constraints of a Natural History Museum and Its Visitors

The case study that launched this research approach is the current situation of the Museu Nacional de História Natural in Lisbon (MNHN). The constraints of this museum have to be seen in a wider scenario of the identity crisis of natural history museums in Western Europe, from the 70s onwards (Alberch, 1994). Portugal was no exception to the rule of keeping the 19th century style "open storage" exhibitions. However, there are two main constraints to consider in the MNHN: it originated from the merger of three departmental museums of Lisbon University (Botany and Botanical Garden, Mineralogy and Geology, and Zoology and Anthropology), each of them with its own historical and scientific focus; and the extensive destruction of the collections of Mineralogy and Zoology and the main building, in a fire in 1978 (Almaça, 1987; Carvalho & Lopes, 1987; Melo, 1987). Since then the museum has been recovering. Some sections were

reopened to the public in 1987 and currently the main building is undergoing internal refurbishment. After 1985, the MNHN had to share the site and its museum vocation with a science and technology counterpart, the Museum of Science, of the same university (Gil, 1987).

The Portuguese public, especially the community of the Lisbon area, has been served with a rather fragmented natural history museum service in the last 25 years starting with the hardly visited scientific 19th century type until 1978 then the closed institution from 1978 to 1987, and finally the partly opened museum since 1987, usually closed during weekends (apart from the Botanical Garden in Spring and Summer) and visited mainly by school groups. Nevertheless, the public behavior towards museums is not very stimulating. According to the rough measure of visitors numbers during 1991 and 1992, the most visited museum like institutions were zoos, aquaria and botanical gardens; followed by national monuments in second place; art museums in third; and museums of the natural sciences in fourth (INE, 1993). The cultural identity symbols of the Portuguese great voyages and navigators of the 16th century seem to be more embedded in art and historical monuments rather than in science. Even for the eight million tourists that visit the country each year, and despite the cultural opportunities of Lisbon, Oporto and Évora, which are surrounded by castles, monasteries and churches, 62% prefer the seaside (GEATTE, 1993).

A study of the leisure preferences of the Lisbon community from 1000 interviews carried out in 1990 (Barreiros & Rodrigues, 1992) found that "visiting museums" and "attending poetry recitals" are at the bottom of the list. The top 10 leisure activities are dominated by social interaction (meeting friends, family or going to the cafeteria), the mass media (radio, television, print media, music and cinema), and outdoors activities (shopping and walking). In the beginning of 1993, an opportunity arose to question the voluntary weekend visitors to the MNHN, during the three months of the well known blockbuster dinosaurs exhibition from Kokoro. The response was massive, and allowed me to design a visitors' survey, carried out on three consecutive weekends, obtaining through systematic selection a sample of 335 answered questionnaires. The demographic results of the questionnaire gave a profile of the non student adult museum visitor, very similar to that in the majority of the studies carried in other Western European countries. The visitors are: 50:50 male:female; aged 21 to 40; with an education ranging from high school to college graduate; and occupations ranging from clerical to professional. Almost three quarters of the weekend visitors live in the urban area of Greater Lisbon, and come to the museum in family groups. The social profile is predominantly from a "High/Middle high" and "Middle" social ranking (Table 1). Nowadays, audience research does not regard demographics as sufficient to form conclusions and prefers to use rather geodemographic or psychographic variables to characterize audiences. However, this paper will only use the

social variable to compare the museum audience to the evidence from the sample of science in newspapers.

Science in the Print Media – Research Project

Newspapers are just one of the classical mass media that plays a role in furthering public understanding of science. They share with the other media the important factors of high visibility, comprehensive reach, and ability to respond quickly to new developments (Hansen & Dickinson, 1992). The newspapers analyzed are three national morning dailies leading the top of newspapers' readership in the country in 1992 (Marktest, 1992): *Correio da Manhã*, *Jornal de Notícias*, and *Público*. They cover the country relatively well in geographical and social terms. The first, *Correio da Manhã*, is a popular newspaper (Table 1), more successful in the Great Lisbon and Tagus Valley, the South and the Centre. The second, *Jornal de Noticías*, is a quality newspaper with a more regional and popular appeal (Table 1), mainly from the Great Oporto area and the North. The third, *Público*, is a quality newspaper (Table 1) covering all the country but with more readership in the large cities. The sample period consists of six weeks of the year 1992, choosing alternatively the first or second full week of the month, every two months (starting with the first full week of January, following with the second full week of March, and so on).

Hansen and Dickinson (1992) point out that vague definitions of science and technology divided in broad and inclusive categories of classification are the key problems in these studies. Categories that are too inclusive may not be sufficiently sensitive and may miss the nuances of media coverage of science. In this study, a first piloting stage was followed to identify and classify media science content. This lead to a large array of categories that had to be regrouped into 16 basic categories of science coverage. The criteria of selection were to pick all the articles that had in the first paragraphs: (1) a primary emphasis on scientific issues; (2) or reference to science or scientists, directly subordinate to the main subject. This includes quotations of scientists or scientific institutional sources and presentation of scientific or technological discoveries, research, controversy, new developments, principles or procedures. Articles were identified through systematic search of all the newspaper sections. The selection includes all the areas of the life, earth, and exact sciences, technology and industry in the following categories: Environment (in general), Pollution, Conservation, Agriculture, Biology, Medicine and Health, Earth Sciences, Technology in general, Space Technology, Astronomy, and Computers. All the subjects related to scientific practice or conduct, profile of individual scientists, and history were categorized as Science Education, Science Policy, Biography, History of Science. Other categories were articles about museums of science and technology including a museum's policy (Museums) and other cases of scientific issues that do not fall in any of these basic categories. The social sciences were not considered in this study.

Science Coverage

A total of 846 articles were found in the three newspapers analyzed. Comparing the results for each case (Table 2) there are two findings that stand out: (1) the number of articles of science in each newspaper (the quality newspaper (*Público*) has almost double the number of articles than the other two newspapers); (2) there is a relative match of the more prominent topics among the three newspapers. Therefore, despite the difference in the total number of articles, the order of prominence is very similar in all three newspapers. Environment, Medicine and Health, Technology, and Pollution account for 60 to 70% of the coverage.

Público, the newspaper that appeals to the more intellectual readership has a wider diversity of topics and among those topics, one may detect a more balanced distribution of prominence among individual categories (Table 2). After Environment and Medicine, there is a relatively conspicuous group of eight topics with percentages that vary from 4 to 9 % (Pollution, Technology, Space technology, Science Policy, Biology, Astronomy, Computers, and Conservation). The remaining topics have low prominence of 2% and below. The only topic that is not represented in any of the other newspapers is History of Science, although it appears in *Público* with a low level of coverage. *Correio da Manhã* the more popular newspaper has a lower diversity of topics (4 out of the 16 are not present) and a distinct group of 3 topics (Medicine, Computers, and Technology) follow the Environment (Table 2). Computers stands out for occupying the third place, instead of Pollution, having a higher percentage compared to the other two newspapers. Another group is found in third place, with the topics of Biology, Pollution and Conservation, with 4 to 6%, after which all the categories are below 4%. *Jornal de Notícias*, the wider readership newspaper, shares the characteristics of diversity of topics with the quality newspaper and the pattern of distribution of percentages with the popular newspaper (Table 2). The four more prominent topics are as in *Público* and the majority of the topics are present (apart from History of Science). After Environment, the pattern of distribution of the topics is in two bigger groups: one with three more prominent topics of Medicine, Pollution and Technology, varying from 10 to 15%; followed by a third group, of Biology and Conservation with 6 and 5%, respectively. Thus, more variation in the relative prominence of the individual categories can be detected.

The analysis of the topics' coverage in the three newspapers indicates that despite the differences in readership the journalists share similar notions of "science-newsworthiness" in what refers to the main issues. The variations appealing to different readerships are found in more subtle variations of topic diversity and the total amount of science coverage.

Primary Definers and Main Forum

To compare the nature of coverage in terms of message design, the next step of the research is to analyze in more detail the information content of the news items. For this purpose the more prominent issue, Environment, was the topic selected and the analysis method is the one developed by Linné & Hansen (1990) to compare journalistic practices for the coverage of the Environment. The focus is on the identification of the primary definers among the actors of the news stories and to recognize the main forum. This approach gives evidence of the way journalists construct the Environment for the different types of audience.

In the first approach, the broad topic concerning the Environment was separated in three different topics: Environment in general, Pollution, and Conservation. For the purpose of this analysis, these three topics share a similar approach to news construction so here they can be put together. A subsample of two thirds of the items was selected from this broader category, picking the first two of every three news items. The role of mass media as "public forum" presupposes the existence of social actors, usually from institutional basis that "articulate their positions, contribute to definitions, 'battle' with each other, and help set the agenda for public debate and understanding regarding the environment" (Linné & Hansen, 1990). The analysis that follows originates from coding the appearance of quoted actors in the articles, identifying the privileged ones that consist of the primary definers of the story.

The largest group of primary definers is "Public local authorities" (Table 3) in the three newspaper samples. It accounts for a quarter to a third of the items. The second and largest groups vary. *Público* has a group of four primary definers that are relatively balanced It includes: Groups and Associations, the European Union (EU) and international conventions, Scientists, and Government. *Jornal de Notícias* and *Correio da* Manhã, both have a second major primary definer, "Non-affiliated citizens" for *Jornal de Notícias* and "Groups and Associations" for *Correio da Manhã*. After these, *Jornal de Notícias* has again a balanced group of four definers (Industry and companies, Scientists, EU and Conventions, and Non affiliated citizens. *Correio da* Manã, has a smaller group (Industry and Companies, Government, and Groups and Associations). The lower rated or absent primary definers' groups are Farmers, Labourers, the Opposition parties, and the Police. The overall result, apart from the major agreement of the three newspapers to the privileged group of the Public local authorities, points to fairly different results in respect to the other main actors of the environment.

To understand the role of the main actors in the social construction of the environment, they have to be seen together with the major contexts or forum in which environmental issues become articulated and contribute to the environmental debate. Table 4 presents the main topics found in the three newspaper samples. Looking at the three largest main topics that

account for 60 to 70% of the news in any of the three newspapers, there is a consistent presence of Natural events and Disasters. This forum is also the first in the overall ranking, although it is the first dominant fora only for *Correio da Manã* (matching the characteristics of a less educated audience), the second for *Público* and the third for *Jornal de Notícias*. The issues raised in this topic are mainly dramatic climatic effects such as the draught in Portugal in the summer of 1992, visible effects of water pollution, and forest fires also as a result of the draught. This is the only fora that may be considered to stand for itself in conducting wide media attention, as dramatic events are always considered newsworthy. However, the bulk of environmental problems take a long time to develop and only when they attain the state of disaster, they find way, almost immediately, to the main pages of the newspapers.

The other main topics are shared among the three newspapers, although they appear in different proportions. Public authority action or discourse and Demonstration/Protest are the dominant forum in *Jornal de Nortícias*, they reflect the more regional character of this newspaper in comparison with the others. The issues raised in the Public authorities forum are mainly to do with the construction of a waste incineration plant outside the city of Oporto and other waste treatment programs, water pollution cleaning programs, and environmental education and concern. It presents a scenario of environmental improvements, protagonized by the public authorities, that matches their prominent position as primary definers. This forum is also found in a second position for *Correio da Manhã*, showing a similar type of coverage. On the other hand, the Demonstration/Protest forum involves environmental groups and non-affiliated citizens claims about water pollution and other environment aggressions. Demonstration/Protest is also prominent in *Público*, where it occupies a third position, although more focused on the action of international groups (such as Greenpeace) than the case of *Jornal de Notícias*. In *Público*, the main forum is devoted to the international focus itself (EU and Foreign authorities). In this sample, it is marked by: the preparation of the international meeting Eco-92; the meeting of wildlife conservation CITES; and world issues on nuclear and other waste solutions. This forum occupies a third position for *Correio da Manã*, covering the same issues but at a lower extent. "Science/Research" is still relatively prominent in the three newspapers, however it lies on the border with less prominent issues. The focus of science subjects is on CFCs and the ozone hole, wildlife and ecology, and green products. The less prominent forum are: "Industry and Companies action" viewed as sources of pollution or cleaning efforts; and "Government and Politics," with a focus on national environmental policy. "Court cases" and "Nature/Tourism" are only found in *Jornal de Notícias*.

Conclusions

Science coverage of the three leading Portuguese newspapers in 1992 points to a relative agreement among the journalists. Environmental issues largely dominate the overall scenario, and the role of the primary definer taken by the public local authorities is also shared by the three newspapers. The main forum of articulation of environmental issues appear to be more diverse and related to the readership's social characteristics: (1) the more educated readers of *Público* are presented with more issues of global concern; (2) the less educated of *Correio da Manhã* favor natural disasters and dramatic events; (3) the wider range readership of *Jornal de Notícias* is offered a more regional view of the "battlefield" between local authorities and citizen protests. The natural history museum audience is concentrated on one side of the social scale. However, the readership variation in the newspapers demonstrates that they are far ahead in communication skills that convey their messages to a wider audience. Considering museums as mass media, is a starting point to stimulate museum approaches to other mass media to further the comprehension of public understanding of certain issues and improve museum communication.

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Table 1
Social Groups in Readership of Newspapers and Visitors to Dinosaurs Exhibition at MNHN

Social Group	National Daily Newspapers			Dinosaur Visitors
	Publico	*Jornal de Noticias*	*Correio da Manha*	
Low	3%	11%	15%	0%
Middle Low	15	31	38	3
Middle	19	33	29	48
High/Middle High	63	25	18	49

Table 2
Percentage of Science Converage per Topic in the three Newspapers

Topic	Newspaper		
	Público	*Journal de Notícias*	*Correio da Manhã*
Environment	24%	34%	30%
Medicine	15	15	17
Pollution	15	14	6
Technology	8	10	14
Space Technology	8	1	1
Science Policy	7	3	3
Biology	5	6	6
Astronomy	5	2	1
Computers	4	3	15
Conservation	4	5	4
Science Education	2	1	0
Biography	1	1	0
Museums	1	1	1
History of Science	1	0	0
Agriculture	1	1	1
Earth Science	1	0	0

Table 3
Relative Prominence of Different Primary Definers in the Environment News Coverage

Primary Definer	*Público*	*Jornal de Notícias*	*Correio da Manhã*
Public local authorities	32.3%	37.3%	25.4%
Groups, Associations	14.6	9.0	20.9
Non affiliated citizens	6.3	20.9	10.4
Scientists	12.5	6.0	11.9
Industry, Companies	4.2	11.9	14.9
EU, Conventions	13.5	0	11.9
Government	10.4	10.4	3.0
Farmers	3.1	1.5	1.5
Opposition parties	0	3.0	0
Labourers	2.1	0	0
Police	1.0	0	0

Table 4
Scenarios of Forums of News Coverage of the Environment

Forum	*Publico*	*Jornal de Noticias*	*Correio da Manha*
Natural event	20.8%	16.4%	25.4%
Demonstration, Protest	17.7	25.4	13.4
Pub. authority action/discourse	11.5	26.9	19.4
EU, Foreign authorities	28.1	5.4	16.4
Science, Research	8.3	9.0	13.4
Industry/Company action	5.2	7.5	7.5
Government, Politics	6.3	4.5	4.5
Nature/Tourism	0	4.5	0
Court cases	0	1.5	0