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Article

Science Journalism in Latin America: A case study of seven newspapers in the region

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The objective of this article is to present a panorama of the way in which journalistic coverage of science and technological themes is being carried out in Latin America, having as a case study seven newspapers of significant impact in the region. We analyzed all stories published by the science section during all the month of April 2004, in the following newspapers: La Nación*, Argentina;* El Mercurio*, Chile;* Mural*, Mexico;* El Comercio*, Ecuador;* O Globo*,* Folha de S. Paulo *and* Jornal do Commercio/Pernambuco*, Brazil. A total of 482 texts were collected. The methodology joins quantitative and qualitative analysis. There are very few studies on science journalism in Latin America and even fewer that seek to explore a comparison among countries. We believe that studies such as ours can provide subsidies to stimulate the improvement of journalistic coverage of scientific and technological issues.*

Keywords: Science journalism, Latin America, peripherical countries.

Introduction

In the last 20 years, science communication activities in Latin America have experienced significant growth.[1] Presently, many channels are being used to communicate science in the region. These channels go from the most common – such as magazines, newspapers, radio and television – to the most uncommon and even provocative. One of the sectors of science communication that most grew, especially in the last decade, was the area of science museums and centers. At the moment, there are approximately 110 spread out over the country, with different sizes and objectives.[2]

Science journalism reached a high point in some Latin American countries in the decade of the 1980s, with the appearance of new science magazines and allocation of more room to science sections in the daily newspapers and weekly magazines. Despite the retraction of Latin American science journalism occurring soon after, the Internet opened up new possibilities – many of which were, however, very short-lived.

More recently, the newspapers and magazines have reduced the room for science sections and their staffs. Despite this reduction, studies indicate that scientific and technological issues have become important presences in other sections, including sports, comics, supplements target to the family, etc.[3] In the last few years, we have seen more organized efforts made by science journalists on the continent, expressed through the creation of new associations for science journalism in countries where this practice is less consolidated, such as Costa Rica, Ecuador and Peru, as well as the Latin American Federation of Technological Journalists.

However, there are still few studies on how science journalism is being practiced in Latin America and even fewer that seek to explore a comparison among countries. Within this context – and following similar studies carried out in the scope of our research group, which associate historical and contemporary analyses of science communication – we dedicated ourselves to the study of journalistic coverage of scientific and technological issues based on a case study of seven daily newspapers in the region, as will be more detailed farther along.

Methodology

The objective of this article is ambitious since it proposes to show a panorama of how journalistic coverage of scientific and technological issues is being carried out in Latin America, keeping in mind the dimensions of this continent and the complexity of the theme. In addition, a number of newspapers do not publish articles related to science and technology in a systematic way. As a starting point, we used the analysis of newspapers having a science and technology sections and we restricted ourselves to the material published by them. We also searched for newspapers having professionals specialized in science and technology.

Furthermore, we chose to focus our analysis on the electronically published material by the newspapers. This reduced research costs since subscriptions to the printed versions were not necessary. In addition, the electronic version of the newspapers is accessible to the public of other countries and, therefore, has a greater penetration, going beyond the ambit of only one country.

Another criterion used for the choice of the newspapers was the diversity of countries. Considering the large number of countries in the region, the fact that many of them do not have systematic coverage of science and the fact that the research presented here refers to the Masters Degree dissertation of one of the authors (Luis Henrique Amorim) – with the respective time restrictions – we decided to involve only 5 countries: Argentina, Brazil, Chile, Ecuador and Mexico. We then selected one newspaper per country, except Brazil, due to the fact that the researchers involved in the research live there and have particular interest in observing local journalistic coverage of scientific and technological issues. The Brazilian newspapers chosen were *O Globo* and *Folha de S. Paulo*, considering that they among those with the greatest circulation in the country, and the *Jornal do Commercio*, from the State of Pernambuco, selected due to its important work in science and technology and to the privileged space it dedicates to regional research, outside of the Rio de Janeiro-São Paulo axis, where most of the scientific activity carried out in Brazil is concentrated. In the case of Mexico, we chose the *Mural*, published by the same group as *Reforma*, considered one of the country's most important newspapers; *Mural* reproduces the stories published by *Reforma*, and makes their electronic versions available free of charge (*Reforma* was charging for access at the time these data were collected). We then chose one of the main Chilean and Argentine newspapers, *El Mercurio* and *La Nación*, respectively.

The universe of our study, therefore, includes the following newspapers: *La Nación*, Argentina; *El Mercurio*, Chile; *Mural*, Mexico; *El Comercio*, Ecuador; *O Globo*, *Folha de S. Paulo* and *Jornal do Commercio*/Pernambuco, Brazil. The stories were collected during all the month of April, 2004, when we made daily visits to the respective websites of these newspapers. These daily visits gave us subsidies to put a database of stories, in electronic format, containing all of the material published by the selected newspapers' science sections editors during that period.

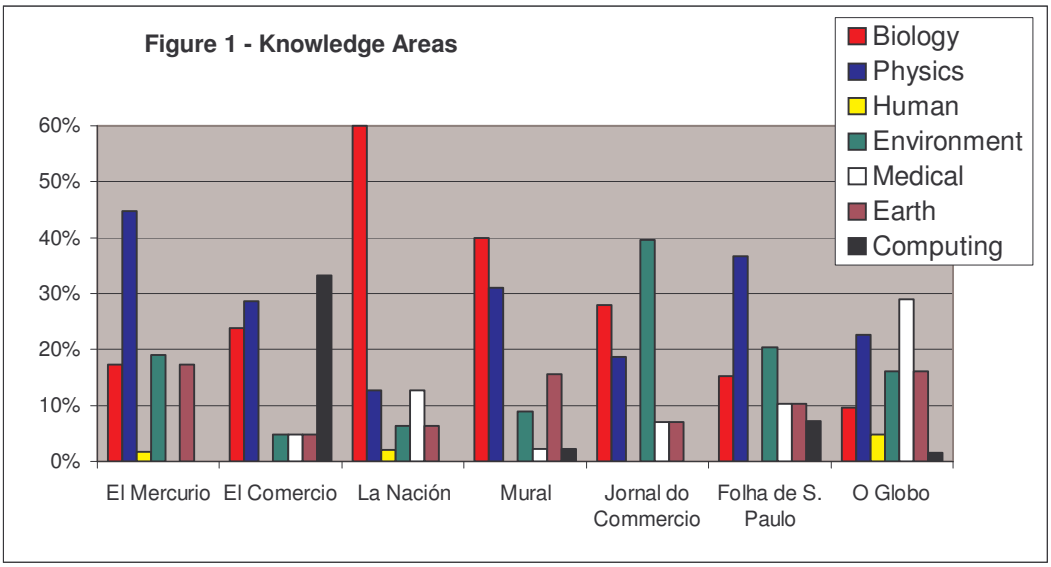
Our methodology of analysis conjoins quantitative and qualitative methods. For quantitative analysis, we used as starting point, an instrument developed by Bauer, Ragnarsdóttir and Rúdólfsdóttir (1933), which has approximately 60 variables.[4] In this article, we will concentrate on a few of these variables. We chose to use this instrument because it attended our analytical interests and had been widely tested previously. Additionally, in the future, it will allow us to investigate the journalism practiced in a context such as the United Kingdom's (with a long and consolidated tradition in science journalism) as compared to the experience of the so-called peripherical countries. A question that arises here is to what point the Latin American context and the specificities of each country can influence the practice of science journalism.

We also carried out a qualitative analysis that will be more fully explored in another articles, using three instruments. The first analysis consists of a meticulous reading and recording of eventual characteristics that stand out in the stories. The second consists of interviewing the main journalists who wrote the analyzed texts to better understand how a science journalistic agenda is consolidated. The third instrument consists of a comparison of how the same theme was approached by different newspapers, having as study case four scientific papers that were primary source for stories simultaneously published by the studied newspapers.[5]

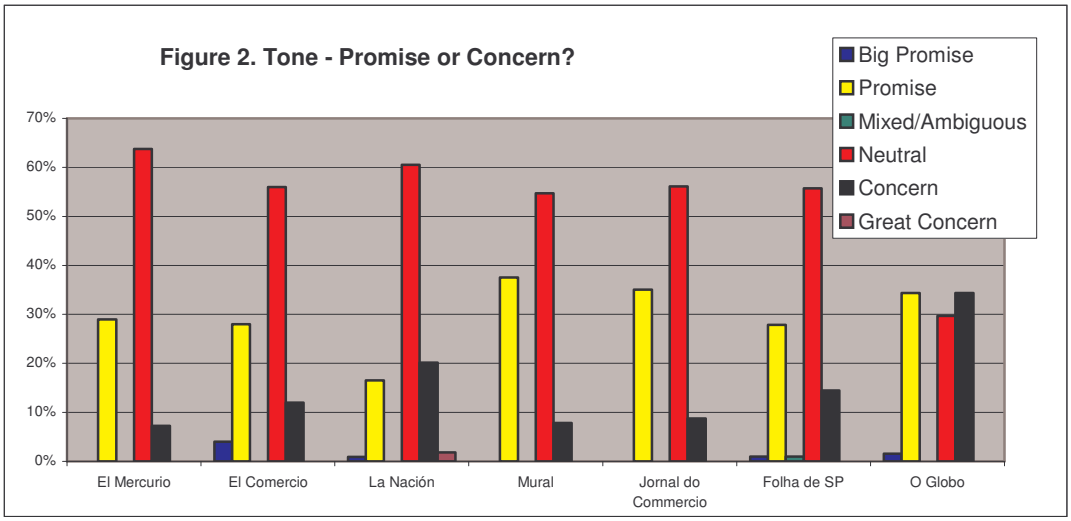
Results

An aspect that calls attention in our study is the number of articles published in the period (482). The distribution of the published texts was as follows: 25 in *El Comercio* (Equador), an average of 0.8 article/day, 47 in the *Jornal do Commercio* (Brazil), an average of 1.5 article/day, 64 in the *Mural* (Mexico), an average of 2.1 articles/day, 64 in *O Globo* (Brazil), an average of 2.1 articles/day, 69 in *El Mercurio* (Chile), an average of 2.3 article/day, 104 in the *Folha de S. Paulo* (Brazil), average of 3.5 articles/day, 109 in *La Nación* (Argentina), average of 3.6 articles/day.

The value attributed to *El Mercurio* and, on a smaller scale, to the *Jornal do Commercio*, includes short stories. However, all of the newspapers analyzed, including the two mentioned in this paragraph, systematically publish long science stories. They all systematically publish stories written by the staff, although an influence of foreign news agencies can be observed and even the publication of entire articles from foreign newspapers, such as *The New York Times*. In the Ecuadorian periodical, many articles are written outside of the editorial-room scope. On the other hand, the newspaper publishes stories produced by the Foundation for Science and Technology, written by science journalists, who produce articles to be distributed to local newspapers, seeking precisely to increase the presence of these themes in the local mass media.

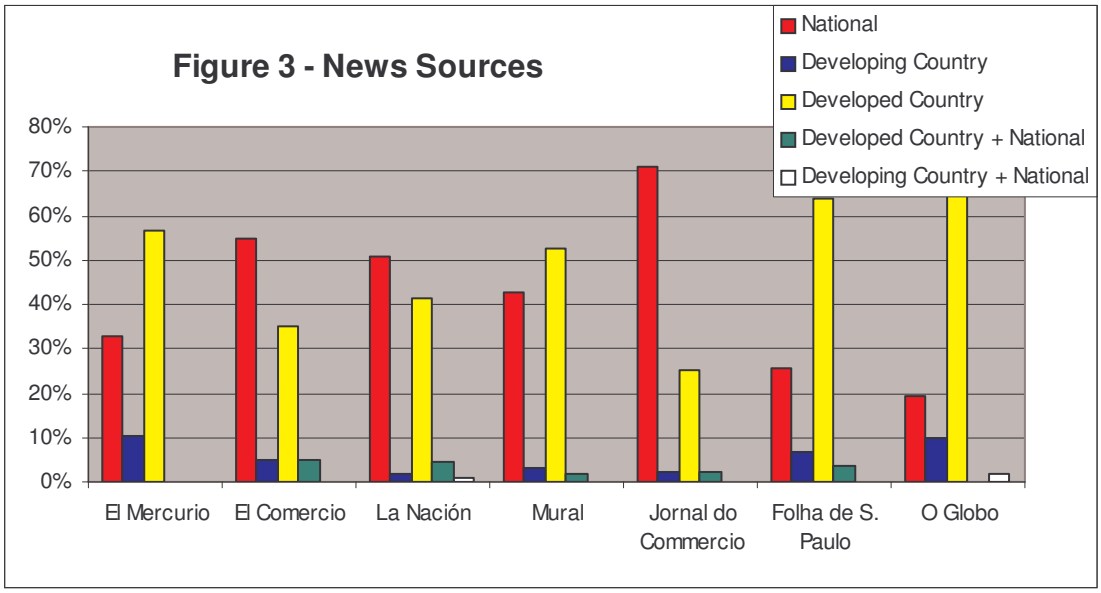


With regard to the areas of knowledge covered in the published stories, an important variation can be observed from one newspaper to another (Figure 1). Approximately 45% of the texts published in *El Mercurio* related to exact sciences, reflectinng the emphasis given to technology by such newspaper. This area also has significant presence (37%) in *Folha de S. Paulo*. In the case of *La Nación*, biological sciences make up for 60% of the articles. Environmental questions are emphasized by *Jornal do Commercio*. One must consider, however, that these numbers could vary if the analysis had been made during a different period. For example, in a previous study, done in 2000 and 2001, in five Brazilian newspapers, we observed a strong presence of stories on genetics, due to the announcement of the mapping of the human genome and of other organisms and the statements that human cloning would already be possible.[6]



We aimed to perceive whether the science sections of the studied newspapers were giving emphasis to "promises" or "concerns" related to science and technology. To achieve this, we analyzed the articles, considering a range of answers that included big promise, promise, great concern, concern or neutral. Another category, "mixed/ambiguous", included articles presenting either an ambiguous form or a form that mixed both characteristics. As shown in Figure 2, in almost all of the newspapers, we observed an important percentage of "neutral" articles. *O Globo*, however, had a smaller percentage of "neutral" articles but, in compensation, had a greater number of "concern" and "promise" material in comparison to other periodicals. In all of the newspapers, the extremes presented low values.

The presence of scientific controversies was low in all of the newspapers analyzed, varying between 3% (*O Globo*) and 8.8% (*El Mercurio*). Not even one article mentioning controversy was recorded for the *Jornal do Commercio*. The same occurred when we analyzed the mention of risks related to science and technology. The values obtained vary between 4% (*El Mercurio*) to 11% (*El Comercio*). In this case, there are also no records for the *Jornal do Commercio*.



The presence of foreign research is usual in the newspapers analyzed, especially from the so-call First World countries (Figure 3). In both *O Globo* and the *Folha de S. Paulo*, the figures were high: respectively, 70% and 62% of the articles in the analyzed period referred to issues related to developed countries; in *El Mercurio*, the percentage was 58%. On the other hand, the *Jornal do Commercio*, *El Comercio* and *La Nación* had higher rates for national research (respectively, 70%, 55% and 41%), following the editorial guidance of valorizing their own local achievements.

Of all of the newspapers analyzed, *Mural* is the one that most published science policy issues. *La Nación* also dedicates space to the subject. This reflects the vision of Arturo Barba, *Reforma*'s science editor at the time this research was being carried out, who considers science policy to be part of science journalism. It is interesting to compare this opinion with the statement made by Marcelo Leite, the *Folha de S. Paulo*'s science editor at the time, who believes that, although science policy is important, it is not of interest to the general public and is not part of what he considers science journalism.[7] *Mural*, *Folha de S. Paulo* and *La Nación* also give room to discussions related to legal questions involving scientific and technological themes, such as transgenics and therapeutic cloning legislation.

Final considerations

As we previously showed, in numeric terms, a considerable presence of science and technology issues was found in the analyzed newspapers during the period studied. There is emphasis on the benefits of science, although not as strong as, for example, observed in a previous study in 2000 and 2001 in the area of genetics.[8] In addition, the presence of questions related to scientific controversies – an important aspect in the dynamics of the scientific process – was low. The uncertainties and risks also had little emphasis in the analyzed stories. The journalism practiced in Latin America is still poorly critical toward science and its role and impact on society. Also, in several cases the journalists assume a non critical attitude toward the sources of information coming from First World news agencies and newspapers. This information is in several cases republished without enough concern in adequating to local reality. We also observe that the concern with context and local necessities is insufficient.

When questioned on the high presence of foreign research in the Latin American newspapers, it is common that journalists argue that the science and technology produced in the so-called First World countries are far greater than what is produced in our countries and, therefore, it would be reasonable to observe this difference. But, many times stories are published on quite irrelevant scientific themes only because they were produced in a foreign university. This reflects the important influence exercised by international press agencies on Latin American newspapers.

There is also the influence of services provided by scientific journals, such as *Nature*, *Science* and *JAMA*, which distribute press releases to journalists world-wide, informing them about the articles that will be published in their next issue and that constitute an important source of information for the analyzed newspapers.

This practice of using foreign information brings a certain warantee of quality, considering that the papers have been submitted to a peer-review process. It also gains special importance when considering the journalists' usual day-by-day pressures (time, space, etc.). In the case of Latin Americans, scientists lack the cultural tradition of conceding interviews to the press – the opposite of North Americans, who promptly respond to interviews from journalists from any nationality. These issues stimulate the use of material supplied by these services.

These services, no doubt, have great merit, but also involve side effects. The first of these side effects is the laziness it stimulates among the journalists, since it is certainly more comfortable to use the information arriving by electronic mail, directly to the journalist's computer, rather than going out in search of a newsworthy local report, a process that may involve limitations such as press officers many times poorly prepared to support the journalists, the abovementioned lack of habit of the Latin American scientists in receiving the press, etc. It is also important to mention that these services are not infallible, do not always attend the Latin American interests and, many times, give a First World perspective relevance to the issues. This indicates that there may be room for a similar service to be created within the Latin American scope, which would better attend the local agenda and interests. Another observation

made in this study is the reduced presence of information on the general context in which research is performed.

We also identified an aspect that refers to the fragility of science journalism in terms of its continuity. In Latin American, its practice is essentially based on individuals who dedicate themselves to the area due to their personal preference. There are few – if any – more systematic stimuli to consolidate this area, for example, promoted by the mass media itself.

It is important to emphasize that the material analyzed is of good quality and shows that journalism professionals have significantly and seriously dedicated themselves to the coverage of scientific and technological issues. Our objective in this article is not to minimize the importance of the work that these journalists are doing in their countries but to give them some subsidies for reflection on their professional practice. Though preliminary, and involving few countries, our data show that a comparative study of science journalism among different Latin American countries can provid important information for understanding the general panorama of activities in Latin America, which is a starting point leading to more subsidies for the improvement of this practice and for carrying out more academic studies in the field.

Translation by Diane Marie Petty.

Appendix

Figure 1. Knowledge Areas	Biology	Physics	Human	Environmental	Medical	Earth	Computing
El Mercurio	17,2%	44,8%	1,7%	19,0%	0,0%	17,2%	0,0%
El Comercio	23,8%	28,6%	0,0%	4,8%	4,8%	4,8%	33,3%
La Nación	60,0%	12,6%	2,1%	6,3%	12,6%	6,3%	0,0%
Mural	40,0%	31,1%	0,0%	8,9%	2,2%	15,6%	2,2%
Jornal do Commercio	27,9%	18,6%	0,0%	39,5%	7,0%	7,0%	0,0%
Folha de S. Paulo	15,3%	36,7%	0,0%	20,4%	10,2%	10,2%	7,1%
O Globo	9,7%	22,6%	4,8%	16,1%	29,0%	16,1%	1,6%

Figure 2. Tone – Promise or Concern?	Big promise	Promise	Mixed/Ambiguous	Neutral	Concern	Great concern
El Mercurio	0,0%	29,0%	0,0%	63,8%	7,2%	0,0%
El Comercio	4,0%	28,0%	0,0%	56,0%	12,0%	0,0%
La Nación	0,9%	16,5%	0,0%	60,6%	20,2%	1,8%
Mural	0,0%	37,5%	0,0%	54,7%	7,8%	0,0%
Jornal do Commercio	0,0%	35,1%	0,0%	56,1%	8,8%	0,0%
Folha de SP	1,0%	27,9%	1,0%	55,8%	14,4%	0,0%
O Globo	1,6%	34,4%	0,0%	29,7%	34,4%	0,0%

Figure 3. News Sources	National	Developing Country	Developed Country	Developed Country + national	Developing Country + National
El Mercurio	32,8%	10,4%	56,7%	0,0%	0,0%
El Comercio	55,0%	5,0%	35,0%	5,0%	0,0%
La Nación	50,9%	1,9%	41,5%	4,7%	0,9%
Mural	42,9%	3,2%	52,4%	1,6%	0,0%
J. Commercio	70,8%	2,1%	25,0%	2,1%	0,0%
Folha de SP	25,7%	6,7%	63,8%	3,8%	0,0%
O Globo	19,4%	9,7%	69,4%	0,0%	1,6%

Notes and references

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[7] Arturo Barba and Marcelo Leite made these declarations, respectively, in a private conversation and during an interview conceded to one of the authors (Massarani) of this paper.

[8] L. Massarani, I. Moreira, I. Magalhães, "Quando a genética vira notícia: Um mapeamento da genética nos jornais diários" ("When genetics becomes news: A mapping of genetics in the daily newspapers"), *Ciência e Ambiente*, cit.

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