77. Lost in transition? Science in the Croatian Newspapers

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Science communication in Croatia remains immersed in the deficit perspective. The media are, according to scientists, to blame. They are discontent with the quantity of media science coverage, with what the media perceive to be a science story and the way in which they present it, and they think media coverage of science is declining. Media science is, they say, simplified and the information is neither precise nor complete – particularly information about scientific method.

The media landscape in Croatia dramatically changed after the political changes at the beginning of 1990s, followed by economic and social transition. The first privately owned newspaper appeared in Croatia in 1987, but only after political changes we witnessed a boom in the media market. Privatisation of the media included the launch of the new privately owned media, the hybrid of the “private initiative within the state or public ownership” and the transition from state or public into private ownership (Jergović, 2004). The method and the nature of this transition are still not clear or investigated due to the lack of reliable data, but a growing number of media, a failing industry, and the decline of the economic standard led to the struggle for advertisers and readership, and has resulted in commercialisation of newspapers and an overwhelming sensationalistic approach in all fields, including science.

Even when treating a topic of scientific discussion or a conference, media coverage of science in Croatia is often based on anecdotal impressions. In an attempt to analyse current media science coverage, I will use here the results of a study detailing the science coverage in five main Croatian daily newspapers.

Croatian newspaper coverage of science

Here I will present the results of content analysis of science coverage by five leading Croatian newspapers over a period of three years, from 2009 until 2011. Our sample consisted of 994 articles published by five leading Croatian newspapers: Jutarnji list, Večernji list, Novi list, Slobodna Dalmacija and Vjesnik, between 2009 and 2011. As we can see in Table 1, the number of articles published within the analysed period is more or less constant and it is around 6 articles per day per all newspapers, and about 1 article (1.26 articles) per day per one newspaper.

In the first two years there was a significant difference (as shown in Table 2) between the only Croatian quality newspaper, Vjesnik, and the rest of the newspapers, which more or less incline to tabloidisation in the selection and in the style of the presentation of the news. While the difference between the frequencies of the newspapers’ science coverage in the first two years was obvious, it was not the case in 2011 (see tables 2 and 3).
### Table 1: Frequency of articles

<table>
<thead>
<tr>
<th>Newspaper</th>
<th>Observed N</th>
<th>Expected N</th>
<th>Residual</th>
<th>Chi-Square</th>
<th>P (signific.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jutarnji list</td>
<td>116</td>
<td>151.4</td>
<td>-35.4</td>
<td>271,199</td>
<td>&lt;.000</td>
</tr>
<tr>
<td>Novi list</td>
<td>145</td>
<td>151.4</td>
<td>-6.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slobodna Dalmacija</td>
<td>91</td>
<td>151.4</td>
<td>-60.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Večernji list</td>
<td>77</td>
<td>151.4</td>
<td>-74.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vjesnik</td>
<td>328</td>
<td>151.4</td>
<td>176.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>757</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Frequency of newspaper articles in 2009-2010

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<table>
<thead>
<tr>
<th>Newspaper</th>
<th>Observed N</th>
<th>Expected N</th>
<th>Residual</th>
<th>Chi-Square</th>
<th>P (signific.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jutarnji list</td>
<td>36</td>
<td>47.4</td>
<td>-11.4</td>
<td>9,941</td>
<td>&lt;.005</td>
</tr>
<tr>
<td>Novi list</td>
<td>46</td>
<td>47.4</td>
<td>-1.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slobodna Dalmacija</td>
<td>38</td>
<td>47.4</td>
<td>-9.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Večernji list</td>
<td>57</td>
<td>47.4</td>
<td>9.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vjesnik</td>
<td>60</td>
<td>47.4</td>
<td>12.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>237</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3: Frequency of newspaper articles in 2011
Vjesnik published about half of all science stories in 2009, but the frequency started to decline: in 2010 to 39% and in 2011 only one quarter of the articles about science was published there, as seen in Figure 1.

![Articles about science and year](Image)

**Figure 1: Frequency of articles**

### Scientific field

Croatian newspapers cover a whole spectrum of scientific fields, but there are certain significant differences in the scientific fields covered. The majority of science stories usually come from medicine. Medicine takes “the lion’s share” of coverage (Suleski & Ibaraki, 2010). In the UK half of the science items on BBC broadcast news deals with medical science (Mellor et al., 2011). The same is the case in Croatia. Nevertheless, interest in biomedicine is slightly declining. Biomedicine was the main subject of 40% of all articles in 2009, and about one third in 2010 (see Figure 2). The decline continued, and in 2011 only 29% of articles deal with biomedical sciences.

Fields outside of health and medicine usually have very small appearance rate (Suleski & Ibaraki, 2010). Surprisingly, Croatian newspapers show a substantial interest in natural sciences, which were the subject of almost one third of articles during the analysed three years. Again, if we compare our results with the BBC survey by Mellor et al., we see that only about 5% of the science items on BBC broadcast news dealt with physical sciences. In 2011 in Croatia natural sciences are even more interesting than biomedicine. There is also increasing interest in technical and social sciences.
News Topics

When science becomes news, it is mainly because of scientific results. From time to time it is also something that we coded as ‘other’: book presentations, anniversaries and similar.

![Scientific field diagram]

**Figure 2: Science fields covered**

<table>
<thead>
<tr>
<th>Year</th>
<th>Biomedicine</th>
<th>Social sciences</th>
<th>Natural sciences</th>
<th>Technical sciences</th>
<th>Humanistics</th>
<th>Biotechnology</th>
<th>Interdisciplinary or undefined</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>40%</td>
<td>6%</td>
<td>3%</td>
<td>7%</td>
<td>2%</td>
<td>13%</td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>32%</td>
<td>5%</td>
<td>4%</td>
<td>8%</td>
<td>2%</td>
<td>15%</td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>29%</td>
<td>5%</td>
<td>1%</td>
<td>13%</td>
<td>13%</td>
<td>11%</td>
<td></td>
</tr>
</tbody>
</table>

![Table 4]

**Table 4: The coverage of different news topics**

<table>
<thead>
<tr>
<th>News topic</th>
<th>Observed N</th>
<th>Expected N</th>
<th>Residual</th>
<th>Chi-Square</th>
<th>P (significance)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research or project</td>
<td>560</td>
<td>165,7</td>
<td>394,3</td>
<td>1319,441</td>
<td>&lt;.000</td>
</tr>
<tr>
<td>Scientific events</td>
<td>41</td>
<td>165,7</td>
<td>-124,7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outreach activities</td>
<td>24</td>
<td>165,7</td>
<td>-141,7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Portrait of scientist or event</td>
<td>139</td>
<td>165,7</td>
<td>-26,7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>219</td>
<td>165,7</td>
<td>53,3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Undefined</td>
<td>11</td>
<td>165,7</td>
<td>-154,7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>994</td>
<td>165,7</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Scientific events (conferences, workshops and similar) and outreach activities are of almost no interest for our dailies, and have a small chance of becoming news. Other events or topics, like book presentations or anniversaries, as well as scientists themselves, attracted more attention.

Although there is a difference in the newspaper’s coverage of various news topics (see Table 4), newspapers tend to cover different news topic in a similar manner, as we can see in Table 5. Also, there is little difference in the range of topics covered between years.

<table>
<thead>
<tr>
<th>News topic</th>
<th>Newspaper</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Jutarnji list</td>
</tr>
<tr>
<td>Research or project</td>
<td>86</td>
</tr>
<tr>
<td>Scientific events</td>
<td>3</td>
</tr>
<tr>
<td>Outreach activities</td>
<td>2</td>
</tr>
<tr>
<td>Portrait of scientist or event</td>
<td>24</td>
</tr>
<tr>
<td>Other</td>
<td>34</td>
</tr>
<tr>
<td>Undefined</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>152</td>
</tr>
</tbody>
</table>

Table 5: News topic and newspaper

Distribution and prominence

The majority of scientific articles (at least 69% in 2010, and at most 79% in 2011) is published in sections like ‘Life’ or ‘Entertainment’. The rest is published mainly in supplements on science (between 8 and 22%). Since science sections in the analysed period existed only in Vjesnik (the only broadsheet newspaper which in the meantime ceased publishing due to financial problems). Only a minority of the articles about science are published in science sections. Other sections rarely include science news or stories.

Science is not ghettoised in science sections and supplements, but it is extremely rarely published together with politics or economy. Science stories are also not prominent; only about 5% of all published articles are announced or reported on the front pages on the newspapers. Science becomes salient in rare cases, mainly on the last page. That is the case with 10%-26% of articles. But this prominence is not necessarily good: in Croatia, the last page is reserved for unusual and weird events or phenomenon, and science stories are published there because they contain unexpectedness or peculiarity as the news value and not because of science per se.
**Type of news report**

Around 9 out of 10 articles are written as news or news reports. We found only a few commentaries (7% at most, in 2010, which is shown in Figure 3), maybe because of the prevalent routine of translating, underwriting or downloading the articles from various sources. Also, there were only 4%-9% interviews. The majority of articles are written in a positive or neutral tone.

**Conclusion**

The media coverage of science is not, if judged according to number of articles published, in the declining phase. Although science is moderately interesting topic, it still ‘fills’ newspaper pages, scientific results particularly. They became news more often than scientists or scientific or outreach events, which are of very little or almost no interest for our newspaper. Surprisingly, the results of ‘Croatian’ research project are the topic of only 6.2% of all articles about scientific results. But, when they become news, than the media coverage is usually prominent and bombastic, particularly about researchers who use media aggressively (Jergović, 2009). Further studies should investigate this phenomenon in detail.

<table>
<thead>
<tr>
<th>Year</th>
<th>News, news report, feature</th>
<th>Commentary</th>
<th>Interview</th>
<th>Cannot be defined</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>90%</td>
<td>4%</td>
<td>4%</td>
<td>2%</td>
</tr>
<tr>
<td>2010</td>
<td>84%</td>
<td>7%</td>
<td>6%</td>
<td>3%</td>
</tr>
<tr>
<td>2011</td>
<td>88%</td>
<td>2%</td>
<td>9%</td>
<td>1%</td>
</tr>
</tbody>
</table>

*Figure 3: Type of news report*

When it is a news story, science is covered in a descriptive manner and mainly in positive or neutral tone. Science news are in the majority of cases not prominent. Science is not ghettoised in science sections or supplements, but in our case it is ghettoised in sections like ‘Life’ or ‘Entertainment’. This can indicate that the social value of S&T is undermined, which has been shown in our previous research. Reasons for this may be, various: from political, social or economical, to those deriving from the general media situation. Transition in the media was seen at the beginning as a positive evolution, in line with the democratization of the whole society. Now, sometimes our press media, if judged according to its science coverage, look more like lost in transition.
References


Suleski, J., Ibaraki, M. (2010), Scientists are talking, but mostly to each other: a quantitative analysis of research represented in mass media, Public Understand. Sci. 19(1): 115–125