

Science, Surprise and Sensation in Science Communication – Towards a Concept for Cross Comparison of Press Releases from Research Institutions

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Abstract: It's surprising how often scientists are surprised by their findings: This observation was already described in *Nature* by the Polish Researcher Michael Jasienski more than ten years ago¹. In 2015 Christiaan Vinkers from the Netherlands compared the use of positive and negative words of PubMed abstracts between 1974 and 2014 in the *British Medical Journal*² and found signs for an increasing "sensationalism". However, systematic approaches to evaluate "sensationalism" and similar aspects concerning the wording in pieces of science communication (such as press releases) are still missing. Furthermore, the systematic accessibility to scientific press releases is different, comparisons between European countries are difficult. Using examples from Germany (providing an already analysed database³ extracted from the "Informationsdienst Wissenschaft" of more than 300 000 press releases from about 1000 institutions) and France (using a newly constructed corpus from more than 100 institutions) we will present different tools to evaluate and compare press releases from different disciplines, institutions and countries. Using interdisciplinary approaches from communication science, informatics and statistics we discuss to what extent indexes based on a set of "sensational words" (as used by Vinkers et al.) and other forms of linguistic analysis may deliver suitable hints for unethical exaggerations in different fields of science communication.

Relevance for the selected themes ("Science policy and transformation research practice; Sharing Knowledge; The use/misuse of research and scientific advice") in the conference fields: "Ethics and Responsible Research & Innovation"):

The work is of special importance in a time where trust in science seems to be declining in many European countries. According to the Eurobarometer Study

(<http://ec.europa.eu/commfrontoffice/publicopinion/index.cfm/Survey/index#p=1&instruments=SPECIAL&search=trust%20in%20science>) about 58 percent of European citizens do not believe that scientists are always telling the truth about controversial issues. Similar results are available for France (e.g., Ipsos (2016): www.ipsos.com/fr-fr/sciences-participatives-que-pensent-les-francais). In Germany the quality and trustworthiness of some fields of institutional science communication was not only criticised in a common paper of all German Science Academies (Acatech et al. (2017):

(www.acatech.de/fileadmin/user_upload/Baumstruktur_nach_Website/Acatech/root/de/Publikationen/Kooperationspublikationen/WOM2_EN_web_final.pdf) but also an issue of ongoing debates among press officers and science communicators during the last five years. A responsible science communication and popularisation is crucial for sharing knowledge from research with a broader public as well as with decision makers from politics, education and industry. This is even more important in the age of digital media which allow the distribution of all kinds of information (that is, also press releases) directly to a broader public, often without journalistic or scientific gatekeeper anymore. Inappropriate exaggerations and sensationalism would further damage the credibility of scientific results in competition with launched "fake" and "pseudo science" news from unserious sources. Therefore, we hope that our methods will help to identify and prevent from unethical kinds science communication.

¹ Jasienski, NATURE, Vol 440, 27 April 2006, p1112

² Vinkers, Christiaan H.; Tijdink, Joeri K.; Otte, Willem M (2015): Use of positive and negative words in scientific PubMed abstracts between 1974 and 2014: retrospective analysis. In: BMJ 2015;351:h6467

³ Öffentlichkeitsorientierung von Wissenschaftsinstitutionen und Wissenschaftsdisziplinen Eine Längsschnittanalyse des „Informationsdienstes Wissenschaft“ (idw) 1995–2015 Julia Serong · Lars Koppers · Edith Luschmann · Alejandro Molina Ramirez · Kristian Kersting · Jörg Rahnenführer · Holger Wormer