

Abstracts

**Communication Research Methods 2016:  
Practices and Challenges**

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*Emese Domahidi & Elisabeth Günther*

**Research Methods in Communication Science: A Systematic Review of Academic Practices in the Past 80 Years**

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<sup>2</sup>University of Münster, Germany

The methods we use as a research community tell a story of how to proceed scientifically and what we accept as scientific methods. However, a systematic overview of the methods employed in communication research is lacking until today. In this study we employ a systematic review to describe the methods used in communication science in the past 80 years. As systematic reviews are known to be very costly in terms of time and labor, we suggest the use of machine-based methods, which allow analyzing a great amount of information stored in digital databases.

In order to achieve a sample of the most influential journals in communication science, we rely on 15,172 journal articles from 19 highest ranked journals by SCImago Journal & Country Rank. To identify the methods mentioned in the abstracts, we used a dictionary approach with customized lists of keywords for every method. The machine-based content analysis reveals surprising results about the methodological development in the field. Contrary to our expectations and previous research results, quantitative methods, especially survey, content analysis and experiment, have dominated the field from the beginning, as represented by our sample. The analyses of the authors' geographical affiliations and the comparison across journals show an increasingly similar methods repertoire across the countries, while journals are associated with specific methodologies (e.g., experiments or content analysis) until today.

Overall, we see computational survey reviews as a promising method for this type of analysis. As such, we had the opportunity to analyze a large sample of the publications of communication studies and reveal new details based on comparisons between particular journals and countries. However, the keyword definition is challenging and time-intensive and future research is needed in order to evaluate the reliability and validity of these results.

*Joseph Hilgard<sup>1</sup>, Christopher R. Engelhardt<sup>2</sup>, and Jeffrey N. Rouder*

**Meta-analytic techniques for adjusting for bias: Re-analysis of Anderson et al. (2010)**

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Meta-analysis is a useful tool for synthesizing the results of many experiments across many laboratories. However, results can be misleading when null results are more difficult to publish or when researchers use questionable research practices to attain statistical significance. A wealth of tests and adjustments are now available to meta-analysts, each with their own strengths and weaknesses. Although their long-run properties are not yet fully understood, they have the potential to improve research conclusions by reducing the influence of bias.

As an example, we reproduce the 2010 meta-analysis by Anderson et al. which found statistically significant effects of violent games on aggressive affect, behavior, and cognition. Their application of the trim-and-fill method indicated that there was little bias in the literature. By contrast, our tests find substantial bias and recommend stronger downward adjustments, particularly for effects on aggressive behavior in experiments. We outline future directions for the conduct, sharing, and inspection of meta-analyses, as well as strategies for minimizing bias in research.

*Nadine Bol, Sanne Kruikemeier, Sophie Boerman, & Jennifer Romano Bergstrom*  
**Communicating with the Eyes: A Review of How Eye Tracking Is Used in Communication Research**

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Eye tracking gives communication scholars the opportunity to move beyond self-reported measures by examining more precisely how much visual attention is paid to information. However, we lack insight into how eye-tracking data is deployed in communication research. This study aims to contribute to this interesting – but understudied – area of research by exploring how eye tracking is currently used within communication research. By conducting a literature review, we provide an overview of how eye tracking is used in communication research by examining published articles from the top-25 ranked communication journals between 2005 and 2015.

Our search resulted in 20 articles using eye tracking. Most eye-tracking research was employed in the field of advertising. Furthermore, most studies used eye tracking to measure (visual) attention and used this as the study's dependent variable. Interestingly, a wide variety of eye-tracking measures were reported, including fixation time, fixation count, and visual shifts, as well as a wide variety of eye-tracking devices. Our findings suggest that other possible uses of eye tracking, such as usability research or even qualitative usage, seems to be largely neglected in communication research. Based on the low numbers of studies that have employed eye tracking, and because the method could be used for many different goals, we believe that eye tracking has much more potential in communication research. Such potential may include using eye-tracking measures to indicate different communication measures, such as interest, applying eye-tracking methodology to other fields of communication research, such as political communication, and extending eye-tracking practices to mobile devices, such as smartphones and tablets. Altogether, this review highlights opportunities for using eye tracking and identifies other ways of using eye tracking to maximize its potential in communication research.

*Annika Hamachers & Volker Gehrau*  
**Data Gathering Across Communication Research: A Meta-Analytic Review from 2000 to 2012**

University of Münster, Germany

This project continues analyses conducted by Potter (1993) and Trumbo (2004) on the distribution of data gathering methods in communication science: Based on a census of 20 international research journals the study explores how the methods interview, observation, and content analysis shape the profile of our discipline and how they relate to each other.

Asking for the dominant method of a study, we find a clear hegemony of interviews (accounting for two thirds of all studies), whereas content analyses – though often called the most genuine method of our discipline – make up roughly a fifth and observations have a marginal share of 4 percent. But if we take into account, that studies can rely on more than one data gathering technique, this distribution changes slightly: though interviews are still the most popular methods, content analyses and observations gain notable impact. However, methodical hierarchies seem rather strict: whereas interviews are hardly ever subordinate or coordinate to other methods, observation techniques often only have assisting function (e.g. for preliminary field exploration).

Most interestingly, all three methods seem to cover a specific thematic 'terrain' in communication science: Observations excel in research on media uses and selections, interpersonal communication, and methods themselves and favor the internet, digital games, and conversations as media to be explored. Interviews particularly focus on uses and selections, too and on media effects and have an emphasis on audio-visual media and media combinations. Content analyses quite naturally address media contents (e.g. media frames and discourses) and favor print media over all other media. Finally, we find that a research design determines the chosen method: The odds of conducting an observation are three times as high in experiments compared to standard designs and the odds for picking an interview particularly rise in secondary analyses and experimental designs as well.

*Cornelius Puschmann*

### **Scalable but Redundant? Developing Sensible Applications of Topic Modeling to Media Content**

Alexander von Humboldt Institute for Internet and Society, Berlin, Germany

What utility do unsupervised and inductive computational techniques, such as latent dirichlet allocation (LDA), have for media and communication research? In this paper we illustrate some distinct strengths and weaknesses of LDA. We first very briefly introduce its conceptual foundations, along with a select set of studies from the social sciences that apply it to different types of content, from newspapers and scientific publications to literary texts and social media. We then present a case study of news coverage of the Syrian civil war that illustrates applications of LDA in media research, while also showing its limitations. After describing our data and methods, we turn to two facets of the results in particular: the relation of terms and topics and the proportions of topics in documents, aggregated into months. While our findings should not depend on any particular software implementation, we provide a description of how the analysis was conducted in R. We close with a summary of the approach's strengths and weaknesses, and, based on our example, make the case for contrastive (rather than descriptive) uses of topic modeling that build broader analyses on the initial output of the model, rather than concluding with a list of terms.

*Jelle Boumans<sup>1</sup>, Hajo Boomgarden, & Rens Vliegthart*

### **A Novel Approach to Assess Content Overlap Between Large Quantities of Texts: Introducing Cosine Similarity in Communication Research**

<sup>1</sup> University of Amsterdam, The Netherlands

<sup>2</sup> University of Vienna, Austria

Automated tools for text analysis can greatly enhance research on mass communication. For example, implicit framing analysis is a powerful technique to extract meaning from large collections of texts. A limitation of the technique is that comparisons of frame overlap between different collections of texts are typically based on a qualitative interpretation. This article introduces cosine similarity as a quantitative measure to assess the degree of frame overlap. A case study on the Dutch nuclear energy debate (2003-2012) shows that the cosine measure provides a good indication of content similarity. The higher the cosine score between two sets of texts, the more likely it is that there are corresponding frames. Wider applicability of the measure for communication research is discussed.

*Katsiaryna Stalpouskaya*

**Extracting Agendas for Action from News Coverage Using Machine Learning Techniques**

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The amount of data available for research is rapidly increasing, making traditional tools and methods for analysis extremely laborious and less efficient. On the other hand, during the decades of manual coding, annotation and preprocessing, numerous corpora have been created, that can be used to train statistical models to make data analysis and retrieval more efficient. Many fields of science such as informatics, engineering, biomedicine, data science, computational linguistics, etc., that also face the challenge of big data processing and analysis, have been successfully using advances in computation to meet the challenge for many years. Communication science has also been using benefits of computer-assisted content analysis (Baden, 2010; Sanfilippo, 2008; van Atteveldt, 2008), but unlike in other fields, machine learning has not become a mainstream approach yet (Scharnow, 2013; Vargo.2014). In this paper we would like to demonstrate how the methods of computational linguistics and statistical learning can be used to further automate content analysis and how they can be used on sentence level. We will focus on applying machine learning to textual data in order to extract agendas for action from news coverage on Syrian chemical weapons crises in summer 2013.

*Kohei Watanabe*

**Mapping International News: Evaluation of Common Lexicon - Based and new Dictionary - Based Methods for Geographical Classification of News Texts**

London School of Economics and Political Science, United Kingdom

This paper presents a new dictionary-based technique for geographical classification of news texts, which was developed to overcome shortcomings of the widely-used lexicon-based method. With this new technique, a very large geographical dictionary is automatically constructed by extracting words strongly associated with locations from a corpus of international news stories. Classification accuracy of both the dictionary-based and the lexicon-based techniques is evaluated using 5,000 human-coded news summaries to reveal the weakness and the strength of the two methods. The result shows that the lexicon-based classification is sufficiently accurate only in limited circumstances, while the dictionary-based classification is more accurate even when stories are very short or complex.

*Ariel Hasell & Shannon McGregor*

### **Black-box Algorithms: Scholarly use of Proprietary Coding Software in Communication Research**

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<sup>2</sup>University of Texas, Austin, USA

Communication scholarship increasingly relies on proprietary coding software to conduct analyses on large-scale datasets; however, as of yet, there is little published research that uses these tools. The black-box nature of these proprietary software programs makes it difficult for researchers and reviewers to verify the reliability, and outside replication is only possible if the outside party has access to the software. As researchers begin to use such tools, and reviewers begin to assess works using them, the academic community needs greater understanding of what proprietary coding software can offer. In this paper, we consider the capabilities of such programs, including the strengths and limitations. We then offer suggestions for ways in which researchers can conduct reliability tests that meet the academic standards of published work in a manner that can be understood even by those not familiar with the programs.

*Helen Sissons*

### **Ethnographic Multimodal Discourse Analysis**

Auckland University of Technology, New Zealand

Research into journalist-source relations has struggled as researchers acknowledge most interactions go on behind closed doors and hence are hidden from the analyst (McNair, 2011) or happen at what Reich (2006 p. 497) describes as the “unapproachable point of transaction at which information is passed between sources and reporters”.

Over a six-year period, an ethnographic study of interactions between journalists and public relations practitioners resulted in the development of a methodology that I have called ethnographic multimodal discourse analysis, which overcomes many of these issues. The study is believed to be the first in this field where data were captured on video allowing the interactions to be replayed and analysed mode by mode. The analysis provided unique insights into the current working practices of journalists and media relations practitioners.

This paper discusses the background and provenance of the methodology, and how it adapted aspects of existing and earlier approaches to be specifically tailored for the study of professional interactions as they happen in often fraught, fast moving situations. It argues an important advantage of video is the density of data (DuFon, 2002) including an accurate non-verbal as well as verbal record, which can be replayed as often as is needed during the analysis stage.

Using examples from the researcher’s own data, which involved observation in two public relations departments and two newsrooms in Auckland, New Zealand, the paper discusses how future researchers can use the approach to enrich the empirical findings in their own professional fields.



*Bartosz Wilczek*

**Investigating Causal Mechanisms With Process Tracing in Communication Science: the Example of Journalistic Performance Formation in Converging Newsrooms**

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This paper discusses a new research strategy to investigate causality in communication science. Specifically, it proposes the investigation of causal mechanisms with process tracing. Causal mechanisms are processes through which independent variables influence dependent variables. Process tracing, in turn, is an approach that applies specific case study designs and specific methods to investigate causal mechanisms. While this research strategy has been widely applied in political science, it has not yet received much attention in communication science. Moreover, the investigation of causal mechanisms has been particularly grounded in Rational Choice Theory so far. This paper argues in favor of also considering concepts from Behavioral Economic Theory in order to incorporate a more differentiated perspective on decision-making. This paper outlines the features, advantages, and challenges of this research strategy and illustrates it with a research project that investigates journalistic performance formation during newsroom convergence in two Swiss media companies.

*Raffael Heiss, Desiree Schmuck, Carolin Eicher, & Jörg Matthes*

**Citizen Science as a Method of Data Collection: Exploring the Predictors of Participation Among School Students**

University of Vienna, Austria

Citizen science is a research methodology that allows researchers to access data they cannot collect by themselves by letting volunteers participate in several stages of a research project. Hardly any research to date has investigated the predictors that drive citizens to participate in such projects. In order to answer this question, we implemented a survey with 417 school students to assess their demographics, political and scientific attitudes and behavior, personality traits, project motivation and media use. We then asked them to voluntarily participate in a citizen science project on young people's political experiences. We found that citizen science volunteers tended to be female, came from higher end school types, used certain media channels more often than others, scored higher on openness and conscientiousness, held positive attitudes toward citizen science and, most importantly, could be externally motivated by a competitive award. Implications of these findings for citizen science projects in communication research are discussed.