

How do social robots become social?

Reconstructing three Dimensions of Construction of Sociality.

Andreas Bischof, Research Training Group [CrossWorlds](#), Chemnitz University of Technology
andreas.bischof@phil.tu-chemnitz.de

We argue that questions about the agency of robots or consequences of their use call for a sociological examination of the conditions of their creation. Like other technologies robots and their functioning are shaped by intentional and non-intentional, cultural and technical influences and these influences operate in later situations of use. But the concept of social robotics is driven by two further complications. While ideas and cultural concepts about social robots can be traced back several centuries and are common in mass culture, their technical realization is even in times of digital information processing in early stages of development. Secondly the engineering of machines capable to solve everyday tasks with lay-users requires explicit theories about social situations of use. These two factors, strong cultural concepts and need for explicit theories of sociality, turn the development of social robotics in a paradigmatic field of construction of social technology.

The original question of the presented study is: how do social robots become social? To answer this question, we are investigating three dimensions critical to the social formation of such technologies, namely: a) the discursive construction and conditions of the possibility of social robots; b) the modes of practice of undertaking social robotics; and c) options for and restrictions to sociality conferred by the technical ensemble 'social robot'. By bringing these three dimensions of social reality into a conceptual framework, a theory of the social production of social technology should be achieved.

Since the project aims to gain an interpretative understanding of the construction of sociality in and by such technologies, the potentially diverging dimensions of social reality— discourse, practice and technology— have to be analysed under a coherent paradigm. With Knorr-Cetina (1999) this thesis argues that these dimensions can be combined and analysed together, reflecting her hypothesis that aspects of behavior and aspects of sense cannot be separated in researching the (itself engineered) *practices* in technical sciences. This project will use a triangulation of methods to reconstruct the three above-mentioned dimensions. The discursive construction of sociality in social robotics will be examined by an application of the '*documentary method*' (*sensu* Bohnsack et al. 2003) on writings concerning the theories, methods and results of the scientific disciplines involved. Participant observation and expert interviews with researchers will allow an 'ethnomethodological approach' (*sensu* Garfinkel 2002) to be undertaken to analyse the practices of social robotics, and reconstruct the principles of arrangement in specific projects. Finally the technology itself, its options and restrictions for social or parasocial behavior and interaction must be taken into account. To this end, a process of 'theoretical sampling' (*sensu* Glaser and Strauss 1967) will be undertaken, which will comprise selecting certain modules of robotic hardware and software and reconstructing the 'archive' of algorithms, analogous to software studies (Rieder 2012).

Literature

Bohnsack, R.; Pfaff, N.; Weller, W. (2003): Qualitative Analysis and Documentary Method in International Educational Research. Leverkusen: Budrich Publishers.

Garfinkel, H. (2002): Ethnomethodology's Program. New York: Rowman and Littlefield.

Glaser B.; Strauss, A. (1967): The Discovery of Grounded Theory: Strategies for Qualitative Research. Chicago: Aldine Publishing.

Knorr-Cetina (1999): Epistemic Cultures. How the Sciences Make Knowledge. Cambridge: Harvard University Press.

Rieder, B. (2012): What is in PageRank? A Historical and Conceptual Investigation of a Recursive Status Index. Computational Culture 2 (2): http://computationalculture.net/article/what_is_in_pagerank