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COMMUNICATING SCIENCE: TRUST AND THE NEW MEDIA ECOLOGY

Trust in technologies? Science after de-professionalization

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Abstract

Peter Weingart and Lars Guenther suggest that the public's trust in science has become endangered due to a new ecology of science communication. An implicit theoretical base of their argument is that the integrity of science *as an institution* depends on the integrity of science *as a profession*. My comment aims to reconstruct and question this specific institutional understanding of science. I argue that *trust in technologies* of knowledge production might be a potential equivalent to *trust in professions*.

Keywords

Popularization of science and technology; Professionalism, professional development and training in science communication; Science and media

Who may speak in the name of science?

Weingart and Guenther raise an important issue. It is one of the many strengths of their paper that they address the topic of *trust in science* as an *institutional problem*, therefore revitalizing a classic line of theorizing about science as an institutional structure and a social system [Merton, 1938; Luhmann, 1990]. They identify two potential sources of public mistrust: the increasing importance of academic press officers and public relations (PR) managers in science communication, and the rise of social media in a networked media sphere without gatekeepers. Both trends imply that "science communication has become an arena in which many different stakeholders battle for attention and power of definition" [Weingart and Guenther, 2016, p. 1].

One of Weingart and Guenther's major concerns is that science communication is no longer controlled by scientists. In the case of science PR, non-scientists communicate science to the public. In the case of social media, it is no longer clear who speaks at all — and in which role. In the new ecology of science (communication), two distinct worlds seem to blur: "the world of knowledge production and the [world of the] general public" [Weingart and Guenther, 2016, p. 2].

For Weingart and Guenther, the distinction between science and its environment is a *social* distinction between groups of people — professional scientists on the one hand, lay people on the other. The "world of knowledge production" belongs to the scientists, the "general public" consists of lay people.

How is this importance of scientists as a social group of people congruent with Weingart and Guenther's theoretical premise that trust in knowledge claims *shifted from people to institutions* in differentiated societies? To put it another way: in which way does the credibility of scientific knowledge production depend on *specific* people being involved in producing and communicating this knowledge?

Trust in professions

Weingart and Guenther's distinction between science (as a sphere of specific experts) and the public (as a sphere of lay people) is plausible, but only under one important condition: that trust in science as an institution depends on trust in science as a *profession*. Weingart and Guenther define science as one of the "professions that are perceived to serve the common good" [Weingart and Guenther, 2016, p. 7].

Professions are a specific mode of institutionalization. They combine a specific occupational role (e.g. medical doctor, teacher, lawyer) with a specific societal function (like health, education, law). They have monopolized the relevant expertise to fulfill this function, have successfully excluded lay persons from their processes of knowledge production and application, are able to govern themselves and have claimed "jurisdiction" over a certain kind of work [Abbott, 2007].

Professionalized institutions had an important function in the process of social differentiation. They catalyzed the autonomy of institutions that are based on knowledge systems [Stichweh, 2006] and have performed successful "boundary work" [Gieryn, 1983]. The status groups of these institutions have distanced themselves from the political and economic sphere by a construction of "disinterestedness" — which means: the construction of a primary interest in a specific social value (health, education, justice) that is distinct from political or economic interests.

The structural-functionalist tradition emphasized the importance of trust as a necessary condition for the functioning of modern professions. As representatives of a specific core societal value, professions need to demonstrate that they don't let other interests interfere with their professional work. Hence, members of a profession are expected to incorporate high normative and cognitive standards [Parsons, 1978, pp. 40–65]. Acting "professional" is a task that needs to be performed by the profession as a social group as well as by each individuals belonging to the group: medical doctors, teachers and lawyers are expected to *represent* their profession when they interact with others in their professional role [Pfadenhauer, 2003].

Science plays a major role in the constitution of modern professions. Not only is academic knowledge an important resource for professional education and legitimization [Abbott, 2007, pp. 52–58], in addition, scientific research itself can be conceived as a professional practice. Talcott Parsons "most emphatically" included "the function of research, that is, pursuit of the advancement of knowledge as a goal, relatively independently of its practical applications" into the group of modern professions. "The fiduciary responsibility of members of the academic profession rests in their role of trusteeship for the preservation, development and utilization of a major tradition of very obviously transgenerational significance. This is the tradition of significant and valid knowledge [...]" [Parsons, 1978, p. 30].

Just as medical doctors act as trustees of health, scientists act as trustees of certified knowledge.

Professionalism is an expression of the modern transformation of trust (from individual persons to institutions). If you meet a medical doctor for the first time, you don't need to know her personally to trust her medical advice or to even allow her to examine your body. You do not trust her because of previous personal encounters but because she acts as a representative of a trusted profession.

Unlike Parsons, [Stichweh, 1997] restricts the notion of profession to occupations with interactive professional-client relationships. Members of client-based professions like medical doctors encounter "the public" on a regular basis in the mode of an interaction between persons. It is obvious that these occupations directly depend on the social resource of trust in the everyday encounters with clients. If someone does not trust a medical doctor, a working professional-client relationship can hardly be established. In the case of these professional occupations, the implicit contract between the respective institution and the public is enacted through regular interactions between professional and client. Scientists, however, rarely engage in these kinds of interactions. One exception is the context of higher education performed by members of universities. But in this case, the scientist acts as a *teacher* and not as a *researcher*.

The question of whether or not science *is* a profession is, in the end, a matter of definition. It is, however, very clear that science is at least *a different kind* of profession than the client-based ones, because trust as a social resource does not need to be mobilized through constant interactions between scientists and the public. In the sociology of professions, an implicit contract between science and society has been suggested as a functional equivalent of professional-client relationships [Oevermann, 1996]: on the one hand, the public expects scientists to do research that can be translated into relevant knowledge and useful innovations (for other sectors of society), on the other hand, science depends on public funding and adequate regulations, which enable scientific research [Guston, 2000]. The specific clauses of this implicit social contract vary between different political systems and have changed over time — indeed, constant renegotiations seem to be part of the implicit contract itself [Maasen and Dickel, 2015]. However, the question remains if contemporary science-society relations are well conceived as an implicit contract with a professional group or if trust in science as an institution might be increasingly abstract from scientists as a professional group.

Trust in technologies

Whereas Parsons regarded professionalism as a prototype of modernity, Stichweh argues that professionalization is just a *transitional mechanism* of highly differentiated societies, which enabled them to institutionalize distinct knowledge systems [Stichweh, 1997, p. 95]. The monopolization of knowledge production and application by one exclusive professional group was useful in separating knowledge questions from political and economic interests. However, according to Stichweh, contemporary societies are characterized by a popularization of knowledge that can no longer be controlled by professional status groups. It therefore becomes increasingly unlikely that an institution of modern society is represented by one profession (and one profession only). Stichweh suggests that gradual processes of de-professionalization are to be expected in all institutions of

modernity that have formerly rested on professionalism. While current discourses on de-professionalizing often turn into narratives of decline, which construct the past as a normative ideal, Stichweh embraces de-professionalizing as an indication of modernization. Under this theoretical lens, it doesn't matter, that "there are professional identities at stake" [Weingart and Guenther, 2016, p. 2] in the current transformation of science communication.

Stichweh suggests a direct link between the democratization of knowledge and de-professionalization, because knowledge systems are no longer strictly coupled to social groups: if knowledge is popularized, trust in institutions can no longer rest on the shoulders of specific professional groups which act as shining exemplars of an institutional order.

In the context of this reading of differentiation theory, de-professionalization does not imply that trust is no longer an important issue for contemporary institutions, but that it may be established by other means. It is rather unclear, however, what functional equivalents might supplement or even replace trust in professional groups. For example, are stagings of authenticity a viable mechanism of trust generation in highly medialized public spheres? This would indicate a de-*institutionalization* of trust — and a return of trust onto individual persons as a functional feature of complex systems. Will society really fall back on (staged) personal trust — or might the contemporary institutions of society instead find even more abstract mechanisms of self-governance and social acceptance under the conditions of popularized knowledge [Stichweh, 1997]?

Anna Henkel [2011] provides an interesting example of the latter case. She argues that trust in professional roles can be substituted by trust in standards. Her example is pharmaceutical drugs. Trust in drugs formerly depended on the profession of pharmacists. As a lay person, I do not know if the blue pill in front of me is helpful, dangerous or simply useless. Trust in the pharmacist as a professional role makes it possible to consume this obscure object. In contemporary society, the pharmacist is (in the eyes of the consumer) not much more than a salesclerk. Trust in drugs is now established through technologies of standardization. You no longer need to trust the professional role but rather the technical *processes* of regulation and production, which are symbolized by the mass-produced and standardized object of the modern pharmaceutical drug [Henkel, 2011, pp. 295–311]. This technologization *radicalizes* the shift from trust in people to trust in institutions. In a technological regime of trust, the person of the pharmacist and his specific professional expertise shifts into the background. The person behind the counter becomes interchangeable. Professionalism is replaced by complex mechanisms of observation, control and regulation symbolized by the standardized object of the drug.

Is science also facing de-professionalization?[1] Besides economic pressures and new governance regimes, the contemporary transformation of the public sphere into an interconnected digital infrastructure is also often seen as a potentially de-professionalizing force. The current trend to open science extends the sphere of recipients of research dramatically — far beyond the professional sphere. Does this

[1] Weingart and Guenther also discuss the possible de-professionalization of science *journalism*. Although my comment focuses on scientists, the general structure of my argument could as well be applied to journalism.

new media ecology not only democratize but also de-professionalize science [Peters et al., 2014, p. 750]?

The contemporary evolution of our knowledge society has so far neither induced a vanishing of the professional role of the scientist nor has it eroded its structural relevance. What can be observed, however, is the increased use of quantitative technologies of knowledge certification. The established range of metrics used to measure scientific performance, as well as various evaluation systems at the organizational level, already indicate that the classic science-society contract, based on trust in professional practice, has been terminated. With the extension of science into the public sphere, alternative metrics are being developed and new (open) review systems are being invented, which conform to the emerging reality of science 2.0 [Kriegeskorte, 2012; Melero, 2015]: These technologies of certification aim to transform trust in professions into trust in processes.

Outlook: performing science in society under new media-technological conditions

This comment does not suggest that trust in processes *can* substitute for trust in professions. It has rather aims to elaborate on the nature of the problem and to present potential solutions, which may themselves create new problems. Alternative metrics, social media platforms for scientists and methods for open (post-publication) review might strengthen the links between sciences and publics, but they may also accelerate — as Weingart and Guenther suggest — the de-professionalization of science by throwing scientists right into the battle for public attention. Under this emerging ecology of communication, it seems unlikely that the traditional contract between science and society based on professional trust can be fully retired. We should rather expect that society will experiment with new forms of technologization to secure trust in science under the new media-technological conditions of contemporary society.

The blurring of boundaries between sciences and publics (which have also become ever more heterogeneous) under new media-technological conditions also implies a blurring of boundaries between science communication and knowledge production: ongoing experiments in citizen science, which includes lay people in research activities through digital platforms and mobile devices [Dickel and Franzen, 2016], might be interpreted as responsibilizations of publics as co-producers of scientific research. A latent function of these citizen science activities might be to increase public trust by transforming the public itself into a "performing audience" that "is not simply expected to provide conditions for the professionals to be able to perform", but rather to "produce the systems core task" itself [Andersen and Knudsen, 2015, p. 448]: research.

The public of digital citizen science crowds is governed by technological means. Standardized technologies are supposed to legitimize public participation beyond the sphere of the profession: anyone is invited to participate as long as she uses the appropriate standardized tools of data collection and interpretation [Dickel, forthcoming, i.e.]). Whether the "epistemic authority" [Gieryn, 1999] of science — not as a profession, but as a potentially all-inclusive institution — is enhanced or diminished by these involvements is an empirical question that calls for further exploration.

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