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An actor-specific guideline for quality assurance in transdisciplinary research



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ABSTRACT

Transdisciplinarity has a long tradition – both in terms of academic discourse and research practice. The proliferation of transdisciplinary research (TDR) has, however, only progressed moderately up until now. The main reason for this is the lack of a generally accepted quality standard for TDR. In addition to meeting the quality standards of excellence of ‘normal science’, TDR is supposed to respond to a variety of societal demands. Establishing a quality standard that incorporates these requirements would only be possible in the long-term as it calls for far reaching changes on both an institutional level as well as that of science as a whole. Building up a practice of quality assurance in TDR today lays the necessary foundation to bring about such changes. The aim of this paper is to present a ready-to-use quality guideline which we intend will contribute to that foundation. The guideline is customized to such TDR that aims to bring specific knowledge to bear on policy issues relating to sustainable development. The guideline addresses three groups of actors: researchers, program managers or donors and policymakers. It shows these actors what they can do specifically to assure the quality of the transdisciplinary research process.

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1. Introduction

In their seminal article in this journal in 1993, [Funtowicz and Ravetz](#) noted that in “research related to policy for risk and the environment, which is so crucial for our well being, there has been little effort of quality assurance of the sort that the traditional experimental sciences take for granted in their ordinary practice.” ([Funtowicz & Ravetz, 1993](#): 743). This observation was, of course, made at a time when practicing new forms or modes of research, like transdisciplinarity, was pioneering to say the least. More than 20 years, and a wealth of studies on the subject matter, later, however, it still holds true. In current research practice it is, to a large extent, upon the individual researcher to assure what might be called the extended quality profile of transdisciplinary research (TDR) (cf. [Maassen & Lieven, 2006](#): 407): In addition to meeting the (disciplinary) quality standards of excellence of ‘normal science’, TDR is supposed to respond to a variety of societal or extra-scientific demands. Yet there is still no generally accepted quality standard that incorporates these requirements.

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It is this fact which, in our opinion, mainly obstructs the proliferation of transdisciplinarity (cf. Carew & Wickson, 2010: 1148).¹

This becomes clear when considering that the career paths of individual scientists, as well as the reputation of entire research organizations, depend on adhering to what the relevant scientific community defines and acknowledges as good, valid and successful research. Accordingly, there is little incentive for scientists to engage in research where the accepted quality standards cannot be readily applied (cf. Blättel-Mink & Kastenholz, 2005). Establishing a new quality standard that extends beyond academia, however, requires far reaching changes on both an institutional level as well as that of the science system as a whole – changes which, being political in nature, will only be possible in the long-term. Building up a practice of quality assurance in TDR today lays the necessary foundation to bring about such changes. The aim of this paper is to present a ready-to-use quality guideline which we intend will contribute to that foundation.

1.1. *The focus of quality assurance in transdisciplinary research*

Quality assurance in science is generally directed toward processes and products. Although there are process-related standards of ‘good scientific practice’ in place – which can exist either as formal codes of conduct or as rules passed on among the members of a scientific community – the focus in mainstream science is on product evaluation by peer-review and bibliometric impact measurement. As we, and others, have argued elsewhere, these standards and procedures inherently apply to TDR as well, in so far as it does not set out to replace disciplinary practice but to enrich it (see Jahn, Bergmann, & Keil, 2012: 4, and references therein; Pohl et al., 2011: 3).

The maxim of product evaluation cannot, however, be transferred easily to the extended quality profile of TDR.² The fundamental difficulties in evaluating the outcomes of TDR have been intensively discussed (see e.g. Bornmann, 2012; Klein, 2008; Pregernig, 2007) so that we only need to recall the core questions here: what are the relevant categories of societal impact made by research, how can such an impact be measured on a scale that allows comparisons across different categories, and how can it be linked practically to a particular research project – especially when considerable time delays are likely to be the norm rather than the exception between the completion of a project and any possible societal impact? Apart from answers borrowed from disciplinary science – like linking societal impact to the extent in which, for example, a project report is “addressed outside of science” (Bornmann & Marx, 2013: 213) – these questions have been difficult to resolve.

As a result, there has been a shift in the literature from evaluating the products of TDR to evaluating entire transdisciplinary projects or programs (Bergmann et al., 2005; Defila & Di Giulio, 1999; Huutoniemi, 2010). Such evaluation schemes strongly focus on the quality of the research process. More precisely, the quality of TDR is measured against its success in facilitating dialog and learning processes between science and society and, not least, within academia itself (cf. Späth, 2008; Wiek, 2007). In order to achieve this, research processes have to be designed whereby the interests, the expectations and the knowledge of scientific and societal or political actors are systematically integrated. In other words: whereas in disciplinary research a good process is a means to an end, in TDR it is an end in itself. In line with others (Guggenheim, 2006: 413), we therefore hold that the main object of any future quality standard for TDR should be the research process.

There are a few reasons as to why such a quality standard for TDR has not yet been established. First, the intended plurality of transdisciplinarity, in terms of different “epistemologies” or “epistemic communities” (Miller et al., 2008) and areas of application, seems to render the definition of a generally accepted standard almost impossible. In line with this, most existing standards are specific to the organizations which carry out the research (Guggenheim, 2006: 419). Second, not least because of this plurality, a coherent transdisciplinary research community has yet to be encountered that has a distinct culture and tradition, out of which a standard like this would naturally emerge (cf. Öberg, 2009: 408; Wickson, Carew, & Russell, 2006: 1055). Third, there is a fierce debate about academic freedom, which some see threatened by subjecting science to extra-scientific quality standards—at least in Germany (Artmann & Borchert, 2013: 118) and in the United Kingdom, as the controversy there about non-academic impact criteria introduced by the Research Councils UK shows (cf. Duff, 2012; Holbrooke & Frodeman, 2012). Finally, it is argued that any generic quality standard would have to be based on a shared definition of transdisciplinarity (Evely et al., 2010: 442; Pohl et al., 2011: 4) – a definition which is not yet available despite a number of viable suggestions.

In developing this quality guideline, our approach in addressing these arguments is the following: we define transdisciplinarity as being “a critical and self-reflexive research approach that relates societal with scientific problems; it produces new knowledge by integrating different scientific and extra-scientific insights; its aim is to contribute to both societal and scientific progress; integration is the cognitive operation of establishing a novel, hitherto non-existent connection between the distinct epistemic, social–organizational and communicative entities that make up the given

¹ We note that the first special issue on transdisciplinarity in this journal also only touched upon the issue of quality of TDR. While Balsiger discussed the concept of discursive evaluation and asked how “quality standards of supradisciplinary research practices” can be maintained (2004: 416), Bruce, Lyall, Tait, and Williams (2004) studied how integration can be secured in interdisciplinary collaboration.

² An important issue, which we cannot discuss in detail here, is the conflicts that may arise between meeting disciplinary and transdisciplinary quality standards at the same time. Such conflicts can develop in particular when advanced academic training, like doctorates, are part of a TDR project (cf. Mitchell and Willets, 2009).

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