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Digital Infrastructures in Academic Evaluation – Measuring Performance or Performing Measurement? (0463)

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The employment of digital infrastructures in measuring academic performance in research and teaching currently spreads across German universities. Universities make continuously more use of digital databases and online platforms to categorize the facets of academic work and to evaluate academic performance. They employ online interfaces to collect information on *research performance* (Riechert et al. 2015) or even draw on information provided by external platforms such as GoogleScholar or Altmetric.com (Haustein et al. 2015). It has also become frequent to evaluate *teaching performance* by making use of online tools (Williams 2014; for a first overview of online students' teaching evaluation in Germany see Hennig 2003). In both cases, digital infrastructures are used to produce data about research and teaching activities from the individual researcher to entire departments, and to assess these data according to evaluation criteria.

Yet, digital infrastructures do not only facilitate evaluation practices. We propose that they moreover change the practices of data production and assessment as such. We therefore ask about the performativity of digital infrastructures in academic evaluation. Relating concepts from science and technology studies to questions in higher education research, we aim to develop an analytical perspective for research on academic performance measurement by highlighting the role of digital infrastructures in academic evaluation.

Already in 1980, Langdon Winner argued that “machines, structures, and systems of modern material culture can be accurately judged not only for their contributions to efficiency and productivity, not merely for their positive and negative environmental side effects, but also for the ways in which they can embody specific forms of power and authority” (Winner 1980: 121). Similarly, Bowker and Star have reminded us that “values, policies, and modes of practice become embedded in large information systems” (Bowker & Star 1999: 230). Infrastructures are therefore never neutral but embody in their design already a particular understanding about the social world. In the case of academic evaluation, definitions of high-quality research and teaching as well as particular understandings about the way research and teaching should be practiced are thus becoming inscribed into the design of online interfaces and digital databases that are used for measuring academic performance.

However, digital infrastructures do not only enact given understandings and corresponding governance strategies. They are moreover performative themselves because “[t]hey change the very nature of what it is to do work, and what work will count as legitimate” (Bowker & Star 1999: 239): (1) Digital infrastructures influence the practices they are supposed to support. They standardize and automatize working processes (Yeung 2016, 2017). “Once standards are established, they render invisible the work required to make them possible” (Timmermans und Epstein 2010: 83). (2) Digital infrastructures furthermore allow for the production of large amounts of data and their assessment through automated processes. New

or more fine-grained categories can easily be added to existing online interfaces; digital databases provide nearly endless space for data storage while at the same time enabling fast access to it; and algorithms in terms of automated processes enable and accelerate data production and assessment. Consequently, (3) the possibilities of data production can have an influence on the ways how data are used. Once data about particular actions are produced, they can easily be reused in different circumstances and for different purposes. Existing amounts of data can lead to data assessment that is rather driven by given data than by actual governance interests (see for a discussion of data-driven versus knowledge-driven research in social sciences Kitchin 2014). Why which kind of data is produced can thus become decoupled from the ways how these data are finally used.

For academic evaluation, the performativity of digital infrastructure therefore has two implications: As digital infrastructures simplify the production of large amounts of data, we need to ask how this shapes the practices of data assessment. On the one hand, we have to look for processes of decoupling of the production of data and their usage in performance measurement in terms of data-driven versus knowledge-driven evaluation. If decoupling between data production and data assessment takes place, it might also change the understanding of its object of measurement. On the other hand, this also implies to ask how evaluation is linked to governance. Academic performance measurement was established to govern universities (Bleiklie 1998; Braun & Merrien 1999; Schimank 2005). However, when evaluation becomes rather data-driven than knowledge-driven, academic performance measurement becomes less a tool of strategic governance but is rather influenced by the performativity of digital infrastructure. Therefore, we also need to ask about the decoupling of evaluation and governance through the deployment of digital infrastructures.

If we are interested in the effects of academic performance measurement we should therefore not only relate to questions on the development of adequate indicators and metrics (Hicks et al. 2015), but furthermore focus on the digital infrastructures that are supposed to implement them. We need to shed light on how evaluation is practiced, i.e. how digital infrastructures are employed in ‘everyday evaluation practice’ thereby restructuring what kind of data about research and teaching performance are collected, how these data are made commensurable, and how classifications of what counts as excellent academic performance are produced.

References

- Bleiklie, Ivar (1998): Justifying the Evaluative State: New Public Management Ideals in Higher Education. In: *European Journal of Education* 33 (3), pp. 299–316.
- Bowker, Geoffrey C.; Star, Susan Leigh (1999): *Sorting things out. Classification and its consequences.* Cambridge, Mass: MIT Press.
- Braun, Dietmar; Merrien, François-Xavier (Ed.) (1999): *Towards a new model of governance for universities? A comparative view.* London: Kingsley
- Haustein, Stefanie; Costas, Rodrigo; Larivière, Vincent (2015): Characterizing social media metrics of scholarly papers: the effect of document properties and collaboration patterns. In: *PLoS one* 10 (3), e0120495.
- Hennig, M. (2003). Datenbankgestützte Lehrevaluation. In: *Evaluation wissenschaftlicher Institutionen*, In: *Wissenschaftsforschung Jahrbuch*, pp. 205-219.

Hicks, Diana; Wouters, Paul; Waltman, Ludo; Rijcke, Sarah de; Rafols, Ismael (2015): Bibliometrics: The Leiden Manifesto for research metrics. In: *Nature* 520 (7548), pp. 429–431.

Kitchin, Rob (2014): Big Data, new epistemologies and paradigm shifts. In: *Big Data & Society* 1 (1), 205395171452848.

Riechert, Mathias; Tobias, Regine; Heller, Lambert; Biesenbender, Sophie, Blümel, Ina (2015): Überblick über den aktuellen Stand der Forschungsberichterstattung. Integration, Standardisierung, verteilte Informationssysteme. Discussion Paper. Karlsruher Institut für Technologie.

Schimank, Uwe (2005): 'New Public Management' and the Academic Profession: Reflections on the German Situation. In: *Minerva* 43 (4), pp. 361–376.

Timmermans, Stefan; Epstein, Steven (2010): A World full of Standards but not a Standard World. Toward a Sociology of Standardization. In: *Annual Review of Sociology* 36, pp. 69–89.

Williams, James (2014): Student Feedback on the Experience of Higher Education. In: Maria Eliophotou Menon, Dawn Geronimo Terkla und Paul Gibbs (Ed.): *Using Data to Improve Higher Education*. Rotterdam: SensePublishers, pp. 67–80.

Winner, Langdon (1980): Do Artifacts have Politics? In: *Daedalus* 109 (1), pp. 121–136.

Yeung, Karen (2016): Algorithmic regulation and intelligent enforcement. *Regulation scholarship in crisis*, pp. 50-62.

Yeung, Karen (2017): Algorithmic regulation: a critical interrogation. In: *Regulation & Governance*, pp. 1-19.