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Will Education Become More Open?

By Tamara Heck on March 11, 2019 in Generation R, available online: doi.org/10.25815/hh4f-zn73

Tamara Heck is an Information Science Researcher and interested in human behaviour in the digital age and all sub-fields related to this area of research. This includes to get a deeper understanding of how our new digital environment influences and changes our behaviour and conversely, how we change our environment.

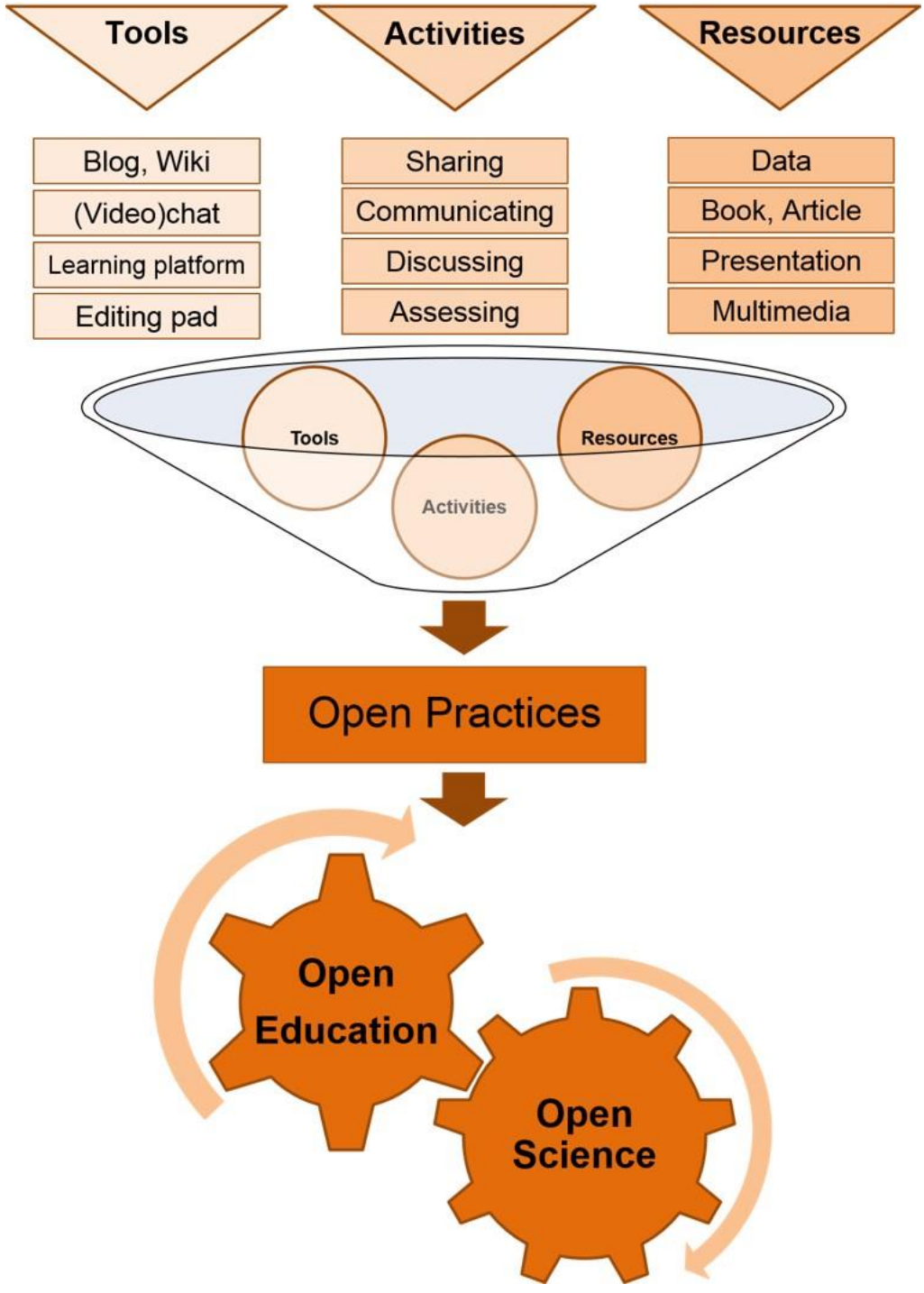

Fig 1. The interplay of open science and open education

Open science practitioners embrace the ideas of sharing and communicating their research and interests as well as collaborating with like-minded peers, i.e., practicing co-science (McKiernan et al. 2016) such as on the Open Science MOOC[1] platform. If they admit to those goals regarding their research, it can be assumed that those researchers adapt their attitudes and practices towards learning and teaching, respectively. So, if researchers move towards open science practices, will they do so in their higher education teaching? Will education become more open? More generally, what would open science principles (Bezjak et al. 2018) in education look like, for educators and learners, respectively?

The working group of the Leibniz Research Alliance Science 2.0 "Open Science in (Higher) Education"[2] made an online questionnaire based on relevant open science aspects, asking colleagues from the German higher educational field about their teaching practices. Although the survey was a while ago, it is still worth to share some of the results here, simply because there hadn't been the opportunity to do so before and a large part of the results is still valid. The data is available on Zenodo (Heck et al. 2017).

Digitality and Access. Open access to scientific literature, including articles and data, is one crucial aspect of open science. Actually, it can be seen as the starting point for the open science movement. Digital services that allow researchers to share their papers and data supported this process. Digital open sources are crucial for open practices, as they allow being findable and accessible for many people and thus facilitate research and learning. The FAIR principles underline this (Wilkinson et al., 2016). Similarly, digital learning resources allow learners to have time- and place-independent access to learning material and plan their learning individually.

There is a clear tendency to use digital learning resources. The average ratio of printed and digital material used was 26 to 73 in the survey. Only five respondents stated to use printed material only (n=200). Besides presentation slides, most of the learning resources used in higher education are academic papers. Here, open access articles are seen as crucial to allow learners access to relevant literature. They allow direct sharing, i.e., re-use of literature. In a strict sense, an open access article is not an open educational resource (OER) — although many see them as one. Articles cannot be "re-mixed" and they do not have an educational purpose or role when initially conceived and created (OECD-CERI 2007). In practice, scientific articles are the teaching sources often used in higher education. Open access articles can contribute to a higher number of open learning resources.

Sharing. Digital open sources are easy to share and disseminate amongst target groups. Sharing ideas and resources contributes to research transparency and improves research quality, for example via peer feedback. Licences can be used to make content open as a deed attached to copyright to grant a variety of reuse rights. A well-known example are the creative commons licences[3] that are used for open access articles and open educational resources, respectively. In education, not only sharing between educators and learners is possible, but as well sharing among learners. The idea is that learners support each other in their learning (team-based) and learn from their peers. This allows them to give and get feedback via peer review. In the survey, participants were asked if they allow or even demand sharing by their

[1] Open Science MOOC, https://opensciencemooc.eu/

[2] 'Open Science in (Higher) Education | Leibniz Research Alliance Science 2.0'. Leibniz-Forschungsverbund Science 2.0 (blog), 2 February 2017. https://www.leibniz-science20.de/forschung/projekte/abgeschlossene-projekte/open-science-in-higher-education/.

[3] Creative Commons, https://creativecommons.org

students. 33.8 % of the respondents stated that they are open to students sharing their work, 54,1% ask students to share their work. Related to this aspect is if educators promote sharing, for example via incentives.

Incentives. Research on open science show that incentives might be a way to motivate researcher to practicing open science (Ali-Khan, Harris and Gold 2017), the most explicit ones are awards and prizes[4]. Explicit incentives in education could be better assessment for students for sharing sources, work and content, or for peer reviewing others' work. About one third of the survey respondents stated that they consider students' sharing activities for assessment (grading, passing course). However, the questions asked were only about the educators practices. It would be interesting to see learners' perspectives as they themselves might not likely share their work with other peers.

Contribution. A main aspect of open science is its inclusive participation. The idea is literally transposed in citizen science projects, where the public participates in research. In education, there is found a similar idea with regards to learners' contribution to open educational resources.

In alignment with learning outcomes, students can be part of the editing and revising process of educational resources, *Creating OER (Postcard format for Higher Education)* – see: scenario 3 (Stagg et al. 2018). The majority of the survey respondents allow co-creation, i.e., students are able to co-determine course topics. The level of participation is diverse, though. The answers were dependent on the students' level (BA, MA, or first and last year of studies) and course type (seminar, lecture). For example, co-creation in a lecture designed for first year students is hardly realizable. Another reason for not considering student co-creation was the determined course curriculum the respondents did not want to or were not able to change.

Our humble idea is that open science will lead to open educational practices in higher education. Other colleagues see open education as an umbrella concept that "forms the basis for many different streams of openness of knowledge and learning" (Väänänen and Peltonen 2016). No matter from which perspective openness in higher education was approached, the goals are to foster and allow for sharing of resources, knowledge and inclusive collaboration. In the end, this will improve research and education in equal measure. Higher education institutions are the hubs that are able to propagate the change towards open practices.

The results described above are not fully representative for the practices of educators in Germany. However, some answers give interesting insights into educators attitudes towards learning and teaching. Further research has to be done on the "why" scientists practice research and teaching the way they do, which will help establishing effective support infrastructure and incentives to foster openness. Several research studies already approach this question. (Bosman and Kramer 2018; Cronin 2017; Kim and Stanton 2016; Levin, Leonelli, Weckowska, Castle and Dupré 2016; Tennant 2018).

[4] Open Education Awards, https://open-educational-resources.de/open-education-awards-2018-auszeichnung-und-wuerdigung-fuer-die-oer-world-map-und-fuer-oerinfo/;
The Open Science Prize, https://www.opensciencеprize.org/;
Open Science Award – digitization of science, https://www.schleswig-holstein.de/DE/Fachinhalte/P/preiseWettbewerbe/Open_Science_Award.html).

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