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1 Abstract

In this working paper I bring two strands of my work together: a project[1] about responsible research and innovation (RRI; Owen et al. 2012), with the aim to translate the somehow vague concept into practice, and theories and analytical frameworks of feminist technoscience (Haraway 1988, Weber 2006). This connection was initially sparked by a paper from Ulrike Felt, where she discussed the growing demand for "reflexive work" (2016, p.11), especially in the realm of RRI, which she then connected to "care and articulation work" (ibid., p. 12). After I went back to expert interviews, I conducted 2016 for this RRI project, I analysed the discourses about doing responsible science as "matters of care" (Puig de la Bellacasa 2011). This feminist technoscientific perspective illuminates, that the inherent care-politics of RRI could oppose its success as research and innovation strategy to meet the 'grand challenges' of our society responsibly.

2 Introduction

The European Commission introduced the concept of *Responsible Research and Innovation* (RRI) in its framework programme for research and innovation *Horizon 2020*:

"In general terms, RRI implies anticipating and assessing potential implications and societal expectations with regard to research and innovation. In practice, RRI consists of designing and implementing R&I policy that will:

- engage society more broadly in its research and innovation activities,
- increase access to scientific results,
- ensure gender equality, in both the research process and research content,
- take into account the ethical dimension, and
- promote formal and informal science education."

(European Commission, Science with and for Society, Horizon 2020[2]).

The basic idea is that with this integrative, open, gender equal, ethical approach, the so called grand challenges of our society (climate and demographic change, food security etc.) can be better researched and bring innovative solutions, which can overcome usual gaps between theoretical knowledge from science and research and the practical application of these results (Karner et al. 2017). In other words, RRI is characterised by its process, including stakeholders not only in a later stage to enhance acceptability of innovations, but open the – transparent – research process interactively to relevant actors from the beginning. Hence, in this paper the focus lies on implementing and doing RRI – not researching others doing RRI – and in consequence this means, if science becomes 'responsible' in that sense, academia and the role of researchers would have to change.

[1] The FoTRRIS project has received funding from the European Union's Horizon 2020 Research & Innovation programme under Grant Agreement no. 665906 (http://fotrris-h2020.eu/).

[2] See the website: https://ec.europa.eu/programmes/horizon2020/en/h2020-section/science-and-society

A decade earlier, Yvonne Benschop and Margo Brouns (2003) discussed a comparable movement in academia with its implications on gender equality. In their analysis, Benschop and Brouns called the traditional scientific model, the "Olympus model, which bears a strong resemblance to the ivory tower, situates the scientists, in their unselfish and disinterested quest for truth, at the top of the Olympus, far distanced from everyday down-to-earth worries. In this model, science is described as an autonomous social institution, which produces superior knowledge: only science delivers true and objective knowledge." (ibid., p. 207). Opposed to this, the Agora model has been characterised by its „strong interaction between production of knowledge, transmission and translation of knowledge ... attentive to social and political dimensions of knowledge, acknowledging the influence of science in an extended field of forces in which other players such as public administration/policy-makers, public opinion, and education are positioned besides the scientific forum." (ibid., p. 208).

Already post-academic (mode 2) science or transdisciplinary research used to emphasise the integrative need to involve different actors in the research process in order to work with situated knowledge (Haraway 1988) that is more robust, and to leave the 'ivory tower' of academia (Gibbons et al. 1994, Nowotny 2006). With the Agora model of science, transdisciplinary research, social innovation, knowledge co-production, etc. and now RRI (Owen et al. 2012, Karner et al. 2016), there exist numerous approaches for several years now, which do not only challenge implicit hierarchies of different types of knowledge; moreover, all these concepts can be interpreted as signs for what Viale and Etzkowitz call the "third academic revolution":

> "The first and second academic revolutions integrated research and then economic and social development as academic missions, changing the nature of the university. The third academic revolution integrates forward and reverse linear models in a programmatic and regulatory framework, synthesizing knowledge, organization and institutions: the endogenous, exogenous and mesogenous drivers of innovation. The university thus becomes an increasingly important platform for societal transformation." (Viale & Etzkowitz 2005, p. 25)

This third revolution led to the third mission of universities adding interactive engagement to society to their first and second missions: teaching and research (Molas-Gallart et al. 2002).

Benschop and Brouns (2003) had optimistic expectations towards gender equality, because this new scientific model (Agora model) emphasises "the processes of gathering and distributing scientific insights. The audience the sciences are addressing becomes more diversified; alongside the international scientific forum, also national or local social actors in search of contextualized and situated knowledge. This aspect of social responsibility induces a cultural change within the institutions, possibly bridging the described gap between value orientations of female researchers and of scientific institutions." (ibid., p. 209).

However, although this new scientific work serves the third mission of universities, it is not perceived as academic core work (yet), and is currently, like teaching, undervalued in the new public management regime: it is merely "care and articulation work" (Kerr & Lorenz-Meyer 2009, quoted in Felt 2016, p.12). Care work is not only less valued, but also unequally distributed within academia, because it is "accomplished in every context by the most marginalized – not necessarily women. Caring from this

perspective, is a practice that most often involves asymmetry: some get paid (or not) for doing the care so that others can forget how much they need it." (Puig de la Bellacasa 2011, p. 94).

So while it can become true that new scientific models like RRI change universities: "The scientific community will be broadened from a conservative collective of men to a dynamic social phenomenon with diverse participants." (Benschop & Brouns 2003, p. 209); there is also a risk that these diverse participants and their work will not be valued equally. Therefore, the main question in this working paper is, can RRI fulfil the hopes of gender equality and greater diversity of knowledge (actors) of such a new model of science?

The fact that RRI is defined as a policy which will "ensure gender equality, in both the research process and research content" (European Commission, Science with and for Society, Horizon 2020[3]) draws attention to this still prevailing asymmetry in academia: social gender injustice (Dahmen & Thaler 2017a). Research and academia are currently not only gender unequal, but socially unjust and by combining the two concepts with an intersectional approach it could be asked "why women*, people with working class background, people with migrant background, and people on the intersections of these various backgrounds are not well represented in permanent and top positions in academia. Can concepts like Responsible Research and Innovation (RRI) help transforming academia into social gender just work environments, and thus also lead to a higher appreciation and acceptance of alternative careers in science and research?" (Dahmen & Thaler 2017b).

In the following, I will bring in data from expert interviews with STS scholars, who all have theoretical and practical experience with mode 2 research (transdisciplinary, participatory research, RRI), with the aim to illuminate the differences of RRI to the current academic system, especially with regard to the process characteristics of how knowledge in RRI is produced and valued.

3 Empirical data

To analyse how care politics can play a crucial role in the implementation of RRI, I went back to expert interviews, which I conducted in the scope of the aforementioned European project[4] during March and April 2016 as face-to-face or phone interviews. All three experts stem from different disciplinary backgrounds, two females and one male, all working in a science, technology and society studies context, two with an explicit sustainability focus working at Austrian universities, the third with a science management focus working at a German university.

[3] See website: https://ec.europa.eu/programmes/horizon2020/en/h2020-section/science-and-society

[4] The FoTRRIS project aims at fostering a transition of the existing research and innovation system to a RRI system (http://fotrris-h2020.eu/).

All three experts state that the academic system needs a fundamental change if RRI should be a successful research and innovation concept for the future.

However, the experts stated crucial conflicting interests and problems, which have been highlighted in all interviews:

	RRI focus	**Conflict**
Evaluation	RRI and Mode 2 research activities have a societal impact, which is valued by stakeholders and society.	Mode 1 research is higher valued by the current academic evaluation system (publications, conferences, professorships, research grants, etc.).
Funding	New research funding programmes for 'RRI experiments' and social innovations are needed, where results cannot be predicted or promised.	Existing research funding programmes often prefer almost market-ready technological innovations.
Governance	Needed participatory governance structure for RRI driven organisations.	New public management governance in universities.
Knowledge	Valuing of different knowledges and treating different experts at eye level within RRI.	Academic knowledge hierarchy with privileges for linguistic and academic-expert knowledge.
Open science	Open access and open data policy in RRI projects.	Intellectual ownership and property of researchers or organisations.
Definition	Broad and vague definition of RRI in theory.	Narrow implementation (focussing on single criteria) of RRI in practice.
Cooperation	RRI as an integrative concept based on inter- and transdisciplinary cooperation.	Compartmentalised team work, where e.g. social scientists are in charge of uncoupled RRI elements.
Qualification	Multidisciplinary qualifications are beneficial and additional competencies (moderation, coordination, pedagogical and networking skills) needed for RRI.	Disciplinary qualification and academic habitus is valued in current academic system (professorships, performance indicators, excellence evaluation, etc.).
Environment	Easy accessible rooms for RRI workshops (in cities or where stakeholders are).	Prestigious and reverential rooms at universities/campuses.

Table: Discourses of RRI characteristics and requirements versus main conflicts in the current academic system

The interviewed experts did not agree on how RRI could be institutionalised in future. While the one approach is to provide a professorship on RRI, to establish it as an academic field or at least offer an office for RRI support – which means to establish RRI within the current academic system – the other one favours the more radical shift in the system. This second approach would favour a two-career-approach, where academics with the additionally needed skills could choose a second (also attractive!) career path within academia. To not devaluate this second academic career path, a different mind-set in academia would be necessary; and this is where all three experts agreed: Academia needs a culture change, away from the classical professorial habitus to real collaboration among different types of experts and stakeholders, where open publications are valued in evaluations etc.

Currently, the experts agreed, RRI cannot be advised for junior researchers, because of the lacking chances to publish their results in high-ranking journals. Thus, if the academic evaluation system does not change accordingly, for instance by valuing societal impacts in academic evaluations, RRI stays either a "hobby activity" (Interview 3) or destined "for retired university professors" (Interview 1).

4 Discussion

It has been argued that the third mission of universities, which includes engaging with and for society to the first and second mission (teaching and research), ads more labour, which can be identified as care work in academia (Felt 2016). Feminist scholars pointed out, that asking questions about who cares how for whom can help analyse the inherent asymmetry of care work (Puig de la Bellacasa 2011), and illuminate the care politics behind: "Taking responsibility for what and whom we care for doesn't mean being *in charge*." (ibid., p. 98).

The process – or care – dimensions of RRI are challenging traditional academia (Olympus model, Benschop & Brouns 2003) with its notion of an 'objective' science: "Troubling the critical distance typical of scholarly work transforms the affective charge of things, challenging our relationship with the 'objects' of research." (Puig de la Bellacasa 2011, p.98). Of course, not only Puig de la Bellacasa argues that science and research are never objective and matters of care are always implicitly involved in the scientific process, for instance in the sense of caring for ones 'objects of research'.

However, RRI multiplies the matters of care, as caring becomes explicit, as a crucial way of doing research responsibly. Care politics are inscribed in the very concept of implementing RRI, by including societal actors in a participatory and open process of research and innovation (Karner et al. 2016). But, as the experts pointed out in the presented interviews, these caring activities of RRI are currently not valued by the predominant new public management regime of academia. Performance indicators are focusing on academic outputs, like publications in specific high-ranked academic journals.

Summing up: the participatory process, which is crucial for implementing RRI, asks for additional skills in researchers, which can be seen as academic care work (Felt 2016).

Four scenarios can be drawn from literature and expert interviews for the future of RRI:

The first – sceptics say: quite probable – scenario is that RRI will be replaced by another research concept in the not so far future.

In the second – sceptics say: not highly probable – scenario RRI manages to not only change the process of research and innovation, but the very academic system itself, including a new approach for evaluating academic performances and new rules for research funding programmes.

The third scenario sees RRI as disciplinary strand with professorships in RRI, which then bear the danger of a theorisation and mere observation of RRI, ignoring its actual implementation, and therefore also ignoring the importance of the needed care work (and consequently also its connectedness to universities' third mission including stakeholders in participatory processes), and doing rather meta-level-research about RRI than doing research responsibly, or 'care-fully'.

In the fourth scenario, the requirements and care politics of RRI are not valued accordingly in the academic tenure track system; thus, the care work of RRI will be segregated from classical academic work, and lead to a second career path, either at universities or outside. Outsourcing the care work of RRI can then lead to organisations on the interface to universities and research organisations, dedicated to this care work (facilitating / moderating / networking / supervising / cooperating activities). Such consultancies have already a huge market with professionalised proposal writing, project management, and will in this third scenario more and more compete with academic institutions for research funds. Consequently, care work of RRI could become a possibility for freelance-researchers/post docs without tenure track positions to stay (a little longer) in academia or be able to live (precariously) from research apart the classical academic career (Fenwick 2005).

Whatever scenario is more likely, one can be stated: If the crucial criteria of RRI including its needed implementation skills and the societal impact of RRI, will not be valued accordingly within the evaluation regime at universities and change the governance structure in academia, the inherent care politics of RRI will lead to (furthermore) asymmetrical distributed labour. The mentioned additional elements of RRI can be seen – like teaching and student support – as academic care activities, and if they will not be evaluated accordingly in career evaluations, performance indicators, research funding and higher education rankings, the gendered and social unjust division of academic labour will include RRI elements in future. Thus, the claim of RRI to ensure gender equality in its research process cannot be fulfilled, and furthermore RRI meets, like one expert stated, all mode 2/transdisciplinary research concepts' fate:

"…they all stay in the realm of a Sunday's sermon." (Interview 3).

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