Feminist encounters with research and innovation are often not self-evident. Even though the EU has been addressing the issue of women and gender in science since the 1990s, and has pushed the agenda for responsible research and innovation (RRI) for a decade now, it is still not obvious that this responsibility stretches to include feminist perspectives on research and innovation. Yet, feminist research on research and innovation has been conducted in numerous fields – Gender Studies, Higher Education Studies, History, Management and Organisation, Philosophy, Psychology, Science and Technology Studies, Sociology, and more.

Some scholars praise the accomplishments of decades of feminist scholarly work, celebrating the success of feminism (Walby, 2011) or noting how ‘gender diversity is increasingly the norm in scientific work (...) and a driver of excellence and innovation’ (Nielsen, Bloch, and Schiebinger, 2018). Others are less optimistic, as they point to the ghettoisation of and opposition to feminist knowledge (Harding, Ford, and Fotaki, 2013; Verloo, 2018), the systemic genderedness of ‘research’ and ‘innovation’, and the persistence of intersectional gendered, racialised and classed inequalities in all kinds of research and innovation work. Responding to the Grand Challenges of the 21st century around ecological sustainability, digitalisation and Artificial Intelligence, and intersectional inequalities requires a further strengthening of research and innovation, and this cannot be done properly without incorporating attention to feminist perspectives and feminist knowledge (Benschop, forthcoming).

In this spirit, we situate this special issue in the long tradition of feminist work in different disciplines that critically interrogates the fields of research and innovation, and enriches it with sophisticated conceptualisations, critical methodologies and reflexive modes of situated knowledge production. This special issue of Feminist Encounters originated with Gabriele Griffin’s leadership of Nordwit, the Nordic Center of Excellence on women in technology driven careers, and an international workshop ‘Re-thinking Research and Innovation: How Does Gender Matter?’ that she organised in February 25-27, 2020 at Uppsala University, Sweden, co-funded by Riksbankens Jubileumsfond. Teaming up with Liisa Husu and Yvonne Benschop, we broadened the international and interdisciplinary reach of the special issue, casting a wide net for theoretical and empirical papers on the gendered triangle of research, innovation and entrepreneurship. We also made the link to entrepreneurship as in contemporary global capitalism, where the welfare state is receding and marketisation has become increasingly prominent, questions of entrepreneurship and self-employment have become entwined with research and innovation. Moreover, entrepreneurship is not only viewed as a route to employment but also as a source for innovation. We worked with a broad understanding of entrepreneurship, research, and innovation, and were welcoming to divergent feminist perspectives in order to be inclusive of different approaches to the themes.

Thinking about feminist encounters with research, innovation and entrepreneurship opens up an exciting variety of possible research questions, methodologies and ways of knowledge production. As the Call for Papers for this special issue mentioned, research and innovation are fields that have strongly gendered contours and dynamics. They remain fields that are strongly associated with technology, and with men and masculinity (Pecis, 2016). Entrepreneurship, as numerous studies testify, is also strongly associated with men and masculinity (Foss, Henry, Ahl, and Mikalsen, 2019). There is a wealth of previous feminist work that has taken issue with this narrow association, calling attention to different types of innovation such as incremental, process and social innovations,
for instance, and highlighting that innovations are social and collective accomplishments that involve human agency (Styhré, 2013). Looking at innovation as a gendered phenomenon means asking questions about what constitutes innovation discursively and materially, the places and spaces where innovation takes place, and unpacking who gets to participate in innovation activities as innovator or as recipient of innovations (Alsos, Ljunggren, and Hytti, 2013; Andersson, Berglund, Gunnarsson, and Sundin, 2012).

Another example of widening the debate about innovation can be found under the catchy label of gendered innovations, a project that sets out to employ the creative power of sex, gender and intersectional analysis as a resource to stimulate the development of new knowledge and innovation in all phases of research in multiple disciplines from science, health and medicine, to engineering, environment and economics (Schiebinger, 2021). This work distinguishes three strategic, interrelated approaches to gender equality: Fixing the numbers, fixing the institutions and fixing the knowledge (Nielsen, Block and Schiebinger, 2018). Along these same lines, a lot of work has been done on gender in research, pointing to the importance of the representation of women, men, and non-binary people in research jobs and the reality of different opportunities in all phases of the research career (Murgia and Poggio, 2018), the pressing need for structural transformation of research organizations, to reach equality, diversity and inclusion (Drew and Canavan, 2020; Lansu, Bleijenbergh, and Benschop, 2019; Vinkenburg, 2017), and the feminist critique of the politics of knowledge production processes (Bell, Meriläinen, Taylor, and Tienari, 2020). In addition to research-performing organisations, there is a growing interest in the role of research-funding organisations, specifically those granting external competitive funding, in contributing to the gendering of scientific careers and knowledge (Husu and De Cheveigné, 2010; Husu, 2019). A large stream of research focuses on gender equality interventions in research organisations, gender mainstreaming, and resistance to change (Drew and Canavan, 2020). In the field of entrepreneurship, there are similar developments and a growing number of studies into the lived experiences of women entrepreneurs, the value of entrepreneurial activity for women, and engaging with entrepreneurship as social change (Ahl and Marlow, 2021; Calás, Smircich, and Bourne, 2009; Essers and Tedmanson, 2014).

In general, the gendered politics of knowledge production push research on the gendered triangle of research, innovation and entrepreneurship to the borders of the mainstream R&I debates. Yet, as the papers in this special issue show, there is an urgent need for more feminist encounters with research, innovation and entrepreneurship if we are to realise gender equality, diversity and inclusion in the field of R&I. In the next section, we provide a short discussion of the articles included in this special issue.

OVERVIEW OF THE SPECIAL ISSUE

We received a good response to the call for papers, all in all 21 abstracts. 16 were accepted to be developed to full articles. These were anonymously peer reviewed by international reviewers. Two of the submitted articles were (co-)authored by one of the editors of this special issue, Gabriele Griffin. The reviewing and decision-making process for these were solely dealt with by the other two co-editors, who are also responsible for this introduction.

We grouped the articles into three categories, dealing respectively with feminist knowledge, stretching innovation and career inequalities in R&I. The first group represents one of the cornerstones of feminist inquiry and engages with feminist knowledge production. A key strength of feminist theories is their alternative ways of knowing by problematising claims to value neutrality and objectivity, and replacing them with social and political positioning and reflexivity (Bell, Meriläinen, Taylor, and Tienari, 2019 and 2020; Harding, 1991). Two articles fall into this category, one a research interview with two inspirational feminists reflecting on the march of feminist studies, the other a review article of the knowledge implications of metaphors on women academics.

The first article is Lea Skewes and Stine Willum Adrian’s research interview with feminist professors and activists Rosi Braidotti and Nina Lykke, bringing them into dialogue about their careers, and the institutionalisation and future of Feminist Studies in universities. The interview illustrates how knowledge is personal and situated, how political and historical contexts shape the opportunities and constraints for feminist inquiry and feminist activism in patriarchal university institutions. Celebrating the accomplishments of the feminist community, the interview serves as an important reminder of how ‘feminists have redesigned the parameters of knowledge’. At the same time, Braidotti and Lykke express concerns about academic capitalism and the increasing precarity for feminist academics and critical theorists hindering feminist activism today.

The second article by Sofia Moratti is a nuanced review of the ‘myth and tale’ metaphors on women academics. Moratti offers a critical examination of the knowledge produced by this specific group of metaphors, such as Cinderella, Athena, the holy grail, and the ivory tower. Such metaphors can capture the situation of women academics in compelling images, but they also contribute to othering women. Moratti makes the case for re-inventing metaphors to avoid the normativity and reductionism of the original plots and develop new feminist knowledge to challenge prevailing orthodoxies.
The second group of articles deals with stretching what is understood as innovation. The three articles in this category open up traditional ways of thinking about innovation as the development of new products and services that is heavily infused by technology. They use feminist theories to mobilise alternative conceptualisations of the processes and practices of innovation, effectively stretching what innovation can be.

The article by Karen Berglund and Katarina Pettersson presents a feminist intervention in the male dominated innovation discourse. It foregrounds innovation as ‘pactivity’, a combination of activity and passivity, that is related to passion and openness, and to reflexivity. Drawing on empirical stories on innovation among rural women and men in Sweden, the authors develop alternative, feminist discourses of innovation, emphasizing innovation as a social ‘pactivity’ characterised by not knowing and being passionate.

The article by Magdalena Peterson McIntyre focuses on gender equality consultancies in Sweden through an innovation lens and asks whether this approach means commodification of gender equality. Through an ethnographic study on Swedish gender equality consultants, she examines how commodification is practiced and understood in gender equality consultancy work. McIntyre demonstrates how the innovation discourse is, in this case, open for re-configurations, and argues that the commodification of gender equality simultaneously means opening up possibilities for re-coding and re-appropriating the concept of innovation.

The last article in this group is by Gabriele Griffin on the feminising of innovation in the new academic discipline of Digital Humanities (DH). Debunking the masculine connotation of innovation, Griffin theorises innovation as a feminine gendered concept because it centres on difference, and as feminist because it calls for disruption and transformation of the status quo. Interviews with academics working in DH in Nordic countries are used to analyse the marginalised position of this disciplinary innovation in university structures, the precarious careers of DH practitioners, and the feminisation of this innovation. Griffin sees this as a case of ‘nested newness’, in which innovations are hindered by their encounters with existing gender regimes in institutions.

The final group of articles in this special issue addresses gendered careers in research, innovation and entrepreneurship. They take issue with the persistent under-representation of women in the ICT sector, in relatively new fields such as biotechnology and Digital Humanities, and in the wider R&I field. They show how everyday practices of gender continue to produce gender inequalities in different contexts, and call attention to how such inequalities are obscured and legitimised by normative ideals about gender equality, and postfeminist ideas about individual choice and agency. Four of the five articles in this section address gendered research careers in a Nordic societal context, characterised by high overall gender equality, including generous provisions for childcare and parenting, and demonstrating complex dynamics of inequalities despite relative advances in provisions and policies.

Hilda Corneliussen’s article contributes to the unpacking of the paradox of male domination of research and innovation in the Norwegian context, a country with high societal gender equality. It explores the paradox drawing on five case studies on women and girls in ICT training, education and work. Three forms of argumentation emerge here that explain this paradox: first, the ‘free choice’ argument maintaining that gender equality has been reached in society, thus women’s choices must reflect their individual preferences rather than structural inequalities; second, the ‘affluent society’ argument, claiming that women in such societies do not need to choose high-status professions such as ICT, and third, the ‘nation vs. individual’ argument which fails to recognise the impact of employers and organisations on women’s choices. Corneliussen argues that these types of rhetoric present persistent horizontal gender segregation as the result of women’s free choices, and thus free the relevant actors from responsibility in developing more inclusive cultures in ICT work and education. Moreover, they do not challenge the image of the gender-equal nation.

The article by Gilda Seddighi discusses the situation of full-time working mothers in Norway, who still have a feeling of opting out of ICT careers because these careers cannot be combined with families. A critical interrogation of the work-life balance discourse, the article argues against re-doing gender in a two-track parenthood model still grounded in a strict separation of the public and private spheres. This model constructs an individual responsibility for balance, and sees the family as a private concern, effectively leaving greedy ICT work cultures and the intensification of ICT work intact.

Päivi Korvajärvi’s article analyses how women researchers reflect on ‘doing’ and ‘undoing’ gender at work in the R&I context in Finland, a society characterised by high overall gender equality, drawing on semi-structured interviews inside and outside academia. In general, the interviewees expressed hesitation, downplaying or doubtfulness about the significance of gender at work, and a constant insecurity about whether gender plays a role. However, on the other hand, views that female-dominated workplaces had a ‘bad atmosphere’ were common, arguably itself a way of ‘doing gender’. There were few signs of ‘undoing’ gender in terms of changing the status quo. Gender equality at work was understood by the informants as numerical gender balance, and a specific concern for improving the gender balance in female-dominated work organisations.

The article by Gabriele Griffin and Marja Vehviläinen explores the persistent inequalities in R&I as an employment arena in the Nordic context, and more specifically in Finland, Sweden and Norway, in four career stages from doctoral to professorial level, in relatively new and emerging fields such as biotechnology, health
technology and digital humanities. Drawing on semi-structured interviews with women and men researchers in and outside academia, and Charles Tilly’s framework of mechanisms perpetuating inequality (exploitation, opportunity hoarding, emulation and adaptation) they conclude that despite advanced child-care and parental leave provisions, specific and cumulative gendered disadvantages still accompany women’s R&I careers across career stages, in particular through unquestioned informal everyday practices.

The article by Lynn Hamilton, Janice Thomas and Stefanie Ruel presents a small-scale exploratory study of engineering and technology entrepreneurs, from an under-researched perspective, focusing on daughter-successors of small and medium-sized family firms. Applying a critical realist perspective and semi-structured interviews they analyse the mechanisms of gender bias that three daughter successors experienced as entrepreneurs. Gender bias was expected to derive from family, family business and broader society. However, the validation the daughters received from their fathers was found to be crucial to counteract gender bias from other sources, enabling the daughters’ success as leader-successors.

**FUTURE ENCOUNTERS**

A special issue on feminist encounters of research and innovation provides only limited space and can only partially address the rich and growing field of feminist and gender research in R&I and knowledge production. As a final comment, we want to highlight some key and emerging topics and issues for future research in this area. Some of them are related to broadening the understanding of gender, others to how research and knowledge production are socially organised, contextual and situated knowledges, and still others to specific emerging research questions and knowledge gaps.

Most articles in this special issue apply a binary approach to gender, and focus mainly on women, their careers and experiences. Besides studies exploring academic masculinities and men as men in research and academia (Hearn, 2020), a broader understanding of gender in research, including non-binary, trans, and queer approaches (Beemyn, 2019; Cipolla, Gupta, Rubin, and Willey, 2017; Pitcher, 2019) has been developing in many fields. Furthermore, to enrich and deepen the understanding of the dynamics of persistent inequalities, we need more intersectional approaches, exploring how gender, ethnicity, nationality, class, sexuality intersect and create opportunity structures and obstacles in research careers and research organisations (Niemann, Gutiérrez y Muhs, and Harris, 2020; Styhre, 2018). One particularly thorny theme here is the inequalities in research organisations that are perpetuated by intersecting forms of sexism, racism, harassment and gender-based violence. More research is needed to understand the dynamics of this violence in its various forms and contexts, the impact on research careers and research cultures, and effective remedies against it.

When it comes to organisational contexts of research, in addition to departments and research institutes, research teams are in many fields playing an increasingly important role for careers and research development. Research teams range from small teams in one university or department to large international teams comprising hundreds of researchers across different national locations. Team science is portrayed as a driver of innovation, but we need more knowledge on the gender, race and class dynamics in different research teams.

Research on gender and research performing organisations has thus far had a strong focus on universities and research institutes, lately to some extent also on research funding organisations. Research on gender relations and careers in industrial R&I has thus far been less developed, despite the fact that in countries investing most in R&I the largest share of research is conducted in the business sector. Questions of centre and periphery in feminist knowledge production on R&I need more attention (Blagojević, 2009) as do theorising and empirical research that draw on decolonial and indigenous knowledge to challenge and broaden existing notions and understandings (Subramaniam, Foster, Harding, Roy, and TallBear, 2016).

In the field of gender and technology, the question of gendered participation remains vital but another pressing research agenda is addressing issues of technology that have broad societal impact, such as intersectional gender impacts and dynamics of Artificial Intelligence, algorithms, domestic technologies and robotics (Bajorek, 2019; Perez, 2019; UNESCO, 2020). Feminist theories are needed that can question the sociomaterial and affective dimensions of technological artefacts, and interrogate the defining role of social categories in the design, implementation and use of technologies.

Finally, gender equality in science, academia and research is currently on the agenda of key global and regional stakeholders, such as the UN, OECD, UNESCO, EU, as well as many governmental authorities and national research councils. These have been advocating policies and interventions around gender equality for decades. Despite this, a recurring question is: why is the change towards more gender equal, gender aware and gender-sensitive research organisations still so slow? More feminist analyses are called for in the field of mainstream international and national science and research policies, some still seemingly gender-neutral, as well as specific gender equality policies in higher education and research. Here, feminist research focusing on policy implementation, as in feminist implementation studies, opens up new ways to approach and understand this...
contradiction (Engeli and Mazur, 2018, Carey, Dickinson and Olney, 2019). All in all, we hope this special issue and the full research agenda illustrate the richness of gender and feminist perspectives on research, innovation and entrepreneurship, and can serve as an inspiration for future scholarship.

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