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Brazil Special Issue

Editorial

What sorts of intersections are there between international debates on gender, science and technology and current discussion about these matters in Brazil? The papers assembled here enable engagement with this question in relation to: (1) the gendering of the field of engineering, (2) the parenting practices of women and men working in the field of Information Technology, (3) the everyday dynamics and negotiations of couples with mobile phones, and (4) the imprint of gender in the management of technology incubator companies. In these papers the foci is oriented by a science and technology perspective with varied inclinations towards approaches from within sociology, family studies, anthropology and business studies. All refer to recent original empirical research and offer a good illustration of the fruitful transactions between academic debates pertaining to national location, and engaged with international concerns for the understanding of local matters. The central purpose here is to contribute to an enlarged international debate about matters of gender, science and technology, within a feminist perspective.

The range of research areas assembled in this issue is an illustration of a much larger and richer production. To situate them in the wider scholarship on gender, science and technology there is also a short 'perspectives' piece on the theme in Brazil. I note that three key areas are currently focused upon: (1) History of the representation of women and their careers in the field; (2) Adaptation of general theories to the studies of technology and science (STS) field; and the (3) development of particular fields within STS, including health, education, information technology and some emerging concerns linked to social media, the environment, sexuality/reproduction and others. The papers in this special issue engage with these themes, although they do so from particular perspectives and types of empirical engagement.

On the whole the four papers address issues of education in terms of women's access and motivation, labour market participation and earnings, leadership roles and opportunities, family dynamics and parental/domestic arrangements in face of demands of work, socialization trajectories and the 'invisible' imprints of gender opportunities, as well as courtship and marital disputes.

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These issues are addressed via investigations of the high education practices in engineering, the industrial relations and everyday arrangements of employees in Information Technology, the access and use of mobile telephony by women and men in a poor neighbourhood, and the outcomes of practice and policy of technology incubator companies. The issues were approached by means of secondary data analysis, qualitative interviews, electronic surveys, ethnography and participant observation engaged with comparative dimensions both across sectors and international contexts.

The paper *Gendered Habitus in Engineering: Experiences of Brazilian Students* by Eduardo Bonaldi and Elizabeth Silva discusses the ways in which an 'engineering habitus', which in the first instance presents itself as a predominantly masculinized habitus may change with the growing presence of women in the field. In 2011 13% of engineering jobs were held by women (EngenhariaData, 2013), within a growing trend. The authors draw from the perspective advanced by the French sociologist Pierre Bourdieu, in particular his key notions of habitus, capital and field, to explore how particular competences, dispositions and classificatory principles operate in the field of engineering. The field of engineering is presented as having a masculinized habitus because its inclinations, competences and dispositions are similar to the cultural repertoire traditionally associated with men. Their study is based on qualitative in-depth analysis of the socialization trajectories of 10 students (five men and five women) enrolled in an engineering degree in a publicly-funded Brazilian university, as well as on quantitative secondary data about the students. They discuss their findings in relation to the national and international contexts. The study shows that the socialization trajectories of both women and men studying engineering differ in that the experiences of women are patterned by a double bind in cultural repertoires, which affect traditional associations with gender. An engineering gendered habitus not conforming to the stereotypical and dominant masculine is in evidence, as women develop competences and dispositions that fit within the traditional masculine habitus, but also show inclinations and affinities commonly associated with femininity. The study advances the hypothesis that the growing participation of women in engineering drives this process, challenging traditional gender divisions and propelling a more flexible gender engineering habitus in the field.

While Bonaldi and Silva propose that the phenomenon they discuss is exploratory, and deserves further investigation, their concern fits within a longer trajectory of studies initiated by Maria Rosa Lombardi (2005) who notes the feminization of engineering in Brazil as a way of breaking traditional values configuring the field as masculine. They also engage with the recent work of Roxanne Hughes (2010 and 2011) in this journal about gender and the STEM field. However, the major contribution of the study here included is in showing connections between invisible processes of socialization marked by intersections of class and gender in the propensity of women and men (or girls and boys) to shift interest to new areas, commonly associated with a specific gender pattern.[1] It is not usual to approach the study of a professional field within STEM (Science, Technology, Engineering and Mathematics) using a Bourdieusian perspective and life history trajectory in the exploration of propensity of individual engagement.[2]

Barbara Castro discusses in her paper *Mothering and Fathering in Flexible and Precarious Working Contexts: The Brazilian IT Sector Case* how flexible working practices and precarious labour contracts affect women and men as they seek to reconcile professional life and parental responsibilities. The investigation is based on a case study of the Brazilian Information Technology (IT) sector, which has deployed a significant amount of people under illegal and informal employment contracts, making

great use of 'flexible' working practices. This means that practices commonly found include irregular specification of working conditions, no maternity leave, no annual leave, and work is done from home, with work support and working schedule adapted to the employees' needs. The paper draws from a larger study in the field which Castro carried out for her PhD. For this paper she compares the working and family arrangements of two women and two men selected from a wider sample, to contribute to the literature in two main areas: the relationship between work and family and the debate on precarious working conditions. The paper shows that women strategically use flexible working practices to achieve some balance between work and family, while men use the flexibility to increase salaries and pursue higher-level jobs. Such findings confirm previous analyses in developed countries about gender relations in the IT sector and on flexible working practices. Castro engages with the important contribution to this journal of the work by Lisa Freehill (2012). However, in the Brazilian scenario, the added impact of a highly informal labour market over gender relations is noted as particularly pernicious for gender equality both for the ways in which this affects entrenched gender divisions in domestic life and obscures the advancement of public political intervention.

The paper *"24 Hours On Air": Gender Relations, Conflict and Resistance in the Appropriation of Mobile Phones in a Brazilian Low-Income Neighbourhood* by Sandra Rubia Silva is part of a twelve-month ethnography on the sociocultural practices and meanings ascribed to mobile phones in a low-income neighbourhood in Southern Brazil. The particular cases investigated for this paper are part of a major study carried out for her PhD thesis. In this paper she examines various forms of appropriation of the mobile phone in their intersections with gender relations. The exploration addresses a low income group and the literature discusses gender relations on the basis of class to focus on poorer strata. The role of mobile phones in love/sexual relationships is central to the study. Silva argues that mobile phones are appropriated to strengthen love ties, but also cause tension and conflict to arise as they become tools of surveillance. In this sense, she remarks that the mobile phones engender what Foucault called the micropolitics of daily life, in which men and women interact in sociocultural dynamics that may reproduce gender hierarchies. Yet, they also hold the potential to subvert these hierarchies. As such, the analysis also pays attention to the vitality and humour present in women's narratives, in order to argue that these seem to be connected to some degree of autonomy of women. The discussion engages with the work of various other researchers internationally and in Brazil and reflects about some cross-cultural implications of these practices in relation to studies of a similar kind in Africa. The patriarchal control revealed in the stories, enhanced by the potential of surveillance embedded in mobile telephony makes explicit a coping strategy of the dominated, as women enact in their intimate relationships the need to deflect control or of engaging themselves in surveillance in order to remain autonomous.

In the study *Gender in the Management of Brazilian Incubators* by Leonardo Lehneman Agostinho, Mariza Almeida, Branca Terra and Adelaide Baeta, the focus is a relatively new policy and practice of business incubation for technology companies and the gender distribution in the management posts in Brazilian incubators. The study investigates the management functions of a large sample of incubators and the leadership positions in the national association. It discusses a set of relevant topics focused on: 1) the gender distribution in the job functions at the incubators; 2) the characteristics of the incubator management; 3) the characteristics and performance of the incubators managed by women; and 4) the representative positions of the women working at national Brazilian association of incubators. The principal result of

this research, with regard to gender distribution in the job functions at the incubators, demonstrates that women run few incubators (a mere 12.5%). The characteristics of these incubators run by women are that they are smaller, recently established and with fewer graduated companies.

In an earlier study done by Cristina Rocha (2006) in the southern state of Santa Catarina, she notes that women working in new technological enterprises face great difficulties in achieving the top jobs in these companies since men occupy the positions which relate with the market, the public and policy sectors. The paper by Agostinho and colleagues corroborates this finding and advances an argument regarding the social implication of these practices. This refers to the need to increase transparency and accountability from a gender perspective whereby all social actors involved in incubators (universities, regional networks incubators, incubators ´councils and associations) are called to account. Practically, the authors argue, all these organizations should significantly improve their gender monitoring; besides, they should include women in all policy committees related to incubators, including the board of the major national association.

How do these papers engage with international debates? One example is, as Chi Onwurah, a Member of Parliament in the UK notes, writing in the daily newspaper *The Guardian* (2013), that women in the UK make up only 7% of fellows of the Royal Society, a body for the most eminent scientists, engineers and technologists in the country. Just 6% of professional engineers are women, the lowest proportion in Europe. And, the figures are not improving, as currently just 13% of engineering undergraduates are women. Asked to explain the reason for this pattern, the government says it is up to industry, industry blames the universities, universities blame schools, schools blame parents and parents, says Onwurah, blame the media. It is true that women in STEM are not particularly visible in the media and knowledge about what women do can change women's social position, but clearly there are many other social matters related to gender in the fields of science and technology.

Widening our view of these issues is one major contribution of the papers in this Special Issue. They call attention to socialization processes from childhood via parents and school teachers, the role of peers and overall culture in the gendering of fields of work. This is affected by entrenched divisions of labour in the domestic context pushing mothers and fathers into different directions, signaling differentiated and unequal career prospects detrimental to women. The negotiation of intimate relationships within a patriarchal society passes through the control by men of women's movements inside and outside the home, which can be exacerbated by the surveillance potential of mobile technology. Cunning strategies and humour are put to use by the dominated partners in the relationship to navigate through everyday life within a somewhat oppressive atmosphere. In the world of work oppression is equally present as the prospect of advancing in leadership positions are curtailed, not just by ways of living within a culture of great gender disparity of opportunities, but also by continuing lack of public intervention to modify the context whereby women can achieve better places in education, the home, the labour market and in decision making spheres.

Elizabeth Silva, Guest Editor: Brazil Special Issue

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ENDNOTES

[1] In his ongoing Ph.D. research, Bonaldi reflects upon this very same issue concerning, however, lower social backgrounds than the ones depicted in this article.

[2] There are, however, a couple of examples to note, in the work of Duberley and Cohen (2010) and brief acknowledgement of Bourdieu in Hanappi and Hanappi-Egger (2012).

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