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Abstract

The cultural rise of "big ... s to make an epistemological shift toward data-driven science. Though expressed as a professional move, this article argues that the push incorporates gendered assumptions that disadvantage women. Using the human resource occupation as an example, I demonstrate how normative perceptions of feminine "soft skills" are seen as irreconcilable with the masculine "hard numbers" of a data-driven epistemology. The history of human resources reflects how assumptions of a biological fit with an occupation limit what women can convincingly describe as her skillsets. However, challenging this cannot stay within the confines of the occupation itself. To undo sexist thinking, it is necessary to understand the broader networks of patriarchal power that dictate how value is defined in corporate environments, especially within other high status professions in business.

The Equal Pay Act enacted in 1963 represents one in a long line of American laws passed to fight the oppression of women in workplaces. Yet, almost half a decade later, Marie Myung-Ok Lee (2012) tells a familiar story in *Slate* when she likens the work culture of Goldman Sachs to "frat on steroids." She explains that female workers in the company were often sexualized and spoken down to, and the sexist practices were difficult to challenge. When Lee spoke against sexism in company, she ended up being criticized for being "humorless" and having "poor social skills."

Lee's story, all too common, highlights the inadequacies of the legal system in tackling the systemic discrimination of gender prevalent in culture. Particularly, despite claims of being gender neutral, many professions and industries possess work cultures that lean toward one side of the masculine/feminine binary. Occupations such as investment banking, game design, and computer programming are dominated by men. Seventy percent of *Google*'s workforce is made of men (LaFrance, 2015), and only 25% of investment bankers are women (Loosvelt, 2011). Most of these women are white, and have positions lower in the corporate

hierarchy, suggesting an even bleaker situation if intersectional identities were to be accounted for. The composition of the workforce influences work culture. Just as banking is talked about as "frat on steroids," Silicon Valley is described as possessing a "brogrammer culture" (Raja, 2012), masculine cultures which legitimate sexism as harmless fun. Women who come against these practices are seen as prudes, and even men who do not enjoy such derision must participate in them to fit into the male ideal.

In this research paper, I examine an occupation which had struggled uneasily at the boundaries of its gendered identity: human resources. At the first glance, human resources look trivial as an object for study. In 2013, Forbes had ranked the occupation 11th for offering the "best paying job for women" (Goudreau, 2013). While men are still more likely to occupy the higher positions, the number of women taking over them had steadily been climbing. Contrasted with investment banking where women are faced with hostility from masculine work environments, or domestic labor where being gendered female is the norm, but the work is devalued, human resources appear like a model for gender equality, or, as an analyst had crowned with some hyperbole, a "paragon of success for women" (Ramirez, 2012).

But since the 1970s, the human resource enterprise had come under accusation of being out of touch with the contemporary business landscape due its emphasis on "soft" skills. Generally speaking, most human resource departments oversee the activities that have to do with an organization's workforce. This includes administrative duties like payroll control and also social initiatives that deal with recruitment, promotion, leadership, and workplace morale. These tasks often require people-oriented skills which tend to be seen as being more feminine. Opening with the question of "Why are there so many women in HR?," an article from *Personnel Today* quoted a manager saying:

> The key HR skills in many areas are the ability to empathize, relate and influence, and use emotional intelligence. I am not suggesting that men don't have emotional intelligence, but in HR the women who do well have bags and bags of it. (Tasker, 2005: 20)

While women are associated to "soft" skills, the skillsets related to analysis of big data, like programming and statistical analysis, have historically been perceived as "hard"—rational, analytical skills—believed to be found in men (boyd & Crawford, 2012). This accounts for one of the reasons why big data in human resources is often presented as an "opportunity" that requires a new workforce composition, with a shift in gender either explicitly (Strayer, 2012) or implicitly expressed (Bersin, 2013; Ferguson, 2015; Mihalache, 2013).

The research paper begins by elaborating on how gender is culturally divided into the male/female binary, which are related to social facts that manifest as social power that privilege men especially in the area of big data (Lorber, 1993). If women are deemed to be more inclined toward "soft skills" compared to men, and vice versa, the implication would be that big data is not a value-neutral term, but one embedded within a gendered history. Espousal of "big data" within human resources as a methodological shift, therefore, may incorporate a gender bias, even when conscious intent to discriminate is absent. In this sense, an awareness

and address of the possible gender bias in big data is essential if we are to ensure that this epistemological paradigm is not exclusionary to women.

Two arguments are then made through an analysis of the discourse advanced by those in the profession. First, by exploring the historically contingent ways gender has been attached to the profession, I suggest at how the gendered division of skillsets had limited the strategized potential for women to capitalize on skills they had. On the one hand, characteristics associated to their gender had allowed women to obtain important executive positions. On the other hand, by relying on these associations, women encountered difficulty in convincing others that they had capabilities that exceeded their gender stereotype. This then implicates who is perceived to have the skillsets related to the gathering, analyzing, and interpreting of datasets in the present.

Second, I analyze the relationships between human resources and finance so as to understand how masculinity can be embedded within what Castells (2009) calls "communication power," an influence over the definitions of value within a corporate network. The rise in the financial sector in the corporate hierarchy in few last decades had influenced how human resources as a profession is made to legitimate its functions. An analysis of the works of Jac Fitz-enz, one of the first male elites of the profession to push for "hard numbers" in the profession, helps us understand the relationship between finance and human resources, and the invisible sexist prejudice that is embedded within this relationship (Caudron, 2004). Since banking cultures are typically masculine, focused on self-interest, rationality, and bottom-line results, their calculations of value marginalizes the unquantifiable emotional work of human resources. The suppression in the value of women's work is therefore connected to the broader structures of patriarchy that refuse a simple understanding of how sexism in corporations may be resolved.

Gender and big data

Through social arrangements, the emotional habitus is often read as a privileged space for women. As Jaggar (1989) explains, women are often thought of as being more in tune with their emotional selves because they are permitted, and even required, to express their emotions openly. For a large part of Western history, the normative female subject was modeled on maternal virtuosity (Folbre, 2010). While men were tasked to avoid emotional contagion so that they act like rational, self-interested thinking subjects, women were taught to be sensitive to the emotions of others so that they might moderate the excessive evils of masculine self-interest. This enables the conclusion that women ought to function better in human resources because they have a biological advantage in managing emotions more effectively than men.

But beginning in the 1970s, elites of the profession have argued that human resources would not be taken seriously until it sheds off its feminine image of emotionality and care. They advocate that human resources be transformed into an occupation that is more bottom-line driven and quantitative. The popularization of "big data" in the last few years provides new pressure for such a transformation. Capacities to analyze massive datasets and predict the performance and value of employees, purportedly allow organizations to understand workers in a quantitative, objective, and emotionless way. A variety of enterprise resource

planning software now allow companies to capture massive data through the routine work of employees. Data scientists argue that these numbers, parsed through algorithms, would enable corporations to predict a number of different trends, like the employees who are likely to leave over the next months, or the levels of compensation most effective to motivate workers (Knox et al., 2007). A startup company *Gild*, for instance, prides itself for being a recruiting platform guided by data science and predictive analytics. Using algorithms to source and parse the online histories of workers, *Gild* suggests that it is even able to select talent by evaluating characteristics tangential to the job requirement (Peck, 2013).

The described efficiencies of big data are compelling, even utopian, conjuring a seductive informatic fantasy of a revolution in the labor market. Not surprisingly then, elites are in support of this methodology, believing that it can solidify the position of human resources in business. "For a very long time now," wrote *The Financial Gazette*: "HR professionals have been berated for their lack of appreciation of the financial implications of their interventions. To correct this misperception, it is imperative that the HR function focus on dollar-impact metrics" (Jongwe, 2012). This conclusion is generally agreed upon: in a recent survey, over half of the CEOs in large organizations supported the statement that "providing actionable human capital data was a key way HR would develop broader influence within the organization" (Ferguson, 2015).

An examination of the impact big data has on human resources offers a perspective into the relationship between patriarchy and capitalism. More recently, it had been proposed that changes in the regimes of accumulation, particularly the contemporary emphasis on service and knowledge-based industries, had allowed "soft," namely people skills, to be more integrated within capitalist flows (Castells, 1996; Kelan, 2007). In popular media, for instance, Hanna Rosin (2010) proclaimed the "end of men," stating that "the postindustrial economy is indifferent to men's size and strength." Rosin believes that the recent financial crisis had revealed a paradigm shift, where women's skillsets are becoming more in demand. "The attributes valuable today," she continues: "social intelligence, open communication, the ability to sit still and focus—are, at a minimum, not predominantly male." Rosin's statement resonates with postfeminist culture, which is also recently refracted through successful white, female corporate figures, like Sheryl Sandberg, Marissa Mayer, and Arianna Huffington. These figures perpetuate the idea that the modern woman is no longer impeded by structural factors of the periods before. Even if women face discrimination at work, they can overcome them by internalizing the strategies of self-empowerment and by capitalizing on their innate capabilities and charm (McRobbie, 2008).

However, such postfeminist rhetoric underplays the challenges of structural impediments. Not all women, hooks (2013) observes, are equally poised to tap into the opportunities of Rosin's postindustrial economy. Specifically, the conventional images of successful women suggest that the woman allowed into the fold of patriarchal capitalism is one who is unthreatening to the feminine norm: white, pleasant, and subversive only to the extent she does not disturb the expectations of normal feminine behavior. Further, as Morini (2007) offers, there is no guarantee that the feminization of labor markets would necessarily lead to better conditions for women. Even though women have more opportunities to work, much of their labor, like the

work of self-presentation, or the lengthy, blurred hours that come with work-from-home jobs, continues to be invisible and devalued.

These points are especially resonant in human resources, a field well known for its feminine people-oriented thrust. Even though the emotional skills in human resources are deemed to be more commodifiable in the present, its associations to "softness" make it seem irrelevant and less valuable within the context of "hard" big data skills. In their critique of big data, boyd and Crawford (2012) note that the "hierarchies around 'who can read numbers'… is also a gendered division." "Most researchers who have computational skills at the present moment are male," they write, "and, as feminist historians and philosophers of science have demonstrated, who is asking the questions determines which questions are asked" (p. 674). boyd and Crawford make an important point, but the issue that I grapple with here, is one less centered on who has the computational skills, but who is *perceived to be able to have those skills*. As I argue, the gendered division between "hard" and "soft" skills preemptively renders it difficult for women to be acknowledged as having computational skills, even if they demonstrate their proficiencies in those areas. In this way, in order to understand how gender can shape the use of big data, it is necessary first to consider how difficult it is for women to be recognized as being able to read numbers.

Deconstructing gender binaries

The masculine and feminine are two oppositional concepts internalized in culture. Gherardi (1994), for instance, explains that the gender binary is loaded into our discourse "by default," meaning that it is unconsciously relied upon to maneuver everyday life. The male/female binary is produced through the positions of two oppositional concepts together, like aggressive/passive, rational/emotional, and objective/subjective, with the former associated to the male, and the latter, female. The binary conveys a hierarchical system of value: the elements referencing the masculine are often estimated to be of more worth compared to the elements associated to the feminine. This mental schema enters everyday life as people "do gender," adjusting their body and speech to perform socially appropriate gendered behavior (West and Zimmerman, 1987). This can manifest within something as common as restaurant service. Restaurant servers, for example, are asked to perform different scripts based on their gender; waitresses were trained to smile and be more deferential to customers, while waiters were tasked to use their gender authority to be more solution oriented (Hall, 1993). In this way, the gender binary reproduces gender while regulating it, allowing performances of gender to be seen as something natural over time (Butler, 2004). Observing the limits of this norm, various poststructuralist scholars have attempted to "undo gender" by deconstructing the gender binaries (Kelan, 2010). Joan Scott expressed that a binary is produced through an enactment of difference, but this difference is only rendered possible through the repression of difference within the binary itself (Scott, 1988). To describe nursing as a feminine career, therefore, would entail repressing moments where nurses have to be aggressive, rational, or objective. However, while deconstruction can surface moments of instability within the gender binary, showing its artificiality and constructedness, undoing the binary is a far more complex task. Since the gender binary is ingrained deeply

into culture, performances outside these socially accepted gender scripts, like enacting the identity of a "stone butch" (Halberstam, 1998) carry the implication of receiving societal disapproval and being decidedly outside the norm. The difficulty of undoing the binary lies in this: since gender performance outside the norm is identified as problematic, then transgressive gendered performances only further reify the naturalness of the binary itself (Butler, 2004).

The policing of these gendered limits carries obvious economic repercussions in workplaces. A nurse who is purposefully chosen for her "biological" traits of feminine empathy would be punished if she violates these expectations. Some studies had pointed out that there are different consequences for men and women who perform outside socially accepted gendered scripts. While women are more likely to be policed for transgresses, or have to repress their femininity to participate within more masculine occupations, men are more capable of maneuvering between gender scripts without penalty, and may even be rewarded for displaying "unnatural" feminine skills (Buckley, 1986; Woodfield, 2000).

Scott's (1988) call toward a "nondeterminist gender" is interesting is in light of the convoluted gender identity that human resource had struggled with. She defined the nondeterminist gender as a gendered identity that "does not deny the existence of gender differences, but it does suggest that its meanings are always relative to particular constructions in specified contexts" (p. 47). In contrast to an absolutist category of gender that sees gender differences as something real and unchanging, or the deconstructionist possibility of denying the meanings of gender as complete constructions, the nondeterminist gender understands gender as a fluid construct, that while socially constructed, mobilizes real consequences and meanings in the different contexts it is employed in. This highlights the openness of gender discourse to different possibilities in articulation, giving it more strategic potential to challenge dominant power arrangements in different contexts (Hall, 1982). But is the articulation of gender so fluid in reality? In the history of human resource, both male and female actors have attempted to articulate gender differently to favor their self-interest. But the strategic potential meets its limits due to the established terms of gender prior put in play.

Human resource had struggled uneasily with its gendered identity in part because of its unusual position in the capitalist system. In general, occupations associated to feminine traits, such as maternal care, patience, and attentiveness to details, had historically translated less successfully into capitalist relations (Perry and Greber, 1996). Indeed, women's work, because of its attachment to domesticity or maternal care, had often been made invisible or devalued (Hartsock, 2004). Human resource is thereby unusual because while it is tasked with a feminine scope of work, its position within the organization is essentially that of management—an unusually esteemed position for a feminine occupation.

Brief historical overview of human resources

To understand the contemporary challenges faced by human resources, it is necessary to understand the profession's gendered history. As a prominent occupation, human resources resist a unitary writing of its history. My account of it, therefore, is fragmentary and explicitly focuses on the role of women. This is divided into three parts, from 1890 to 1920, when the occupation began with mostly women, in 1920 to 1940 as men

took over the occupation through credentialing and science, and in 1940, as women were once again allowed into these positions during the Second World War. Finally, my study of the contemporary moment begins from the 1970s to the present as masculine traits are once again used to advocate change in the occupation. Human resource executives, as we commonly describe those in the profession, were named differently in each of these periods. From 1890 to 1920, they were called "welfare secretaries" as they were predominantly women and expected to cater to the well-being of workers in the factories. When men took over the profession in the 1920s, they adopted the more authoritative label of the "personnel manager." Then toward the present, influenced by a new paradigm of management forwarded by figures like Peter Drucker and Douglas McGregor, the profession was renamed to that of "human resources."

To make my argument on the history of human resources, I draw from established histories written by historians like Andrea Tone and Nikki Mandell, and supplement it with primary research material from the *Personnel Journal. Personnel Journal* came out of the Personnel Research Federation, a research group developed for the study of the management of personnel in the early 20th century. Headed first by Charles Slocombe, the director of the federation, and regularly published with research articles, opinion pieces, and book reviews, the *Personnel Journal* became the leading trade journal for the practitioners of human resources in early and mid-20th century America (Gillespie, 1991).

Toward the present, I turn to Jac Fitz-enz, also dubbed the "metrics maverick," a pioneer who pushed for quantification in the human resource profession (Caudron, 2004). Fitz-enz was one of the most important figures who framed the need for quantification in the profession and his ideas continue to influence the profession today. His recent books, *The New HR Analytics* (Fitz-enz, 2010) and *Predictive Analytics for Human Resources* (Fitz-enz and Mattox, 2014) are used as key texts to expound on how big data can be used in human resources (Rafter, 2013).

Relating to Michel Foucault, McHoul and Grace (2002) write that discourse are statements which reference ideological forms of knowing; enunciations are not value-free utterances, but normative statements that intersect with ideological structures—a common one being patriarchy. Discourse enters into systems of thought composed of ideas, attitudes, courses of action, beliefs, and practices, offering a language that both constrains and enables the description and understanding of a subject. In this sense, a study of discourse is also a study of power, the "systems of domination" involved in a social construction which represents one group's interest at the expense of others (Purvis and Hunt, 1993). By carefully examining the discourse forwarded by human resource practitioners, this research paper unpacks the ways gender has been built into ideas about the profession and its implication for women workers in the contemporary with the rise of big data methods.

Analysis began with a reading of articles in the *Personnel Journal* from 1920 to 1955. I especially focused on the articles which addressed women workers and situated what was said within the theoretical framework and the historical context of the time. Next, Fitz-enz's works were sourced through a database search. All his written materials were read, with attention paid to the ways he legitimated the importance of quantification. This discourse is then situated in relation to his personal history and the relevance to big data today.

The welfare secretary

Historian Andrea Tone (1997) explained that the welfare secretaries, the earliest human resource professionals, emerged at the height of industrial capitalism in the 1890s when several elements were converging together to question the legitimacy of corporate power. In the factories, workers were starting to grow in numbers, leading to the strengthening of labor unions. In the milieu of the everyday, consumers were also becoming suspicious of capitalism as reports of defective or dangerous products became more prevalent. Faced with mounting negative publicity, corporate leaders saw the need for reform, and some of them turned toward welfare capitalism for a solution.

Welfare capitalism attempted to build a new relationship between labor and capital by reshaping the image of both employers and workers: the corporate leader is portrayed as a benevolent employer who is concerned about the welfare of workers, while workers were described to be empowered and more upwardly mobile as a result of new initiatives implemented by the company. Since the workforce had grown too large for employers to have personal contact with their workers, welfare secretaries took on the middle position of representing the face of the reformed capitalist. Women, as Mandell (2002) noted, were chosen for his position *precisely* because they did not fit into the gendered idea of masculine capitalism: "the very qualities that traditionally excluded women from the world of business, their assumed selflessness, compassion and domesticity, were just the skills needed to build a happy corporate family" (p. 33). As such, the welfare secretary was an explicitly gendered occupation—"biology and attitude rather than formal training" (Tone, 1997: 178) demonstrated the signs of expertise for the occupation.

To be sure, the actual work of welfare secretaries did not fit neatly into gendered categories. When this occupational position was first created, welfare secretaries were not given an official position within the bureaucratic structure, and simply expected to use their feminine skills to find out what workers wanted, and implement initiatives for the improvement of the workplace. To present themselves as trustworthy custodians of Victorian morality, welfare secretaries had to simultaneously play roles of mothers, listening to the troubles of workers and advising them, as well as stand up as morally upright disciplinarians, chastising workers, and management who were out of line (Mandell, 2002).

Although the female gender was essential in opening up an unusually esteemed organizational position for women, it also created limits by which this position may be legitimated within management. Since the expertise of welfare secretaries was attributed to their biology, professionalization of this occupation proved difficult. In particular, welfare secretaries encountered difficulties rearticulating their work of welfare as part of the business operation. This was not to say that welfare itself was not an embedded business practice. In fact, many welfare secretaries had over time learned the operations of business and started to implement their initiatives by trying to justify it through efficiency and profits (Tone, 1997). However, like Cohn (1993) explained, gender employs a prediscursive form of deterrence, restricting not just speech, but thought as well. The welfare secretaries' attempt at using business language was not acknowledged or accepted.

The personnel manager

These elements made the profession vulnerable to the changes that would happen in the 1920s. Leaders from the Taylorist society had begun to see welfare as a viable strategy for producing workplace efficiencies. Since the welfare secretary was an unprofessionalized occupation, it was easy for men to come into the field and announce their intent of remolding it. Melding scientific methods and bureaucracy, these elites appropriated the work of welfare secretaries and established it through the more authoritative title of the "personnel manager" or "personnel executive" (Hillard, 2004). Although welfare secretaries had struggled to be included within this profession, their attempts were futile. Not only did elites claim that women did not have the scientific sense to work within this profession, they also worried that the presence of women would dilute the prestige of personnel executives (Mandell, 2002).

However, by using gender as a basis of challenging the welfare secretary position, the position of personnel executives, ironically, came to be very explicitly gendered as well. The gender binary works in relational terms; to define themselves against the welfare secretaries, who were assumed to use feminine intuition and morality, personnel executives had to borrow heavily from the masculine banners of science and bureaucracy, even when discussing "soft" ideas like emotions.

From the 1920s to the 1940s, many articles in the *Personnel Journal* covered topics on industrial psychology and psychiatry, presumably the discourse necessary to portray the professional as a more objective, rational one. Emotionality was highlighted, but given a scientific cast, to tamper down its feminine connotations. For example, while personnel managers were asked to be attentive to the emotions of fellow workers, possessing empathy to "see the other fellow's point of view," they also prioritized rationality for the personnel manager, "the ability to follow his reason instead of his emotions" (Hersey, 1936: 295). What followed was not a model of feminine emotionality, but the feminization of masculinity, a hybrid model of emotionality which prioritized the male gender by stipulating that only the strong male mind would control the torrent of excesses which the attunement to the emotional self would spew forth (Illouz, 2008).

Guided by the dominant management philosophy of human relations, personnel managers were taught to associate their craft to that of a therapist. During recruitment they were tasked to spot signs of personality trouble or psychiatric disorders from the responses of the candidates (Anderson, 1928), and interviews carried out with workers had the tendency of tying ordinary answers to signs of psychological disturbances. This was especially true of women workers, who were deemed to be more emotionally sensitive. A female worker's unhappy relationship with her deceased father, for instance, was related to her present "nervousness" and "timidity" in relating to others (Slocombe, 1936: 171). Another article reminded personnel managers to praise women more frequently because they were more desirous of approval (Shephard, 1937).

Women enter the occupation again

By the 1940s, the Second World War had brought in an unprecedented number of women into the factories, leading to the rehiring of women personnel executives. However, the occupational culture had already been entrenched and women did not appropriate the field like men did. A four-part article in *Personnel Journal* discussed the early hiring requirements of these women staff, showing that while feminine qualities were still

used to legitimate their entry into the profession, there was also now an emphasis on their adaptability to the masculine culture. Hiring guidelines, for example, invoked notions of maternal qualities: The prerequisite for women personnel executives was the "ability to get along with people," to "guide, counsel and suggest," and "to make humanity grow" (Owens, 1942a: 315). On the other hand, negative feminine traits needed to be kept in check. A personnel manager expressed that women need to fight their gendered obsession with gossip; women personnel executives required a "secretive nature—she must not discuss a fellow-worker's problems hither and yon" (Owens, 1942b: 301). Knowledge in science, the expertise which had made personnel managers a masculine endeavor, was also now important. Personnel managers expressed that a bachelor's degree, particularly within psychology or personnel administration, would aid in their employability (Owens, 1942c).

Although the war had opened the position to women, their positions were still subordinate to men. Women personnel executives had a limited scope of work and continued to be recruited and retained after the war only to manage female workers (Ford, 1951). The idea that being biologically gendered woman would provide one with a standpoint that allowed for better understanding of other women proved to be problematic in increasing the value seen of women personnel executives. An article, published in 1956 challenged this notion, expressing that while the prevailing view supposes that "women [should] manage the personnel affairs of women," the women personnel executives themselves believe that "there are no personnel jobs they cannot do" (Lynch, 1956: 296). Instead of claiming that gender should not matter, however, the article went on to explain how the female gender might be advantageous to personnel management. Women, it suggested, could play a positive influence during bargaining situations with labor unions (probably the most "masculine" of tasks that personnel managers had to do), reducing "bickering" between the parties simply by being present: "If she did nothing else but sit there… she would be well worth her salt and more too" (p. 296). The female body, in this account, is described as a fetish, whose mere presence would ease tensions and produce harmony. In contrast to an argument which seeks to eliminate gendered differences, the female body is now poised deliberately in its difference, the object of a gaze, which once given, changes the atmosphere of the bargaining environment.

For the nondeterminist gender to work as strategic potential, women need to be able to construct their gendered identities fluidly. In other words, what constitutes the meaning of a "woman" in one context needs to be switched to something else in another context. Only by articulating the meanings of gender freely, can its constructed meanings acquire strategic usage (Scott, 1988). Women in human resources had historically used their gender to strategically vie for a position in the occupation against men. They had simultaneously pointed to their gendered bodies and its association of feminine intuition and abilities to cement their positions but had also tried to appropriate masculine discourses as needed to legitimate these positions. The nondeterminist gender, in other words, was enacted in practice through the ways women maneuvered through the gendered discourse.

However, this strategy shows its limits when it becomes apparent that gendered meanings have a kind of fixity in corporate systems. The woman, simply by embodying a not-male body produces a gendered

meaning to their competence that refuses easy discursive changes in practice (Bordo, 2004). Welfare secretaries had already thought about understanding the management of workers as a business process in the early 20th century and this same line was repeated in the 1940s, with Miss Bloodworth, an experienced personnel manager, emphasizing that "the personnel department must justify its existence" and the primary way to do that is to have a "a good business sense—a realization that the primary object of business is to make a profit and to build on organization" (Owens, 1942a: 316). However, as women are thought of as only equipped with soft skills, the ability for their knowledge to translate into the larger systems of business remained difficult. Gendered discourses, therefore, had a double-edged effect on women in the occupation: the same discourse that brought women some advantage also hindered them since capitalism valued masculine discourses over feminine ones. This problem became apparent in the 1970s.

Although it remains unclear, women probably began to dominate human resources only after men left the occupation from the 1960s onward. At that time, the number of middle management positions had been considerably expanded and personnel managers were increasingly relegated to lesser roles within the organization. Concurrently, a shift in the regimes of accumulation led to a greater emphasis on financialization, increasing the status of occupations that have to do with finance (Jacoby, 2003). Since masculinity is defined by being upwardly mobile (Haigh, 2010), men moved into these positions, leaving women to dominate the field once more. Records showed that the number of federal government human resource positions occupied by women increased from 30% in 1969 to 71% in 1988 (Ramirez, 2012). More recently, the U.S. Bureau of Labor Statistics noted that about 70% of human resource positions in 2007 were occupied by women, although men still outnumbered women in higher positions (Tuna, 2008).

Quantification and Fitz-enz

As these changes took place, human resources once again acquired the perceived quality of being "soft." When a journalist asked human resources managers to explain the unequal proportion of women in the occupation, they turned to biological explanations, stating that women are attracted to "softer" social sciences while men the "harder" sciences (Tasker, 2005). This widely adopted biological reasoning occludes the more complex structural problems at work. As history suggests, when the occupation was valuable, men had appropriated the field for themselves and transformed it into a masculine discipline. It was only when men left to pursue higher status occupations that the human resource became seen as "soft" once more. The gendered nature of occupations is articulated rather than real.

Nonetheless, the attachment of a feminine culture to the occupation had won women a limited victory. Human resources had become a position where women could find work and climb the corporate ladder because they faced less challenges to their assumed biological absences. In other words, the perception of the profession as "soft" had permitted women to both use and qualify their emotional skills as valuable to business operations. Indeed, though human resources had become relatively devalued in the corporate structure, it is still faring considerably better than many other occupations in its treatment toward women.

However, while skills at emotional management might have been more readily accepted as commodifiable given the emergence of service and knowledge industries, it still occupies a relatively subordinate position in the capitalist framework. As Hochschild (1983) pointed out, the work of emotional labor is primarily conducted by women and tends to be devalued and invisible as it lacks the credibility of being "real." Feminine discourses occupy an unstable position within the capitalist structure and an occupation that is perceived as soft encounters the problem of having to legitimate itself constantly.

In this last section, I analyze the work of Jac Fitz-enz, a leader in this profession who has been dubbed the "father of human capital strategic analysis and measurement" (HCI, 2016). He describes his entry to human resources as accidental. A talented salesman, Fitz-enz had originally wanted to be a banker at the Wells Fargo Bank. However, instead of being assigned to banking after his training, he was relegated to the personnel department, a place, he was told "was populated by bankers who had failed at banking" and a "repository for second-class employees." Fitz-enz's turn toward quantification happened then. Unwilling to be "thrown into the annex with failed people," he started to gather data of workers in the personnel department so as to demonstrate that the position could indeed produce value (Caudron, 2004).

Fitz-enz's use of quantification, as such, was a deliberate response against the feminine discourse attached to the human resource occupation. Believing that personnel was devalued because of its emotional connotation, he attempted to repaint his work according to a notion of value which ties directly into another department—the department he was not allocated to—finance. In *Communication Power,* Manuel Castells (2009) drew attention to the differential degrees by which meanings can move within networks. Holders of power, he theorized, dictate the ideology of networks, controlling the messages and interpretations which flow in them. For messages to circulate and receive attention, they must be framed according to dominant ideology. In this sense, financial departments, by virtue of being the prime income-generating source in companies, have strong influence in dictating the terms by which "value" is articulated. By using the language of numbers, Fitz-enz hoped that work of human resources could achieve the same prestige as finance.

The field of finance, and its relationship with numbers, spans over several centuries. For a long time, speculation was generally considered an emotional affair, with people caught in the waves of euphoria and despair as market makes its twists and turns (Szpiro, 2011). But beginning in the late 19th century, the face of an investor gradually became one of a rational, dispassionate, self-possessed, and analytical man who could rationally explain the hysteria and panic of markets. This new image came along a new set of expertise, skills at calculation, and the knowledge in analyzing stock price diagrams, news, balance sheets to make price predictions.

By the 1970s, about the same time Fitz-enz (1978) wrote his first article, the quantification of finance was cemented by maverick figures like Fisher Black, Myron Scholes, and Robert Merton. The complex mathematical equations developed by these academics made even the "analytical" speculator, who invested based on news reports and stock market sheets, look irrational. Rationality became based on a kaleidoscope of complex mathematical formulas, and the computers which had become capable of performing complex calculations according to second-by-second price changes. At this point, even the emotional environments of

the trading floor, with its shouts, pushing, and furious hand gesturing, were replaced by rational machines of computers and software (Arnoldi and Borch, 2007).

Fitz-enz's decision to use the language of numbers was prompted by an interest in aligning the human resource with quantitative emphasis in financial departments. Since personnel in financial departments, like traders, investment bankers, and analysts, were trained in economics and finance, Fitz-enz saw a need to rearticulate softness into hardness, an adjustment of discourse that would reinsert human resources into the networks of corporate value. In his first article published in 1978, titled "The measurement imperative," Fitz-enz (1978) expressed the following:

> One of the reasons personnel practitioners have seldom been accepted as key members of the executive team is that we are not playing the same game as the rest of the team members. While sales is tallying six-point touchdowns, each time personnel scores it looks like a mere extra point to many observers… The name of the game today is numbers. With ever increasing speed, computers are churning out numbers in sales volume, market penetration, production capacity, accounts receivable and even future corporate plans. These are hard numbers. (p. 193)

From the beginning, Fitz-enz was less interested in actually improving the processes of human resource work. Instead he was interested in the frame by which human resource could validate its merits, an important element for the occupation to become more valuable in the corporate structure. As Ho (2009) pointed out, many investment bankers treat backend departments, those that maintain the processes of business but do not add to its profits, as "cost centers." In a networked corporate structure, to legitimate one's department, one needs to shy away from this negative label and contribute directly to the company's profits. Quantification is useful in this sense because it speaks directly to the bottom line, the criteria by which finance gains its legitimacy.

The pragmatics of this affair, however, elides how quantification is, in itself, a gendered discourse. By prioritizing rationality and objectivity over emotionality and subjectivity, quantification downplays the everyday kinds of problems that are solved through the soft skills of women—things that cannot be so easily quantified. Thus, women's claim to expertise in social competence had been challenged with other skillsets that speak better to the networks of corporate value, like statistics or computer science knowledge.

In another article, Fitz-enz (2009a) points to a man who had just been appointed as the head of human resources despite having only four years of experience in the department:

> Perhaps the key was his success in general management and degrees in math and computer science. This is not an isolated case but rather the sign of new attention paid to the potential value of managing human capital through a better model. (p. 2)

According to this reasoning, success at human resources prioritizes knowledge in mathematics and computer science rather than people skills. In fact, as he writes elsewhere, an overemphasis on emotionality may be problematic if it leads one into a "subjectivity myth," an obstinate belief that human resource work cannot be quantified (Fitz-enz, 1984).

Leaving aside the problematics of calling quantification a "better model," Fit-enz's example which centers on a man excelling within a woman-dominated occupation, is masculinist. It perpetuates a sexist division of labor, suggesting men, with their rational, computing knowledge, should lead in the reformed human resource enterprise, and women would be their subordinates, doing routinized and emotional work. This downplays the quantitative work that women already do with human resources and slights their abilities in handling the analysis of big data.

These ideas are buttressed by masculine rhetorical strategies. Much of his reading is pervaded with revolutionary imperatives, highlighting qualities of conflict, aggression, and brute force. In a commentary published in 1994, for instance, he advocates a paradigm shift in the profession, naming the present a "Darwinian world" where "only the fittest will survive." He continues: "This means that in every company every position must generate value. There is no longer room for expense centers. Yet this is how HR is seen" (Fitz-enz, 1994: 84). In another article, he writes that "history is made in bold, disrupting strokes, not small steps," and goes on to name inventions like the steam engine and the steel furnace, warning that human resources need a similar "makeover" to stay relevant. Though Fitz-enz does not explicitly leave out the possibility of women leading the change, his persuasive style, implying aggressiveness, and cold steel, suggests that quantitative shift in human resources is a man's job (Fitz-enz, 2009b).

My study into Fitz-enz's work makes the argument that the push for quantification is a challenge to the status of women in the human resource occupation. Again here, the issue is not that women are less equipped to do mathematical work. Indeed, there is nothing to suggest that women are worse in quantitative work than men. However, as the history of human resources has shown, gender is an intransigent discourse that is limited in its capacity for appropriation. The problem is that even if a woman is skilled in "hard" data science, she faces a stiff challenge convincing others of her abilities. Meanwhile, the "soft" emotional work that human resources does is devalued.

The discourse of soft and hard skills facilitates an invisible gendered privilege. None of Fitz-enz's work, for instance, explicitly speaks against women; gender was not represented as a consideration in his attempt to align human resources with the values of finance and computer science. But in refusing to understand how gender is comprised of systems attached to rhetorical styles and skillsets, Fitz-enz unwittingly allows these discriminatory processes to perpetuate. Given Fitz-enz's leading role in the profession especially in the area of analytics (Caudron, 2004; Rafter, 2013), and how the emphasis on measurable value has become a staple of corporate discourse today (Ho, 2009), this unexamined relationship between quantification and gender had unfortunately opened different possibilities to gendered discrimination.

Consider, for example, how human resource professionals themselves have conflated gender with the occupation's goal orientations. An anonymous letter to *Personnel Toda*y expressed that "feminized

communication styles and behaviors" had turned HR into an occupation focused too much on "diversity and fringe causes… without sufficient proof of increased bottom line performance" (Anonymous, 2005a: 12). The linkage of "diversity and fringe causes" to women staff, rather than the department's goals reflects the deep entrenchments of sexist thinking. Other responses to the dominance of women in human resources further highlight this problematic conception. Human resource managers themselves, for example, offered that women are attracted to the occupation because it is "not perceived as a serious business function" (Anonymous, 2005b: 20). A manager even claimed that female-dominated human resource departments are problematic because they inevitably become "bitchy and duplicitous" (Aaron, 2009: 10).

With the arrival of big data, human resources, like other corporate functions, would steadily be pressured to move toward a more quantitative, predictive system. It is at this point that women's control over this occupation would be contested in a most powerful way. Women, as I explained, had historically used their feminine skills to legitimate their position within human resources, thinking of it as an occupation that required social and emotional skills, qualities which were assumed to biologically present within women's maternal instincts. This biological reasoning, however, had also made it difficult for women to legitimate their position in alternative ways and had led to the claim that human resources need to hire men so that it could fulfill its new function of quantitative data processing.

For example, Susan Strayer, a contributor to *Forbes*, expressed that human resources could no longer to be a "women-only game" and needed to be "gender agonistic" with the changes required of the occupation. The work of human resources, she expressed, will no longer be "touchy feel-y or emotional" but a "performance-driving business necessity." The gendered implication of these statements culminate in the final argument: "But if you leave it to your largely female HR team, or assume the ladies will take care of it, you're not just mistaken, you're in the red" (Strayer, 2012). The change in business operations works against women, not only because they can no longer leverage on feminine discourses easily, but also because the hard skills of mathematics and computer science are assumed to be absent in their gender.

Conclusion

Through a discourse analysis of the history of human resources and Fitz-enz's work, I have argued that skillsets are entrenched in biological assumptions. Men were assumed to have "hard" skills, the skills that are more economically valuable, while women lean toward "soft" skills, those are thought to be innate within their biology. Clearly, women can possess "hard" skills just as men may have "soft" skills, but issue is not about the presence or absence of skillsets: it is about who is normatively allowed to have these skills. Possession of skills is not equivalent to the public acknowledgment of it, and a misfit between gender and its assumed skillset can be hard to disentangle.

In the history of human resources, women who tried to articulate their skillsets outside biological assumptions faced challenges from men, and since women were hired precisely for their assumed soft skills, it also became difficult for them to claim expertise in another field. As Chun (2011) points to in her analysis of early female computer operators, there is a distinct difference between having a particular set of skills, and

being able to capitalize on it. Though these women had mathematical skills, they were hired only as operators—not programmers—because they were assumed more conscientious and submissive to the orders given by their male supervisors.

In a similar manner, the distinction between “hard” and “soft” skills and its biological correlates makes it harder for women to justify their ability to handle the big data work today. To challenge this sexist thinking, however, it is necessary to consider not just the ways human relations is perceived, but also how finance and computer science can wield influence over the definitions of value within other occupations. The push for big data is masculine to the extent that finance and computer science are masculine fields. Changing the human resource workforce composition toward one which privileges quantification would then implicitly mean a movement toward a more male workforce. Relatedly, since big data is seen as capable of generating more value, women would be seen as less valuable due to their skills and withheld from promotion into senior positions.

Contesting this issue requires us to think in a broader way, challenging not only the assumed biological fit between men and skills related to analysis of big data, but also the definitions of value which currently privilege that of quantification. Big data may even help in these efforts, allowing us to examine the inequalities present within a companies’ workforce (Loehr, 2015). This highlights the lines open to the possibilities of big data. Big data does offer a chance to open up new opportunities to produce a more egalitarian society, but for that substantive change to happen we cannot simply assume big data to be neutral—we have to examine its raced and gendered foundations. This means thinking through and contesting issues like who is perceived to be able to use big data. If left unaddressed, such a paradigm shift is likely to be discriminatory to women in human resources and other professions.

Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

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