# “The Power of Knowledge, Objectified”: Immaterial Labor, Cognitive Capitalism, and Academic Librarianship

## Abstract

This article analyzes current trends in academic librarianship from the perspective of Italian autonomist Marxism. With the rise of new technologies and the advent of a period variously called the “Fourth Industrial Revolution”, “Industry 4.0”, and “The Second Machine Age,” academic librarianship is undergoing various changes in workflow, technology, and service provision. The body of thought that developed out of the Italian Marxist tradition provides ways of thinking through and understanding these changes by placing them within a larger dynamic of capitalist development and the restructuring of labor processes. After looking at changes to academic librarianship from the perspective of immaterial labor and cognitive capitalism, the paper offers ways that academic librarianship can think about the possibility of resistance to these changes.

## Introduction: Neoliberalism as Decomposition

This article attempts to situate the academic library within the political economy of higher education, with a particular focus on the relationships between capital and labor, and the restructuring of the labor process following the advent of neoliberalism. Neoliberalism, I will argue, is the result of capital’s need both to restructure the labor process in order to deal with the challenge of organize labor, and to expand the exploitation of labor beyond manual work into the realm of the immaterial, cognitive, and emotional. As a result, academic libraries, and academic library work, have become sites of the social reproduction of capitalism itself. As Ronald Day has remarked, social reproduction “in the forms of child-raising, education, social communication, social relations, personal intellect, and experience” (Day 2002, 1080) is exploited by capital for the expansion of profits. The immaterial, affective, and intellectual qualities of academic librarianship have all made library labor fit for capitalist exploitation under the new regime of immaterial labor and cognitive capitalism. However, by expanding the logic of labor-capital relations into the sphere of social, intellectual, and cultural reproduction, capitalism paradoxically opens up new spheres of resistance.

One of the advantages of Italian autonomist Marxism, the theoretical framework used in this article, is the critical perspective it offers on the various aspects of the neoliberal turn. While mainstream, positivist library research avoids any connection to capitalism as a whole, it is important to understand how library labor, organizational culture, and the political economies of libraries are embedded within larger structures of power, domination, and exploitation. To avoid this subject allows library researchers on the one hand to uphold unrealistic views on the relationship of libraries to society (neutrality, for example, or the discourse of libraries as democratic institutions), while on the other hand absolving library researchers of the responsibility for tracing phenomena within librarianship outside the boundaries of the profession itself. For example, while Lorcan Dempsey and Constance Malpas – whose work we will explore later on – maintain that “the most important long-term influence on the library is the requirement placed on it by changing patterns of research and learning” (Dempsey and Malpas 2018, 67), they do not ask what drives those changing patterns. A theory that places the library firmly within the changing processes of capitalist accumulation can offer important insights into the causes and consequences of changes within librarianship itself. More than that, however, it can raise library research above merely interpreting the world, allowing us to focus on changing it.

To begin with we must recognize that library workers do not merely respond to objective changes in the socio-economic conjuncture. Italian autonomism sees the proletariat not as a passive social class constituted by an active capitalism, but as equally active in its own right, with its own agency, culture, and forms-of-life. Autonomism is thus firmly based on the concrete activities of both workers and capitalists, rather than on an abstract or metaphysical conception of social relations such as, for example, the widespread liberal notion that society is composed of mythical pre-existing independent individuals who choose to come together to form a society (Söderberg and Netzén 2010, 110; Lazzarato 2014, 24). For autonomists, capital responds to unified working-class resistance by dissolving or decomposing the working class into fragmented, isolated individuals and groups. The history of capitalism can then be broken down into “cycles of struggle” – periods in which the working class is able to act in a concerted manner followed by periods in which working-class collectivity is dissolved. Such cycles require a constant expansion of capitalist control over society, and like the spiral structure of capital accumulation itself, the class struggle gradually takes over more and more of the social terrain. A commonly used image to describe this process, ascribed to Mario Tronti, is that of the DNA “double helix” (Dyer-Witheford 1999, 68), two interlocking spirals each growing at the same rate, destined in some future moment to annihilate each other.

Labor’s autonomous capacity to resist and subvert the power of capital leads capital to attempt to escape its relationship with labor through various tactics, including deskilling, deprofessionalization, and automation. As a result, autonomist Marxism has a lot to offer a theory of academic librarianship in a conjuncture which has seen those strategies become dominant. For autonomists, the neoliberal transition beginning in the 1970s was a reaction by capital to the working class struggles which arose in the 1960s. Autonomists’ view of neoliberalism, then, can be understood as the latest in a series of attempts to *decompose* the working class. Concentrated working class power after the Second World War had led – in capital’s view – to a crisis of profitability which by the early 1970s had become untenable. Historically, capital’s solution to such crises is to restructure the relationship of living labor-power to the “dead labor” contained in the raw materials, machinery and plant used in production. Marx called this relationship the *organic composition of capital* (Marx 1990, 421, 577-8) and argued that capitalists sought to replace living labor (i.e. workers) with the dead labor of more machines as a way to reduce labor costs and therefore to maintain and increase profit margins. The impetus for this process lay in the competition between capitalists, each seeking to lower production costs (e.g. wages) with respect to the others. For Marx, the process of dealing with competition through the lowering of the organic composition of labor was, in the end, misguided, as it did not take into account the that fact that all exchange-value derives from the application of labor-power. Only *living* labor-power can work more than it is paid for (i.e. can be exploited), which is the source, for Marx, of profit itself. Replacement of living labor with machinery raises the ratio of dead labour to living labour (what Marx calls the organic composition of capital) which *seems* like it should result in lower costs and higher profits, but in the long run this is not the case. Autonomists see the neoliberal turn – including the phenomena of globalization and postmodernist culture – as simply the latest attempt by capital to reassert control over labor in order to raise profits.

For the autonomists, competition between capitalists contributed to the drive to raise the organic composition of capital, but the struggle of the working class against capitalist command was even more significant. Based on original sociological research in Italian factories, as well as an innovative reading of several key Marxist texts[[1]](#endnote-1), autonomist Marxists constructed a nuanced theory of technological innovation and its effects on class struggle. Chapter Ten of *Capital*, “The Working Day,” for example, describes the history of workers’ struggles against the extension of the working day to its limit in the eighteenth and nineteenth centuries. If capitalists pay workers for a day’s work, then by increasing the length of the “day”, they will reap more surplus-value from the workers’ labor power. Marx calls this an increase in *absolute surplus-value,* because the rate of surplus-value extraction remains the same, it is just prolonged. For the autonomists, the history mapped out in Marx’s text exposed the power of collective struggle and the autonomous agency of the working class. Once the length of the working day was statutorily fixed, the only option left to the capitalists was to modify the labor process itself in order to extract more surplus-value (i.e. increase the *rate* of surplus-value extraction) while keeping the working period constant. Marx calls this *relative surplus-value*. There are various ways the capitalists can go about this, but the most important is the replacement of human labor power by machinery. While the orthodox Marxism of the Second International and the Bolshevik theorists, including Lenin, often saw technological innovation as politically neutral, taking place according to a natural, logical process, the autonomists recognized it as politically contested. This is so precisely because it arises out of a collective resistance of the working class to the exigencies of capitalist power.

Neoliberalism, therefore, constitutes the political expression of a large-scale restructuring of capitalist labor, one which undermined the power of the welfare state, a conjuncture marked by strong, organized labor, and the collaboration of labor with capital in exchange for a share of the profits. Following the economic crises of the early 1970s, capital began to take advantage of newly-available computerized automation as the means to decompose the organized working class. The “post-industrial” society that emerged from this restructuring continues the subsumption of new elements of society under capital, converting life into exploited labor, extending the logic of the market and exchange relationships into new areas, and turning previously non-capitalist realms into new sources of private profit (Popowich 2018). One of the key components of autonomist thought to arise since the neoliberal turn is that of “immaterial labor”, a kind of work that has always been part of the human condition, but which was long dismissed as “unproductive” by classical economists (including Marx), and only became economically significant (i.e. profitable) with neoliberal restructuring and the advent of new computerized technologies, especially following the 2008 financial crisis and the renewed development of artificial intelligence technologies after 2011. We will look at immaterial labor in more detail, but for now it is important to think of it as the intellectual, emotional, and affective work we have always done, but which only became a site of *direct* exploitation (i.e. considered productive rather than unproductive labor) with the development of a certain level of automation, computerization, and digital communications technologies.

## Materiality and Immateriality in Academic Libraries

A dialectical – that is, a productive – tension between materiality and immateriality has existed in librarianship at least since the creation of tax-funded libraries in the mid-19th century. Today, this tension expresses itself in various ways, for example in the debate over the relative merits of print and electronic resources (Liu 2006; Gregory 2006; Yuan, Ballegooie, and Robertson 2018) or discussions of the physical (“brick and mortar”) library contrasted with our various online presences (King 2000; Woodward 2009; Meunier 2014). Indeed, what is at stake is the very idea of what the library is “about” or “for”, whether it be physical books versus a whole continuum of “information packages” (Brown and Simpson 2012, 44), or more abstract concepts like “sharing”, “community”, or “openness” (Lankes 2011). The very question of whether librarianship is a technical or a service profession – indeed, whether that is even a valid distinction to make – hinges upon material or immaterial conceptions of work and value. To ascribe these divisions to traditional distinctions within the profession – between technology or cataloguing work and public services, for example – is an oversimplification, as both materiality and immateriality are inscribed in all areas. That these questions are inherently gendered (Garrison 2003, 178) adds another layer of complexity, given gender’s own distinct relationships with materiality and immateriality (Jaggar and Bordo 1989; Ebert 1992/3; Pergadia 2018). As Leopoldina Fortunati has pointed out, “the true promoters of the discourse on immaterial labor have been feminists, which is not surprising given that traditionally, a large section of immaterial labor has been domestic labor and caring, traditionally performed by women.” (Fortunati 2007, 145).

More recently, Ross and Sennyey (2008) argue that virtual presence is driving out physical presence, and that this is an inherent element of technological change. Discussing the decline in the use of reference services at the beginning of what we used to call “Library 2.0”, they argue that the development of online technologies will eventually see the decline and obsolescence of traditional, staffed service points (149). This coincides with current fears about job losses due to robotics and machine learning, but from a Marxist perspective must be understood as an attempt to repress the necessity of exploiting human labor for the creation of profits. The replacement of material by immaterial labor, or human labor by automation, fits with the theory that capital is always seeking to rid itself of its reliance on human labor power. Library work can be understood as a “mix of intellectual and applied expertise” (Winter 2009, 143), incorporating elements of both material, practical, concrete and technical work *and* discursive, immaterial, and affective labor, and so the process of its automation has been necessarily uneven. And while the predictions – baleful or optimistic – offered by Library 2.0 never completely came to pass, the debates and developments surrounding them have had huge consequences for library work, both in its concrete form (“keeping the doors open”) and in its more cognitive forms (including, but not restricted to, research and scholarship).

In our analysis of immaterial labor, then, we must bear in mind that, as with all dialectical relationships, the material element is never abandoned or jettisoned. As Antonio Negri has pointed out in a recent summary of *operaismo* (workerism – an early form Italian autonomism), immaterial labor “includes material labor when it is organized by information technology or as a service to automation” (Negri 2018, 27). Indeed, Italian autonomist theory, as a philosophy of “life, the body, and the world” (Esposito 2018, 55) attempts to focus precisely on this nexus of materiality and immateriality, bringing them together through the lens of biopolitics (Hardt and Negri 2000, 28-9). In conditions of struggle between living and dead labor, between living workers and machinery, between capital and human beings, the biopolitical becomes “the resistance of life to power” (Negri 2005, 64).

Currently, as we transition from the “post-industrial” neoliberal period to whatever is coming next (Jansen 2009, 49), a “platform capitalism” of immaterial and cognitive labor appears as one of the most defining features of the transition. Platform capitalism aligns closely with recent developments in academic libraries, as it is “centred upon extracting and using a particular kind of raw material: data” (Srnicek 2016, 39), data produced by the cognitive and immaterial labor of the users of the platform. This transformation is taking place throughout the field of library and information studies as Day’s Negrian analysis of Knowledge Management suggests (Day 2002). Hailed as a “fourth industrial revolution” and a “Second Machine Age,” the period that appears to be opening will bring – as always – a deep restructuring of labor, changes in the labor-capital relationship and, depending on who you believe, either benefits or penalties for the working class. We will return to the so-called fourth industrial revolution (4IR) below, but for now I want to dig deeper into the notion of immaterial labor itself.

## Immaterial Labor in Italian Theory

Italian theorists see neoliberalism as simply another moment in the cycle of struggles between capital and labor, a moment of increased subsumption of social and personal life, of human intellect and emotions, to the logic and demands of capitalist production. Indeed, in a position not far from Fredric Jameson’s conceptualization of postmodernism as the “cultural logic” of advanced capitalism (Jameson 1991), Michael Hardt has argued that globalization/neoliberalism can be understood as the “postmodernization of production” (Hardt 1996, 3).

While the theory of immaterial labor begins with Marx and was theoretically deepened and expanded by feminist theorists (Fortunati 2007; Federici 2012), the clearest exposition of the concept of immaterial labor in Italian Theory can be found in a 1996 article by Maurizio Lazzarato. Lazzarato defines the concept as “the labor that produces the informational and cultural content of the commodity (Lazzarato 1996, 133; see also Hardt and Negri 2000, 30). As with Marx’s own analysis of the commodity, two kinds of content – material and immaterial (intellectual/cultural) – are generated by two kinds of labor. The informational content of a commodity is produced by cognitive or intellectual labor, and neoliberalism’s new emphasis on this kind of labor came about through organizational and labor restructuring and technological innovation, as a means to decompose the organized working class of the welfare state period (see above). It was this restructuring that made it possible for capital to profit directly off of immaterial labor, something which had previously been impossible due precisely to its immateriality. In previous conjunctures, immaterial labor was both an unmeasurable component of the production process *and* part of the general social reproduction of capitalist relations, but it was not a *direct* site of surplus value or profit creation.

Prior to the neoliberal restructuring that began in the 1970s, directly profiting from immaterial labor had been impossible due precisely to the intangible, unmeasurable quality of cognitive, intellectual, and emotional work. In the current conjuncture, following the rapid advance of computerization in the 1940s and artificial intelligence from the 1950s on, “the skills involved in direct labor are increasingly skills involving cybernetic and computer control” (Lazzarato 1996, 133). In other words, the commodities derived from immaterial labor tend either to be produced by the new tools and workflows of the digital shift, or they are service commodities based on intellectual/affective labor mediated through such technologies (one might think here of virtual chat reference services). Immaterial labor, then, encompasses the labor of programming, administering, controlling, and verifying automated (computerized) tools and processes – often coded as “masculine” domains of labor – as well as affective labor increasingly performed *through* digital technologies, and often coded as “feminine”. Following the work of autonomist feminists like Silvia Federici and Leopoldina Fortunati, we might understand such “feminine” work as involved in social and ideological (that is, cultural) reproduction of the workers as workers (Federici 2012 5-14). Such technologies also encode hegemonic structures of race, gender, class, and sexuality as part of the maintenance and reproduction of the structures themselves, as work by Safiya Noble and others has shown (Noble 2018).

One aspect of this dynamic of social and structural reproduction takes the form of librarianship as cultural work. While we often think of library work in its technical or its service form, we tend to be less comfortable thinking of it as an activity of cultural reproduction, involving “a series of activities as that are not normally recognized as ‘work’ – in other words, the kinds of activities involved in defining and fixing cultural and artistic standards, fashions, tastes, consumer norms, and more strategically, public opinion” (Lazzarato 1996, 133). Many library workers would, I suspect, be more comfortable with the informational than the cultural aspect of immaterial labor, given that the cultural definition requires us to think about the *ideological* function of library work, which doesn’t sit well with the longstanding – though contested – idea of library neutrality. The dominant discourse of librarianship resists the idea that the profession in any way sets, modifies, or controls any aspect of our users’ immaterial or cultural lives. The theory of immaterial labor requires that we pay closer attention to the cultural effect of library work beyond what is in our job descriptions, and beyond what we explicitly consider to be our day-to-day work, and much recent work on affective labor in libraries has brought this cultural element to the fore (Sloniowski 2016; Higgins 2017; Nicholson 2018).

Indeed, one of the inherent tensions within librarianship is between a professed neutrality (a view of library work as either purely technical or purely service-oriented) and our insistence on the social benefit of library work – indeed, our primary claim to value is precisely in this social benefit (Wiegand 2015, 2), and is even enshrined in the ALA Core Values of Librarianship. Beyond these core values, however, libraries do not merely reflect, but actively influence the public’s reading habits, attitudes towards private and public property, particular ways of thinking about debt and exchange, etc. In academic libraries, we pride ourselves on actively contributing to “student success”, information literacy, copyright literacy (and attendant positions on intellectual property), scholarly communications, etc. Libraries as organizations also have a cultural effect on library workers, through the specific composition of labor operational in a given conjuncture. The specific labor regime of a particular moment creates, in a biopolitical sense, the subjects necessary for the culture and the labor regime to operate and to reproduce themselves. As Hardt and Negri put it, the structures of immaterial labor produce “needs, social relations, bodies, and minds – which is to say, they produce producers” in a process of “subjectification” (Hardt and Negri 2000, 32).

Drawing on Lazzarato, we can understand the library has always having both an intellectual and a cultural influence. Indeed, once we get beyond the mystifying notion of library neutrality, this influence is one of the profession’s core tenets. The expansion and diversification of library work in the neoliberal university – into scholarly communications, open source software development, digital scholarship, and a whole host of other areas, not to mention the work of LIS faculty and researchers – has seen the work of librarianship move even further away from its narrowly technical or “custodial” function. A focus on books (collections) has, as we will see below, moved towards more of a focus on services and workflows. Lazzarato’s description of the post-Fordist worker as an “interface” between different kinds of work and organizational hierarchies accurately characterizes the current state of library work (Lazzarato 1996, 134).

But this transformation of library work from the predominantly technical to the almost exclusively immaterial produces its own tensions and uncertainties. The neoliberal restructuring which has now reached librarianship stokes fears of de-professionalization among librarians, both because of the difficulty we have in recognizing immaterial labor as work, and due to the structural antagonism between accredited and non-accredited workers which is an inevitable consequence of class-society, made more acute by the neoliberal project of undermining the power of labor and its share in social wealth. Fears of de-professionalization are not imaginary, but they can lend themselves equally to competition between workers *and* to worker solidarity in the face of common challenges. And the divisions between accredited and non-accredited workers is not the only site of antagonism within labor fostered by neoliberal class struggle, so that while Sloniowski critiques the application of the concept of immaterial labor to library work, her deployment of affective labor to describe the gendered division of labor at play in libraries makes the connection between class-fractional and gendered divisions explicit. If, following Lazzarato, we understand library workers as forced to compete with each other for ill-defined and uncomfortably novel “interface” positions, then we can understand the pay gap (for example) not as an “anomaly” but as a structural requirement of neoliberal capitalism, part of a broader hierarchy of wage differences that values the immaterial labor of the male systems librarian over the labor of care often performed by women. In this sense, the logic of unwaged women’s work analyzed by Federici and Fortunati is still with us, even while the immateriality of the work itself has expanded beyond the home and into the structures of the workplace itself.

Such an expansion is part of a broader dynamic which seeks on the one hand to structure life outside the workplace according to the logic of the capitalist factory (producing, in the words of the Italian autonomists, the “social factory” [Tronti 2006, 48]), while on the other hand seeking to make “the worker’s soul… part of the factory” itself (Lazzarato 1996, 134). The creation of the kinds of workers who can be given (limited) responsibility, autonomy, and decision-making power – the ‘interface’ workers in immaterial labor – is a key task for neoliberal cultural and educational institutions. For Lazzarato, the creation of personalities and subjectivities amenable to the new regime of labor is necessary to transform working-class labor “into a labor of control, of handling information, into a decision-making capacity that involves the investment of subjectivity” (134) which in turn is required to harness the *cooperative* capacities of the workforce for the new kinds of decentralized “flow” which characterizes work under neoliberal globalization (Berardi 2009, 84).

It is *here*, then, that we can see the cultural role of the academic library under neoliberal capitalism. While library workers are engaged in “intellectual” labor involving, say, metadata, research data management, scholarly communication, or reference and circulation – in short while we are engaged in the whole spectrum of work required of the collections- and services-based library, we are *also* and *at the same time* engaged in “cultural” labor involving the creation of a disciplined, intellectualized workforce suitable for the immaterial labor *they* will be engaged in when they enter the labor market. *We* are subject to the requirements of neoliberal labor in our workplaces, but we also condition our users (especially students) into these requirements through the cultural effect of library services. A clear analogy can be found in the disciplining of faculty members (through various metrics and analytics, including student satisfaction surveys) while the faculty members themselves exercise disciplinary monitoring in the form of, say, anti-cheating protocols in examinations. In the social factory, we are all both workers and supervisors, both exploited and exploiters.

One of the most striking features of the new subjectivity created by the subsumption of immaterial labor is the way in which subjectivity itself becomes part of the labor process. In platform capitalism, “the product is you”. With the digital shift, the distinctions between online and offline, between personal and public, between work-time and leisure-time have become not merely obscured, but obliterated. The most “non-economic” aspects of our lives, the most subjective elements of our personalities, have been colonized by capital and put to work. Lazzarato, with an autonomist’s typical concern for subjectivity and the composition of the working class, argues that

the old dichotomy between ‘mental and manual labor,’ or between ‘material labor and immaterial labor,’ risks failing to grasp the new nature of productive activity, which takes this separation on board and transforms it. The split between conception and execution, between labor and creativity, between author and audience, is simultaneously transcended within the labor process. (Lazzarato 1996, 134)

As more and more of the subjective individuality of workers – their intellectual and emotional capacities – become part of the capitalist production process, capital begins to require subjects more “highly skilled” in these areas than in previous historical epochs. On the assembly line, the intellectual and emotional capacity of the Fordist worker was not only irrelevant, it was detrimental to Taylorist efficiency. Now, on the other hand, highly educated and emotionally engaged workers are required by production itself. This does not disprove the Marxist thesis of alienation, however; it expands it.

One result of this process is that “manual labor” has come increasingly to involve “procedures that could be defined as ‘intellectual’ with the result that the new communications technologies increasingly require subjectivities that are rich in knowledge” (Lazzarato 1996, 135). From the perspective of academic librarianship, this helps to explain the vast expansion of higher education since the Second World War (Dempsey and Malpas 2018, 64): in the period of postwar restructuring, a new relationship of labor and capital to technology required new kinds of workers, workers whose intellectual and cognitive labor-power could be put to work. At first, these workers constituted only a managerial and administrative exception, but eventually they have become the rule in the de-industrialized global North. To a small degree under the welfare state, and then to a much larger degree, universities were reoriented from their role in inculcating a ruling class with social and class markers, to a new role providing not education but intellectual labor-power for capital. What we see now as a “new” focus on higher education as job training (Moore and Morton 2017; Figueiredo, Biscaia and Teixer 2017), the instrumentalization of education, is part of this larger subsumption of educational, scholarly, and intellectual work under capitalism (Dominelli and Hoogvelt, 78). As a result, academic libraries find themselves embedded in institutions whose (no longer educational) mission they are called upon to support.

However, as Dyer-Witheford points out in reference to Marx’s “fragment on machines”, the very creation of a subjectivity capable of thinking and deciding opens up new grounds of class struggle unforeseen by the ruling class and its administration (Dyer-Witheford 1999, 220). It is precisely the development of new forms of intellectuality, collaboration, and cooperation that composes the working class in its antagonism to capital. The more capital seeks to escape its relationship to workers, the more it must develop tools and techniques which allow workers to organize and come together in collective action.

## The Academic Library in the Fourth Industrial Revolution

Speaking in July 2018 at the Greenwood Festival of Speed, CEO of Siemens Joe Kaeser remarked on the significance of a “fourth industrial revolution”:

It may cause quite a dip in employment, because if you have 20-30 less value chain, then… you have 20%-30% fewer jobs. That is how it has been in the first three industrial revolutions. There has always been a significant change in employment. And then by enabling growth, it actually turned out more jobs were created. Higher growth was achieved and obviously more people moved out of poverty and had better lives. (Monaghan 2018)

From a left perspective, it is this “obviously” that causes problems. The first revolution was predicated upon the dispossession of millions of peasants, stripping them of their livelihood and forcing them under pressure of destitution and imprisonment into the cities to sell their labor-power for a wage (Marx 1990, 878-82; Dimmock 2015, 128-9). The so-called “third industrial revolution” was part of a package of neoliberal reforms that dismantled the welfare state and spelled the end of the postwar labor/capital compromise (Harvey 2005, 10-12; “Third Industrial Revolution” 2012). In the academic sector, the expansion of precarious, contingent, part-time and contract work at the expense of full-time, permanent, benefited positions is part of this rolling-back of welfare state gains (Neilson and Rossiter 2008; Gallas 2018). The welfare state was itself never more than an exception (Srnicek 2016, 13). For many years the academic sector, including academic libraries, was protected from the worst of these neoliberal reforms due partly to the higher rates of profit to be gained by automating other sectors first, and partly to the immaterial, cognitive nature of academic work. Capitalism could not subsume academic, intellectual, cognitive labor until two conditions were met. In the first place, there had to be a technological infrastructure capable of replacing (at least in specific, limited cases) human cognitive ability – hence the interest in robotics and artificial intelligence research from the 1950s on. In the second place, an economic model which would allow profit to be extracted from cognitive labor had to be developed. Once these two conditions were met – which took place mainly in the last decade of the 20th century and the first decade of the 21st – then two strategies of capitalist development became feasible: the neoliberal restructuring of the academy, and the application of various computing models (artificial intelligence, social media, the semantic web, etc.) to the problem of labor and value. The as-yet incomplete neoliberalization of the academy is in full swing, made possible by this “digital shift” to cognitive capitalism (Dyer-Witheford 2005).

The “fourth industrial revolution” (4IR) – of which the digital shift is a key component – is connected to two other related concepts, that of “Industry 4.0”, which came out of German policy developments in 2011 (Roblek, Meško, Krapež 2016, 1) and that of the “Second Machine Age” (Brynjolfsson and McAfee 2014). Both of these concepts share with 4IR an optimistic, technologically-focused view of capitalist development in the 21st century. From a left perspective, technological innovations that go along with such development are moments of the periodic restructuring of the capital-labor relationship (Dyer-Witheford 1999, 22; Srnicek 2016, 36), moments which deepen and extend the exploitation of wage labor, cut production costs and improve profitability (Harvey 2005, 60-63). Following the 2008 financial crisis, David Harvey argued that, under capitalism, crisis “is how wealth and power get redistributed both within and between classes”, to the benefit of capitalists, with the result that “surplus capital thus finds a new and fertile terrain for renewed accumulation” (Harvey 2010, 246). Thus “disruption”, whether or not it reaches the level of crisis, can only benefit capital. If we are, indeed, in such a period of disruption – 4IR, Industry 4.0, or Second Machine Age – what, then, is the condition of the academic library within that context?

The “fourth industrial revolution”, the technological shift that has arrived with the latest phase of neoliberal restructuring, has had a number of major effects on the academic library. The most significant changes have been the move from the local to “network scale” (Dempsey 2012, 181) and from “outside-in” to “inside-out” discovery (190-191). “Network scale” library functions take advantage of the infrastructure and computing power of the web and other networks, and in this sense conforms to the development of platform capitalism in other areas. Under platform capitalism, the physical world seems to be relegated to the past. The massive engineering power of server farms plus the mathematical purity and efficiency of the graph (e.g. linked data) change how we think about information storage, preservation, and access, but also obscures the material substrate of the new world of information (Dyer-Witheford 2014). As Fortunati has argued, “while it may be simple to make a theoretical distinction between immaterial and material labor, it is not so easy in everyday life… immaterial labor often sets material labor in motion” (Fortunati 2007, 140). The physical underpinnings of the “immaterial” realm of library data only becomes apparent when it breaks down or otherwise impedes the smooth flow of information between nodes of the network.

The network scale also changes how we think about “library resources” – a term that already seems dated and obsolete, given how much of our resources are licensed rather than owned. Much more of our current focus is on the production of our own “content”, through digitization, publishing, the curation of educational and research material, research data management, institutional (as opposed to disciplinary) repositories, etc. How we present this information to the network (i.e. “inside-out” rather than “outside-in” discovery) therefore becomes one of the most vital questions.

Lorcan Dempsey has contextualized the move from materiality to virtuality – the emphasis on (abundant, easily-copied) online resources over atomic, single-user physical resources, and “network logic” over “print logic” – as part of the technological developments of 4IR. In this context, Dempsey argues, the library “facilitates” collections, rather than collecting or curating as such (Dempsey 2016, 340). However, Dempsey has less to say about the causes of these technological developments in the first place. For Dempsey, both the “inside-out” library and the “facilitated collection” are driven by technological change, but these changes seem to arise out of nowhere – precisely due to the limits of library theory identified above. The inside-out library is, for Dempsey, “a response to the reorganization of research work by the digital environment”, and the facilitated collection “a response to the reorganization of the information space by the network” (Dempsey 2016, 339), which makes it sound as if “the digital environment” and “the network” possess their own agency. This is an indication that what we are witnessing is what in Marxist theory is called reification (Lukács 1971, 83-92), a concept which I suspect goes a long way in explaining the unwillingness or inability of much library theory to engage with the library’s place in capitalism as a whole.

Georg Lukács explains reification as the act of mistaking relationships between people for relationships between things. When we compare a luxury car with a pickup truck, we often presume there is some relationship of superiority/inferiority between the vehicles themselves, when in fact the vehicles simply reproduce a *social* hierarchy. When we think of the relationship between the two vehicles, we are in fact thinking of the relationship between rich people and poor people. One of the major effects of reification within society in general, including librarianship, is to make social relationships seem natural, unavoidable, and inevitable. By placing the responsibility for technological change within libraries on inanimate objects (the network, or the digital environment), the technological changes we experience appear as outside our control: people do not make them happen, they happen on their own. By implying the inevitability of the transition from a material, collections-based library to one based on decentralized services, virtualized collaboration, distributed workflow, and the network, we align our understanding of librarianship with the logic of neoliberal restructuring itself. It is in this sense that we can speak of a biopolitical reproduction of neoliberal social relations. We are not coerced by a state or a police force into supporting neoliberal commitments; rather we do it to ourselves by limiting our perspectives to ones that conform to the structural requirements of the system itself.

The concepts of immaterial labor and of cognitive capital might help us move beyond the reified concepts that are often deployed. Looking explicitly at the place of the academic library in 4IR, for example, Dempsey and Malpas (2018), build on Dempsey’s earlier work to argue that “increasingly, the library facilitates access to external network resources alongside its owned or licensed collections” (70). As examples, they mention resource guides, proxying Google Scholar access to licensed resources, and including free resources in the catalog. Additionally, Dempsey and Malpas see a shift from the finished product of research (articles, monographs, etc.) to intermediate products (preprints, but also research data management plans, proposals, project artifacts, and so on). In the print world, they argue, the research process and any intermediate results were neither visible nor sharable. Now, however, in a digital, networked environment, these intermediate outcomes may become discoverable, accessible, and sharable resources in their own right, as well as subject to aggregation by external services like resource guides or Google Scholar. However, this focus on the *objects* (outcomes and artifacts) rather than the social relations involved in the transition serves to obscure neoliberal *social* and *political* changes. Sharing and visibility, for example, are social processes, but reification drives us to think of them in objective, non-social ways, as properties of the resources rather than political and economic choices made by human agents, as many critiques of “openness” point out (Crissinger 2015; Robertson 2018). The fact that immaterial labor is often not recognized as labor, is obscured and mystified by the dynamics of cognitive capitalism itself, makes it all too easy to fall into this kind of conceptual trap.

## Social Machines, Competition, and Profit.

In Dempsey and Malpas’ work, we see how all these processes manifest themselves in the academic library of 4IR. As scholars and researchers are more and more integrated in a vast network of mass intellectuality, they find “increasingly a blurring of content, workflow and network identity as they disclose and share publications and experience in Google Scholar, ResearchGate or other networks as part of ongoing work” (Dempsey and Malpas 2018, 73). This process of integration is reinforced by institutional power through mechanisms such as performance evaluations, rankings, reputation/advancement priorities, etc. Metrics, analytics, impact factor, and course evaluations serve – through the tenure and promotion process – to incentivize appropriate activity within the network of cognitive capitalism, and penalize inappropriate activity or abstention. The academic library plays a role in this process, through “implementation and support of research information management systems (or CRISes) to automate faculty performance review, promotion, and tenure” (84).

The subsumption of academic labor – including academic librarianship – into the logic of cognitive capitalism not only makes academic labor part of the work of the “social factory” but expands to fill previously non-work time (e.g. social time, as with responding to email after-hours) with new forms of socialized labor. “Social machines” like Twitter, Slack, Wikipedia, in addition to the various third-party platforms of virtualized academic librarianship such as LibGuides or the various proprietary publishing platforms, mobilize the “general intellect” of immaterial labor. As we have seen periodically – first with Second Life, for example, and then with MOOCs – academia and academic libraries are heavily invested in the systems of platform capitalism. In addition, as “research is increasingly team-based and cross institutional”, it is now much more common for research to employ such social platforms in the performance of their academic work (73). The line between work and non-work has become increasingly blurred.

For Dempsey and Malpas, the appropriate response to these shifts in academic librarianship is obvious. Rather than challenging or resisting the further subsumption of intellectual and scholarly work under capitalism, the library should embrace it:

The library can no longer expect learners and researchers to build their workflow around the library, as they did to some extent in the print world. Increasingly, the library has to think about how to make its services and resources available in ways which can be integrated with user behaviours. (73)

The mention of “user behaviours” brings us back to the question of agency. It is an article of faith in neoclassical economics that consumers have agency, acting rationally on the presumption of perfect knowledge (Shaikh 2016, 4). In full conformity with orthodox capitalist logic, Dempsey and Malpas define social agency solely as individual consumer choice. If libraries must respond to the strategic directions of their institutions, it is consumer choice evaluated as “user behaviour” that sets these strategic directions. The academic library, they write, “now increasingly defines itself in terms of university needs in a changing environment – how to make research more productive, how to contribute to student success and retention, how to improve the engagement between the university and its community and so on” (Dempsey and Malpas 2018, 76). In other words, how to be competitive.

Dempsey and Malpas refer to an ongoing project of creating a typology of higher educational institutions. Such a project “supports comparative analysis of institutional directions along multiple lines of business” (81), and they conclude that “as post-secondary institutions adapt to evolving market needs… academic libraries will need to turn and refine their services to support diversifying institutional needs”. Universities, then, have a dual role to play within cognitive capitalism: strict control over the production and dissemination of acceptable knowledge (which includes integrating researchers and scholars into the network of mass intellectuality) and competing with other capitalist universities, necessitating both diversification and specialization in order to satisfy the widest spread of consumer choice. These two strategies, however, also require the disciplining of academic labor (intellectual, immaterial, and affective) and the deepening of its exploitation in order to extract the maximum of surplus value – and, especially in the case of affective labor, in order not to jeopardize the university’s relationship with consumers. The disciplining of behaviour by, for example, student evaluations carries a heavily gendered affective payload. For Dempsey and Malpas, the prognosis is clear: “there will be multiple models of library excellence, but also limited tolerance for libraries that preserve or emulate a service model that is not a good fit with current institutional needs” (86). “A good fit” in this case being a neoliberal euphemism for “profitable”.

It is important to recognize that, while there is a significant research program looking critically at the political economy of library and information studies (Pawley 1998; Birdsall 2000; Nicholson 2015), Dempsey and Malpas’ perspective is representative of a great deal of thinking in academic librarianship, especially in the upper reaches of decision-making (Anderson 2011; Schonfeld 2019). Nonetheless, it is important to stress that theirs is not the only perspective within the field.

## Conclusion

The restructuring of academia and academic libraries as profit-driven enterprises has relied on the subsumption of academic intellectual labor under the logic of capitalism. At the same time, the affective labor that has always been a part of librarianship has transitioned from an unproductive element of library work to a directly productive element. Thus immaterial labor in academic librarianship participates both in the direct productivity of academic commodities (e.g. graduates, symbolized by diplomas and certificates) *and* in the social reproduction of the commodity of labor power. Academic libraries help to train the next generation of workers (i.e. students) both in the discipline necessary to *be* workers under globalized neoliberalism *and* with the cognitive, intellectual, and affective tools and skills necessary for employment under cognitive capitalism. In this way, the subsumption of immaterial labor, and the deployment of intellectual and affective work as directly productive elements of the digital economy creates the subjects appropriate for the current neoliberal conjuncture.

This process, however, is difficult to make out, partly due to librarianship’s inheritance of a classical liberal ideology – which includes presumptions of individuality, democracy, freedom, and neutrality – and partly to the fact that the subjectification of neoliberalism also operates in our own theoretical work. The new regime of immaterial labor requires a new kind of subjectivity, collective rather than individual (Day 2002, 1078), which nonetheless continues to adopt a mystifying individualism. Through an investigation of the work of Lorcan Dempsey and Constance Malpas, we can see how some of this mystification of library work takes place through the process of reification, or the confusion of relations between people for the relations between things. The end result of this theoretical approach is to make librarians comfortable with the idea that we are subject to a combination of impersonal natural forces and the agency of consumers, as well as with the idea that in the world of the Fourth Industrial Revolution, academic work must be reoriented – like all labor under capitalism – solely towards the search for profits.

Marxist theoretical categories – especially those developed by feminist theorists and Italian autonomists – can help us to make sense of these processes by countering some of the liberal presumptions of hegemonic library theory, and demystifying the reified relationships at play within the current conjuncture in its totality. For Marxists, however, the point is not merely to better understand the role of academic librarianship and labor in society, but to transform that role.

However, the fact that capitalism has achieved almost total domination of economic production and social reproduction does make it difficult to imagine ways to successfully challenge it. Autonomist Marxism’s extra-parliamentary focus requires that we think beyond what may be possible within the narrow confines of electoral politics. Capitalist determination of the law and control over the legal system means that for many academic workers, especially precarious workers or marginalized people, direct action may be illegal and dangerous. The autonomist tradition sees real potential in the subversive self-activity of the working class, in forms ranging from self-reduction of prices to sabotage to outright refusal of work. Such “economistic” strategies must, however, be combined with open political challenge to the existing order. Academic librarians can, wherever possible, also leverage union membership, academic freedom, etc, as well as harnessing public attention and opinion, though in the absence of a strong and radical union, small-scale actions may still be possible. In this sense, lessons from autonomist feminism may prove valuable, in which political slogans and programmes (‘Wages for Housework’, for example) were combined with material strategies of refusal and resistance (Federici 2012), no matter how small scale these might appear. The disruption of instruction processes, for example, jeopardizes capital’s ability to profit from tuition income.

Capital’s need for social reproduction from generation to generation means that disruption does not have to affect the entirety of the labour process (as in a strike, for example); a disruption of social, cultural, and political reproduction is just as valuable. The experience of collective activity, even if it ends in failure, builds up the collaborative and cooperative depth of the working class. We must be careful of asking our most at-risk colleagues to do more than they are comfortable with, but even small moments of collective resistance has the capacity to bear fruit. The lessons of autonomist Marxism is that it is precisely the self-activity of workers that drives capitalism to adapt, deepening the antagonisms between capital and labor, eventually leading to the overthrow of a fundamentally exploitative, racist, and sexist economic and cultural system. The question for academic library workers is which side of the struggle we are on.

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1. Notably chapters ten and fifteen of the first volume of *Capital* (Marx 1990, 340-416, 492-609) and the so-called “Fragment on Machines” in the *Grundrisse* (Marx 1993, 699-743)

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