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ORIGINAL ARTICLES

Pedagogically Reclaiming Marx's Politics in the Postdigital Age: Social Formations and Althuserrian Pedagogical Gestures

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Abstract
This paper builds on Marxist postdigital literature by first clarifying what a 'mode of production' is, what the capitalist mode of production is, and how, why, and on what technological foundations it emerged. This leads into a discussion of these technological foundations and their relationship to production, knowledge, research, and subjectivity, in other words, the 'general intellect'. At this point, I move from discussing modes of production to social or socio-economic formations, and show why social formations are more helpful for conceptualizing the political and pedagogical struggle in the era of postdigital capitalism (and any capitalism) as well as to insist on the division between capitalism and communism, two distinct modes of production in between which socialism is posited as a transitional *social formation*. With the postdigital age, collaboration, networked interactions, communication, open-source platforms, and more might be elements of a future mode of production. I end by returning to the question of the marxist political project and propose a postdigital marxist pedagogical approach that might help educators shift the balance of forces in the class struggle based on Althusser's reading of *Capital* that brings together two formerly opposed educational forms: counterinterpellation and disinterpellation.

Keywords Marx · Postdigital · General intellect · Pedagogy · Class struggle · Althusser · Mode of production · Law of value

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Introduction

While postdigital research that incorporates marxism continues to grow, much of this research relies primarily on *contemporary* marxist theorists, from Michael Hardt and Antonio Negri (2000, 2017) to Jodi Dean (2009, 2016), Dyer-Withford (2015) and Christian Fuchs (2019), who write *in* the postdigital age. With a few exceptions (e.g., Malott 2019; Rikowski and Ford 2019)—the postdigital science and educational community has not deeply engaged in Marx's own writings or the writings of marxists that followed him but preceded the digital or postdigital age. Missed here is an opportunity for postdigital scholars to return to these analog works and see how they can inform our struggles in the postdigital era today. Doing so is helpful for clarifying the extent to which contemporary, postdigital marxist[1] and marxist-adjacent research extends or diverges from Marx's own works and, more importantly, the political project.

We all know that Marx believes philosophers should not just interpret but change the world, but many forget, repress, or bypass (for various material and theoretical reasons) the *direction* toward which he wanted to change it, which was inextricably linked with *what* he studied and wrote—with marxist *theory*, in other words. Marx made this most explicit in a famous 1852 letter to Joseph Weydemeyer, a comrade who emigrated from Germany to the USA and fought in the Union Army against slavery. In the letter, Marx wrote that bourgeois theorists before him had discovered the existence of classes and the class struggle, but that what he proved was that the class struggle can lead to the dictatorship of the proletariat, and that the 'dictatorship [of the proletariat] itself only constitutes the transition to the *abolition of all classes* and to a *classless society*' (1983: 62–65). In 1852 he had not, of course, discovered the motor of this struggle—surplus-value—but the project was consistent throughout his life. It is a project, however, that today, too many—including but not limited to marxist academics—have abandoned.

As such, it is crucial to begin with a lesson that Louis Althusser learned from Lenin, that 'a "*practice*" of philosophy, and the consciousness of what practising philosophy' entails 'the consciousness of the ruthless, primary fact that philosophy *divides*' (2001: 13). The marxist tradition that orders practice above theory is often misunderstood because in narxism, there is no harsh binary between the two—such a binary is *idealist*. Instead, marxist philosophy must begin from everyday practices of production and reproduction, or struggle and defeat, move to abstraction, and then return to the real concrete with new thoughts that are hopefully more correct, which means they will advance the class struggle.

One of our contemporary marxist theorists and organizers recently published an excellent paper on 'Capitalism, Crisis, and Educational Struggle in the Postdigital'. Curry Malott is an associate professor in the USA, organizer with the ANSWER Coalition, and member of the Party for Socialism and Liberation. One of a growing number of communist educational scholars, Malott shows that the postdigital is, as

[1] I do not capitalize 'marxist' in order to emphasize that marxism has less to do with Marx himself and more to do with the struggles of workers and the oppressed.

so many definitions put it, difficult to pin down. The reason is that the postdigital is a *dialectical* process; it is 'something *real*, something in perpetual motion, something in the process of development, and something sublated' (2019: 372). The postdigital is the sublation of the analogue under the digital, as the former continues to exist but in a reconfigured form or, more precisely, in a constantly *reshaping* form. The struggle, as Malott formulates it, is over *what form the postdigital will take*, which will be determined by *what mode of production prevails*.

This struggle is what the present paper builds on, and it does so first by clarifying what a 'mode of production' is, what the capitalist mode of production is, and how, why, and on what technological foundations it emerged. This leads into a discussion of these technological foundations and their relationship to production, knowledge, research, and subjectivity, in other words, the 'general intellect'. This term is familiar to many and is the focus of several contemporary marxist theorists (e.g., Virno 2004; Hardt and Negri 2017) and marxist educational theorists (e.g., de Lissovoy and Armonda 2020; Ford 2020a, b; Lewis 2012; Means 2018; Peters 2020). I spend time relating Marx's presentation of machinery in *Capital* to that of the general intellect in the *Grundrisse* (e.g., Ford and Jandrić 2021) emphasizing the two contradictions at play in each, before interjecting that these contradictions are only useful insofar as the workers' struggle takes them up to shift the balance of forces in the class struggle for a new mode of production.

At this point, I move from discussing modes of production to social formations or socio-economic formations, and I show why social formations are more helpful to conceptualize the political and pedagogical struggle in the era of postdigital capitalism (and any capitalism) as well as to insist on the division between capitalism and communism, two distinct modes of production in between which socialism is posited as a transitional *social formation*. Multiple modes of production co-exist in any social formation, and the project is to locate possible elements of the communist mode of production in the capitalist one, a project Marx pursued and one I begin pursuing in our postdigital age. With the postdigital age, collaboration, networked interactions, communication, open-source platforms, and more might be elements of a future mode of production. I argue by way of a commentary on the immeasurable and the law of value that they are, at present, primary motors for capitalist accumulation. Finally, I return to the question of the marxist political project and propose a postdigital marxist pedagogical approach, one that might help educators shift the balance of forces in the class struggle. Such an approach is based on Althusser's reading of *Capital* that brings together two formerly opposed educational forms: counterinterpellation and disinterpellation.

What is a Mode of Production?

Interestingly, in the index of International Publishers edition of the first volume of Marx's *Capital*—the edition and translation prepared and approved by Progress Publishers, one of the Communist Party of the Soviet Union's publishing houses—there are no pages dedicated to the entry 'mode of production'. This affirms what Althusser tells us, that Marx 'never provided a true, concise, well

thought-out definition of the mode of production' (2020: 67). Marx instead offered two definitions.

In the chapter on the labor process, Marx will tell us how to distinguish between the different modes: 'It is not the articles made, but how they are made, and by what instruments.' (1867/1967: 175) In this definition, a mode of production is a way of producing articles of utility and is determined by the *means* of production. Yet later, Marx writes that production on an expanded scale 'does not present itself as accumulation of capital, nor as the function of a capitalist, so long as the labourer's means of production, and with them, his product and means of subsistence, do not confront him int eh shape of capital' (560). Here, the mode of production refers to '*the way* of producing in the social sense', which is '*the whole process of production and reproduction*' (Althusser 2020: 68). In other words, a mode of production is about the means of production and the *relations* of production, both of which constitute the economic 'base' of society. The relations of production are who produces, under what conditions, and how they relate to each other and—under capitalism—how they relate to those who do not produce but own. A mode of production, then, is not defined by legal or technical relations (even if it is partially maintained through them) and is instead the unity of both the means and relations of production but—and this is an important but—'*under the dominance* of the relations of production' (69).

For Marx, the capitalist mode of production became dominant once it passed from formal subjection to real subjection. Capital at first merely takes the labor processes of handicraft and manufacture as it finds them (in England) and takes command over it by, for example, lengthening the working day. At this point, capital has not yet acquired the direct control of the labor process (1967: 478) because the regulating mechanism of production is the worker and, as such, the worker 'maintains some autonomy from capital' (Malott 2019: 376). Real subjection, Marx says, takes place when 'industries that have been taken over' by capital 'continue to be revolutionised by changes in the methods of production' (1867/1967: 478). Real subjection takes place when capital replaces living labor as the motor of production with dead labor, or machinery. As a result, capital's command over labor increases and intensifies, as the knowledge of the production process is objectified in machinery and technology and withheld from our class through the state's repressive apparatuses. Here, we see the two definitions of the mode of production in their unity: the means of production and the relations of production define capitalism, which comes into its own through real subjection.

Machinery, once it fully replaces the workers' tools, transforms the worker 'into a fragment of a man, degrade him to the level of an appendage of a machine' (604). Thus, not only the *relations* of production are changed but so too is the *subjectivity* of workers. At the same time, however, the figure of the *collective worker* is solidified. Guido Starosta goes so far as to claim that 'large-scale industry begets, as its most genuine product, a *universal worker*, that is, a productive subject capable of taking part in any form of the human labour-process' (2013: 239). There is, as such, a contradictory process of subjectivation happening in which workers are both atomized and subjected to machinery while at the same time uniting to form a class. Our class is, in turn, constantly decomposed and recomposed through the *absolute*

general law of capitalism, the result of which is a dynamic and ever-expanding industrial reserve army produced through technological developments.[2]

Just as the postdigital is a dialectical sublation, so too is the industrial factory, which is especially apparent given that it is precisely the *proletarian's* skills and knowledge that are objectified in machinery. At this point, however, we should define the proletarian as anyone subjected to capital, whether they're employed or not, whether they do or do not receive a wage, whatever they produce, and wherever they are. While at one point in *Capital* Marx defines the 'productive worker' as one directly engaged in producing surplus-value—and says it is a 'misfortune' (1867/1967: 477), he later writes that 'the maintenance and reproduction of the working-class is, and must ever be, a necessary condition to the reproduction of capital' (537). Surplus-value is not just produced but has to be transported, exchanged, and realized or consumed. Proletarian is both an adjective and a verb; it is a *process*: the proletarianization of increasing numbers of people and communities, states, and nations is precisely the process of capitalist production.

Wherever one falls in the ongoing process of proletarianization, workers—whether they are looking for work or not, engaged in black or grey market work or formally employed, imprisoned or 'free', precarious or as regularly employed as one can be under capitalism—are part of this class from which capital expropriates land, subjectivity, knowledge, and skills.[3] One of the most interesting and potent examples is the cotton gin, an invention credited to Eli Whitney, something of a folk hero in the US elementary school curriculum. Sam Marcy, however, argues that 'the first gin made in Mississippi was constructed based on a crude drawing by a skilled slave … Since the slaves were never recognized in law as persons, the slave owners could appropriate their property as well as any inventions they might conceive of' (2009: 59). The impetus for the invention was the increased demand for cotton in England as a result of the industrial revolution. Here, we see capitalism changing—worsening, in fact—the barbarism of slavery and worsening the English proletariat as well. Even under capitalism, in which the 'individual' enters into a 'contract' with a capitalist as free equals in capitalist-juridical terms, their knowledge is the main ingredient or blueprint for 'capital's' technological transformations.

This is a rich dialectic unfolding, devoid of any traces of technological determinism. In his latest book, Andy Merrifield extrapolates on the fourth footnote in the chapter on machinery and modern industry in *Capital*, where Marx articulates his dialectical and historical-materialist approach to technology. 'Humans make machines', he says, 'develop technology from bright ideas', which, in turn,

> emerge out of prevailing material circumstances. Yet as soon as those bright ideas are realized materially, get embodied in new technology, in new machin-

[2] This is distinguished from the 'absolute law' of capitalist accumulation, which is the production of surplus value (Marx 1867/1967: 580). Further, it is '*like all other laws*… modified in its working by many circumstances' (603, emphasis added).

[3] It's worth emphasizing that Marx noted that workers' lives are made '*the more precarious*' as a result of proletarianization, so the figure of the 'precariat' is nothing new (1867/1967: 603)!

> ery, they react, help shape us in dramatically ambivalent ways. We make technology; technology remakes us. Technology changes prevailing ideas, too, which then open further possibilities for the development of other new ideas and add other new technological advancements. (2020: 63)

The questions, of course, are whether and on what grounds these are technological *advancements* or merely technological *changes*. Yet, the point stands: ideas, social relations, the mode of production, and the means of production exist in a dialectical relationship, with each impacting the others.

The Social Brain in Living Labor and Fixed Capital

Even though proletarians produce the knowledge and innovations that make technological changes possible, we do not recognize them as such. As Marx wrote in the *Grundrisse*, 'in machinery, objectified labour confronts living labour within the labour process itself as the power which rules it; a power which, as the appropriation of living labour, is the form of capital' (1939/1993: 693). The general intellect is, for Marx, precisely such a process of real subjection through the objectification of knowledge in technology. The general intellect—which Marx introduces in the *Grundrisse* notebooks—is 'the accumulation of knowledge and of skill, of the general productive forces of the social brain' which are 'absorbed into capital, as opposed to labour, and hence appears as an attribute of capital' (694). This is from a section of the *Grundrisse* notebooks—which were posthumously published—and labeled the 'Fragment on Machines.'

The notebooks were written in the 1850s as Marx studied political economy and published in 1939 and translated into other languages in the 1950s–1960s. But of the whole set of notes, the 10 or so pages of the Fragment that span the sixth and seventh notebooks of the *Grundrisse* helped reinvigorate marxism in the knowledge society. This is especially true in the Italian marxist tradition, which found in the *Grundrisse* notebooks a Marx that could speak back to and against what they saw as dogmatic and rigid interpretations of scientific marxism, in part because the notebooks were incomplete and thus non-totalizing or systematic.

The timing was right, too, as their translation into Italian happened in 1964, a year after the founding of a pivotal autonomous journal and as a new wave of worker struggles emerged that helped spur new crises and reconfigurations of capital, or the contemporary post-Fordist economy. Nonetheless, it was really in the 1980s–1990s, after these struggles had subsided and capital had reached a new kind of stable arrangement (which brought about different crises), that it gained its explanatory power (Pasquinelli 2019). Today, the Fragment, especially the concept of the general intellect that appears in it, remains a main ingredient in a range of not just marxist but leftist and other critical approaches to the postdigital world.

In the Fragment, Marx concentrates on some of the contradictory aspects of the ongoing development and dispersion of machinery, especially as they relate to what he called the organic composition of capital. Capital, for Marx, was not just an economic system but a dynamic social and political one as well. As such, he

had different ways of looking at how capital was composed, like those introduced at the beginning of chapter 25 of volume 1. One is the technical composition of capital, which is the ratio between the number of workers employed and the number of means of production (machines, raw materials, etc.) they work on. Another is the value composition of capital, which is the ratio of the *value* of labor-power and the *value* of the means of production. The first is quantitative and the latter is qualitative. There's a relationship between the two, and the organic composition of capital names this relationship as changes in the second are brought about by changes in the former. In other words, if the number of machines increases while the number of workers decreases because the machinery is more productive, this will cause the value composition of capital to change, as there will be less labor power employed and more means of production used.

As capital develops, he wrote, 'the creation of real wealth comes to depend less on labour time… but depends rather on the general state of science and the progress of technology, or the application of this science to production' (704–705). Technological transformations tell us 'to what degree general social knowledge has become a *direct force of production*, and to what degree, hence, the conditions of the process of social life itself have come under the control of the general intellect and been transformed in accordance with it' (706). This presents or intensifies two contradictory tendencies inherent in capitalism. The first is the 'falling rate of profit'. As profit is the ratio of surplus-value divided by variable capital (wages) and constant capital (including machinery), as investments in machinery (as the congealed general intellect) grows, the rate of profit falls (because machines do not produce value but merely transfer their existing value). Marx takes this up later in the third volume of *Capital*. The second contradiction, which is related to the first, has to do with the source and measurement of value. Rather than surplus labor-power driving production, it is the appropriation of the general intellect, 'the development of the social individual which appears as the great foundations-stone of production and of wealth' (705). Thus, the general intellect—congealed in machinery—he writes (again, in notebooks not intended for publication) provide 'the material conditions to blow this foundation sky-high' (706).

Marx hints that as the general intellect develops, it produces a new material foundation for society, one that could *potentially* set labor free. Of course, material *conditions* are not *guarantees*, and capitalism for Marx cannot abolish itself through its own contradictions; only the class struggle can do that—partially by analyzing and using these contradictions for its own purposes. As George Caffentzis helpfully shows, both the tendency for the rate of profit to fall and the 'incommensurability' tendency in the Fragment—whereby labor-time is incommensurable with value or wealth production—work together insofar as machinery raises the organic composition of capital in one industry then other capitals move into new industries. For example, this is an interpretation of post-Fordism recognizing new forms of labor 'as a new source of accumulation', particularly the service industries, which 'began to develop in the 1970s and 1980s that soon became important branches of industry' (Caffentzis 2013: 279). Another example is the absorption of social reproduction into the realm of capital (278).

For his part, Carlo Vercellone sees the growing importance of the general intellect as a shift *away* from *real* subjection *back to formal* subjection. The general intellect is about machinery *and labor-power* because it is the latter that produces surplus-value and that creates technology. Thus, the Fragment is an argument for 'the recomposition of science and of the collective worker' and the general intellect 'refers to a preliminary transformation of the intellectual quality of living labour, or to the education of a diffuse intellectuality' (2007: 29). If the general intellect can be really subjected to capital, he suggests, then it might 'create certain conditions favourable to a collective reappropriation of knowledges insofar as living labour is able to reconvert part of its surplus labour into free time' (28).

At this point, it is necessary to define what exactly machinery is in the world of capital, because we can then see why this debate about the general intellect and its location and relations is so important. In the second volume of *Capital*, Marx categorizes machinery as *fixed capital*, which is distinct from *circulating* capital. Both are *forms* of capital in the production process. Circulating capital literally circulates along with the commodity. For example, the cotton used to produce a t-shirt enters the t-shirt and circulates with it. At the same time, however,

> another part remains fixed in the means of labour and hence in the production process. The value fixed in this way steadily declines, until the means of labour is worn out and has therefore distributed its value, in a longer or shorter period, over the volume of products that has emerged from a series of continually repeated labour processes. (Marx 1885/1978: 237-238)

While much fuss is made today about the *mobility* of capital—which can certainly move about the globe like never before—this tendency toward mobility exists alongside a contradictory tendency toward immobility. Take, for example, the revolutions in transportation and communication that Marx wrote about. These arise to overcome the barriers capital encounters as it expands throughout space and time. Capitalism constantly works to produce a set of spatial relations that enables production and circulation to happen as quickly as possible. Selling time is particularly important in this regard. This is why Malott proposes that capitalist crises in the postdigital era tend to manifest as crises of *realization* (2019: 373).

'A permanently effective cause of differentiation in selling time, and hence in turnover time in general, is the distance of the market where the commodities are sold from their place of production.' (1885/1978: 327) This is another motivating force behind capital's drive to annihilate space by time, and developments in transportation are fundamental to this: With the development of means of transport, the speed of movement in space is accelerated, and spatial distance is thus shortened in time (327). In turn, means of communication develop 'so that for instance many ships depart for the same ports at the same time, several trains run between the same two points along different railways' (327). Developments in communication help coordinate advances in transportation.

There are two contradictory implications that arise from these concurrent developments. The first implication is that the overall mass of commodities circulating through space and time increases and, as a result, there is a greater outlay of capital that is locked in commodity form. The second implication is that there is a greater

outlay of capital invested in transportation and communication. These are contradictory developments because, while advances in transportation and communication are intended to—and, in many ways, do—help facilitate the realization of value, by increasing the outlay of capital, the risk of crisis is heightened and intensified (the risk of crisis by devaluation, for example).

Fixed capital is not an accidental but a necessary form of capital; it comes about as a direct consequence of capital's logic (see Ford 2017). Like all elements of capitalism, fixed capital is quite a contradiction in that it is, well, fixed, while capital is all about motion and fluidity—the *expansion* and movement of value. Fixed capital is resolutely necessary for capital, however: 'Fixed capital is as much a presupposition for the production of circulating capital as circulating capital is for the production of fixed capital.' (Marx 1939/1993: 734) Don Mitchell makes the significance of this antagonistic necessity explicit: 'For capital to be free', he writes, 'it must also be fixed in place' and this represents 'the central geographic contradiction of capitalism' (2003: 165). One way that capital attempts to deal with this contradiction is, not surprisingly, through ideology. Through touting itself as infinitely mobile and able to leap across the globe at the drop of a dime, capital can dictate a range of local policies and practices.

Postdigital Communism and Pedagogy: Beyond Measure?

The extent to which the general intellect is the driving motor of production and knowledge is central to economics, politics, and the world generally poses a number of problems for capital. Therefore, it also poses a number of possibilities for resistance, namely, that knowledge in non-rivalrous, non-exclusive, and does not operate according to the logic of scarcity. For one, knowledge does not always or readily take the form of a commodity over which one can claim private ownership. It is easier to claim a plot of land, a building, a set of machines, or a batch of raw materials than it is to claim knowledge. As a result, the status of knowledge as a public or private good is hard to ascribe. Knowledge does not obey the same laws of scarcity or rivalry as physical commodities. One person's knowledge does not eliminate the possibility of another person's knowledge except through capitalist enclosure and expropriation. When one person utilizes knowledge, it is not as if the knowledge is diminished for or inaccessible to another. Moreover, the more people access knowledge, the more knowledge can be created. Finally, because it is hard to draw boundaries around knowledge and designate it as a commodity, it is also difficult to prevent people from accessing knowledge. Everyone on the political spectrum, from the neoliberals to the marxists, acknowledge this.

For the neoliberals, it is a problem to be solved. You cannot totally privatize knowledge, but it cannot be totally public, either. What really matters are decreased government regulations (which are paradoxically facilitated by the state); the availability of venture capital to entrepreneurs and small to medium businesses (they still really like microfinancing, too); reduced trade barriers; investments in infrastructure; establishing networks between universities, government, and the private sector to facilitate research and development; and investment in an education

system comprising primary, secondary, tertiary, vocational, and lifelong learning. By showing interactions over time and between nation-states, the World Bank Institute thinks their Knowledge Economy Index will let them determine the right mixture of policies and investments.[4] The Organisation for Economic Cooperation and Development (2018: 4) is even pursuing the measurement 'of social and emotional skills' because 'in an increasingly fast-changing and diverse world', they say, 'the role of social and emotional skills is becoming more important. A faster pace of living and a shift to urban environments means people need to engage with new ways of thinking and working and new people'. They define these skills as those that enable one to 'regulate one's thoughts, emotions and behaviour' in response to our 'fast-changing and diverse world', 'the dismantling of traditional social networks', and 'a shift to urban environments' (4). In sum, they are oriented around adapting the casualties *of* the absolute general law of capitalist production *to* the absolute general law of capitalist production.

For marxists, the immeasurability of the general intellect is precisely its promise. Capital's ability to control the knowledge economy, according to this view, weakened. 'Within economic production', Hardt and Negri write, 'knowledge is no longer merely a means to the creation of value (in the commodity form), but rather the production of knowledge is itself value creation'. As a result, 'capital is in fact confronted with a paradoxical situation: the more it is forced to pursue valorization through knowledge production, the more than knowledge escapes its control' (Hardt and Negri 2009: 268). The collective, non-rivalrous, easily duplicated, and immaterial nature of knowledge—as well as the collaboration and openness required for knowledge production—makes it unwieldy for capital. As a result, capital tends to rely on enclosing and expropriating the common social brain. It is important to note that capital continues to enclose and expropriate labor power, raw materials, and means of production as well through imperialist wars. Yet, relative to the postdigital general intellect, it takes the form of intellectual property rights and patents, as well as through financial mechanisms like derivatives, which are bets on the future productivity of the general intellect, and rent (Ford and Sasaki 2020).

The immeasurability of knowledge is under attack by capital's enclosures, and we must embrace it and defend it to create a new society. Rather than take state power, we have to withdraw from capital and its rent-seeking financial mechanisms to create new spaces and forms of life. For Franco 'Bifo' Berardi, the answer is poetry. Poetry exceeds economic exchange; 'poetry is the language of nonexchangeability, the return of infinite hermeneutics, and the return of the sensuous body of language… I'm talking about poetry here as an excess of language, a hidden resource which enables us to shift from one paradigm to another' (2012: 140). Today, communication is abstracted through digital finance. 'Language', by contrast, 'is boundless:

[4] The methodology takes a wide view of the knowledge economy, which is organized around four pillars that include 'an educated and skilled labor force, a dense and modern information infrastructure, an effective innovation system, and an institutional regime that offers incentives for the efficient creation, dissemination, and use of existing knowledge' (The World Bank Institute 2007: 23).

its potentiality is not limited by the limits of the signified. Poetry is the excess of language' (2018: 32). Berardi's quest is similar to Paolo Virno's, who makes a shift from the general to the generic intellect (Ford 2020a). What capital mobilizes is not this or that *actualized* knowledge but rather our *infinite potentiality* of knowledge, which is most evident in language. The task is to wield it against capital, which can only be done by delinking the general intellect from wage labor through 'cooperation *in excess* of the Intellect' (Virno 2004: 67). Withdrawal, or defection from the state and capital, takes place through 'a dramatic, autonomous, and affirmative expression of this surplus' (71).

Some contemporary marxist theorists believe that the predominance of the general intellect undercuts Marx's theory of value, precisely because you cannot measure the labor-time for the production of communication, affects, language, knowledge, and so on. Yet, Marx's law of value is precisely *immeasurable*. For Marx, value is socially necessary labor time, which he called so because (1) it is the overall average time it takes to produce a commodity (e.g., if it takes me 2 days to produce the same commodity that you produce in 1 day, my commodity is not twice as valuable, and instead, if we are the only producers, the socially necessary labor time for our commodity would be exactly in the middle at 1.5 days), and (2) it fulfills a need or desire of society at the time (if I produce a commodity that no one wants, the labor embodied in it has no value because there is no use value; it is literally a non-value). Both aspects of value are dynamic; they change over time and in ways that are often unpredictable and hard to pinpoint at the moment. In fact, the utility of anything is qualitative and singular, so it escapes not only measure but even the consciousness of the consumer (don't we all wonder why we get enjoyment out of certain things—television shows, singers, etc.?).

The real question is not about measure. Instead, as Malott formulates it properly, it is 'how to sublate ourselves, and the world in the process, into a world of non-alienated cyborgs, free of exploitation, building a still opaque communist future' (2019: 372). Hardt and Negri helpfully remind us that there is a 'mistake in posing an *ontological* division and even opposition between human life and machines. Human thought and action have always been interwoven with techniques and technologies.' (2017: 109) The division between fixed capital and living labor is a *class* division, not an ontological one, and should be treated as a political struggle as Malott asserts. The division between the digital and the analogue is historical and political. The immeasurable is a weapon in the class struggle, one that is up for grabs by the two classes engaged in struggle.

Postdigital Capitalism *or* Postdigital Communism

In the edition of *Capital* referenced earlier, the index entry for 'mode of production' points you to 'socio-economic formation'. My speculation is that they wanted first to underscore that any mode of production is not just economic but social, but moreover to emphasize—as Marx did—that every socio-economic formation consisted of multiple modes of production. In the preface to the first German edition of *Capital*, for example, Marx justified his focus on England on the basis that it was where the

capitalist mode of production was most developed but noted that 'alongside of modern evils' of capitalism, 'a whole series of inherited evils oppress us, arising from the passive survival of antiquated modes of production' (1867/1967: 20). In fact, the very first sentence of the book contains a key qualifier that is often glossed over. 'The wealth of those societies,' Marx writes, 'in which the capitalist mode of production *prevails*, presents itself as "an immense accumulation of commodities"' (43, emphasis added). While it is often noted that wealth *is not* commodities but only *appears* as such, what is less remarked is that the capitalist mode of production only *prevails*; it is not *exclusive*. It should be added that Marx also uses socio-economic formation or social formation rather than society because the latter he sees as arising specifically with capitalism.

Interestingly, neither Marx nor Lenin ever write about a *socialist* mode of production. Instead, Lenin defines socialism 'as the transition between the capitalist mode of production and the communist mode of production' (Althusser 2020: 63). Social formations take various forms and are composed of different modes of production, some or one of which is ascendant or dominant. As a social formation, socialism is the heterogeneity of elements of both modes of production in which communist relations and means of production are ascending through the class struggle. Marx identifies several elements of the communist mode of production in capitalism, from joint-stock companies to the general intellect. 'They are', Althusser insists, 'not all communist elements. They are elements for communism.' (65) In the same way, peer collaboration, the general intellect, collaboration, collective projects, and so on are also elements for communism. Right now, however, they are captured by capitalism which functions precisely by valorizing the immeasurability that some on the left celebrate.

Marx in the postdigital era does not pose a technical or juridical challenge, but a class challenge: how to collectivize the proletarian class—in practice and theory—to advance the class struggle. As capital produced the collective worker, it continually had—and has—to divide us. In the USA, the primary mode has been division through individuation. This theme runs throughout *A history of education for the many: From colonization and slavery to the decline of US imperialism*, where Malott (2021) demonstrates that the common school movement's leaders like Horace Mann argued that common schools would 'reorient how workers understand how to improve their conditions. The objective was to replace the view that better working conditions and a better life are achieved through unions and collective struggle with an individualist orientation' (Malott 2021: 90). Most interestingly, Malott shows how this orientation informed critical pedagogy, a term Henry Giroux coined in the early 1980s that foregrounds 'agency in the classroom' and works 'at the individual level of micro-politics. Critical pedagogy's most common active subject of change is the individual critically conscious teacher acting for the many rather than with the many' (188).

To move to the many, we move beyond the individual subject. In the *Grundrisse*, Marx 'defines capitalism as a social system in which human beings are ruled by abstractions, first and foremost' (Toscano 2014: 1225). The individual is one such abstraction, and he dedicates the 1857 Introduction of the *Grundrisse* to showing that the *production* of the subject as an individual was a historical product, one that

emerged in the eighteenth century and one that, as such, was far from natural or transcendental. In fact, this was his critique of so many bourgeois political economists of his day (as well as Proudhon). For them, the eighteenth-century individual, he writes, appears as an ideal, whose existence they project into the past. Not as a historical result but as history's point of departure (Marx 1939/1993: 83). That the *individual* is the subject of production is as much of an absurdity as is the development of language without individuals living *together* and talking to each other (84). This, in addition to the withdrawal of state support and financial precarity and so on, could provide another reason for why Jodi Dean claims the individual subject-form is failing today. Interestingly, she argues that 'the technologies that further individuation … provide at the same time an escape from and alternative to individuation: connection to others, collectivity' (2016: 64). Networked technologies are communist elements in our capitalist social formation.

At the conclusion of their article on biodigital philosophy and postdigital knowledge ecologies, Michael Peters, Petar Jandrić, and Sarah Hayes delineate 'two major forms in the political economy of bioeconomy—capitalist and socialist' (2021: 383). In other words, postdigital knowledge ecologies and their various formulations or offspring are fundamentally divided along the lines of the mode of production. Such knowledge ecologies and their components must be partisan, which means that they are also philosophical; they *divide*. We have to properly understand that the division is between capitalism and communism, through the transition to socialism.

Yet capitalism has changed in fundamental ways, and in educational ways, particularly with the rise of the so-called knowledge economy (see Ford 2021). The openness, networking, and communication so central to production today are, according to some on the left, a promise of a more productive future in socialism. Peters puts it succinctly:

> The intellectual commons provides an alternative to the currently dominant 'knowledge capitalism'. Whereas knowledge capitalism focuses on the economics of knowledge, emphasizing human capital development, intellectual property regimes, and efficiency and profit maximization, the intellectual commons, let's call it 'knowledge socialism', shifts the emphasis towards recognition that knowledge and its value are ultimately rooted in social relations, a kind of genuine knowledge socialism that promotes the sociality of knowledge by providing mechanisms for a truly free exchange of ideas. (2020: 6-7)

Capital requires such openness and must continually navigate it. It needs new ideas, innovations, and so on. The excess and immeasurability of knowledge is not a locus of resistance but the motor of capital accumulation. As Giorgio Agamben formulates it, today capitalists are effective 'not so much because they act on primary behaviors, but because they act on pure means, that is, on behaviors that have been separated from themselves and thus detached from any relationship to an end' (Agamben 2005/2007: 87). Right now, in other words, 'capitalism is nothing but a gigantic apparatus for capturing pure means' (87).

The postdigital is *post* because the digital cannot replace or destroy the analog. Postdigital capitalism feeds on the surplus of the analogue. Take Phoebe Moore and Andrew Robinson's study of wearable and other self-tracking Devices, for

example. They observe that 'a central aspect of such technologies is the quantification of what were formerly treated as immeasurable, qualitative aspects of the labour process or the self—such as mood, fatigue, psychological well-being, the desirability of cultural products and the worker's breaks and time-off. This renders workers permanently visible to management.' (2016: 2779) In other words, they identify a link between measurement and visibility, for only once something is measured can it be rendered transparent, communicable. Yet only that which *is not* measured *can* be measured. Thus, while 'bits and bytes can easily be manipulated in socialist ways', we need 'hardware socialism' which 'urgently requires new political economies and *theoretical groundings*' (Jandrić 2020: 94, emphasis added).

A Marxist Educational Gesture for the Postdigital Class Struggle

How might marxist pedagogical theory—which is also a practice—respond to postdigital capitalism? To proffer an answer to this question, I should first clarify that the audience for this paper is primarily the academic interested in or active in political struggles. To that extent, what is to be done is to wage the class struggle with the resources we have and on the global scale. Althusser offers importantly reminds us that there is no linearity to marxism, and that when Lenin proposed that imperialism was the culminating stage of imperialism, he did not mean it would result in socialism. In fact, the 'evolutionist representation of Marxist theory' is 'yet another victory, and a big one, of bourgeois ideology' (2020: 121). We are still in the age of imperialism, and the task at hand is to fight against it by waging class warfare in all arenas—including those of postdigital science and education.

In an oft-cited definition, the postdigital is defined as 'hard to define; messy; unpredictable; digital and analog; technological and non-technological; biological and informational. The postdigital is both a rupture in our existing theories and their continuation' (Jandrić et al. 2018: 895). The postdigital is a stupefying question or moment that demands we retune ourselves constantly, which is the same gesture that Marx makes, even in *Capital*, as the book is 'a theoretical, systematic text, yet an unfinished … one … because it supposes a culmination … that is other than theoretical, an outside in which theory would be "pursued by other means"' (Althusser 2020: 144). It demands experimentation, yet a kind of experimentation that capital cannot capture or enclose.

An example of such an experiment would be *Reading Capital*, the book collectively authored by Althusser and his students. In his first contribution, Althusser begins by noting that the book is a series of notes from a seminar course, and they 'bear the mark of these circumstances: not only in their construction, their rhythm, their didactic or oral style, but above all in their discrepancies, the repetitions, hesitations and uncertain steps in their investigations' (Althusser 1965/2015: 11). They could have, he writes, tried 'to make a *finished* work out of them,' but chose instead 'to present them for what they are: precisely, incomplete texts, the mere beginnings of a *reading*' (11). Toward the end of the contribution, Althusser notes that Marx develops concept in two ways, synchronically and diachronically. Both are forms of

presenting and producing knowledge amount to learning, but with different scientific procedures and different *knowledge effects*.

'Synchrony', Althusser writes, 'represents the organizational structure of the concepts in the thought-totality or *system*', while 'diachrony [represents] the movement succession of the concepts in the ordered discourse of the proof' (Althusser 1965/2015: 70). When only read or written synchronically, concepts are presented linearly as building blocks for further concepts. Yet, diachrony is when concepts are developed through displacement as they take on different contingencies and therefore *dislocate* knowledge. Each has a distinct temporality, as synchrony proceeds through succession linearly and according to a developmental logic while diachrony is open and aleatory, uncertain and hesitant.

We can grasp the pedagogical simultaneity of the synchronic and diachronic through two recent theorizations of Althusser's pedagogy, both of which build on Althusser's notion of interpellation. For Althusser, ideology functions concretely through interpellation, a process through which we are 'recruited' into the dominant ideology.[5] David Backer gives an example from his school life: when he received his state test scores. Backer writes that his father 'said that if I didn't score higher on such tests in the future, then I wouldn't be allowed to go to summer camp… the test interpellated me in this case: I learned what I that I had to behave in a certain way with these tests, that around here we perform well on state tests, or else' (2019: 6). For Althusser—and this is really important—there is no 'temporal succession' of interpellation: 'ideology has always-already interpellated individuals as subjects' (2014: 192). Even before we are born, we are given a name, interpellated into a lineage, and so on. The ideological state apparatuses (like the school, church, family, media, and so on) function along with the repressive state apparatuses (like the policy, army, courts, and so on). Althusser saw the school as becoming the dominant ideological state apparatus. Thus, the *content* of schooling matters less than the *form* of schooling. In Backer's case, what the test tested was of less concern than the testing process itself.

Interpellation is significant because it moves the class struggle into the realm of ideology and theory. What happens in schools is thus central because it can determine 'the balance of power in the class struggle… *in the number-one Ideological State Apparatus*' (2014: 159). Interpellation is the glue that fastens the contradictory and antagonistic modes of production in any given social formation—including their social relations—together. Glue, of course, does not always hold, never permanently seals anything, and cannot totally conquer the air. As such, interpellation does not fully succeed, and we can pedagogically facilitate such failures through multiple means, the first of which is counterinterpellation.

[5] What might be less well known is that *one* of Althusser's purposes in developing the theory of interpellation is to agitate against anti-socialist theories or '"anticipatory" works depicting "totalitarian" socialist society as a society in which every individual will be doubled by his personal "monitor"' (2014: 177).One cannot help but think Althusser's target here is the anti-communist and CIA-collaborator, George Orwell.

Backer defines counterinterpellation as 'a taking up and taking on those interpellations that shift the balance of forces away from the ruling class's control' (2018: 11). Counterinterpellation is a refusal of interpellation, a rejection of the hailing that positions the subject within the reproduction of capitalist relations. Counterinterpellation acknowledges and militates against such practices in the production of antagonistic subjectivities. Interpellations are 'small moments with big meanings: they are the concrete practical moments whereby social context weaves through consciousness, connecting with and composing individual subjectivity' (5). Yet interpellations are never secured and are fragile, subject to the class struggle. For example, we are interpellated into and through language but return and utilize language 'in undeniably unique ways', such as through 'poetry, innuendo, paradox, neologism, philosophy, and puns' which 'all happen within and against the prefabricated linguistic structures speakers must speak' (9). I remember someone shouting 'queer' at a friend and me as we were walking down the street, and my friend responding with a loud 'thank you'! This was a refusal of an attempted interpellation of us into abject subjects and a counterinterpellation that affirmed a different sense of queerness.

Tyson Lewis finds Althusser's marxist philosophy of education in the pedagogic encounter with alterity and, instead of counterinterpellation, proposes disinterpellation. For Lewis, counterinterpellation is a political practice that is always oriented in a particular direction and therefore is not properly educational. Lewis finds disinterpellation in Althusser's aleatory materialism. In *Philosophy for Non-Philosophers*, Althusser recounts aleatory materialism through Lucretius' poem on Epicurus: 'Before the beginning of the world', Althusser starts, 'the atoms were "*falling like rain*". This would have gone on indefinitely had the atoms not been endowed with an astonishing property, "*declination*", the capacity to deviate from the straight line.' (Althusser 2017: 29, emphasis in original) The atoms clashed, and enough encounters took hold that they created a world. Here, contingency reigns over necessity, and the exception is the rule. The pedagogical encounter is 'an exposure to an outside' and an excess or surplus *gap* within (counter)interpellative moments. As such, the pedagogical encounter cannot 'be brought about by learning theory or the expertise of the teacher', and 'rather *happen* when a certain configuration of institutional and extrainstitutional forces come into play' (Lewis 2017: 314). The educational space this happens is the seminar, which allows for 'a moment of disinterpellation through which students, materials (books, essays, films, and so forth), and the teacher enter into a constellation of forces that destabilize and thus open up a space and a time wherein a new kind of educational life beyond the subject temporarily forms' (316).

One problem Backer identifies with disinterpellation is that 'it assumes a moment beyond ideology but really is predicated on 'an ideology with certain features, namely that of a communist horizon' (2018:16). As a result, there is still an unacknowledged political project and orientation at play. For Backer, the marxist teacher works to produce counterinterpellation through 'knowing what kinds of social forces act on and through one's classroom' and helping 'students learn how to make interventions that shift the social formation's balance of forces' (19). For Lewis, on the other hand, counterinterpellation is a political necessity but one that does not allow for the educational experience of making 'the subject unfamiliar to itself and thus open to its own dissolution through the encounter with an outside' (2017: 314).

The marxist teacher cannot *make* such an experience happen but can only try to 'open a space for an encounter by setting up the possibilities for a clash' and holding onto such clashes (314).[6] Counterinterpellation necessitates the teacher's knowledge, while disinterpellation necessitates the subject's openness to non-knowledge.

I propose that the pedagogical interplay of synchrony and diachrony allows for the play of both disinterpellation and counterinterpellation. It is not that the teacher *does not* have a politics—as if that was possible—or that capitalist forces like debt cease operating on the student's subjectivity. On the contrary, the student who suffers the aleatory swerve is in a state of *deferral* while disinterpellated. The void, after all, is still composed of *matter* as 'something cannot come from nothing' (Goshgarian 2019: 245). This deferral is a decomposition of individual capitalist subjectivity, a *feeling* that the collectivization of the proletarian class is realizable. On the other hand, counterinterpellation is the political experience of intervening to produce that collective and advance the class struggle. Counterinterpellation is a synchronic movement that shifts the balance of forces by asserting a revolutionary knowledge and subject position against capitalism, while disinterpellation is a diachronic movement that reveals the limitations of revolutionary knowledge and subjectivity under capitalism. In neither case do we renounce, as Althusser puts it, 'that it is possible to organize the workers' class struggle for the seizure of power and for socialism' (2020: 155). The pedagogical mode is one in which the synchronic and diachronic dialectically intertwine as—and with—the digital and analog.

The pedagogical force of their simultaneity is that of a rupture in the world as it is: both knowledge and non-knowledge, information and ignorance, a step forward and sideways. One reads the book and understands the content while remaining stupefied in the face of its potential meaning. Counterinterpellations on their own can potentially produce new knowledge commons for capital to expropriate, or they can produce disinterpellative experiences in that the refusal of the insult of interpellation opens a space for the encounter with another possible world and set of social relations that we cannot *know* in the present but can only *feel*.

The pedagogical directive is to *inhabit* this heterogeneity in the face of capital's all-powerful forces of abstraction. We experience a collectivity but, more pointedly, a collectivity that remains mute and infantile *and* antagonistic and public. The political project is, then, to force these encounters to cohere so that we can build communism, sublating the relationship between what is now antagonistically divided between fixed capital and living labor into a liberated, collective, ecological subject. Consider, by way of conclusion, digital technologies that mediate the voice through automatic tuning, filters, and other means. Such mediations reveal that vocalization is a 'process without a subject' insofar as they prevent us from linking the sound of a voice to an essence of an individual subject *or* a piece of fixed capital. They produce another sonic surplus that capital *might* capture if we only listen synchronically for new and meanings and knowledge or that workers *might* utilize for oppositional counterinterpellations. But if we listen diachronically as well, we receive an

[6] These are not the only elements at play in the Backer-Lewis debate.

immersive education in the *wonder* as well as the *theory* of class struggle, a struggle that is advanced ideologically and materially through the forces of opposition and swerve.

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