Deskilling and degradation of labour in contemporary capitalism:
the continuing relevance of Braverman

Fabiane Santana Previtali and Cílson César Fagiani

Fabiane Santana Previtali is a Professor in the Institute of Social Sciences at Uberlândia Federal University, Uberlândia, Brazil.
Cílson César Fagiani is a Doctoral student in the Institute of Contemporary History at Uberlândia Federal University, Uberlândia, Brazil.

ABSTRACT

This article examines the continuing relevance of Harry Braverman's thesis on the degradation of work to the new circumstances of the twenty-first century. It argues that, despite claims that the standardisation and deskilling of work that characterised the Taylorist/Fordist period have given way to new forms of knowledge-based production and an integration of mental and manual labour, the concept of degradation is still relevant. New conditions of production demand a new and more versatile kind of worker who is able to meet the requirements of production processes that require intensive use of information technologies, are globally dispersed and related to the consumption of products with a high technological density. Nevertheless, the new conditions of capital accumulation are still based on the same laws of value and require intensive control and surveillance of the worker. This control, however, takes new forms under regimes of flexible accumulation, and is founded in managerial strategies built on workers' involvement and participation. Ensuring workers' compliance with such strategies requires the creation of the new kinds of subjectivity. The article goes on to discuss the education reforms required to produce such subjectivities, and the transformation of pedagogical processes and teaching labour that are necessary to achieve these reforms. It concludes by reflecting on the implications of the resulting individualisation of workers' subjectivities for class solidarity.

Introduction

Harry Braverman published his book *Labor and Monopoly Capital* in the mid-1970s, in 1974 to be precise. His work quickly became required reading on the left and contributed greatly to what later came to be called 'labour process theory' (Meiksins, 1994; Yates, 1999; Sewell, 1998; 2005; Thompson, 2010). In this book, the author

defends the controversial thesis that there is a general trend towards deskilling and degradation of labour in capitalism. Forty years after its publication, in the midst of theories defending the end of the extreme separation between the conception and execution of labour and of labour itself as a creator of value (Piore; Sabel, 1984; Womack; Jones; Roos, 1989), it is necessary to reconsider the relevance of Braverman's central arguments, mainly because, despite changes in management models – such as Taylorism and Fordism developed from the 1930s (Bihr, 1998) – and the development of new organisational forms – such as 'Toyotism' – linked to the productive restructuring that followed the crisis of capitalism in the 1970s (Harvey, 1992; 2011; Antunes, 2013), there is no evidence of substantial changes in the logic of capitalist production, which remains under the rule of the law of value, and therefore under the premise of the control of labour.

It is noteworthy that the dynamics of class struggle in the workplace and in the capitalistic socio-political structure as suggested by Burawoy (1978), Edwards (1979) or Tomaney (1996) are not in question. On the contrary, it is precisely because labour creates resistance mechanisms to the control and rationalisation mechanisms of capital that capital is forced to introduce changes to the ways it extracts surplus value.

It becomes crucial, therefore, to return to Braverman to understand how the essential form of control persists even under an ideological discourse that emphasises the importance of skills and education for the achievement of a more intellectual and less manual form of labour based on information technology. In this article we seek to demonstrate how, in the capitalism of the twenty-first century, the tendency toward deskilling and degradation of labour does not only still prevail but also expands and deepens, supported by policies of flexibilisation and deregulation of labour.

This article focuses on the central theses, presented by Braverman (1998) in his *Labor and Monopoly Capital,* and examines them in the light of studies carried out by Brazilian and foreign researchers on changes in the world of labour since the 1990s and their implications for education, particularly with regard to the formation of new educational and pedagogical models and teacher training suitable to the new demands of capitalism in the era of flexible accumulation. The article starts by presenting the innovation processes in capitalism in relation to the rules of the law of value. It then discusses new forms of control by capital, the ideology of qualification and skills and the role of education in shaping young workers, before drawing some final conclusions.

Labour processes and technical innovation in capitalism

According to Marx (2013) and Braverman (1998), value is not a natural attribute of commodities, but a social relation that is materialised in them. Despite taking a variety of forms, the act of working is always a productive expenditure of the human mind, muscle and nerves. Work is therefore an intrinsic capacity of human beings who realise themselves through its action. It is concrete labour, endowed with specific skills and qualifications. For these authors, the relation of production and exchange in capitalism abstracts this concrete character of labour. Value is created by this accumulation of human labour abstracted from its concreteness, based on the assumption that work is performed in an average socially necessary time, under normal production conditions, with an average degree of skill and intensity of labour. The value of commodities,

therefore, changes in accordance with the productivity of labour, which depends mainly on the technical means of production and the workers' skill in operating it.

The introduction of technological and organisational innovations in the labour process is continuous in the capitalist mode of production. Marx (2013) was one of the first thinkers to treat these elements as endogenous to the process of accumulation of that mode of production, analysing them in the context of the dynamics of the struggle between the social classes of capitalism. It should be emphasised that Marx's theory of the labour process is closely related to his theory of social classes, with class conceived as built from the forms of appropriation of surplus labour which, in turn, relates to the forms of ownership, namely, the ownership (or not) of the means of production.

In capitalism the labour process is embedded in the drive to increase capital, with the main objective of enlarging the production of surplus value. The question that arises for capital is how to increase the production of surplus value regardless of the prolongation of the working day. This process becomes possible by reducing the required labour time – the part of the time that the worker uses for himself – and expanding the surplus labour, which corresponds to the time worked for the capitalist. Thus, capital increases the productive power of labour through changes in the means of production or in the labour methods, or both (Marx, 2013); the growth of capital is established through the development of relative surplus value.

It can thus be said that capital increases relative surplus value through a continuing process of change both in the means of production and in methods of labour organisation through the application of technology. These changes in turn reduce the value of the commodity and of labour power. Each individual capitalist is stimulated to reduce the labour time of the workforce (that is the cheapening of commodities) by competition from other capitalists. Competition thus drives the capitalist to transform the organisational and technical conditions of the labour process through the appropriation of the worker's knowledge.

In this sense, the capitalist who introduces innovations in the productive process has the ability to appropriate more of the working day for surplus labour than other capitalists who have not yet done so. However, this extra surplus value[1] obtained when one individual capitalist can make more profit than others disappears as innovation becomes widespread in the capitalist economy. For Marx (2013), the company that manages to improve productivity obtains greater surplus value with the same amount of capital compared with other capitalists. This phenomenon obliges the other capitalists, in their competitive struggle, to apply to their production processes the same knowledge of science and technique as their innovating competitor in order to improve the productive process by organising production and labour more efficiently. The resulting increase in the productive power of labour extends through the branches of production, cheapening the commodities on the one hand and reducing the value of labour power, on the other. Thus, the drive to extract additional surplus value plays an

1 Surplus value corresponds to the value of the surplus labour, i.e. the value of unpaid work done by the worker for the capitalist, which forms the basis of the distribution of income and capital accumulation. Obtaining the extra surplus value is based on labour productivity in a certain company compared to the average productivity of labour in the area of the same activity across all companies, seen as a whole. See Marx (1988), Bihr (1998) and Harvey (1992).

important role in advancing the capitalist mode of production and, at the same time, in intensifying its contradictions.

There is therefore an intrinsic stimulus built into the capitalistic mode of production that incites the capitalist to invest in new production techniques and new forms of work organisation.[2] Subjected to the logic of capital's interests, science, transformed into technology, becomes a powerful lever of labour exploitation and, therefore, reproduction of capital on an enlarged scale (Braverman, 1998; Marx, 2013).

This leads to a complex and contradictory interrelationship between science and value insofar as the potential of science is limited by its class determination. In this sense, according to Antunes (2013), arguments that science and technology are themselves productive forces in contemporary societies are open to criticism, because even while science is released by capital for the purposes of expanding itself, it is ultimately subordinated to the imperatives of the process by which exchange values are created.

The social knowledge generated by science thereby has its objective restrained by the logic of capitalism while, simultaneously, the benefits of science and technology as well as the results of the growing productivity of social labour, are unequally appropriated (Antunes, 2013). As Antunes points out, Marx's theory of value recognises the growing role of science, but emphasises that it is hampered in its development by the material basis of the relations between capital and labour, to which it is subjected. For this reason science cannot, under capitalism, replace labour as the primary productive force.

Furthermore, theories that postulate the replacement of labour as the main productive force disregard the fact that two thirds of the world's labour power is located in Third World countries occupying an economically peripheral position in the international division of labour (Harvey, 2011; Antunes, 2013). As Braverman (1998) already pointed out, the fundamental innovations in production did not come from chemistry, electronics, mechanisation or automation, but from the transformation of science itself into capital; they came from the knowledge of artisans, incorporated into machines built by engineers, in order to obtain the highest efficiency of labour.

It is in this context that the control exercised by management becomes, to Braverman (1998), the key component necessary to enable capitalist relations of production in which workers do not provide their working ability fully, but control of production is retained by capital through its responsibility for the design and execution of tasks. Management seeks to ensure control by first determining the individual tasks and then, through the direction of the entire working day, making sure that the tasks are accomplished. It is essential that the skills of the worker are those required by the capitalist, but it is undesirable, from the capitalist's point of view, that workers should have comprehensive knowledge about the whole manufacturing process (Braverman, 1998).

According to Braverman (1998), the means to prevent workers from gaining control of the labour process is the dissociation between conception and execution, or between intellectual and manual labour. It is this dissociation, says Braverman, that has resulted in the deskilling of the worker, in a context where labour is progressively

2 For a further discussion of technical innovation, see Fagiani and Previtali (2014).

reduced to the performance of simplified and routine tasks, increasingly specialised and without content. A deskilled worker, in this new context, can learn in a few weeks to produce something which previously required years for a skilled worker to learn.

The principles of Taylor's scientific management, according to Braverman (1998), were associated with the assembly line introduced by Ford in the automotive industry. Here, the workplace was reorganised by anchoring each worker to a single point, the work station, making the same movements and using the same tools. Workers in this system do not only lose their ability to make decisions about the labour process, but are also placed under the control of a strongly hierarchical administrative structure. Because labour is the only generator of value, its control is necessary for the reproduction of capital. Braverman argues that it is through such technical and/or organisational innovations that the capitalist appropriates the worker's knowledge, thereby ensuring capital accumulation. In the era that characterises contemporary capitalism, sometimes characterised as based on 'flexible accumulation' (Harvey, 1992), we argue that these concepts of Braverman's remain highly relevant.

The new forms of control by capital: involvement and participation

Forty years after the publication of the first edition of *Labor and Monopoly Capital*, it is possible to see how Braverman's theses remain current. In the economic, political, social and cultural context of the late twentieth century and early twenty-first century, a series of societal transformations has taken place worldwide. It can be argued that this resulted from the crisis of the Fordist regime of accumulation,[3] based on the combination of Taylorism and Fordism that, according to Antunes (2013), has been increasingly transformed, mixed, and in some cases, replaced by more flexible and deregulated modes of production, of which the so-called 'flexible accumulation' and 'Japanese' models or 'Toyotism' are examples.

For Previtali (2009), these transformations are associated with a process of restructuring of the ways in which labour is organised and controlled along the production chain. This is a process by which capital tries to break with the political and institutional structure of regulation, which afforded growth and relative stability during the Fordist period. On the one hand, this restructuring of production aims to respond to the crisis that developed within the Fordist regime of accumulation from the mid-1970s. On the other, it contributes to the construction of a new order of

3 The concept of a regime of accumulation refers to a set of practices established on the shop floor and in social, political, cultural and educational relations in the scope of the dynamic of the class relations that are prevalent at certain historical moments, allowing for specific forms of control over labour and over the expansion and accumulation of capital. In this sense, historical forms of accumulation and expansion of capital are prevalent at particular times, in the context of the class struggle, in the prevailing forms of control and resistance in the workplace, as well as in the institutional relations. The concept has its origin in the Regulation Theory, developed by the so-called French Regulation School in the 1960s and 1970s, including Aglietta, Boyer, Coriat and Lipietz, to explain the capitalist mode of production, particularly in the growth phase after the Second World War. In their view, the Fordist regime of accumulation provided a sustainable accumulation of capital by the introduction of collective bargaining, involving capital, labour and State, which sought to promote and ensure at the same time, accommodation for workers to the labour intensification process and to the growth of the market for consumption with the intermediation of a corporate macroeconomic policy which regulated production, demand, distribution and commodity consumption. See Aglietta (1979), Harvey (1992), Antunes (2013) and Carter et al. (2014).

accumulation, albeit one that is still limited to the logic of capital reproduction and based on the historical dynamics of class struggles.

The crisis in the Fordist regime of accumulation in the mid-1970s imposed on companies the need to find forms of labour that were more complex, more heterogeneous and more multifunctional than before, with a workforce that could be drawn on more intensively and in more sophisticated ways by capital (Harvey, 1992; Harvey, 2011; Antunes, 2013). The restructuring process can therefore be seen as nothing more than capital restructuring itself to ensure its continuing expansion and accumulation.

Much of this restructuring involved forms of automation based on the use of microelectronics. Every step of this introduction provides opportunities for the destruction of older forms of resistance to the exploitation of labour (Milkman, 1997; Bihr, 1998; Milkiman & Luce, 2013). In introducing these changes, companies have benefited from the neoliberal deregulation of labour. This has made it possible to modify relationships with the working class through the introduction of a range of flexibilisation processes, including outsourcing and subcontracting of labour, the introduction of temporary work and group work and a series of heavy defeats of the trade union movement that was born when Taylorist-Fordist practices held sway. According to Harvey (2011: 16), 'neoliberalism legitimates draconian practices to restore and consolidate the power of the capitalist class'.

In this new context, the technological and organisational changes associated with Toyotism are presented by some authors as the most efficient and rational ways to organise production, as well as providing an opportunity to break away from the undesirable excesses of Taylorist-Fordist organisation (Piore & Sabel, 1984; Womack, Jones & Roos, 1989). These authors, whose research was carried out in the automotive industry, believed that the diffusion of new technologies associated with new management practices would enable the recovery of the intelligence of the worker in the workplace, particularly when cell production and the use of working groups were introduced.

Others were less sanguine. For Sewell (1998; 2005) this vision is overrated and the authors who support it disregard the reality of the workplace, where it is evident that there is a limited reintegration between conception and execution in the way that working groups are set up, providing, at best, a merely nominal degree of autonomy to workers. Indeed, the main innovation in this model is to make such groups responsible for the streamlining and intensification of their own labour. The new management practices enlist the collaboration and involvement of employees by means of individual premium payments. But this element is not new in itself in the field of control of workers and attempts to break class solidarity. The novelty consists in the development of subjective elements that constrain workers to participate in the management of their own work making them, in effect, co-managers of the streamlining of the production process.

Antunes (2013:52) argues that 'the subjectivity that emerges in the workplace is the expression of an inauthentic existence and remains alienated in relation both to what is produced and who produces it'. In his view, discourses that refer to the involvement and participation of workers, characteristic of Toyotism, refer to the company's goals, which

are often fetishised by references to partnership, quality and the satisfaction of consumers' desires. The conditions of alienated and estranged labour thus still remain.

From its origins in simple accumulation to the development of large industries, the capitalist mode of production has brought about a series of changes in the production process in order to subordinate labour to capital (Previtali, 2009). What has changed in the most recent wave of restructuring is the way that workers' subjectivity has been co-opted to form an element in the production of capital. Under Taylorism/Fordism this engagement of subjectivity was usually merely formal, external to the worker, but under Toyotism it increasingly tends to be real, with capital seeking to integrate the worker's subjectivity into the heart of its processes (Antunes & Alves, 2004).

In the Taylorist/Fordist system, many tasks still depended on the physical skills of workers, who were not expected to think, and indeed whose ability to do so was questioned, because thinking had become the exclusive prerogative of management. As Braverman (1998: 112–113) put it:

> *A necessary consequence of the separation of conception and execution is that the labor process is now divided between separate sites and separate bodies of workers. In one location, the physical processes of production are executed. In another are concentrated the design, planning, calculation, and record-keeping. The preconception of the process before it is set in motion, the visualization of each worker's activities before they have actually begun, the definition of each function along with the manner of its performance and the time it will consume, the control and checking of the ongoing process once it is under way, and the assessment of results upon completion of each stage of the process – all of these aspects of production have been removed from the shop floor to the management office. The physical processes of production are now carried out more or less blindly, not only by the workers who perform them, but often by lower ranks of supervisory employees as well. The production units operate like a hand, watched, corrected, and controlled by a distant brain.*

In the Toyotist system, the worker is required to think for capital. To this end, the management implements a set of strategies for the engagement and participation of workers. These include denominating the employee as a 'collaborator' or 'associate', the formation of problem-solving groups, with a view to continuous improvement, the introduction of multi-tasking and the systematic measurement of performance and results. They also entail the breakdown of collective resistance and of class syndicalism which are replaced by the creation of partnerships between capital and labour (Antunes; Alves, 2004). All these measures are built on a highly individualised form of management and on the application of behavioural codes and attitudes that value the participation and commitment of workers to the objectives and goals of the company (Previtali, 2009; Fagiani & Previtali, 2014).

The Toyotist system is grounded in the organisation of production based on an immediate 'just-in-time' response to changes in demand and, therefore, requires a flexible and integrated organisation of labour process and workers. Considered as a constituent element of a new phase of capital accumulation, flexible accumulation (Harvey, 1992), relies on the flexibility of labour processes, labour markets, products

and patterns of consumption. This has led to the emergence of entirely new sectors of production, new ways of providing financial services, new markets and, above all, greatly intensified rates of commercial, technological and organisational innovation (Harvey, 1992; Gounet, 1997; Harvey, 2011; Antunes, 2013).

In a context where the watchwords are 'flexibility' and 'quality', companies have noticed that much of the innovation process, particularly incremental innovations in the labour process, depends on the direct participation of the worker (Previtali, 2006). A survey carried out in the automotive sector found that the more motivated and engaged the worker is with the company's goals, the greater will be the chances of small operational changes occurring that will have significant impacts both on cost reduction and on the efficiency of the production process, enabling the company to adapt better to the conditions of market competition. This study (Previtali, 2006) also found that companies aspire to control the subjective and cognitive capacities that workers bring to production and their applications to the innovation process. Changes suggested by the workers included the adaptation of tools, the agility of systems for the transportation of parts and internal communication, improved product presentation and more efficient use of raw materials and personnel. In suggesting such changes, the worker ends up collaborating with the administrative management, showing where labour can be done by fewer people and/or in less time. This implies layoffs and intensification of labour for those who remain employed.

Under the aegis of multifunctionality, very diverse members of the new multi-skilled labour force often work alongside each other in the same workplace, including both stable and outsourced workers, carrying out both intellectual and manual tasks, in a gender division of labour that has been analysed in a variety of settings including the chocolate industry in England (Pollert, 1996), the telemarketing sector in Brazil (Nogueira, 2006) and, also in Brazil, the tobacco industry (Previtali & Faria, 2008). In the case of the tobacco industry, Previtali and Faria (2008) observed that technology-intensive labour was performed by men with higher levels of education who were directly employed by the company. However the (non-automated) labour of packaging, involving repetitive manual work was carried out by women hired by an outsourcing company.

Highly-qualified and intellectualised labour based on relative surplus value are blended together in complex and contradictory ways in conditions of super-exploitation and precariousness, in the intensive extraction of absolute surplus value, along a wide range of production chains, of which the sugarcane agribusiness (Silva, 1999; Previtali & Morais; Fagiani, 2013) provides one example. In a study of the expansion of the sugarcane industry in the western region of the state of Minas Gerais, Brazil, carried out during the 1990s, the authors observed that the use of skilled labour, especially related to biotechnology, coexists with the use of migrant manual labour, the majority of which is carried out by illiterate male workers who migrate annually from the Northeastern region of Brazil to harvest the sugarcane.

Education and Professional Qualification: The making of the new worker

Both work and education are specifically human activities: only the human being works and educates, because in the course of human development, there has been a need for

people to produce and reproduce their own lives, act upon nature and adjust it to their needs. Human existence becomes the product of this labour and how it acts upon nature (Frigotto, 2006; Saviani, 2007).

For Saviani (2007), the human essence is not something that people are born with or receive as a divine or natural gift. It is something that is produced by human beings themselves, experienced in their daily relations and, collectively, in the construction of their culture and knowledge through the generations. The implication of this is that humans are not born human, but make themselves so, through the act of working, which is also an act of learning and teaching. Saviani concludes from this that the origin of education coincides with the origin of humanity as a species.

> *[The human being] needs to learn to produce his own existence. Therefore, the production of humanity is, at the same time, the formation of humanity, that is an educational process. So, the origin of education coincides with the origin of humanity itself. (Saviani, 2007: 153).*

The production of a human is therefore an educational process in which human beings collectively appropriate the means of production of existence, in which they learn and teach. Knowledge is produced within social relations established among people and between people and nature. This is how the social relations of production were historically constituted.

Over the course of history, knowledge has been expropriated from the working class and concentrated in the hands of property holders.[4] Under capitalist relations of production, the means used by capital to further exploit workers, gain control over them and increase their productivity has been the technical division of labour, which emphasises the division between manual and intellectual work. In this process, only a small portion of the population has access to the conditions that make it possible to understand the entire process of social production. This comprehensive knowledge is restricted to those who are destined for command and control, perpetuating the cycle of exploitation.

As Braverman explains (1998: 57–58)

> *Every step in the labor process is divorced, so far as possible, from special knowledge and training and reduced to simple labor. Meanwhile, the relatively few persons for whom special knowledge and training are reserved are freed so far as possible from the obligations of simple labor. In this way, a structure is given to all labor processes that at its extremes polarizes those whose time is infinitely valuable and those whose time is worth almost nothing. This might even be called the general law of the capitalist division of labor. It is not the sole force acting upon the organization of work, but it is certainly the most powerful and general. Its results, more or less advanced in every industry and occupation, give massive testimony to its validity. It shapes not only work, but*

4 The advent of private property made it possible for the development of a class of owners who live from other people's work, distinct from those who do not own property who, in turn, now have the obligation to, keep themselves and the owners of the means of production through their labour. This development established a split in the education unit, fully identified before with the process of work itself, consisting of two distinct modes: one for the class of owners, identified as the education of free men, and another for the non-owning class, identified as the education of slaves and servants and free workers. See Frigotto (2006), Saviani (2007) and Noronha (2008).

> *populations as well, because over the long run it creates that mass of simple labor which is the primary feature of populations in developed capitalist countries.*

Thus, education is not unrelated to the changes occurring in the capitalist mode of production and tends to fit the requirements demanded by the latter, so that new educational models and new pedagogical proposals are required to monitor the evolution of technological and organisational production innovations following the logic of the commodification of education. Restructuring of production processes therefore demands educational reform. Educational reform in most parts of the world is based on the reports and diagnostics of the World Bank, International Monetary Fund (IMF) and the Organisation for Economic Co-operation and Development (OECD). It is shaped by a discourse that links the need for countries to adapt to changes in the productive and service sectors. A new approach to education has emerged in this process: education that seeks to make a new social subject, a new type of worker who must be multi-skilled, versatile, flexible and able to adapt to take on a range of different roles in the labour market.

Noronha (2008:28) sums this up as follows:

> *The changes that are occurring in the world of work and social relations, when producing a 'new' type of worker, the combined collective worker, will start to demand, concomitantly, a 'new' type of education, of pedagogy and teacher training that are appropriate to a complex cooperation form, so the condition is there to form a worker who can meet new market demands. These issues are present in the educational reforms, in order to carry out the articulation of the reforms of the economic structure.*

Under the Taylorist/Fordist management model, workers were not required to think about their work. The fundamental principle of Taylorism is related to the issue of time, based on the assumption that workers should be treated like machines. Control was centralised in the 'hands' of the management, with as great a separation between manual and intellectual labour as possible. To quote Braverman (1998:169) again:

> *Machinery offers to management the opportunity to do by wholly mechanical means that which it had previously attempted to do by organizational and disciplinary means. The fact that many machines may be paced and controlled according to centralized decisions, and that these controls may thus be in the hands of management, removed from the site of production to the office these technical possibilities are of just as great interest to management as the fact that the machine multiplies the productivity of labor. It is not always necessary, for this purpose, that the machine be a well-developed or sophisticated example of its kind. The moving conveyor, when used for an assembly line, though it is an exceedingly primitive piece of machinery, answers perfectly to the needs of capital in the organization of work which may not be otherwise mechanized. Its pace is in the hands of management, and is determined by a mechanical device the construction of which could hardly be simpler but one which enables management to seize upon the single essential control element of the process.*

What Taylor wanted was a 'trained gorilla', who could unthinkingly follow orders from the 'scientific' manager (Braverman, 1998). By contrast, in the capitalism of the twenty first century, under Toyotism, the need is for workers who are participatory, collaborative and inventive. To achieve this, a combination of subjective and behavioural elements are required, in combination with flexible employment forms that can ensure control, discipline and the consent of the new employee both inside and outside the workplace. The new configuration of production, in other words, requires new forms of social, cultural and educational relations (Antunes & Alves, 2004; Sewell, 1998; 2005).

Kuenzer (2003) points out that, besides the ability to be flexible, the characteristics demanded by the market for the new worker's employability include the development of higher cognitive and relationship skills, such as analysis, synthesis, creativity, fast responses, clear and precise communication, the interpretation and use of different forms of language, ability to work in groups and to lead, ability to manage processes to achieve goals, work with priorities, evaluate, deal with differences, face the challenges of permanent change and be permanently prepared to learn and relearn.

The new education, as well as the new pedagogy, is guided by the concepts of multi-functionality, flexibility and employability. As Noronha (2008) highlights, new types of education and of pedagogy are not disconnected from changes in the teacher training process and in the teaching itself. So, when a new pedagogy of labour is implemented, training and teaching are also restructured and submitted to new forms of control.

Changing strategies in training and in teaching labour processes that began in the educational reforms of the 1990s in Brazil can be closely related to the intensification and deskilling of labour and the introduction of precarious labour relations (Oliveira, 2004; Silva Júnior, 2002; Garcia & Anadon, 2009; Maciel & Previtali, 2011).

With regard to teacher training, Silva Junior (2002) points out that its central axis has become what and how to teach, focusing on the technical dimensions and practices of teaching labour and providing a massive reproduction of specialist professionals for the job market. Silva Junior argues that, in this process, many teachers lose their identity as members of the working class, identifying themselves with the bourgeois political project and transmitting concepts such as entrepreneurship, competitiveness, emotional intelligence and versatility. This is accompanied by another development: an increasing fragmentation of teaching activities into different specialisms, leading teachers to feel that they do not belong to a larger general category. When work is divided into specialist roles – administrator, supervisor, advisor, coordinator and so on – educational workers no longer identify themselves as teachers and, working in several schools, do not identify themselves either with a particular school where they work or its specific problems.

Maciel and Previtali (2011) have identified a process of subjection of teacher's subjectivity through control mechanisms involving the search for objectification of their knowledge through pre-established procedures in teaching manuals, workbooks and evaluation forms by school and government bureaucracy, leading to a deskilling of pedagogical practice. Garcia and Anadon (2009) also draw attention to changes in labour relations among teachers. The growing precariousness of teaching labour, in

their view can be illustrated by the expansion of the tasks to be performed in school life, taking place simultaneously with the deskilling and intensification of professional training, the official pedagogy of skills, the standardisation of the basic education curriculum and teacher training, as well as the introduction of national testing that has favoured the rise of new control strategies, based on the auditing, surveillance and direct supervision of teachers by so-called education experts, and adding a large burden of paperwork to ensure teachers' accountability.

In the context of education, the neoliberal perspective serves to stimulates 'self-responsibility' (Garcia; Anadon, 2009: 54) in teachers, which, combined with the deterioration in their wages and working conditions, has contributed to the intensification (and self-intensification) of teaching, which greatly affects their subjectivity.

When we analyse education workers, we can argue that they are also subject to a process of proletarianisation, because their work, through the rationalisation imposed by capital, is increasingly portrayed as manual rather than intellectual. Here too there is a deskilling of labour and a flattening of wage levels, increasingly leading to the devaluation of teaching work, both symbolically and materially. In this sense, the deskilling of teaching can be understood both as the loss of the worker's ability to perform all the steps and tasks of the teaching profession and as the loss of control that can be exercised collectively by teachers associated with the introduction of technology. The division of labour in schools between those who plan and those who execute the tasks, the rising use of new communication technologies and the growth of bureaucratic control by the state are factors that contribute to the loss of teachers' autonomy in how they carry out their work. Yates (1999) wrote about his suspicion that the teachers' work was not immune to the forces described by Braverman: an increasingly detailed division of labour; mechanisation; and Taylorisation. In the twenty-first century this suspicion has become a reality.

The terms 'skill' and 'qualification' suggest the mastery of a technique apprehended after years of training. Braverman gives the example of the coachman who, besides needing to know how to handle and care for animals, also needs to understand how the waggon works, how to operate them both together and a range of other skills. However, even though the time needed to become a good coachman is much longer than that needed to become a chauffeur, the latter is, nevertheless, considered more qualified. In his view, the reason for this is that the valorisation of the qualification is always tied to the momentary needs of the market and not to the appropriation of a profession, and, furthermore, gives no guarantee of employment for the worker. 'Qualified' or complex labour has a higher market value than 'unskilled' or simple labour because its value represents the externalisation of labour power where there are higher costs of training or where production is more labour-intensive. Thus, if the value of this labour power is higher, this is objectified, in any given period of time, in proportionally higher values. As Braverman (1998:57) explains:

> *The capitalist mode of production systematically destroys all-around skills where they exist, and brings into being skills and occupations that correspond to its needs. Technical capacities are henceforth distributed on a strict 'need to know' basis. The generalized distribution of knowledge of the productive process*

among all its participants becomes, from this point on, not merely 'unnecessary', but a positive barrier to the functioning of the capitalist mode of production.

Under the logic of flexible accumulation, the educational reforms implemented by neoliberal governments, justified by the discourse of employability, should be understood as capital's need to have at its disposal a working class that can increasingly produce knowledge for the production of goods and services, but which is at the same time both creative and adaptable enough not to question the social and ideological processes of capitalism (Antunes, 2013). Criticisms of current policies for training and retraining are not therefore directed at the principle of education itself; rather, they are aimed at the ideological use of these terms, whose purpose is the reduction of necessary labour time and the expansion of surplus labour and, thus, an intensification of the exploitative conditions of labour power, as already stated by Braverman forty years ago.

Conclusion

The capitalist mode of production has been a global system since its inception. In it, the products and services necessary for life are produced for profitable trading in the market and to promote the accumulation of capital itself. The capitalist model of society is widespread globally, including and excluding countries and regions on a subordinate basis, following capitalism's historical drive to express and develop the contradiction between the production of use values and their realisation as exchange values.

The changes that occur in the workplace, in the context of these capitalist social relations, demand a new type of worker who is more integrated, flexible, versatile and qualified. This worker must be able to respond quickly to the demands of a production process that is based heavily on information technologies, is globally distributed and relies on the consumption of products with high technological density.

This context requires a new pedagogy and a fundamentally new type of teacher who can promote the formation of new social subjects who can be perfectly adaptable to this new capital accumulation phase.

The reality of contemporary labour results from the way that it has developed under capitalism: in Marx's words: '(…)human labour throws part of the workers back to a barbarian labour and turns the other part into a machine.' (Marx, 2010: 82).

What can be seen from developments in production in the last decades of the twentieth century and the beginning of the twenty-first century is the construction of a new form of rationalisation of the labour process which enables and intensifies control and surveillance at the workplace and subjects workers to an intense and careful monitoring through constant analysis of their productivity rates, performance, satisfaction and other aspects of their working lives, under the rule of a strongly hierarchical administrative structure. The new control structures are presented as celebrating workers' skills and knowledge and their intellectual engagement with innovation and production processes achieved by the recombination of mental and manual labour. However, as discussed throughout this article, the reality is that work has become characterised by greater intensification, increasing flexibility and precariousness of labour conditions. The new flexible worker puts in long hours, including unpaid overtime (which, when accumulated is used by the enterprise as days

off for the workers whenever reduction of production is necessary, not when the worker wants a holiday). This worker must also be willing and able to switch between different tasks and operate different types of machinery and equipment, as well as holding the skills that favour initiative, cooperation and group work.

This command structure, which is associated with a new pedagogy of education, strongly contributes to the development of a deep sense of self-control, self-discipline and self-intensification, leading to a degradation of labour. Like manual labour in the past, intellectual labour now also begins to undergo a process of deskilling and precarisation. In the case of teachers, this is manifest in a loss of autonomy in carrying out their labour.

When Braverman (1998) spoke of the degradation of labour he was not just referring to the precariousness of working conditions, with accelerated rhythms and the imposition of repetitive movements, but also to the reification and alienation of labour, bringing about estrangement not only in the workplace but also in the social structure. Yates (1999), emphasises the importance of this, arguing that workplace control mechanisms are always situated in a broader context of class conflict, which does not just include struggle at the workplace but in the larger society and culture.

In the capitalist system, while the number of workers rises and the supply of jobs decreases, competition is intensified between workers and becomes progressively more extreme, unnatural and violent. At the same time, the capitalist benefits from this intra-work competition which makes it possible to employ the most qualified for lower wages and benefits. This contributes to the loss of solidarity within the working class and a general flattening of the workers' income (Marx, 2010).

The most obvious consequence of this process is the increasing individualisation of the worker. This individualism breaks class solidarities that extend beyond the factory and across the whole of society. Workers today – more than ever – are taught to think of their own success in relation to their own individual cleverness which is what will ensure their employability. In this new context, new forms of collective resistance have yet to be built that put the control of the production process at work on the agenda.

As foretold by Braverman in the 1970s, far from become obsolete, the class of people who live by their work is today both expanding and diversifying around the world. Instead of the end of work and its replacement by technology what we have is more work, enhanced by the use of that technology. This is because the new productive model, characterised by greater integration between living and dead labour and the expansion of immaterial labour in the production and services sectors, does not change the essence of capitalist production, which remains under the sway of the law of value, despite the apparent integration between design and execution of work and requirements for a more highly skilled workforce.

We can conclude that the theses that claim that the meaning of labour in society has been lost are far from confirmed.

The current challenge, both theoretically and empirically, is to understand the specific forms that capitalist relations of production are now taking and how the processes of exploitation are being reconstructed within them, with the aim of

demystifying the myths that labour is being replaced by science and skill and that the distinction between mental and manual labour dissolved.

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