

Enhancement or impoverishment? Algorithmic management and 'distance' education during the pandemic

Theoretical and interpretive hypotheses

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ABSTRACT

This article aims to develop some interpretative hypotheses on the transformation of education that digitalisation and neoliberalism have brought about in the context of the COVID-19 pandemic. We draw on changes in the Italian education system to outline the general, structural trend. In order to illustrate how transformations in the education system can be viewed as a process of capitalist valorisation, we present the insights offered by a set of contemporary workerist enquiries and use the theoretical concepts of 'hyperindustrialisation' and 'hybridisation', drawn also from the research work of Romano Alquati. Our conclusions show how work in education can be reconceptualised in relation to the general process of digital socialisation and its contradictions: we unveil hidden sides of the platformisation of education and provide a disenchanting view of digital solutionism.

KEY WORDS

Platform capitalism; digitalisation; education; algorithmic management; hybridisation; hyperindustrialisation; neoliberal subjectivity; Romano Alquati, social enquiry; co-research

Introduction

The pandemic crisis that started in 2020 provided a clear example of the restructuring of ordinary life and human activity in the advent of massive digitalisation (Fuchs, 2020).

This analysis aims to develop some interpretative hypotheses about this transformation at two levels: the immediate and the structural. On the one hand, we focus on the critical study of the immediate changes imposed on the education system by the anti-COVID-19 measures taken from February 2020 onwards; on the other, we explore, in a longer time frame, the future of organisational models, institutions and practices of teaching and research under the conditions created by neoliberal policies.

In this article, we draw on the results of a number of enquiries, co-research (Alquati, 2022a, 2022b) and qualitative studies carried out on this topic, mainly in Italy, all collected in the *Cahier du GRM, n° 20, 2022, Special Issue Dedicated to Education Criticism*¹ (Armano & Cavazzini, 2022). In doing so the intention is not so much to focus specifically on the Italian case *per se*. Rather, we seek to identify the elements emerging from this case that can help to elucidate the more general structural trends. Our analysis, which we started at the beginning of the pandemic in 2020, belongs to a broader research body on contemporary trends in capitalism and education. Our interpretive approach, rooted in the intellectual and political traditions of workers' enquiry and co-research, aims to contribute to the analysis of internal contradictions and possible fractures embedded in the conjuncture and structural dynamics of capitalism (Workers Inquiry Network, 2020). The first section of this article focuses on two aspects: on the one hand, it explores the reasons why education during the pandemic was chosen as the unit of analysis, and on the other it gives a phenomenological description of how education was remodelled during the pandemic by investigating how experiences changed in relation to the digitally mediated organisation of work. The second section focuses on the research design, with a synthetic description of three enquiries from the published collection. The third section offers a reflection on the processes of digitalisation at the time of the pandemic and how they can be linked to the more general model of algorithmic management of work and human activity. In this section we synthesise the two conceptual tools that emerge from the analysis: the concepts of *hybridisation* of work and *hyperindustrialisation* of human activity, inspired by Romano Alquati's studies, which we have used to describe the current ambivalent dynamic between processes of enhancement and

¹ The various studies are all collected in the *Cahier du GRM, n° 20, 2022, Special Issue Dedicated to Education Criticism* (Armano & Cavazzini, 2022). Open access edition. Available at: <https://journals.openedition.org/grm/3712>

impoverishment of education and the possibilities of enrichment that can occur with digitalisation.

Digital transformation of education during the pandemic

Our initial hypothesis is as follows: conjunctural transformations and structural trends form a coherent system. The profound, long-term trends towards digitalisation normalising education have provided the fundamental organisational infrastructure. The eruption of the pandemic has only made a rapid and generalised mass testing of the implementability of these trends possible.

The anti-COVID-19 measures, viewed in their specific socio-institutional contexts, and the ways in which they targeted education in a broad sense, thus reveal an evolution immanent to broader capitalist relations of production and to current forms of the valorisation and exploitation of labour; at the same time, they are only fully intelligible in the light of these broader forms and their demands.

During the months of the pandemic, private space became a shelter providing protection from contamination (and human contact), as well as a space of freedom from state restrictions.² At the same time, thanks to digital platforms and technology, 'home' became a *hybrid* space where the intimate sphere was pushed to be both a productive sphere and a sphere of socialisation through digital connectivity. In this new *hybridised* sphere, i.e. in the integration of the public and the private that unfolded within homes, a compression of space and time occurred that pushed production towards an increasingly intensive exploitation (Husain, 2021) of life's moments and places.

This digital and logistical safety zone materialised through smartphones, digital platforms, the endless intrusion of advertisements on our computer screens, the incessant hum of delivery trucks carrying food and consumer goods, and waste management workers disposing of Amazon boxes and packaging material. Thus, the 'socially distanced' subject exchanged the privilege of work/life space separation – the former being now invaded by the pandemic – for new intrusive forms of production and value extraction that colonise homes (Cingolani, 2021).

The introduction in Europe of distance teaching and learning models, supposed to ensure the continuity of education at all levels, followed very heterogeneous paths. While in Italy a change of model was implemented immediately upon the first appearance of the pandemic, in other countries distance learning was adopted by tinkering with solutions as the pandemic spread. Nevertheless, common paradigms emerged from the disordered reactions and some general aspects can be highlighted.

First, during the pandemic, the experience of confinement allowed the introduction, on a more massive scale than before, of models of learning and teaching

² Throughout the lockdown between 11 March and 3 May 2020, the civilian population in Italy, with just a few exceptions, was allowed to leave their homes only within a one-kilometre radius, and only if in possession of a special permission.

mediated by digital technologies or more generally structured by the norms of social distancing – models in which real proximity, the sharing of time and space, between teachers and students/pupils were reduced, to say the least, and classified as ‘non-essential dimensions’ of education. The activity of teaching was reconfigured by digital technological devices, which now appeared as a functional solution to the restrictions on social interaction. Hence, the relationship between training platforms, learning algorithms and social relations became emblematic of broader interrelationships with multiple implications for the general structures of contemporary capitalist societies (Education International, 2020a, 2020b).

Our hypothesis, already confirmed by numerous field enquiries in the area of education and research, is that the unprecedented spread of this phenomenon was due to a reorganisation that was already underway (particularly in the last ten years) of the fundamental aspects of education, tending towards a ‘serialised and industrialised’ logic, that is to say towards a formatted knowledge reduced to ‘competences’, a modularisation of teaching units and ‘objective’ measurements of learning performance (Pezzulli, 2022)

The subsequent mediatisation of this organisation by digital devices provides a snapshot of the general context that makes digitalisation possible, and may be seen as only one step in a global trajectory of change (Perrone, 2022; Risi, 2022).

Research design, context, methodology and case studies

Context

On 9 March 2020 a lockdown was announced in Italy and restrictive measures to contain the COVID-19 pandemic were applied nationwide. These measures included the closure of schools and the cancellation of in-person teaching and learning at all levels. With the lockdown, teachers and students in universities, high, middle and primary schools suddenly found themselves thrown into a totally new and unfamiliar social and technological world, with functioning modes, languages and codes to be learnt from scratch and used in the process. It was a tremendous shock.

The emergency imposed an enormous pressure on the entire Italian education system: in fact, in order to guarantee education continuity through digital platforms, a greatly accelerated and massive reshaping of teaching activities was required. This meant an unprecedented organisational and work effort. A number of studies (Di Nunzio, Pedaci, Pirro & Toscano, 2020, 2022; Giovannella, Passarelli & Persico, 2020) reflect in-depth on the phenomenology of how this transition was managed: which tools and technologies were chosen; which decisions were taken at the institutional level; the consequences for teachers’ work; and the effects on the quality of teaching.

We consider that the Italian situation is a particularly instructive object of study with regard to the two logical and temporal axes (the conjuncture and the structure) for several reasons. First, Italy was the first European country to be hit by the pandemic, and to adopt the lockdown strategy, i.e. to opt for an interruption of ordinary social life,

which was the precondition for the massive introduction of digital technologies to allow education activities to continue remotely. Second, in Italy the closure of schools and universities was radical and long-lasting.

In this sense, Italy, along with China (Zhang, Yuxin, Yang & Chuanyi, 2020), became one of the most interesting social laboratories in the world for policies of social distancing and for trends towards the generalised digitalisation of education.

Methodology. Militant research as a choice

As researchers, we identify with the approach of ‘militant research’, that is critical sociological research aimed at ‘thinking and acting from below’, as described by Danilo Montaldi (Amico, 2022), and more generally by the rich tradition of militant enquiry developed within Italian workerist thought by some historical journals such as *Quaderni Rossi*.

Our analysis focuses on militant enquiry and co-research as practised in some studies on digitalisation during the pandemic in Italy (Perrone, 2022; Pezzulli, 2022). However, militant enquiry and co-research should not be considered primarily as a type of critical social research methodology, but rather as an epistemological approach and knowledge practice that transforms the *object of research* as well as the *researcher* and the reality itself (Armano, 2020). In this sense, the reflection assumes that there is a necessary link between observation, knowledge production and social action. From the perspective of co-research and social enquiry, the function of social research is always *intentional*, which means aimed at identifying social problems and contributing both to the formulation of hypotheses on their causes and to the search for transformative practices and the subjects that are part of it in the real world.

Three enquiries

What follows is a short description of three enquiries and co-researches. The purpose is to provide an argumentative enrichment to the theoretical considerations proposed in the third part of the article.

First enquiry. Distance learning: teaching with machines

The first piece of field research we present here is one that was reported by Luca Perrone (2022), a historian and high school history teacher in Italy (thus an active observer of the accelerated turnaround imposed by the COVID-19 emergency on one of the institutions which adopted the digital change most reluctantly). Perrone doesn’t just describe the impact of this first wave of ‘machines’ on the work of teachers and learners, that is, on the ‘quality’ of the educational experience. By explicitly and consciously using the concepts of hyperindustrialisation (Alquati, 2021), and capital-enhancement vs impoverishment of human capacity (Alquati, 1992), elaborated by Romano Alquati, he also tries to reflect both on the subjective transformations of his own role as a teacher, and on the practices of subtraction (or ‘backlash effects’) on young learners linked to the introduction of the new digital technologies that enable remote teaching. The journal-like narration and self-investigation, based on active, first-hand participation, in a high school in the city of Turin during the portion of the school year marked by the pandemic in 2020, is presented in the form of questions and

notes, as a true introductory work of enquiry should be, openly and exploratively asking questions and inviting the reader to reflect on them.

Second enquiry. The cumbersome university: notes from an enquiry

The second piece of field research used in our interpretative analysis is a militant social enquiry carried out at the University of Roma Tre. The research focused on students' conditions in the Italian university and on the impact on higher education of the various neoliberal reforms which, from the end of the 1980s to the most recent one about ten years ago, have radically changed the functions, times and spaces as well as the forms of the education experience (Pezzulli, 2022). This social enquiry focused particularly on what happens to the education experience when it is reduced to performance, in an important reflection that counters the rhetoric of 'competence' and 'digital modernisation' that was hegemonic during the post-COVID-19 restructuring of the Italian social model. The survey, conducted within the *Laboratorio sulle Transizioni, il mutamento sociale e le nuove soggettività* (Laboratory on Transitions, Social Change and New Subjectivities) programme at the University of Roma Tre, found clear evidence that students suffer in platformised education because it requires them to constantly demonstrate learning, often through a number of non-relevant steps, and because they have to absorb very large numbers of notions quickly, but do not have the time to either understand or to assimilate them fully, due to the compulsive and systematic drive to measure learning times according to 'industrial' criteria and indicators of factors such as productivity, effectiveness, efficiency and standard costs, in an attempt to measure and standardise what cannot really be measured nor standardised.

In this analysis, the hybrid character of communication becomes apparent and, by inertia, triggers the construction of social relations ruled by devices and performance measurement, while any conscious participation and planning of a different nature is absent.

Third enquiry. Experiences and reconfigurations of educational work through platforms

The third enquiry we selected to complete our reflection on education during the pandemic draws on a study conducted by Elisabetta Risi (2022), a lecturer in sociology and coordinator of the Media Laboratory at the IULM University (Milan). Her field research was carried out during the pandemic, online, among teachers, colleagues and friends who, during the lockdown in Italy, experienced the sudden reconfiguration of codes, languages, forms of knowledge and educational relations when in-person teaching was transformed into remote learning. The research was conducted between April and June 2020, mainly among Italian women between the ages of 30 and 60 who work in the field of education (in primary and secondary schools).

This research investigated the feelings and experiences of teachers and educators in relation to a relationship that was mediated (Couldry & Hepp, 2017) through platforms. It showed, on the one hand, the role of the infrastructure and, on the other hand, the reconfiguration of a fractured and always-on work experience (Huws, 2016). Among the many interesting findings that emerged from this analysis, we were particularly

interested in highlighting the transformation of the micro-sociality that is typical of the relationship between a teacher/educator and a learner.

Interpretive findings of research

Algorithmic capitalism and education management

In mainstream narratives, the social processes of digitalisation of education are often enveloped in a rhetoric of 'smart' work and work innovation as such, where accounts of 'smart working', digitalisation and artificial intelligence are enthusiastic, yet tendentious. The rhetoric of *smart work* neglects the complexity and contradictory nature of social, spatio-temporal and 'biological' or 'vital' realities, the conditions that make smart work possible and therefore quantifiable according to the criteria of capital valorisation.

With respect to the pervasive use of digital platforms, some authors speak of the 'uberisation' of higher education (Collins, Glover & Myers, 2022), by which they mean the introduction into education, particularly into higher education (Perrotta, Gulson, Williamson & Witzemberger, 2021), of algorithmic management models to control work processes that belong to other social spheres (O'Connell, 2021).

The social actors who inhabit the social and technological space of the digital platforms have neoliberal subjectivities that seem to adapt well to remote work mediated by platforms and potentially controlled by algorithms: in fact, they enact behaviours of self-empowerment and self-activation that conform with typical neoliberal paradigms (Armano, Mazali & Teli, 2020). Nevertheless it is evident that, in their exposure within the media space, social actors are under increasing pressure to combine operability and productivity, i.e. to increase their ability to manage and reproduce interstitial activities, and to increase their flexibility as demanded by the pandemic crisis (Briziarelli, 2020). One indication that a radical restructuring of concrete university life is underway is the introduction of automatic pre-selection and evaluation mechanisms such as the implementation, of course accreditation procedures, continuous evaluation of teaching and research through rating and ranking systems that strongly incentivise output according to abstract indicators with standardised quantitative measurements that disregard content.

Algorithmic control is carried out in new ways both as direct and indirect introjected control. In direct control, the algorithm acts as a linguistic tool, consisting of a (more or less complex) set of instructions (sequences) that the machine can carry out so that the worker only has to interact (or not) with the machine, which tracks bodies, movements and intentions in space and time with a level of precision that was unthinkable until a few years ago (Moore, 2018).

Even more pervasive is algorithmic management which uses indirect control, when the workers voluntarily comply with the demands of reputation models and expected performativity on the basis of which they can receive positive feedback (Chicchi & Simone, 2017). In this sense, algorithmic management devices incentivise a purported 'autonomy' of workers, while at the same time directly intervening in the shaping of identities through a mechanism which is similar to the internalisation of market imperatives (Cardon, 2015; Fershcli, 2017; Beverungen, Beyes & Conrad, 2019; Zuboff, 2019).

In our hypothesis, we assume precisely that, in order to be activated, the algorithm must be integrated relationally through an *active combination* with *living human capacity* (Alquati, 1994, 2022). This active combination is becoming ever more pervasive and diversified today, and brings about a similar restructuring of education to that taking place in other productive and reproductive activities, from paid work (increasingly digitalised) to social media work. Whenever there is someone using an app or a platform, there is a form of active combination.

We argue that such subjectivities have become fundamental. Neoliberal governance has imposed new behavioural models and brought into being new kinds of individuals/users who allegedly, through (self-)management, can express their own personalities, access knowledge and better manage their inner emotions (see Boltanski & Chiapello, 1999; Simone, 2022). People are not forced but *induced* to behave and think in accordance with the dictates of measurement, so that they anticipate what is expected of them, releasing in a performative manner rationalities of self-government and self-control (self-management and self-accountability). As a result, neoliberalism becomes coextensive with the rest of society by generating one of the great paradoxes of platform-driven subjectivities, that is: the tension between abstraction and a rich individualisation; exploitation and enjoyment; internal and external control (Ekbja & Nardi, 2017; Armano, Briziarelli & Risi, 2022).

Referring to the most recent and relevant studies on *reterritorialisation in hybrid areas of work* (Murgia, Maestripieri & Armano, 2016; Murgia et al., 2020; De Smet, Dowling, Mysore & Reich, 2021) to explore the subsumptive phenomena linked to the re-localisation of learning activities in which subjectivities are fundamental, and taking up the concept of *reterritorialisation* proposed by Deleuze and Guattari (1972), we could say that relations in the digital network take place in a hybrid organisational space, which is neither public nor private, neither only technological nor only composed of interpersonal exchange.

The most relevant international sociological literature (Murgia et al., 2016; Eurofound, 2017; De Smet, Dowling, Mysore & Reich 2021) pays great attention to the *hybridisation phenomena* of online and in-presence work, where activities that in each respect relate to ordinary dimensions of the immediate face-to-face level become intertwined with digital and remote dimensions.

It is precisely connectivity as an intermediate space (Ivancheva & Garvey, 2022), with its potential for and powerful promise of 'being always-on', that implies the indistinguishability between life and work time, between home and workplace and between personal and professional relationships. In connectivity, the traditional spatio-temporal conception of life and work time as well as the patterns of knowledge acquisition are reconfigured in a mediated sociality.

A proposed conceptual framing

Referring back to Romano Alquati (2021), we speak of hyperindustrialisation as a transversal and extensive way of organising not only the serialised and proceduralised production typical of manufacturing, but all human action more generally, including the sphere of reproduction, therefore of education, consumption and social life.

The notion of *hyperindustrialisation* explains the tendency to re-shape social practices following industrial imperatives and *modi operandi* and describes the way today's education systems work (Gambino, 2011; Alquati, 2021; Armano, Cominu, Carls & Briziarelli, 2021). In the case of education, this brings a focus on the tendency to format, standardise and quantify educational activities by means of platforms. Furthermore, it points to the fact that models that aim to make education measurable and quantifiable through standardised teaching and evaluation systems were already in place before the pandemic.

In our hypothesis, the logic of hyperindustrialisation in the field of education is well represented by the scalability and acceleration contained in platform learning – and common to the entire platform economy (Choudary, 2015; Huws, 2017) – with technology and organisation providing a top-down uniform, pre-planned scale. Within such a system, human interaction is guided by technology through algorithms that make autonomous decisions on content selection, timing, knowledge delivery and processes of evaluation, optimisation and problem-solving (Alquati, Pentenero & Wessberg, 1994).

Hyperindustrialised 'distance' education allows for and imposes a quantitative increase of assessments, but at the same time makes them more formatted, mechanical and impersonal by preventing improvisation and digression, the development of informal relations and peer teaching mechanisms as well as after-class conversations. It also tends to format and homogenise content so that it can be broadcast and evaluated remotely, thus making attempts at cooperation which is not regulated by protocols difficult or useless – all tendencies that have long inspired the educational programmes and reforms of the 'neoliberal' regime. Similarly, any wiggle room for play and invention in the pedagogical relationship is severely hampered by the inordinate growth in the monitoring and formatting of everyday gestures, which ends up parasitising and suffocating study time.

Digital technologies and organisational models applied to education significantly raise productivity in quantitative terms as they increase the speed of processes by promoting the standardisation of the various components of education. This increase mainly concerns the productive power of capital; as for teachers, their workload has increased, and their working day has become longer (while the salary stays the same), in the same way as for students the boundary between school life and life outside school has become blurred.

Furthermore, with the formalisation and digitalisation of education the capacity for abstraction has been lost, as it has been massively curtailed by the reduction of time devoted to reading, listening or speaking – practices that force students to produce mental images within a horizon of meaning – to favour a cognitive space where concepts take shape as 'icons' and are manipulated as in a Padlet.³ This raises the question of how to convey experience and knowledge differently in a context saturated by the norms of these techno-organisational devices.

Some problems also emerge at the level of knowledge production: first, most educational platforms are proprietary and do not allow the reuse and sharing of

3 Padlet is a collaborative whiteboard software.

knowledge between producers and users, except in a very codified and opaque way; second, these platforms are not transparent in relation to the algorithms that are used, sometimes deliberately so for commercial reasons; and, third, platform-mediated interaction re-socialises human beings, equipment, materials and spaces because it is a system that tends to self-regulate without the control of participants, making micro-decisions and autonomously automatically adopting solutions that influence learning processes in terms of quality, evaluation and timing.⁴ Each of these levels allows us to imagine various forms of opposition to the mainstream tendencies. Specifically, there are three main areas that the notion of hyperindustrialisation helps us identify: first, that of 'horizontal' and free sharing of knowledge; second, the critique of private appropriation of knowledge and of privatisation of intellectual and technical commons; and, last, that of unregulated and non-standardised forms of socialisation and communication within education.

Our interpretative approach rejects technological determinism; although the rise of digital technology shows a main tendency towards capitalist valorisation, on the one hand, and the impoverishment of human capabilities, on the other, it is also true that digital organisational models can provide tools that can be used for unforeseen and non-standardised purposes. Thus, remote learning has meant that some students have had greater autonomy in the organisation of their studies, facilitated also by the relaxation of the corporeal dimension of proximity, with the physical presence of teacher-supervisors being removed (it would be naïve to assume that such a presence is always beneficial and enriching: the school did not wait for neoliberalism to be a place of enclosure and normalisation). If used consciously, software for the production of conceptual 'maps' or the storage of multimedia materials may allow the student to make a quantum leap in terms of analysis, a definite qualitative advance in comparison with traditional models of learning.

However, for most learners the digitalisation of education has meant only and exclusively thinking fast and in a reactive and formatted way; similarly, for most teachers, the spaces of ambivalence and their potentialities are difficult to exploit in actual praxis. With the introduction of digital technologies, and in contrast to most of the rhetoric used to legitimise and justify it, the overall range of teachers' knowledge and skills often does not automatically increase. In fact, the new tools teachers are asked to adopt are often rather basic and inadequate, despite the ubiquity of digital devices or increasingly powerful and user-friendly software – both wrongly believed to systematically require hyper-specialised knowledge.

Conclusions

By linking the conjunctural and structural processes within education to the concept of hyperindustrialisation we have aimed to extend and radicalise the investigation of

4 It should be specified here that, in terms of algorithmic transparency, not all platforms used in education are equal. Beyond data capture, that is transversal to all platforms, some of them show a prescriptive structure, which establishes *a priori*, already in its design, how teaching must be 'done', whereas other provide (like a blank whiteboard) tools that make it possible to 'freely' structure the classes, at times unleashing new potential.

possible fields of conflict within neoliberal and post-pandemic dynamics. Alquati's research (1992) consists of an original analysis of the *duality* (Alquati, 1992:61–64) by which capital structures human activity according to the imperatives of valorisation.

In the analytical model elaborated by Alquati the distinction is made between *increase of power* and *enrichment* of human activity. Within the framework of capitalist relations, the increase in power can correspond to a radical impoverishment of the contents and purposes of human activity, which goes together with a loss of real autonomy on the part of the acting subjects (Alquati, 1992: 61). The hybrid nature of the spaces where activity takes place, its mediatisation through technological networks and the imposition of 'formatted' norms and standards can certainly be seen in capitalist terms as an increase in productivity. However, the hybrid nature and the mediatisation also appear to represent a dissipation of the autonomy of the human beings involved in these techno-socio-institutional arrangements.

The question then shifts from a strictly political level to an anthropological one, with Alquati's analytical tools pointing more broadly to the problem of the future of human activity in advanced capitalism.

What uses can we make of human capacities that would not lead to their waste and erosion? How can we intensify and enrich our activities, and increase our ability to imagine non-standardised goals and meanings? There is no doubt that such questions are crucial in the field of education, where the powers and goals of human activity still appear to be just possibilities for which it is urgent to think of ways of actualisation.

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