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## Pathways for Social Justice in the Datafied Society: Reconsidering the educational response

**Le vie per la Giustizia Sociale in una società datificata: riconsiderare la risposta dell'educazione.**

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**Abstract.** Can education be a response to the injustices generated by datafication? Although education has been considered a crucial instrument to generate a more democratic and egalitarian society, there is no linear relationship between education and social justice. In the same vein, data literacy as an approach to generate data justice or social justice in the context of datafication should be explored. In this article, I offer a conceptual analysis of the educational response to datafication. As a result of this exploration, I contend that, although the educational interventions are evolving towards forms of sensitivity and attention to the problem of datafication, there is a need for integrated approaches that consider complexity. Indeed, digital infrastructures, regulations, and political contexts shape a problem that goes well beyond the educator's degrees of freedom. Notwithstanding the fact that this set of contingencies might be seen as limitations, it is only by taking them into account that the educational response can be imagined. Notably, the educators' role should go in the direction of expanding knowledge and criticism towards the digital infrastructures, beyond technological competence, to promote counter-hegemonic antagonisms as means to build new contexts of data justice, and therefore, social justice.

**Keywords:** counter-hegemony, data literacy, data justice, educators, social justice.

**Riassunto.** Può l'educazione essere la risposta alle ingiustizie generate dalla datificazione? Sebbene l'istruzione e la formazione siano state considerate strumenti cruciali per generare una società più democratica ed egualitaria, si è molto dibattuto sulla linearità della relazione tra istruzione e giustizia sociale. L'alfabetizzazione dei dati come approccio per generare giustizia sociale nel contesto della datificazione, dovrebbe pertanto essere esplorata alla luce dello stesso dibattito. In questo articolo, offro un'analisi concettuale della risposta educativa a tale fenomeno. Come risultato di questa esplorazione, sostengo che, sebbene gli interventi educativi si stiano evolvendo verso forme di sensibilità e attenzione al problema, c'è bisogno di approcci integrati che considerino la complessità inerente alla datificazione. Infatti, le infrastrutture digitali, le normative e i contesti politici danno forma a un problema che va ben oltre i gradi di libertà dell'educatore. Nonostante questo insieme di contingenze possa essere visto come un limite, è

solo tenendone conto che si può immaginare una risposta educativa. In particolare, il ruolo degli educatori dovrebbe andare nella direzione di espandere la conoscenza e la critica verso le infrastrutture digitali, al di là delle competenze tecnologiche, per promuovere antagonismi contro-egemonici come mezzi per costruire nuovi contesti di giustizia dei dati, e quindi di giustizia sociale.

**Parole chiave:** Contro-egemonia, alfabetizzazione ai dati, giustizia dei dati, giustizia sociale.

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## 1. INTRODUCTION

In a relatively short period, digital data mining and its algorithmic manipulation for different purposes have become the norm (Van Dijck, 2014). Beyond the initial enthusiasm of technological solutionism linked to the access and use of an unprecedented amount of information in data (Lehtiniemi & Ruckenstein, 2019), recent social research has pointed out how new technological infrastructures continue to respond to capitalistic logics of domination, surveillance and exploitation where inequity prevails (Zuboff, 2019). Examples of this concept are the invisibilisation or overrepresentation of race and gender in certain forms of data visualisation (Ricaurte, 2019; Thompson, 2020), the restrictive effects on personal freedom by controlling behaviour and quantifying the self (Lupton, 2016) and algorithmic bias with racist, exclusionary and oppressive effects (Eubanks, 2018; Noble, 2018).

Against this backdrop, the search for new forms of social justice has become evident, as democratised contexts require new roles and conditions of participation to disarticulate the structures of injustice they engender. In that sense, the literature is rapidly advancing towards what has been called “data justice”, with diversified strands (Taylor, 2017). However, it is worth asking whether education, specifically data literacy, can catalyse social justice (Raffaghelli, 2020). Although the debate on data literacy is advancing at an accelerated pace, the panorama around its impact, as well as its role as a device, seem to reproduce many of the inherent problems of educational work in the technocratic reproduction rather than emphasising the socio-cultural transformation and the expression of diversified identities. In this sense, the relationship between data literacy and (data) social justice could just be performative.

In the present study, I seek to analyse this relationship to shed light on the limitations of the educational response. Indeed, understanding such limitations would lead educators to go beyond the “hubris” embedded into the omnipotent idea that education – and particularly lifelong learning – can do it alone (achieve social justice). I will argue here that datafication is such a complex problem that educators need to develop forms of professionalism to take active part in political and techno-

logical debates shaping the educational practice around (post)digital technologies, which embed data-driven processes.

My journey starts with the analysis of datafication through existing situations documented in the literature, particularly the emergence of metaphors with highly negative connotations. I will hence introduce the concept of counter-hegemonic reaction, which uncovers the idea that human collectives resist the power and generate creative, alternative responses in search of fairer situations. This is notably the case of data activism, which I will briefly explain. Therefore, I will introduce the tension-relationship between education and social justice as a basis for exploring the role of data literacy(ies) and its impact on the quest for data justice.

In this argumentative itinerary, I will try to unveil the tensions and contradictions embedded in the educational response to shed light on the unbalances and inequities generated by data in our contemporary society. The techniques of datafication are, by definition, based on extractive approaches that reduce the subject to a state of passivity. Their same characterisation prevents us from finding forms of justice. The appropriation and deconstruction of the dominating narrative is extremely necessary, from several points of view: not only technological, but mainly political and ethical. And in this context, what does education have to offer? We must not forget that, as *dispositif*, it has already been criticised as an instrument of reproduction of the objectives linked to neoliberal technocracy.

A careful deconstruction of the terms adopted from practice, then, is my method to unravel and categorise the multiple meanings associated with these constructs (and their cultures, traditions, and discourses) in order to answer the questions above. I contend that, although the educational interventions are evolving towards sensitivity and attention to the problem of datafication, there is a need for integrated approaches that take into account complexity. Indeed, digital infrastructures, regulations, and political contexts shape a problem that goes well beyond the educator’s degrees of freedom. Moreover, this set of contingencies might be seen as limitations into which the educational response is to be imagined. Notably, the educators’ role should go in the direction of expanding knowledge and criticism towards

the digital infrastructures, beyond the technological competence, with a view to promoting counter-hegemonic antagonisms as means to build new contexts of data justice, and therefore, social justice.

## 2. DATA METAPHORS: SEARCHING FOR A MEANING THAT ADDRESSES ACTION

In recent years, several terms have been coined to describe the technological phenomena we are witnessing around data collection, extraction and manipulation connected with the new shape of digitality. Firstly, an enthusiastic hyperbole arose in pursuit of what was seen as a revolution in business models based on the exploitation of the “new black gold” of data. Indeed, the work on Big Data, continuously extracted from search engines and social networks, as well as from the Internet of Things devices, was expected to accelerate the personalisation of digitised systems and services, ultimately leading to the development of the artificial intelligence industry. This situation was seen as the equation of data with gold in the Conquer of the Americas or oil in the industrial era. Within a few years, the risk of such an approach came to light. Pioneering work by women such as Cathy O’Neil (2016), Safiya Noble (2018) and Virginia Eubanks (2018) highlighted the dangerous effects of datafication by dismantling algorithms as “objective” devices, showing instead stunning examples of their impact on deepening inequalities. Terms such as datafication were coined with negative connotations, connected to massiveness, obscure procedures, biased assumptions and unexpected deleterious effects on vulnerable groups. Later, “surveillance” (the continuous monitoring of our lives connected to personal data) was also discussed, highlighting the fact that there were many imbalances in the way some see, and extract data, as well as in the way others are seen and abused through extracted data. The term “data slavery” (personal freedom constrained by algorithms built over the basis of our interaction with the techno-structure) was also used. For Kennedy, Poell and van Dijck (2015), the vast amounts of tracked data allowed a very few privileged agents to control internet traffic and extract significant value from the behavioural, emotional and cognitive patterns observed through the data based on the development of specific algorithms. This imbalance was emphasised concerning the invisibilisation of race and gender or the overrepresentation and overburdening of others. Relevantly, Shoshana Zuboff (2015) took the debate a step further to propose a new form of extractive economy, that is, the era of surveillance capital-

ism. Finally, authors from the Global South were the first to identify the colonial identity and orientation of the extractive methodology, with its consequences on the bodies and identities of those under surveillance (Ricaurte, 2019).

In short, the metaphors coined sought to unveil how power groups have been using technology to expand their dominance through datafied technological infrastructures that invisibilise extractive forms, biased labelling processes, and the environmental impact of technology. Their ultimate goal has been indeed to produce an embodied experience that could be ostensibly inserted into one single surplus-value production. They thus maintain the structural imbalances necessary to power with their impact already recognised in other social *dispositifs* of liberalism. They also engender forms of symbolic violence by imposing recommendations and guiding behaviour through what is supposed to be an “objective” automated system. Behind the scenes, data scientists play the role of an elite capable of translating bodies and minds into actionable codes (Thompson, 2020), although they may simply be the instruments of decision-makers, and, therefore, be unaware of their role in their orientation to perform “the technical task”.

Such logics are repeated in all spheres in which the datafied technologies are applied to the welfare state and any service/action with a high impact on life. The techno-structure informs, integrates, or worse, substitutes for human activity. In this sense, the pandemic has only exacerbated these phenomena in all social spheres.

The above metaphors are the fruit of advancing social research and highlight the urgent need for conceptual and regulatory frameworks that support understanding, critique, control, and redress the inequities and harms produced by data practices. In particular, it is necessary to look at how social justice can be generated as a driver of well-being, equality and expression for individuals and collectives in a context of datafication.

## 3. ACTIVISM AND DATA EPISTEMOLOGIES: THE QUEST FOR JUSTICE

The dystopian perspective suggested in the previous section focused on a passive subject that was unable to control its data flows and, therefore, it became a victim of algorithmic manipulation. However, there is a counterculture of data activism, where subjects become creative protagonists and contestants against the techno-structure they live by through the same technologies critically observed in the previous paragraph: social networks claiming for digital rights; blogs and coding plat-

forms sharing knowledge that is hence used for resistance (Miren, 2019). Groups involved in such activism have aimed to uncover subtle forms of surveillance and redistribute power through the participatory appropriation of data (Lehtiniemi & Ruckenstein, 2019). There is thus a quest for recognition, awareness, redistribution of symbolic and material power oriented towards citizen and political, gender and racial emancipation.

The debate on the digital divide and participatory cultures in the digital space can be considered as the ideological basis of such forms of (data) activism. This debate is also generated from the past various forms of activism related to the right of access to knowledge. One of the latest expressions of this movement indeed is the focus on public and transparent, i.e., open knowledge in the Open Government Data and Open Science approaches. In particular, these movements insist on access to data produced with public funds as rights and duties citizens have towards public organisations. The literature has investigated the production and the use of data for industrial and social innovation. In this regard, it cannot be hidden that the recent discourses on open data often carry slogans about productivity and development, which are typical of neoliberalism, and where data can be “used to innovate” in terms of economic productivity.

The open data movement should be added a second movement based on independent groups reacting to the oppression of surveillance, giving rise to forms of disconnection or “hacking” of the system. To characterise these movements, Milan and van Der Velden (2016) noted that the first form of data engagement is based on a proactive epistemology (both the individual conception and the social imaginary about data) aimed at appropriating data to express diversity and empowerment. In contrast, the second form embraces a reactive epistemology, whose ultimate goal is to uncover injustice and condemn neglect.

The quest for data justice has developed from these movements into a series of theorisations fundamentally linked to the discussion of ethics as applied to technological development.

The first effort in that quest is to unravel the pitfalls of naïve, Postpositivist discourses on the development of data mining metaphors as an expression of data injustice and hegemonic techno-structure. Indeed, Paola Ricaurte (2019) argues that the thirst for more quality, diversity and quantity of data collected as the basis for optimised artificial intelligence and probabilistic models is deeply interwoven with the complex evolution of the Postpositivist paradigm. This “is based on three assumptions: (1) data reflects reality, (2) data analysis generates the most valuable and accurate knowledge, and (3) the results of

data processing can be used to make better decisions about the world” (Ricaurte, 2019, p. 351).

These assumptions imply that participants know the datasets and the symbolic and material assemblages (to borrow Deleuze and Guattari’s thinking, which I used in another context to define data as socio-technical structure –Raffaghelli, 2018-), from which data are articulated. However, it is a matter of knowing, understanding and denouncing injustice, as well as intervening to correct, repair, or even completely change such systems. Based on D’Ignazio and Klein’s definition, “data for co-liberation” is activated from the cultural proximity of data collection and from the community identity affected by or interested in a datafied representation. In that quest, it is the collective that will call for the presence of data scientists not as elites of ninjas, unicorns or stars, but as components of a process that generates forms of trustworthiness about data and helps affected groups to incorporate data as an element of their self-determination (D’Ignazio & Klein, 2020, pp. 154-156).

In this sense, Linnet Tylor proposes a model of data justice based on three pillars that crystallise the needs outlined above: deconstructing the (in)visibility of techno-structures, intervening on the (dis)engagement of technologists and data scientists, and exploring forms of discrimination to combat them. In line with this author, Mortier et al. (n.d.), concerned with the ethical issues implicit in the continuous development of smart technology ecosystems, have pointed to the need to review the extent to which an artificial intelligence system is transparent, negotiable and promotes people’s ability to express their identities.

It is impossible to separate these movements from the quest for social justice as an endeavour of human societies in their continuous transformative movement. However, we have observed that these movements of data activism and the search for social justice call for the shaping of advanced technical and reflexive-critical skills, including intellectual movements that theorise the development and advancement of such activities. This appeals directly to education as a *dispositif* in its relation to social justice.

#### 4. SOCIAL JUSTICE AND EDUCATION

The search for social justice is a slow path towards the recognition of symbolic forms of domination, the production and distribution of material resources, and the extent to which new forms of symbolic articulation can emerge and propose forms of power distribution (Filc, 2020). Early theories of social justice focused

on the need for an equitable distribution of wealth, which was assimilated as material distribution (Miller, 2001). However, with the advent of struggles for recognition and emancipation from the 1970s onwards, the inadequacy of this approach was clear. It was thanks to female thinkers, such as Nancy Fraser (2000) and Martha Nussbaum (2002), who critiqued the initial theories of social justice, that more dynamic approaches were suggested, which included diversity and intersectionality, i.e., respectively, criteria of social justice for subjects with diverse abilities, gender, race with their implications for economic, legal and political status; and the intersection of these diversities as an emergent and particular situation, beyond the specific difference. These scholars introduced the need to rethink social justice as equal distribution or recognition of diversity and advocated approaches that aimed to transform society from such a basis. Their theorisation highlighted the complex nature of justice as an ongoing quest for individual and collective participation, emancipation and the possibility of expression against hegemonic practices.

In Martha Nussbaum, the idea of transformation linked to social justice does not imply a struggle but underlines the need of a space where there is individual freedom for self-expression and creativity. Her work presents examples gathered from her stay in India about the fundamental role of women in human life. She points to the great social and political inequities that generate contexts of action where women are unable to develop their human capabilities. Nussbaum challenges the classical idea of social justice (particularly the Western-European idea in Rousseau) as being applicable to white, able-bodied men who can work and vote. She exposes the model of social justice related to labour and civic rights by analysing what a disabled person needs to experience within egalitarian life contexts. Through her analysis, she moves on to the question of how satisfied a woman or disabled person can be or how many resources (material and symbolic) she can have in her life context. Her question is, “what is (a person) capable of doing and being”? (Nussbaum, 2002, p. 123).

We can see the importance of Nussbaum’s work to overcome the idea of social justice as something that is applied through universal principles, where individuals are “passively pushed by the world” (ibidem). Instead, the central idea is that human beings, at the intersection of their various forms of vulnerability, experience social justice when they are able to transform their life contexts as part of their unique and unrepeatable becoming in the world. Justice lies in the kind of life an individual chooses to live in the best of their intentions and scenarios and in the fact that they can realise that life to

the best of their ability. The notion of capabilities, coined by Amartya Sen in his critique of utilitarian measures of well-being, can be defined as the actual freedoms in terms of skills, abilities and symbolic means to achieve the imagined, desired existence. Nussbaum revises this concept to reorient it towards a dynamic approach, namely, the idea that capabilities can be developed (Nussbaum, 2011). Through this idea, she gives central relevance to education and learning as engines for consolidating capabilities, which are the basis for a dynamic and intersectional dimension of social justice. Ultimately, the idea is that personal and contextual circumstances shape diversity, which must be recognised in defining well-being, freedom and justice.

However, Nussbaum’s ideas have been criticised for the political liberalism they contain. Indeed, the concept of agency might be considered naïve in the face of the discourses and practices of power. The individual might be pushed to believe that something they are experiencing is enough for them. The movement of contestation or struggle for something new and unimaginable would never be put into action in such a situation. It is worth introducing here Gramsci’s thinking on antagonistic articulatory practices, which we can link to activism. Antagonism, in Gramsci, uncovers the limits of all objectivity insofar as it is never fully constituted. In his thought, society cannot be presented as an objective and harmonious order but as a set of divergent forces in conflict, which prevent the formation of entire identities. The constitution and maintenance of identity thus depend on the outcome of a struggle that is not guaranteed by any prior or necessary law of history. This is where the concept of counter-hegemony comes to our aid. Defined by Pratt (a neo-Gramscian thinker) as the process of creating alternative forms of power connected to civil society movements in preparation for political change, it highlights the consciousness and advocacy of a given group towards achieving its rights (Pratt, 2004). Nonetheless, the idea of counter-hegemony should not be idealised. A critique of the concept implies a discussion on how many of the so-called counter-hegemonic movements are merely performative and tolerated by society, based on practices embedded in art or everyday life.

In any case, the approaches reviewed leave a clear space for rethinking the need to implement processes in which capabilities determining transformation rather than adaptation are cultivated. However, one must go beyond the capabilities (according to Nussbaum’s definition) towards political participation and self-definition in order to trigger the necessary antagonisms through which the positions of the individual or excluded groups can be defended.

### *Should (and can) education develop capacities?*

As Walker and Unterhalter (2007) point out, the importance of individual expression clashes with the general effort made by education systems as devices that train and certify people enabling them to move up in a pre-established social structure. Access to education and its quality have often been evaluated through the effective impact on the development of skills that allow people to obtain better jobs and, therefore, to achieve what is understood as better lives within a certain status quo. Discourses on cultural capital, education as a treasure and its outcomes (knowledge, skills, competencies) as drivers of societal change (Lareau & Weininger, 2003) have plagued the entire literature from the 1960s to the present. In the more technocratic tradition of education systems, the latter has also been criticised for their lack of effectiveness in meeting the skills required in the labour market (Carey, 2015). Educational researchers have addressed such criticisms by emphasising the relevance of lifelong learning as a continuum between formal, non-formal and informal learning experiences as a personal, educational pathway (Blaschke, 2012). And these same approaches have been strongly criticised from the philosophy of education for provoking a *learnification* of education systems, i.e., an overemphasis on the controlled design of learning processes that determine the formation of competencies recognised in the labour market (Biesta, 2020). At this point, one could also not forget the symbolic power exercised by the educational system over the theory of educational sociology for the reproduction of the social structure with its privileges as a real effect of the educational system (Bourdieu & Passeron, 1970). The current pedagogy of the pandemic has also revealed the insidious effects of poverty, providing clear examples of the fallacious idea that technologies offer opportunities and access. Instead, both parents' lack of digital skills and appropriate spaces, devices and internet connectivity made crucial differences in experiencing Remote Emergency Education (Bozkurt et al., 2020). Formal education could therefore be more of an apparatus for deepening injustice rather than deconstructing it.

Nevertheless, the problem has been conceptualised and tackled through several movements addressing the break of the circle of reproduction by making education an instrument of emancipation and transformation. One of the most recognised works is that of Paulo Freire, who, on the basis of the “pedagogy of the oppressed”, relies on technical knowledge as a ground for the development of contextual applied knowledge that generates spaces for the growth of essential skills required in civic

engagement and activism for the transformation of one's own living spaces (Freire, 1970).

We can find in this critical line an attunement with the capabilities approach, where knowledge and skills are not functional to predetermined standards but are the initial phase of a recursive spiral of change in which technical skills within a critical context of consciousness and identity lead to greater self-determination. We insist, at this point, on the relevance of an enabling context that equips participants to achieve the symbolic, emotional, behavioural and material means to realise their own social justice needs.

### 5. DATA JUSTICE AND THE NECESSARY (DATA) LITERACIES

Using the concept of hegemonic and counter-hegemonic movements and the skills needed to participate in such movements, let us analyse the connections between data justice as an expression and pursuit of social justice in a democratised society and the role of data literacy as an educational strategy.

The supply of data literacy training has grown intensively in recent years. However, the contents, characteristics and ideologies enclosed in that training offer have been aligned with technocratic development. For instance, Raffaghelli (2017) pointed to the process of development of the training offer in Italy, which started with the creation of a ministerial working group in 2016 to support university Master's degrees and monitor MOOCs (Massive Open Online Courses), as well as micro-courses oriented mainly towards the development of data science skills. Indeed, the most advanced trainings offered by MOOCs, continuing education and higher education, quickly addressed the technical side of working with data, with the promise of secure job placement. In terms of compulsory education, in recent years there has been much emphasis on coding (Popat & Starkey, 2019), the maker movement (Papavlasopoulou et al., 2017), and digital competence (Carretero et al., 2017). The debate around data literacy went through similar stages (Raffaghelli, 2018). Through a series of reflections arising from the discussion of numeracy that moved to statistical literacy and thus data literacy, the effect was to address the technical understanding of algorithms, data-driven practices, data visualisation and programming as the creative side of data science. Aligning with this trend, digital environments and tools to process and visualise data, as well as opportunities to trigger dynamic representations, recommendations or activities, opened an area of skills development in

higher education (Gray et al., 2018; Maybee & Zilinski, 2015). Less emphasis was placed on understanding the connections between datasets and the complexity of learners' experiences in a formal and informal data environment. Overall, data literacy in higher education would have mainly covered individual practices within the classroom, both from the data side and from the educational content (Raffaghelli, 2018).

All these approaches have in common a focus on notions and practices that are connected to the idea of innovation and development linked to a Positivist and Neobehaviourist paradigm, which is not concerned with understanding the personal, let alone social risks of feeding a monopolistic techno-structure, invisibilising the complexity of socio-technical and political networks (Pangrazio & Selwyn, 2020; Raffaghelli et al., 2020).

Therefore, these data literacy approaches could lead to the development of skills and knowledge necessary to reinforce the existing technostructure, i.e., by focusing on the skills of elite data scientists, the oxymoron is reinforced. In these terms, more literacy could imply the deepening of structural injustices, as the skills acquired would orient practices of support for power and disengagement from the ultimate ends of the technical activity in which a data scientist engages (Crawford, 2021). In spite of the case of Edward Snowden (Snowden, 2019) that has been paradigmatic in showing the technologist's awareness of the ultimate goals of technological development, it is somewhat illusory to think that those who are trained in a paradigm with standards of quality and success (improving machine learning tools, enhancing the accuracy of algorithms, etc.) will manage to go further. Thus, the contribution of education, configured in this way, is called into question.

The pursuit of justice through activist movements opens diversified paths to deepen this vision of complexity and develop a technical skill for the appropriation or even blocking of data infrastructures and towards empowerment. As D'Ignazio & Klein (2020) rightly note, technical skill is subordinated to the ultimate social, cultural, and political goal. Such quest relies heavily on rare capacities and significant self-organised collective consciousness and will. However, as Miren Gutiérrez (2018) points out, activism generates robust networks of support, awareness-raising, continuous practice of hacking to solve problems and foster the actions necessary to the movement. These networks reverberate forms of knowledge and informal learning that allow technologists to cooperate in projects whose final aims have a relevant and contextualised social and cultural impact.

The only possible way is to rethink educational practice by reformulating the literacies needed to initiate activism rather than training skills to reproduce datafication. To this end, the first crucial piece of the puzzle is represented by educators aware and critical of the techno-structure, able to support contextualised forms of reading, understanding and interpreting data as a means of identity and empowerment, through situated, authentic educational practice, eventually linked to the very collectives of activism.

In this sense, only recently there have been ideas emerging such as data justice or data feminism that permeated the system in search of broader perspectives on what data represent within the educational practice (D'Ignazio & Bhargava, 2015; Raffaghelli et al., 2020). However, the picture remains fragmented, despite increasing attention to the literature (Raffaghelli & Stewart, 2020). As a result, notwithstanding the many foci of debate linking data ethics and critical data literacy (Markham, 2018; Pangrazio & Selwyn, 2020; Tygel & Kirsch, 2016), a great number of projects may simply act at a 'performative level' by showing the harmful effects of data manipulation or discussion on them (Kerr et al., 2020; Prinsloo, 2019), without accurate reflections or changes in people's behaviours. Pangrazio and Selwyn (2019) described this situation very clearly: after these authors offered adolescents the possibility to see "behind the scenes" of data collection, they detected indifference and even some form of helplessness since the social networks used are just a part of their daily lives and a way to connect with their peers and build their identities. In this regard, the authors pointed out that the material and symbolic resources available in the educational space and the potential technical and critical skills are not enough to realise self-management and the search for new capacities towards an activist counter-hegemonic approach as an educational outcome. Thus, we are at the dawn of an educational practice that can support the necessary antagonisms to overcome datafication and empowerment through data.

Therefore, while critical data literacy appears necessary and crucial to a counter-hegemonic project in order to develop data justice and expressions of social justice in a democratised society, educational practice faces a conflict. The conflict that acquires an intrinsic form, from the very definition of the academic task (training to respond to the system or training to transform the system); to an extrinsic form, which is that of the fluidity of symbolic power and of the assemblages through which datafication is presented to us. It is at this point of cleavage that the research work shown below is placed.

## 6. CONCLUSIONS: BEYOND THE EDUCATIONAL “HUBRIS”.

In this article, I argued that data is complex and evolving as a social, political, technical, and educational issue. I showed how the literacies needed to build social (and data) justice are revealed as counter-hegemonic phenomena, which need to be contextualised, targeted and developed over time with the efforts of people within the affected collectives. The social and institutional settings are diverse indeed, and the way data practices are developed, imposed, adopted, can be extremely diversified. It is not the same to be a data scientist at Silicon Valley; a European citizen protected by the General Data Protection Regulation; an Amazon worker in a magazine from the Global South; a student in a school that has decided that the emergency remote education will be implemented through the adoption of Microsoft Teams or Google Classroom; or a woman engaged in a collective adopting open data to make femicides visible in a region.

Discourses on the promising logic of automation and algorithmic decision making might be enhanced in some contexts; suffered in others; and embraced through democratic participation in others. Data can be seen as an instrument of domination or liberation. Evidently, there is a long way to embrace participatory approaches to explore the problem and hence guidelines, policies, manifestos or strategic interventions in order to address datafication and surveillance and to promote data for empowerment and co-creation. In fact, data practices neither relate only to the availability of technological devices or connectivity through networks, nor to the performance of data processing in terms of volume and time; data practices are connected to the data epistemologies of various groups (Raffaghelli, 2020). In this regard, the needed capabilities for future citizens and human beings in a society that will be increasingly governed by algorithms and automatism, are “techno-political”, entailing forms of understanding of data infrastructures and their social and cultural implications. Moreover, such capabilities must be a springboard to enact counter-hegemonic processes where data injustices arise.

In exploring the tensions between education and social justice proposed here, I lay the groundwork for working spaces of professional development for and with educators to overcome the “educational hubris” and to embrace such a complex vision of data.

To this end, educators and educational researchers must collaborate with policymakers, activists, the private sector and society, creating an engagement with data-

driven designs, processes and artefacts, from the inside to the outside of the educational setting. Concretely, the educators will have to develop deep understanding of what is involved in the data-driven workflow, algorithm design, code, data visualisation (proactive data epistemology, public and private access to data), as well as the institutional and societal impacts of data-driven practices (reactive data epistemologies, public and private access to data).

The educator, as an active intellectual in the Gramscian tradition, must direct her efforts to support technological skills liaised with critical awareness and political consciousness. These are the enablers of the counter-hegemony to achieve social justice, rather than the naïf reproduction of techno-enthusiasm.

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