

Something Important is Going on With Data: Educators' Search for Political Agency to Act as Professionals in Complex Datafied Contexts

Introduction

In a vision of what critical data futures might look like, Neil Selwyn's (2021) starting point is Couldry and Mejias' (2019: 336) observation: 'something important is going on with data'. Selwyn attempts to disentangle the array of meanings of data and its processing and use in the current datafied society, proposing for each cluster possible data futures, so that we might make sense of future social issues relating to digital (big) data. These clusters are lenses that emerge from recent social science work within critical data studies. Describing them in any detail falls out of the scope of this chapter, but we refer the interested reader to *The Sage Handbook of Digital Society*¹. This attempt to disentangle and shed light on the complexity inherent in the phenomena of datafication, we argue, is indeed a courageous endeavour. Several efforts to make sense of data, its processing and use in social science research have given rise to a plethora of discourses (Milan & van der Velden 2016; Raffaghelli 2020). The initial concerns developed into a compelling need to overcome the data divide and take part in mining the richness of data for empowerment (Baack 2015; D'Ignazio & Klein 2020). The data divide would need a chapter in itself, but briefly explained is the gap between those who are able to make sense of data and its processing and thus find themselves in a position to shape their practices and those that cannot.

However, soon after this, more critical approaches towards pernicious data-driven practices uncovered the hidden new economic paradigm based on the manufacture of 'behavioural products' (Zuboff 2019) and the concomitant injustices embedded in such practices. In addition, algorithmic control of the essential welfare services was also studied (Eubanks 2018; O'Neil 2016), uncovering how biased algorithms negatively affect those that are already disadvantaged, be it because of race, gender, socio-economic position or any other dimension in comparison with those who are socioeconomically and culturally advantaged. Overall, different authors have reflected on the problems of metrics and quantification and the false promise of objectivity, which had been already scrutinised in the past decades concerning policy evaluation and political action, management, development as well as other socio-political and economic interventions (Muller 2018). Notwithstanding the news (Financial Times, September 2021), the UK is launching a consultation to eliminate article 22 of the EU data protection regulation proposing to remove the human review of algorithmic decisions required by the General Data Protection Regulation (GDPR). Of course, this shows how there is still a push towards objectifying, in the name of efficiency, important decisions that impinge on an individual's overall well-being.

Education has not been exempted from the phenomenon of datafication (Williamson 2017). In order to tackle the problem and its consequences, debates on data literacy started to emerge to develop skills and knowledge to deal better with a datafied society (D'Ignazio & Bhargava 2015; Gould 2017). However, it was soon noticed that such an approach had limitations, given that education, and particularly higher education, was just another engine of a technocratic approach to social development (Raffaghelli & Stewart 2020). Thus, more than technical skills were needed to reflect upon the hidden structures of the socio-technical system. Knowing practical skills to deal with data will not enable us to think about what are the mechanisms underpinning this datafied reality (Pangrazio and Selwyn 2019), the invisible uses given to data in HE institutions, and what tools and knowledge are best to expose and further understand the

¹ Housley, W., Edwards, A., Montagut, R., and Fitzgerald, R. (eds) (2021).

hidden mechanisms that drive these data-driven systems. Thus, a new dimension emerged from the debates concerning data literacy, namely the critical dimension much in line with Freire's critical pedagogy (1970). This critical dimension was envisaged as an enabler for the individual to interact critically with the socio-cultural aspects (e.g. hidden mechanisms that drive different data-intensive systems) of data practices (a datafied present and future) with the intention to transform it (Tygel & Kirsch 2016; Markham 2018; Jansen 2021). In this context Mortier et al. (2014) suggested we should think about agency, legibility and negotiability as three critical features to deal in a more proactive manner with data-driven systems. These elements, we argue, are complementary to a critical approach to data literacy. Legibility is the process by which the individual is able to reflect in order to understand how data is collected and processed; negotiability has to do with the ability to navigate the social aspects of data (more on this in the next section) and agency, refers to being able to act in such data driven systems, that is, to manage our data and how we access it.

However, placing the concept of critical data literacy in the context of the postdigital (Jandrić et al. 2018), where the digital increasingly moves covertly to the background and slowly disappears from our view, requires a vision that transcends a mere critique and embraces concrete actions (Andersen, Cox, and Papdopoulos 2014, as cited in Jandrić et al. 2018) to support educators in embracing the socio-technical and political complexity described above. In this regard, several authors are moving towards the idea of re-politicising data literacy (Jansen 2021; Markham 2020) and understanding the intrinsic relationality of technologies, particularly educational technologies, where political action, regulations, economic interests, and business models are deeply entangled (Castañeda & Williamson 2021). As a result of engaging with societal problems and education praxis, educators (generally speaking) struggle within relational data infrastructures and discourses in the search of their positionality and perspective of professionalism (Raffaghelli 2022).

In this chapter, the authors add to the dialogue with other educators and experts in different fields, while validating the design of an open educational resource (OER) -DataPraxis²- a website with content and analytical tools that supports educators' pedagogical activity to cultivate and foster critical data literacies. To address our initial question of how educators place themselves as political agents to take actions within a datafied society, we discussed with nine colleagues (invited speakers and participants in one of our four strategic partnership institutions) the role of data in society and educational practices alongside building a vision of professionalism as a means to participate in defining new utopias (of fair data use for empowerment and creativity) or resisting existing dystopias (of data injustices and colonialism). Our analysis of the conversations brings to light the diverse efforts to develop political agency that educators envision, as Selwyn (2021) did; alternative data futures as antidotes for the present.

Indeed, we found convergent factors in such approaches, often followed by divergent elements, including their efforts to fight against surveillance capitalism (Zuboff 2015) and different forms of data injustice (Taylor 2017; Kuhn 2021); their attention to data monetisation and its resistance through engagement in open source technologies and data sovereignty discourses. These participants' discourses shape a half-weaved tapestry with knots and entanglements that require further attention, critical debate and collective interdisciplinary work, as much as peer support, in theirs and our effort to grasp the inherent complexity of the datafied present and future.

² <https://datapraxis.net>

In the next section, we explore three critical concepts that we argue are interwoven and upon which, we build, in part, our analytical work. These are data and its new sociality, positionality, and political agency.

Data Cultures, Educators' Positionalities and Political Agency

Framing Data Practices Through the Lens of Data Culture

We would like to begin this section by stating something that is fundamental to the work we do regarding critical data literacy for educators, namely, that data are political! This means that data do not exist in a vacuum. On the contrary, they are embedded in a socio-technical and cultural-historical context, with their own politics and power dynamics. As Kitchin (2021: 5) so accurately suggests, "Data-driven endeavours are not simply technical systems. That is, they are as much a result of human values, desires and social relations as they are scientific principles and technologies". Thus data-driven endeavours are socio-technical systems or in Decuyper (2021) words, socio-technical assemblages. Recognising the social dimension of data is relevant, because it provides us with a conceptual position to challenge the myth of the data revolution. With the social dimension of data we refer that what data are generated and how they are produced, handled and used, is the outcome of decisions and choices that people make. As Kitchin (2021: 5) reminds us, 'data-driven endeavours are not only technical systems, but are socio-technical systems. That is, they are as much a result of human value, desires and social relations as they are scientific principles and technologies'. The social dimension or life of data can also be captured in how our lives are saturated with digital devices that produce, manage, and share huge quantities of data.

In this regard, Taylor (2017) and D'Ignazio and Klein (2019) argue that the data revolution is not so much about the data and the technologies, but rather relates to long-standing social, political, economic and cultural issues. Thus, having a conceptual platform allows us - potentially- to contest the objectivity and seemingly neutrality of data. It provides us with conceptual tools to reveal the different, complex and disputed ways in which data are produced and processed. The world driven by data is full of potential dangers but also, as Kitchin notes, benefits and hope. He argues that 'the life of data and living with data is bound up in contingencies and is open to new configurations and possibilities' (2021: 7), whilst also aiding us to envisage alternative data futures.

Whilst the aforementioned authors deal with the cultural component, they do not centre it as a driver of political dynamics. The concept of data cultures might help in this regard to capture the multi-voiced, historical and complex human system that frames any data practice. With a data culture, we refer to the available or imposed technological infrastructures, narratives, practices, heroes, and the power dynamics leading to situated symbolic assemblages that shape particular conceptions and dispositions to data. A data culture, despite belonging to an institution, a community, or to society more broadly, will be the product of peoples interacting with the cultural context. Hence, it can include conflicting voices, expressions of dissent, or contradictory practices, what Archer (1995) calls contradictory logics. Some of these practices will be recognised and supported in particular cultural settings, others will be pushed to the margins as an effect of power dynamics (Raffaghelli & Stewart 2022; Raffaghelli & Sangrà in press). While searching for political agency as the form to engage reflexively in the governance of a data culture, the educator makes sense of their professional practice towards data and datafication as seen in the classroom, educational institutions, and the local and global contexts understanding polysemic and relational assemblages of data as a complex phenomenon. The educators' (data) literacies for reading, interacting and transforming (a data) culture are necessarily an integrated and situated asset of abilities and knowledge spanning from the

technological to the ethical, aesthetical and political dimensions of what can be considered a complex phenomenon.

Data and Complexity

The problem of datafication lies in its obscure and elusive nature, despite it being portrayed as objective, disruptive, and innovative (Decuypere 2021; Knox 2017; Williamson 2019). The relationships between infrastructure and data points are frequently obscured and require the actors' careful reflection to disentangle them. This operation necessarily involves understanding data as a complex phenomenon.

Complexity, in general terms, characterises the emergent properties of interactive and entropic systems³ (Johnson 2007: 4). In the field of social sciences, Edgar Morin has theorised the role of complexity. In the eyes of the French philosopher (2008), it is part of being and knowing beyond the classificatory, analytical, reductionist and causal approach to the world. Therefore, complexity is 'made up of uncertainty, indetermination and random phenomena' based on the interaction of the system with the context. Moreover, for Morin, methodologically, 'it becomes difficult to study open systems as entities that can be radically isolated' for the 'interaction of the system and the ecosystem (...) can be conceived of as the 'going beyond'(2008:11). It is in these terms that institutions, communities, and the technologies they adopt become dynamic systems that cannot be considered in isolation, given that in their struggle to configure and reconfigure themselves, they absorb the external forces implied in datafication and re-connect with a historical identity. Datafication is, therefore, an emergent phenomenon based on data infrastructures or the physical infrastructure that supports the 'lightness' of the so called digital clouds; the conceptions and practices around metrics and quantification; the labour force gathering data or producing it unconsciously; the data points generated across several systems; the way these are elaborated through simple statistical processing or algorithmic solutions; the engagement with such representations and artefacts; and the relating emotional and behavioural outcomes triggered (Crawford 2021; Decuypere 2021). Nonetheless, the elements that constitute higher education institutions, namely, students, educators, managerial and technical staff, and others, bring their positionalities (in terms of personal stories and dispositions to technologies) as a sub-layer of the institutional complexity.

Can we separate such elements? As demonstrated by Decuypere (2021) in his topological understanding of data practices, or by Crawford (2021) in her effort to map AI in an Atlas of intertwined layers of information, we can create or use existing models, frameworks, and conceptual instruments, but only for analytical purposes. These analytical artifices or manoeuvres are needed to study data practices and uncover the uneven power dynamics that render social injustices. But once the analysis has been carried out, we need (and even have the responsibility) to imagine "alternative data futures", to borrow Neil Selwyn's expression (2021). Here, the complexity of data practices is acknowledged *hic et nunc*, but always with the aim of imagining what kind of (social) fabric we are weaving with the threads of our human activity.

As professional practices, industry, and the academic disciplinary fields of data science evolve, along with the social sciences critique and data activism, it becomes evident that the social

³ Disorder, randomness, or uncertainty in the natural sciences have been characterised by the concept of entropy. It was developed in the field of physics, but it has been spread across several disciplinary fields, including information systems. Entropy is etymologically rooted in the Greek words '*ergon*', 'work' and by the final part '*tropy*' or 'transformation'. Entropy is hence a property of several types of systems, from living to informational to digital ones, that conceives the whole that as being more than the sum of its parts given its functional properties.

imaginary⁴ and approaches to data across the fields of human activity are extremely fragmented. Far from being embraced, complexity is mostly dismissed or at best expressed as chaos and entropy, disorder or randomness, where data practices and narratives entail, at times, obfuscation, marginalisation, and oppression. This is particularly true for educational institutions, where educators' independent efforts as intellectuals sometimes can find themselves in open conflict with institutional discourses but also socio-technical ones. Therefore, engaging with strategies to foster political agency, we argue, is topical.

Reading Data Complexity, Transforming Data Culture: Educators' Postdigital Positionality and their Political Agency

Any imaginary or alternative that one envisions in any given data culture, like data, is never neutral. Although the individual is affected by the social and cultural structures she/he/they is operating in, she/he/they is not determined by them, because as Archer (1995: 2) argues, 'we are simultaneously free and constrained'. The differentiating characteristic of the individual, Archer maintains, is a relatively freedom that is achieved through her/his/their ability to exercise reflexivity, which pertains to the capacity to engage reflexively with the structured context that she/he/they is operating in. This conceptualisation of agency brings to the fore the reflexive capacities of the individual and her/his power to effect change in an attempt to break the habitual reproduction of, most of the time, the invisible structure of domination (Kuhn 2022a). However, culture and agency are intertwined; they shape one another (Archer 1995).

Alternative data futures can be envisioned and realised through individuals' and groups' ability to reflect, deliberate, and act from the margins or from the centre. Additionally, this reflection and action is partially shaped by our positionality as professionals and human beings embedded in a socio-technical system; the same one where the social life of data unfolds. Hayes' conceptualisation of positionality is helpful here, which she understands as 'the intimate and ever-changing social, technological, and political contexts that intermingle with, create and continue to influence, a person's values, identity and opportunities' (Hayes 2021: 10). Thus, who we are and how we approach the world of data and data-driven systems is shaped by different dimensions. We agree with Hayes, that by foregrounding our positionality we surface the [our] individual experiences in their [our] cultural, political and postdigital surroundings, within what we introduced as a data culture. This, for our study, is paramount, because one of the aims for the DataPraxis project (Kuhn et al. 2022), further presented in this chapter, was to foster political agency as a way to 're-engaging the separate terrains of culture and technology with citizenship in ongoing, inclusive, postdigital dialogue' (Hayes 2021: 10).

For that dialogue to take place, we foreground educators' political agency. This we can foresee begs the question of why political? The political in this study concerns two dimensions. On the one hand, it pertains to the individual's positionality, and on the other hand, to the socio-technical context in which the individual operates. As we suggested earlier, data are political and so too is our positionality; we are not neutral beings that operate from and in a vacuum. Instead, we are embedded in a socio-technical system wrapped in values, beliefs and ideas about the world. The social context in which we, as political agents, operate, is one where people and whole communities find themselves in constant struggle to make sense of, and negotiate where possible, obscure automated decisions made by 'intelligent' machines and 'powerful' algorithms. A world where our power to discuss and contest (our agency) some of

⁴ We borrowed the term coined by Cornelius Castoriadis, the French philosopher and psychoanalyst. The social imaginary is part of what is accepted as real; shapes the socially instituted reality. Therefore, the concept provides an alternative experiential order to the prevailing rationalist paradigm, which privileged scientific work over elements such as imagination. Cornelius Castoriadis can be identified as one of the leading intellectuals to come to imagination's rescue, as the non-empirical knowledge, non-rational substrat of human action in a certain social structure (Castoriadis, 2002, pp.93-94)

those decisions is being erased from the social landscape (O'Neill 2018; Eubanks 2016; Benjamin 2019; Zuboff 2015; 2019; Buolamwini and Gebru 2018).

Thus, politics in the context of this study is related to social struggles, to issues of power dynamics and thus, governance of data-driven systems. Being political, Islin (2002: x) argues, 'means to constitute oneself simultaneously with and against others as an agent capable of judgement about what is just and unjust'. Islin (ibid) goes further, arguing that 'people become political when strangers and outsiders [big corporations] question the justice adjudged [conferred] to them by appropriating or overturning those same strategies and technologies to them' (p. xi). This, as we will see further in the chapter, is captured more precisely and akin to the context of datafication, in the concept of data activism (Milan & van der Velden 2016; Gutiérrez 2019).

Agency, in turn, relates to the capacity to engage reflexively, through deliberation and discernment, with the social reality and its injustices (constraints), and dedicate resources to come up with a course of actions to achieve a particular goal, something that people care about. In this case, the concern is related to the political dimension of the social world we live in that is increasingly driven by data and mediated by data-intensive systems. In this process of planning and executing the course of action, the individual transforms her/himself/theirself, and social structures and culture can be either transformed or reproduced (Archer 1995; 2003).

Political agency, thus, relates to our reflexive engagement and course of actions geared towards addressing the constraints and harnessing the opportunities that are afforded by the political dimension of the datafied society and as a consequence, elaborating the social structures and the culture in which we find ourselves, namely, a data culture. We consider political agency paramount for individuals, and thus we agree with Nussbaum (2000) that political participation is a central capability.

Developing Political Agency: A Case Study

Methodological Approach

To illustrate our conceptual platform, we will now introduce a case study based on a research project in the context of the Human-Data Interaction initiative. The concrete outcome of our intervention took the shape of an open educational resource (OER) –DataPraxis– a versatile toolkit for educators composed of a series of different building blocks: five modules with lessons and activities, teacher-training workshops that include integrated activities and assignments, podcasts, recorded talks and workshops given by invited experts, instruments to work in class, and different interactive heuristic tools, one of which we called the thinking tool - an interactive canvas that enables educators to analyse complex problems concerned with real life issues (Kuhn and Raffaghelli 2022). Overall, the aim of the OER and the pedagogical approach used was to explore, while co-creating it with the different participants and partner leaders, the politics of data and data-driven systems, and to strengthen, whilst also problematising educators' critical data literacies. This project was a transnational collaboration (UNESCO OER Recommendation 2019) between four strategic partner institutions across three continents: Africa, Latin America, and Europe. The partner institutions were: Tangaza University College (Kenya), University of La República (Uruguay), University of Surrey (UK), and the Open University of Catalunya (Spain). Given the co-intentional nature of the education project we designed, each of the chapters, as we have called them, are unique. In this study we will refer to the Open University of Catalonia (UOC) chapter exclusively.

The UOC case promoted a structure of non-formal learning emphasising the idea of a co-creational process. Indeed, this case took into consideration the concept of co-creation as 'a very broad term with applications ranging from the physical to the metaphysical and from the

material to the spiritual' (Sanders & Stappers 2008: 6), where the educators engaged in a participatory process revising the initial data dispositions and conceptions, later designing their own interventions. This approach was preferred to a formal course to embrace the several data epistemologies and the underlying data cultures the participants came from. Also, the non-formal activity for faculty development was to work as awareness-raising and space of reflection around the participants' postdigital positionalities and their degrees of freedom to expand their political agency. Hence, the strategy was to capture the participants' questions and design ideas, linking past with future practices.

We developed this workshop series with the question: *How can educators build professionalism and, thus, political agency to support their students to move technically, ethically and politically through the flow of data complexity?* To capture data complexity, we offered the "[Thinking Tool](#)", a graph in the form of a Cartesian plane representing four schematic spaces (quadrants) where different data practices can be mapped. Altogether, a mapped set of practices across the four quadrants recalls the underlying existing data culture that becomes more visible through the tool. The thinking tool is based on the idea of a continuum where the open and closed dimensions are in constant tension. The tool offered initially the tension between restricted/closed and open data practices, we named this tension the *closed/open* tension. Building on the work of Milan & van der Velden (2016) and a former experience with educators by Raffaghelli (2022), we added another tension between proactive and reactive data epistemologies; we named this tension the *proactive/reactive* tension. Data epistemologies refers to the different ways that people think and engage with data and data-driven systems. The proactive force of the tension (lower Y axis, in Figure 1) represents data enthusiasm and the active appropriation of data. The reactive force (upper Y axis, in Figure 1) represents instead, caution and concern about data usage. Moreover, the *Thinking Tool* has an interactive feature in each quadrant to take notes while critically engaging with the problem and the aim was to use the tool as an interactive canvas for educators to analyse current data practices that were relevant in the endeavour of transforming data cultures in their known context. We illustrate the resulting final graph with the four quadrants in Figure 1.

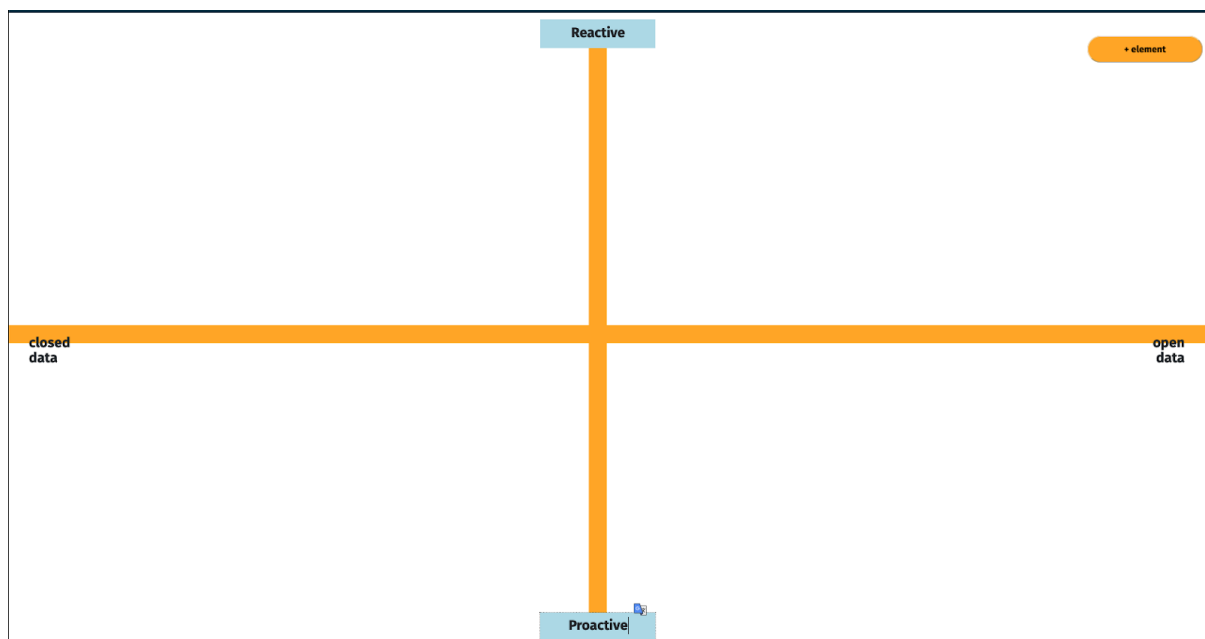


Figure 1: The *Thinking Tool* available as an interactive analytical tool from DataPraxis.net

The UOC approach to the use of the *Thinking Tool* resulted in a space constituted by four quadrants (open/reactive, closed/reactive, closed/proactive, and open/proactive) where the practices could be visualised and discussed in the light of the needed data literacies. We remind the reader that, as we suggested earlier, this is a model that is used for analytical purposes, and as such is a reduction or simplification of reality, which we know is an entanglement of much more than these four dimensions. Therefore, it must be used for analytical purposes only.

We identified the open/proactive quadrant as the one where the public and open nature of data entails valuable practices and approaches in research and education, for we envisioned the use of open data as an open educational resource as a rich educational strategy (Atenas, Havemann, and Priego 2015). The open/reactive quadrant was the one referring to the data that are not yet public but will be available for civil society engagement and activism. As such, it is a space where the interest and concerns of vulnerable groups that struggle for visibility and representation (Rodríguez 2019) are made visible. The third quadrant captured reactive data epistemologies and restricted data uses (restricted/reactive). This quadrant captured the space where actors can pursue data justice uncovering the hidden structures of data practices of, for example, private platforms (Taylor 2017; Kuhn 2021). The fourth quadrant (restricted/proactive) represents data practices that engage with creative innovations in data science and AI, which consider ethical and fair practices around data, as it is particularly well depicted in the work of Barghava & D'Ignazio (2015), and D'Ignazio & Klein (2020). Therefore, we distributed the potential topics identified through the work carried out while planning the workshops' concept within the project. The result was the development of three workshops that captured, to some extent, the constellation of meaningful problems related to imaginaries, discourses, and practices around data and its implications.

The result are four areas of intersection between forms of access to data (public and open, or closed and restricted access) and action towards data practices, i.e. proactive (using data for good) or reactive (avoiding inappropriate use of vulnerable individuals and/or minority groups' data). Moreover, by using the Thinking Tool as an analytical canvas, the themes were re-focused with the participants as a starting point for their reflection and creative process. Figure 2 illustrates two of the exercises made to capture complexity through this analytical tool.

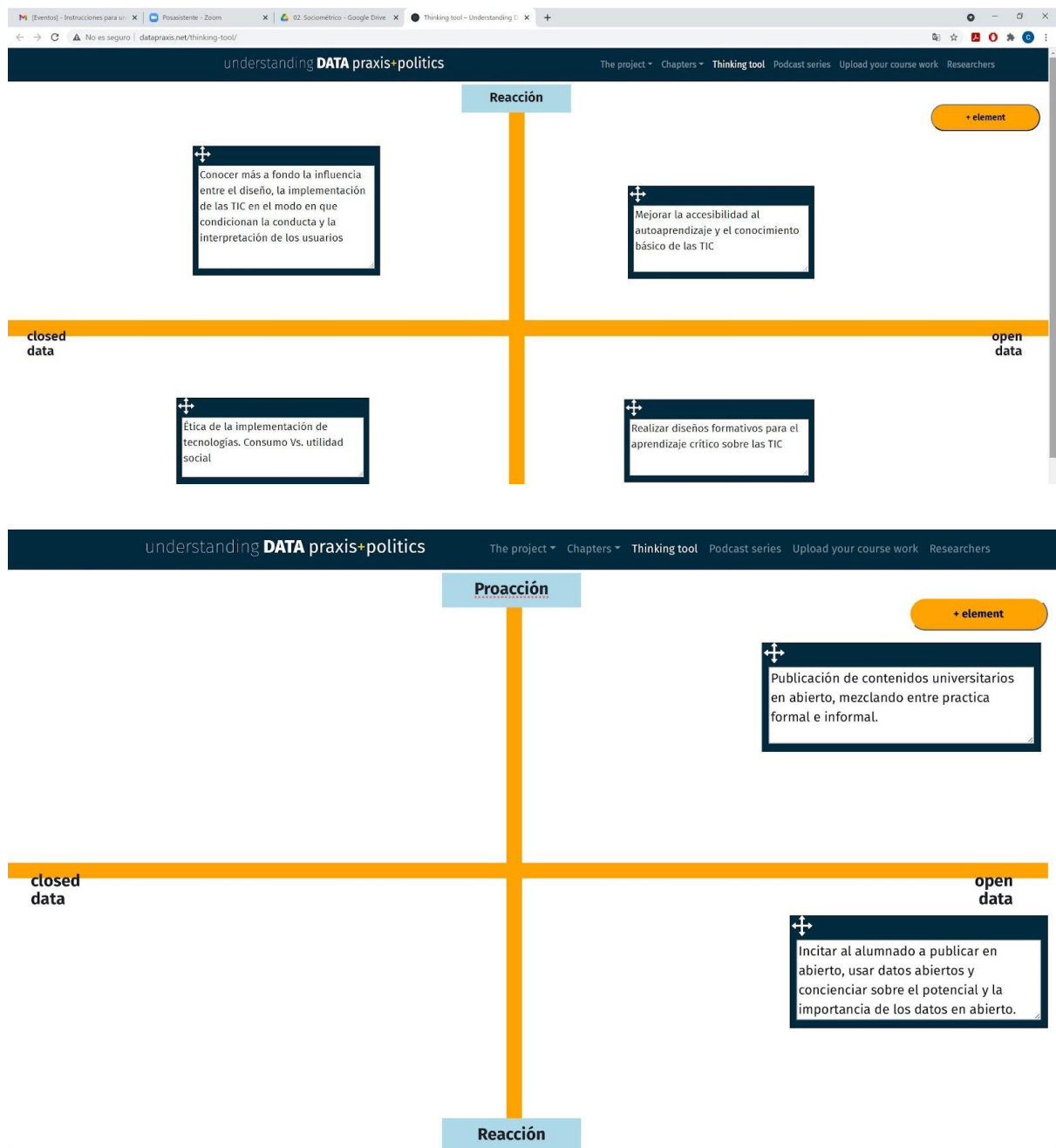


Figure 2: The use of The *Thinking Tool* in the co-creational work to understand data complexity. (Original in Spanish)

Each of the workshops had a focus on agency, legibility, and negotiability as part of the professional learning approach. These are the key tenets of a relatively new field, i.e. Human Data Interaction, that was proposed by different scholars to start a conversation between those interested in personal and big data ecosystems (Mortier et al. 2014). It is curious to see how they recently included (2021) a new tenet, namely, resistance, which they did to address the question of what should we do when legibility, agency and negotiability are not enough? This new topic is exactly what we envisioned and included as one of the tensions in the *Thinking Tool*, namely, the reactive/proactive continuum depicted on the Y axis in Figure 1.

Agency was expressed through the participants’ selection of the topic that seemed more urgent to them in relation to her/his/their own context of practice as faculty. Legibility was supported by the content we provided around data infrastructures and current problems faced given the lack of transparency in data collection, and the use of that data. Negotiability, instead, was supported through providing an opportunity to disentangle current data practices and discourses toward the development of teaching and research activities connected to the *spaces of possibility* for each of the participants. Therefore, it can be seen how these three features are intertwined deliberately in the pedagogical approach divided for DataPraxis.

To strengthen the co-intentional approach, the workshops were proposed in a public, open and free format, aimed at the publication, on the site DataPraxis, of joint materials based on the proposals and advanced practices of the participants. To analyse the workshop’s impact on the participants’ professionalism, and eventually, on their political agency, we adopted an initial competence self-assessment form and carried out a round of interviews with the (5) experts engaged as invited speakers. We also held a focus group with the most active participants (4), who were less experienced educators and who interacted with the invited speakers to co-create further materials. We analysed the interviews through a broad interpretive approach that involved reading and exchanging our views, from this debate, three main aspects emerged:

- Educators’ positionalities around data
- The way their personal trajectories were intercepted by our proposal (the workshops leading to build an OER by the participants)
- The form in which their political agency was expressed and expanded

Initial Results: Framing Positionalities

In the following, we introduce an overview of the transcribed corpus out of the interview that displays the diversified educators’ positionalities linked to data understanding and practices.

| Participant’s profile | Synthesis of the participants positionalities linked to data practices |
|--|--|
| <p>Participant 1 – (Formal sciences -Maths and Statistics, Female, 35-40, Latin America)</p> <p>Data metaphor (from her positionality): <i>“The dawn of critical data literacy”</i></p> | <p>The participant felt that her training in maths and statistics led her to focus on the technical aspects of data, the models, and the analysis. She also mentioned that the DataPraxis workshops endowed her with a critical perspective. She expressed her desire to work with open data (both from government and research), given her PhD research around open data usage, understanding after the workshops that “I cannot only focus on the quality or technical aspects of data but also, on the way these have been built and the way they speak for the participants. This is crucial to get a fruitful citizen participation” Her PhD drives her actions. To some extent, her action is more personal, to change herself so that she is better prepared. She acknowledges the importance of citizen participation (closing event).</p> |
| <p>Participant 2 – (Social Sciences, Female, 35-40 Latin America)</p> <p>Data metaphor (from her positionality): <i>Data “supporter” (understand data to help others to understand data).</i></p> | <p>This participant posed a relevant question to the group: What are the transversal skills that every teacher should develop to deal with data? She self-answered it pointing out that every educator needs the “Ability to discern what information is true; manage different forms of access to information, recognised for being backed by reliable data. Teach students from the paradigm of critical use. Know and provide safe tools so that students can take advantage of technologies for education and recreation, without damaging their digital identity” (online forum). For her, these areas require attention and effort by the educator, with there being a compelling need for the educators to engage with data in education and the society (focus group).</p> |

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| <p>Participant 3 – (Social Sciences, Female, 25-30, South Europe)</p> <p>Data metaphor (from her positionality): <i>Data “supporter” (understand data to help others to understand data).</i></p> | <p>This participant emphasised her engagement with teachers initial and continuing education, including school leaders. In her practice, she said her “concern is to reach and understand data. The educators have been badly prepared to understand data and now data is here, around us, within all what we do and particularly dominating the schooling system.” She cares about educators' preparedness thus, her course of action is to design pedagogical proposals to achieve that. Her actions are informed by the acknowledgement of what we described as the political dimension of data and DD-systems (focus group).</p> |
| <p>Participant 4 – (Humanities, Male, 30-35, South Europe)</p> <p>Data metaphor (from her positionality): <i>Data is (not) ugly.</i></p> | <p>This participant was initially concerned with data accessibility (online forum), pointing out that “...We can think accessibility from many points of view and understanding AI will be a relevant part of making the smart environments more accessible and inclusive” (closing event). However, he also expressed the view that there is need to undertake relevant work around the aesthetical aspects, the interfaces, the “external shape” we give to the digital, data-driven infrastructure. He particularly felt wired with the aesthetic dimension, so this was a driver, a motivator.</p> |
| <p>Expert 1 - (Educational Researcher, Male, 60-65, Latin America)</p> <p>Data metaphor (from his positionality): <i>Data “quality” for all.</i></p> | <p>The masters course led by this expert, focused on faculty development for online learning, will introduce the three workshops' perspectives and materials. His main message was related to the problem of achieving quality data within the national system. How the “no-quality-academic-data” hinders critical reflection around the advancement of quality higher education and education overall. He is concerned with the fear of “external” imposed standards, AI services, which cannot be compared with national data for such a “no-data” situation, which means, lack of representation of collectives or phenomena in his context of life ---synthesis from the interview carried out on May 24, 2021.</p> |
| <p>Expert 2 - (Natural sciences Researcher, Male, 40-45, Western Europe)</p> <p>Data metaphor (from his positionality): <i>(Environmental) Data out of the cupboards</i></p> | <p>This expert felt that opening up data in science is part of a consolidated practice, but what is much more difficult is to get engagement from citizens to use that data to foster change. His topic, climate change, requires commitment, which is also difficult at the industry level. The only approach, though, is to have a rigorous approach as scientist and academia, based on research data, to be trustworthy. Activism is what happens when data is used by the people, but that is the challenge (for data literacy). This speaker cares about many things, the environment but also sharing his knowledge and experience so that some change can be fostered.</p> <p>---synthesis from the interview carried out on June 8, 2021.</p> |
| <p>Expert 3 - (Multimedia and Graphic Design research professor, Male, 40-45, South-Western Europe)</p> <p>Data metaphor (from his positionality): <i>The (beautiful) data donor</i></p> | <p>This expert felt there is a need to explore the data infrastructure and to stop making assumptions around learning with insufficient data at hand. The case he brought (a tool to personalise learning) is an effort in such a direction, but the Open Source movement, whilst not being new, requires more attention than ever. Moreover, the bridges between engineering and the humanities and arts must be crossed, once and again, to understand how quantification and data are material and not the result of objectivity. Even a dashboard showing “personal data” is something created to be engaging. Through the interaction with us to prepare the workshop, he became more aware of the relevance of this perspective ---synthesis from the interview carried out on May 17, 2021.</p> |

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| <p>Expert 4 - (Educational research professor, Male, 40-45, South-Western Europe)</p> <p>Data metaphor (from his positionality): <i>Educational data activism now.</i></p> | <p>This expert was interested in the workshops approach, since he is working on the topic of private-public conflicts that have emerged through the “platformisation” of education during the pandemic. His work selecting and preparing the presentation became crucial to see many of the concepts around AI and bias applied in education. He saw the connections between the emergent problem of data in education from his prior work on critical digital literacies and critical pedagogy. Nevertheless, he believed that most university teachers are unaware or even naïve at the time of adopting technologies and particularly at the time of addressing data practices and narratives within the classroom and towards society. His course of action is also broader in scope, while he writes, participates in a public forum, engages in political actions around teachers’ education and beyond ---synthesis from the interview carried out on May 17, 2021.</p> |
| <p>Expert 5 - (Formal Sciences research professor, Male, 55-60, South-Western Europe)</p> <p>Data metaphor (from his positionality): <i>Beyond the “data shock”.</i></p> | <p>This expert was clear in pointing out that preparing the workshop offered the conditions for reflection about his new courses of action given the reality we are in. He performed a search adopting a data-driven technique to understand to what extent statistics was considered to be part of different courses within his own university. The result was the identification of a clear gap in the competences development and the pedagogical methods to support a critical approach to data literacy in higher education, across all the disciplines. His reflection led him to think how he could operate at the institutional level to promote a strategy, beyond a single department (what he already does and also from the regional Society of Statistics), to interact with colleagues from all disciplines and rethink data literacy in higher education. This element represents his desired course of action. He needs now to deliberate and dedicate resources to achieve this ---synthesis from the interview carried out on May 17, 2021.</p> |

Table 1: Synthesis of the participants’ positionalities linked to data practices

Discussion: Framing Political Agency

Educators’ positionalities and Engagement with Data. Some insights from the Data

The five experts clearly display their positionalities in terms of a professional activity that entails different forms of engagement with data. E1 is a senior researcher in Latin America, which already shapes his positionality. He is concerned with the lack of rigour, systematicity, and research methodology in his institutional context as well as at a national level. His political agency appears in his efforts to train others to improve the educational data ecosystem. He struggles to see his vision materialised given the slow transformation of the current data culture that neglects the power of data -its politics. In his view the current culture should be transformed into a proactive data culture that could lead to a more inclusive and just society. In his words, *‘in the social sciences, or how the social sciences are cultivated in our country, we go from microdata to macrodata and what would be a large strip of mid-level data that needs to exist does not exist’.*

Similarly, E5 has always seen himself as a “data expert”, but now he believes he has a huge responsibility, i.e. to acknowledge his limitation in dealing with data to engage in an interdisciplinary work. He notes that *‘We were not prepared, neither we, I think, nor society in general, to democratise the use of these data. That is to say, we knew of the importance, but we had not foreseen at any time, at least the statisticians, that these data at some point were going to be in mass circulation. Everyone was going to use them...teaching about data, or data*

literacy and we should be able to build it from different disciplines or disciplinary visions. That is, I cannot do that subject in principle..., it is difficult for me to assume it as a statistician’.

E2 expresses both limitations, and also, a search for spaces of action that denote his political agency: *‘Well, there is a lot of data that is generated and there is a responsibility to make it... to make it open and accessible, because you can have it open inside... on top of a cupboard... or to facilitate accessibility to citizens and users as a whole’.*

E4, instead, as a committed educator and educational researcher, introduces a critical perspective on data that interrogates the technostructure. His positionality guides him to disentangle the socio-economic problem behind Big Tech platforms and the problem of data inequities. *‘A couple of years ago the EdTech phenomenon was being studied, I’ve been learning a lot from it... I have just assumed the coordination of the area of educational technologies at the (University), which is one of the most important in this country. Thus, I got to see the plan he (the institution?) had and it’s terrible. The word datafication does not appear anywhere, that simple, that is... But it is not even a critical perspective, that is, nothing. It’s all super instrumental and there are the teachers who are going to be at the school next year...’* His positionality as a Latin American immigrant in a European country allows him to see the inequities and the need for a critical approach.

E3 displays his creative engagement, as an artist who works intensely with technologies. He transposes and generates an interaction between data, human daily life, and culture that removes the esoteric role from digital data: *... ‘the capacity for interaction between two human beings is always based on data, which can be words, or a position in space, smell and other perception... We are highly interactive beings. We generate data that cannot be counted or measured, and we generate culture by interacting with such data. The data is surely not only... I mean, I don’t dare to make this synthesis so direct, but it is likely that the data are like the atoms of the cultural capacity that we may have to interact with, not only in the digital, but also, on the web’.* His positionality, as post-human and post-digitals, brings to the fore an idea of data that should not be feared, but rather, considered part of the creative human act. Nonetheless, he believes that becoming a “data donor” can be a way of democratisation of data, applicable not only to the public government or the research, but also, to companies. *‘We did a hackathon and one of the proposals that I made, of which there was no follow-up, but I think there are people who have been interested, is the data donor, a data donor, right? The data donor, that is, the idea of a data donor is a resistance to the two possible polarisations that are taking place at the moment’.*

Some Things We Observed from Educators’ Positionalities and Engagement with Data

We observe that their different ideas about data in the digital space move between something that must be “of quality” and achieved (E1); “open” (E2); “explored through an interdisciplinary approach” (E5); and towards approaches that entail a critical understanding of data (E3 and E4). Nonetheless they pertain to different disciplines: E1 is an empirical researcher, E2 and E5 work in the field of sciences; E3 is an artist - a graphic designer and a scholar; and E4 is an educator. Embodying their different positionalities, all of them express their personal trajectories and how they relate to data cultures. Some are placed closer to the proactive end of the data epistemology continuum, whilst others are situated nearer the reactive end of it.

We can grasp some of the elements - enablers and constraints - that potentially have the power to trigger their political agency. We would like to remind the reader that the major concern,

what they all care about in a broader sense, is to be able to live and work in a fair and more equal data culture, thus they are invested in the making of such culture. In the cases of E4 and E5, the main constraint to overcome is the lack of a coherent human centred response of higher education institutions towards datafication, and a more critical approach to data literacies. For E4, the constraint is found in the instrumental and capitalist techno-structure that is making its way into the educational arena, particularly evident during the pandemic. For him, the lack of an institutional critical stance is a huge constraint that he is wanting to overcome. This constraint foregrounds a contradictory logic between his more critical and political positionality and the current instrumental and capitalist data culture. He recognises in this contradiction an uncomfortable disjoint relationship between a desired human centred approach to data culture and a market centred one that is centred on efficiency and profit. In contrast, for E5, the constraint arises from within his professionalism in the form of self-criticism. He recognises that the contradictory logic resides in his (classical and technically oriented) understanding of data literacy that has been part of a data culture that he has accepted with little contestation throughout his years at university and the need to question what is needed educationally to contribute to a different data culture.

We can see how E2 and E3 are motivated, particularly, by the need to democratise access; an act that is embedded into their creative approach. E2 produces research data that can (and should) be used openly and, E3 is committed to the idea of changing the way data are (and should be) shared. In his words, *this is an act of generosity and reciprocity*. We can grasp the elements that potentially trigger their political agency. In the cases of E4 and E5, it is clear that a major concern is triggered by what they see as a lack of higher education response towards datafication and data literacies. For E4, political agency is activated by the contradiction between his positionality and the current data culture, thus he is willing to dedicate the resources (effort, time, planning) to changing the educators' critical data literacy. In contrast, for E5, it is a case of self-criticism and the reconstruction of his professionalism within a data culture that he has accepted with no contestation for years.

Lastly, E1 is aligned, to some extent, with the proactive vision of E2 and E3, but his concern is oriented towards leading his students and colleagues to be included in an existing model of society. For him the contradictory logic is between the existing exclusionary data culture and a more proactive one that can lead to social inclusion and justice.

-DataPraxis- as a symbolic space to make sense of data complexity, and enact political agency

DataPraxis intercepts them at this particular point of their life and discourse, becoming a symbolic space that encompasses the action of "stop and reflect"; an instrument driving their attention to different dimensions of data that they had not considered yet. E2 reveals that, when he engaged in the co-creation of content for our proposal, he saw the problem *'as a tsunami. It is like a big wave that has passed over us and we didn't have time to rethink the curricula or even the concept of teaching statistics. ... that's why I told you at the beginning about the shock'*. He goes on to say that, *'The truth is that, let's see, the invitation (to co-create for DataPraxis) had an initial impact and it had an impact afterwards. The initial impact was a bit like the feeling of saying: Oh, here's a whole vision that I hadn't seen until now..., honestly, I hadn't noticed, right?'*

Also, E1 expresses his form of engagement, *'I would take up here an example that you gave a little while ago: the consideration that there is little data or when there is an overabundance of data. I think that, on the one hand, at a formative level, of interest that academics and students can have and transmit it to the student body, say, well, as a kind of critical awareness*

of data'. There is also convergence in the perspective of E3 when pointing out that he felt the invitation to collaborate with DataPraxis as an opportunity to valorise his own post-digital positionality. His own desire for creative expression not fully recognised in a canonical context of data science: *'I am very grateful, because I am precisely now in a moment of reunion and re-empowerment of this nature, because, until now, you know that the Academy can be a bit harsh with this, and I have been in crisis many times'* (with his interdisciplinary positionality). When E4 arrives to comment on his engagement with DataPraxis, he highlights that *'The truth is that I am surprised that these workshops are held in the (South Mediterranean) academic context. I don't think anyone else is doing it to begin with. Let's start from that. Again, I return to the same matrix. Therefore, of course I was positively surprised, because I have already told you many times, (to one of the authors who had contacted him), that nobody is doing it here'*. This is also aligned with E2: *'Okay. What surprised me about the invitation? Well, the eccentricity of organising something like that. I mean, well, then you put together an oceanographer-geologist and a statistician and see what happens there, well, man, I think it's... what do you have... Both of you are big enough to say, well, let's mix, but we are going to try to bring people here more or less that go smoothly, right? And I think that's a good idea'*.

Across the five experts, we observe a common pattern which has to do with their professional and personal richness. It is surprising how resourceful they all are. In addition, they share an awareness about their own positionalities and their willingness to act in the world. We conclude that DataPraxis arrives on fertile ground, as we can observe it is imbued in the experts' urge to express and manifest their political agency and thus, engage in the governance of their institutional data cultures. In so doing, they aim to transform these data cultures into fairer, creative, and inclusive spaces to engage with.

Turning our gaze to the participants, their positionalities, at times, resemble those of the experts. We observe that P1 aligns with E5, whilst P2 goes in the direction of E4, P4 shares similarities with E3, and P3 has a perspective akin to that of E1. The distance travelled from their initial concerns and ideas triggered by their positionalities through the engagement in the DataPraxis co-creational process appears to be bigger. When we asked the participants what their impression was and how they received our proposal, they expressed things like: *'everything helped me to have a better, broader perspective of all the implications that the data has and how it can be applied in different courses or in different ways. So much, let's say, not only the technical part, but rather, the most critical part'* (P1). Or that taking part in the workshop *'gave me a lot of knowledge or, more than knowledge, a lot of reflection in the sense that many things... I had them as an idea, I had not thought about how to put them into practice. How to somehow transmit to the students that work with me about these types of concerns or that care must be taken'* (P2).

However, in their discourses, we observed less reference to issues of governance of data-driven systems, infrastructures, and how they can be transformed. Moreover, some topics emerged that the participants had not considered. Whilst open data was known as a concept and the processes of data collection and statistical elaboration, there was less awareness of data usage for artificial intelligence development and data monetisation.

It is a question from the researchers that guides this reflection.

Researcher: *One concern we had with (...) from the moment we designed the workshops (...) was the complexity of the problem (datafication), because it is like a problem that is emerging in the society, right? (...) The concepts (...) range from statistics, data visualisation, mathematical and statistical comprehension skills, and information literacy, as P2 raised.*

However, (...) the first steps of artificial intelligence have exploded in our hands with issues as tremendous as the bias in facial recognition and the concomitant predictions that create profound injustices. We raised this in the workshop, but it came up less in the learning designs contributed by you (the participants).

P1: ...Time is required to really delve into that problem (AI) and internalise such broad and diverse topics. We are at the level of having an overview; a vision of the importance of all those areas, which appeared separated before, right? The artificial intelligence part, the machine learning that creates models with no theoretical framework behind them, with the same historical data reproduced again, this is something I just can try to understand, but I don't know if I have the ability to take action yet (P1).

Nonetheless, P2 highlights that their political agency is triggered by inner contemplation that could lead to future action. DataPraxis, through its resources and approach to the politics of data, offers a lens to explore complexity. Thus, to become aware of it: *"I find it super interesting to have such highlights, that frames the topic, like a snapshot of the present giving us the possibilities and the tools to continue educating ourselves more or less independently, and that seems super valuable to me"*.

Clearly, the experts and the participants engaged in this co-creational process because they care about alternative data futures, and they feel that they can, to some extent, take initial steps that can contribute to transform the data cultures they live in. Given our experience with the participants and our discussion time during the focus group, we argue that the experience they had with DataPraxis (and all what is implied in it as we have described throughout the chapter) has contributed to opening their eyes and raise their awareness about, what they have described, are their major concerns. In this sense, DataPraxis is dispositif that offers heuristic tools and discussion time so that participants can explore where they are positioned and what it is that they can do in their radius of action, and how can they deepen their understanding about datafication and its consequences for society but also for education.

Conclusion

In this chapter, the aim has been to unveil the potential of individuals' reflexive engagement with talks, content, resources and lively discussion afforded through DataPraxis, as a mediator between individual's political agency and the current data culture in which we find ourselves. Political agency, as defined in section 2.3, is a causal power that emerges from the individual and her/his/their interaction with the social and cultural structures they find themselves in. It is well known for critical realists⁵ that subjects are influenced, but not determined, by the existing culture (which is not of their making) and it is through their actions that they can contribute to reproducing or elaborating upon the objective features of that culture. It is important to clarify that for this study we had two clusters of participants. The invited speakers, which we call the experts (E) and the participants (P) who are educators, contributed to the project in different but relevant ways. Thus, both were active participants in the design of DataPraxis in its UOC chapter. The experts contributed to the process of designing the focus of the three workshops, with their knowledge and expertise, whilst at the same time preparing for the talks, DataPraxis contributed to their own shaping and reshaping as professionals. The participants, in turn, contributed with their questions and further work during the workshops. However, the participants were also transformed in the process. By so doing, DataPraxis has been a catalyst

⁵ **For the curious reader you can go to [https://www.wikiwand.com/en/Critical_realism_\(philosophy_of_the_social_sciences\)](https://www.wikiwand.com/en/Critical_realism_(philosophy_of_the_social_sciences)) for an initial overview.**

for the researchers, experts and the participants' transformation, with all of them having been influential in the transfiguration of DataPraxis in the UOC chapter. Any change in culture is a long-term endeavour and a task of many, but we argue that in our small community of colleagues cultural change has been sparked through the reflexive engagement with DataPraxis more generally and the workshops and tools described earlier, in particular.

Datafication, a phenomenon shaped by human activity, is elusive and in constant flux. We have proposed in this chapter to analyse and understand it through the lens of complexity. Bearing in mind the idea of complexity, we argue, could lead not only to identify the different symbolic layers of elements (discourses, practices, instruments, technologies) of a data culture but to make sense of this. Understanding the complex nature of datafication might thus contribute to engaging with actions to transform the obscure and elusive nature of the phenomenon into debates, new regulations, strategies and other expressions promoting agency. Such factors have been successfully identified in the critical research programme on datafication (Kitchin 2021; Decuyper 2021). However, we are unsure whether these elements suffice, in our collective effort, to imagine alternative data futures and moreover, to actively move towards them. Therefore, and taking as a premise that education is political (Freire 1970; Apple 1982), the question we set out to address in this chapter was how do educators place themselves as political agents to take action within the complexities of a datafied society?

We started with our positionalities as educational researchers, experts in a field, and curious participants all eager to explore the complexities of datafication collaboratively in more depth. We shared an urge to co-develop an educational intervention that could aid us in our search for hope, inclusion, and social justice as part of our imagined futures. The resource developed was intended to work as a mediational instrument; an open educational resource rather than a closed-ended and monolithic resource. We envisioned DataPraxis to be open from its conception (Kuhn, et al. 2022) so that it could serve different audiences and be re-integrated into different settings by a different set of people.

In this chapter, we have reported the effect that such an approach had on the participants of the workshops. This was twofold, in the invited speakers, as we explained in section 3.2, and in the participants. Both groups, in different ways, and in different moments, had the opportunity to shape their political agency, while reflexively engaging through DataPraxis on the constraints that a datafied society presents to us, not only as citizens, but also, as professionals in our different disciplines. The experience with DataPraxis serves as an amplifier of people's motivation to foster change in some shape or form, be it through their talks in the workshops or through their initial reflection about their future actions in their professional practices. The experience, thus, did have an impact on the participants' political agency. For some of them, the possibility to think about real social problems through the Thinking Tool was an eye-opener, showing that different forms of action are possible.

The experts, as a manifestation of their political agency, envisioned new utopias in different forms. For some, the form of a different data culture was crystallised through sharing the data of this research openly and in this way contributing to fairer data use for the empowerment of citizens. For others, the way forward to achieve a different data culture was envisioned through proactive data epistemologies aimed at resisting the incursion of Big EdTech and its surveillance practices, in the educational arena. Whilst for some, the new utopia started from an inner self-reflective process envisioning their own limitations and committing to exploring the issue more closely and creating a change within their professional practice in HE. Others contributed to data futures crafting a new open-source tool, where students could own their data and enjoy a more personal approach to learning.

The ways in which political agency manifests are diverse. In some individuals they take the form of concrete actions, whilst for others, this is still at the level of discernment and deliberation concerning how to overcome a particular contradictory logic. Time is crucial in social change, some individuals take longer to devise a course of action and if a course of action has been devised, the implementation and the concomitant outcomes also will need time. Participants presented an array of data future scenarios, most of them still at the deliberation and discernment phase, nevertheless, the journey for them has already begun.

It seems to us that through our project we have successfully placed the concept of critical data literacy in the context of the postdigital, where our vision has transcended a mere critique and embraced concrete actions, as described throughout this chapter. These concrete actions driven by DataPraxis and our professional work helped the experts and participants to approach and understand the relational nature of educational technology, in particular, data-intensive systems. The approach designed and used for the intervention, materialised in DataPraxis as an OER, can be placed, we argue, in the new toolbox of methods and theories that Castañeda and Williamson (2021) set out to assemble. Our method, as we showed earlier in the chapter, is an effective tool that serves to disentangle the politics of data and datafication and thus, embrace the socio-technical complexity in an educational context.

The metaphors introduced as part of the experts' positionalities (refer to Table 1) of "data donors", "data out of the cupboard", "data quality", or "shock (with how others approach data)" allow us to make an additional reflection: the cultural artefacts created by data can be revisited, and the assemblage of processes, practices, and ideas can be rearranged. They are not static constellations or topologies that pre-exist through the data culture. And although these entanglements can be revealed, they are likely to remain unchanged if political agency is not enacted.

The harvesting of data and the development of, e.g. analytics and algorithms, have causal power as a cultural system, a power that becomes crystallised and reified in practices and narratives. These data-driven technologies are then recognised as valued working devices and artefacts. Therefore, manifesting the willingness to enact change through participation in governance, or maybe only imagining alternative data futures appears to be topical, as can be seen in our case study. That participation can take many forms, from a desire to learn, engage in creative working groups/communities of practice, draw upon artistic imagination, participate in discussion, to exercising resistance. Political agency is expressed through these different actions and it particularly triggers activism under certain conditions. That is, in contexts where the interrelations between technological development, economic interests and the policies that inform institutional strategies reduce educators' possibilities to express themselves. This was felt by some of our participants.

More generally, educators can often find themselves acting alone or in groups of increasing interest, such as communities of practice or special interest working groups. That is, ones that are trying to oppose or delay certain actions, or even block devices when technology is being used coercively in scenarios where they suspect data are being monetised. These actions sometimes can extend to what Garcia Gozales (2006) defines as "civil disobedience": a striving that sometimes means breaking rules or standards that are part of the established system to ensure justice and is revealed as unjust through the act of civil disobedience. For example, a data system that profiles students to predict enrolment patterns and thus, regulate the university's cash flows, or the EdTech industry earnings could be the object of resistance or obfuscation by groups of educators that seek to protect their classes and their pedagogical relationship with their students.

Alternatively, as other participants pointed out, educators may express their political agency through embracing open-source software or setting up working groups that use such software as the basis for technologically mediated educational innovation and forcing the EdTech industry to become “data/code donors”. In line with the cases studied by Miren Guitérrez on data activism as a source of social change (2018), the educators thus, use their political agency to become a node in a network of transformation. However, for some transformation is not yet possible, so they become a node in a network of resistance with the aim to fight scenarios that entail a loss of transparency thus legibility, and where negotiation is not possible.

As we have described in this chapter, DataPraxis and our work within it provided opportunities to participants and experts to untangle the different layers of datification and its impact on our daily life. They can integrate the intellectual tools of DataPraxis to challenge what is not aligned with their values and beliefs, their positionalities. They are beginning to acknowledge the importance of legibility, that is, questioning the opaqueness of algorithms and the data it uses. In addition, they have realised that behind these seemingly 'perfect and objective' automated decisions are real people doing the labour to make it all ‘work’. They are becoming aware that these people, as we do, have biases and prejudices, and that data-driven endeavours result from human values, desires, and social relations. They can better grasp that data and its processing are not neutral but political. That is not to say that everybody will always choose to exercise these capacities, engaging in detailed, constant control and management of their data. Still, enthusiasts may decide to, and many people may wish to every so often, whether driven by curiosity or in response to perceived potential or realised harm. They also know that when legibility and negotiability are not enough, they still can resist!

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