



What does it mean to develop data literacy as an educator today? A collaborative autoethnography

¿Qué significa alfabetizar en datos para tí (educador/educadora) hoy?

Una autoetnografía colaborativa

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Abstract

Despite progress in data literacy frameworks associated with a critical discussion of datafication, educators are still perplexed when it comes to working with these issues in their everyday teaching practice. In part, this is due to the complexity of the data infrastructures that permeate educational practice itself. In this context, it seems particularly appropriate to understand the discursive phenomena, the construction of professional practise and therefore the educators' positionings around the issues of datafication in general, and the development of critical data literacy, namely, "postdigital positionings".

This paper proposes a collaborative autoethnographic analysis of the professional experiences of the three authors, as educators.

As women with complex migrant identities, with roots in the Global South and at the same time, bearers of European métissages, our pathways meet at the crossover of an international project in which we develop materials and design educational activities. Our history lies on an intersectional basis that allows us to express rich positionalities, full of examples and resources that can be resounding notes for the construction of agentic educational practices in this field of post-digital forces.

Keywords: Critical Data Literacy, Datafication, Professionalism, Educator.

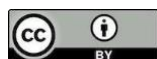
Resumen

A pesar del avance en los marcos de alfabetización en datos, asociados a la discusión crítica del fenómeno de la datificación, las y los educadores se muestran inciertos al tener que trabajar en dichos temas. En parte ello se debe a la complejidad de las infraestructuras de datos que atraviesan la práctica educativa misma. En este contexto parece especialmente apropiado comprender los fenómenos discursivos, de construcción de la práctica profesional y por lo tanto del posicionamiento de las y los educadores alrededor de las problemáticas de la datificación en general, y del desarrollo de alfabetismos críticos en datos en particular, lo que llamamos "posicionamiento postdigital".

Este trabajo propone un análisis autoetnográfico colaborativo de las experiencias profesionales de las tres autoras, en tanto que educadoras.

Como mujeres de identidades migrantes complejas, con raíces en el Sur Global a la vez que portadoras de mestizajes europeos, nuestros caminos se cruzan a partir de un proyecto internacional donde elaboramos materiales y diseñamos actividades educativas. Nuestra historia se apoya en una base interseccional que permite expresar posicionalidades ricas, floridas de ejemplos y recursos que pueden ser caja de resonancia para la construcción de prácticas educativas agénticas en este campo de fuerzas de la postdigitalidad.

Palabras clave: Alfabetización Crítica en Datos, Datificación, Profesionalismo, Educador/Educadora



1. INTRODUCTION

Datafication—the ability to trace, collect, and interpret data produced by our digital interactions—has altered our daily lives in ways that sometimes are even hard to imagine. For a decade, technology has focused on data extraction and algorithmic elaboration to create intelligent agents. Algorithmic manipulation of such data led to the integration of generative artificial intelligence into our daily lives. The latest advances in conversational interfaces via deep learning and large language models have highlighted the need for new regulations and the development of more comprehensive literacies to address these phenomena. Some see it as a turning point in human-technology relations (Bozkurt et al., 2023). Indeed, the complexity of digitisation—converting any information and interaction into machine-readable data, with its increasing development of environments and tools with embedded and invisible technology, has led to the idea of a post-digital society (Knox, 2019). In this scenario, a key question still resonates: *What literacies will be needed to live democratically in a data-driven world where ‘smart’ technologies are increasingly guiding our choices?*

Initially, the requirement to develop data and algorithmic literacy was regarded as a technical endeavour aimed at understanding data-driven practices (Maybee & Zilinski, 2015). Nonetheless, as time progressed and detrimental social impacts that necessitated ethical debates emerged, this approach was deemed too limited (Pangrazio & Selwyn, 2019). The research on New Media Literacy and its orientation towards developing transmedia and augmented literacies (Ferrarelli, 2021a) confirmed the negative influence of datafication. Consequently, additional critical social research on the topic revealed the implications of algorithmic manipulation and surveillance for identity and privacy concerns (Pangrazio & Selwyn, 2019); for the inequities of digital colonialism (Ricaurte, 2019) and economic development (Scasserra & Sai, 2020); for gender concerns (D’Ignazio & Klein, 2020); and for social justice (Dencik et al., 2019).

The situation continues to generate confusion among educators regarding their professional practices for nurturing the necessary literacy to thrive in a society impacted by AI developments. In addition, the complexity and interconnectedness of digital and data infrastructures necessitate the examination of multiple orders of problems (Decuyper, 2021). For instance, the unanticipated arrival of generative AI in classrooms has ignited a debate over whether this technology, specifically GPT models, poses a threat to educators or is a game-changer for outmoded educational practices (Bozkurt et al., 2023). Datafication and platformisation during the pandemic had already made educators feel enthusiastic and able to manage innovations, whilst also leaving them overburdened and feeling powerless (Raffaghelli, 2022).

In the face of these complicated professional identities, nomothetic research could be deemed insufficient to cover diversified subjective positionings. Expanding views might become necessary when facing ill-defined problems that emerge from our lives in a society shaped by AI agents. Phenomenological, qualitative, or even inductive mixed research has a longstanding tradition that goes well beyond this idea (Denzin, 2009). The production of thick descriptions of educators' experiences in their efforts to make sense of their daily practice goes far beyond the idea of collecting “evidence” about normative interventions or approaches. It is a way of engaging with research as a political endeavour aimed at promoting dialogue with and for society. Or, in Denzin’s words, the language spoken by critical/qualitative researchers is made

of “experiences, emotions, events, processes, performances, narratives, poetics, and the politics of possibility” (2009, p. 142). The need to describe and understand the world around us has been, indeed, the kernel of qualitative and of phenomenological research (van Manen, 1997).

This paper examines the professional experiences of three educators, whose interest and vocation in focusing on the problems of datafication in education and the development of a complex and critical approach to data literacy are intertwined. These practices are integrated into a network of meaning-making centred on an initial node; a juncture in a web of professional relationships engaged in educational transformation. This node collects the threads of a fabric in which educators engaged in dialogues and reflexive exchanges to create meaningful, and thus actionable, educational resources for critical data literacy. The whole process results in a complex tapestry encompassing datafication and the prospect of educators' agency. As three different narratives which can be also considered intersectional, our study aims at providing resources for the construction of agentic practices both in the field of education and scientific methodology. Content and form, therefore, go hand in hand and converge with the conflicting forces and complexity of these areas .

2. BACKGROUND

2.1. Educators' positionality in the datafied, postdigital society

In a world where privately-owned corporations exert indisputable power over the public sphere, affecting the rights of citizens to basic services such as education, health and employment, regaining the ability to contest the structures that make up the infosphere (Floridi, 2014), dissecting them and making them intelligible results in an essential move towards a more democratic society. In this context, fragmented identities dominate the human experience (Kuhn & Raffaghelli, 2023). In an attempt to grasp the complexities of datafication in education, Sarah Hayes (2021) develops the idea of postdigital positionality as a tool to address a range of phenomena affecting human autonomy: power relations that are not always evident, the interconnectedness of digital infrastructures, and the ecological consequences of the technological narrative, to name a few. Postdigital positionality allows for an alternative discourse to the rational and allegedly objective *ethos* of the digital era. It traces back the subjective, contingent, and dynamic nature of everyday practices in the face of the impersonal forces that support the *status quo*. In the critique of enthusiastic discourses about data-driven practices in education (Decuyper, 2021; Williamson, 2019) as well as to move beyond the critique itself (Pangrazio & Sefton-Green, 2021), several authors have tried to locate areas of choice and develop meaningful practices of collaboration and professional empathy.

The postdigital emerges as a powerful concept for addressing contemporary technologies and the concomitant mindset from a more critical and socially grounded stance. The prefix 'Post', here, does not mean 'coming afterwards'; it does not imply a chronological shift (Knox, 2019). Instead, it highlights a change in the perception and in the understanding of the digital landscape that leaves behind amazement before the new and recognises critical issues that need to be dealt with in the light of new complexities and layers of meanings that stem from the pervasive datafication of society. In addition to these views, the concept of postdigital also

points to the embeddedness of the digital in our physical life. It is no longer possible to separate the online and the offline world, as was expected and envisaged in the 'digital' era. The entanglement of practices along with the hybridity of environments and identities makes it impossible to distinguish pure types that now constitute assemblages (Macgilchrist, 2021) of all sorts. Moreover, it has become evident that spaces for dialogue and reflexive engagement with a broader community of peers where the political agency can be enacted are urgently needed (Kuhn & Raffaghelli, 2023).

Redeeming autonomy to empower individuals and their communities is a key element in the development of postdigital positionality; a concept itself that calls for human action and commitment. Once the complexity of the postdigital has been considered, assuming a distinct positionality entails a political decision. As Hayes herself reveals, there is a possibility of choice as human beings between “become (ing) postdigital objects alone or learning whom we might become also as postdigital subjects, each with our unique positioning” (Hayes, 2021, p. 53). The concept of postdigital positionality applied to the educational practice might put the educator in a “stronger position for emancipatory forms of collaboration (...) where individual diversity is recognised as a strength over rational objective statements of excellence that render each of us as insignificant” (Hayes, 2021, *ibidem*).

Such a position might encompass overcoming, or at least, responding to the dominating unawareness of how data is collected and processed, even in real time, in all sorts of life contexts, particularly in education (Van Dijck et al., 2018; Williamson, 2019). Gaining awareness of one's postdigital positionality invites individuals to scratch below the surface of the digital landscape and address their everyday practices from critical, personal, and contextual perspectives in the search for alternative meanings and ways to make sense of the world around them and their place in it:

people each have a 'postdigital positionality' that has a “dialectic relationship” (Freire, 2000: 50) with other key elements of their identity and experience. This is because there are new postdigital spaces in which human identity is now enacted, reduced, evaluated, challenged, threatened, empowered, or reconceived. Thus, I suggest that developing postdigital positionality theory offers a fruitful route towards stronger individual and collective agency and narratives (Hayes, 2021, p. 59).

Upon these bases, we argue that educators have the capacity to engage reflexively with the structured context that they find themselves in and enact their causal power to effect change to not habitually reproduce the intangible, nevertheless, pervasive data (infra)structures but instead, to elaborate and transform them. However, this requires a concerted effort of conscious introspection, supported by transformational spaces, where professional practice can be reshaped. Reflexivity has been often connected with professional learning and development (Darling-Hammond et al., 2017). We argue that technology mediated practices should be explored and scrutinised through a critical lens. Although there are examples in the literature (Fox et al., 2019) about reflective “effective” or “quality” pedagogical practices, our work aims to show how questioning and critically studying data-driven technology can lead to professional and political agency. Therefore, apart from analysing the educational practice from a range of perspectives, this autoethnographic study brings to the surface a diversity of narratives and views that underpin our identity as educators thriving in a datafied environment, embracing the quest for alternative meanings, and daring to build critical data literacies in the classroom. In a world where automatic and impersonal decisions prevail, we took a stance and

made experience, reflection, and dialogue a matter of research. All this in a context in which "the detachment of learning from education (and in turn from the associated relationships that education involves with people and pedagogy)" (Hayes, 2021, p. 199) allows for automated decisions and policies.

The recent developments in the field of artificial intelligence and the automation and irreflexivity they involve make evident the need to address teaching practices from a reflexive perspective to avoid the 'efficiency' narratives. This also calls for reimagining literacies as overlapping and in constant flux, as skills and sensibilities of the surrounding world, and as a network of competencies that go far beyond the traditional digital or data literacies.

3. METHODOLOGICAL APPROACH

In this paper, we introduce and discuss the professional experiences of the authors as active educators (in the following CK, JR, MF), intertwined by their interest and vocation in focusing on issues of datafication in education. In so doing we aim to develop a critical and complex approach to data literacy that will prepare educators to inhabit critically 'smart' spaces that are imbued with intelligent, non-human agents.

Autoethnography is a method that integrates cultural and personal aspects of individual narratives. Each narrative establishes the groundwork for autoethnographic principles. In such accounts, the role of reflexivity and the self in ethnography "frees a new generation of anthropologists to bring their personal stories to the centre of research" (Chang, 2009, p. 45). Therefore, our personal reflexive stories are about possible courses of action proposed to overcome the contextual constraints inherent in the attempt to understand and act as educators in the light of datafication.

However, the autoethnography proposed in this paper is of a collaborative nature, because a core part of it is the very dialogue between educators as they engage in personal reflection and systematic conversations and exchanges. The epistemological basis of this approach is to be found in the concept of the "hermeneutic circle", activated among educators, defined by Gadamer (1975) as an iterative process where the detail of one's own experience is explored in dialogue with the literature as external evidence, to reach a new understanding of a whole. As Fairfield (2011) noted, "Gadamer's philosophical hermeneutics is an explicitly dialogical philosophy that is rich in implications for educational theory and practice" (p. 3).

The authors actively engaged with work experiences concerning imagining and enacting a data literacy approach, across 21 months. This experiential framework was enriched by the interaction with key ideas in the scientific and policy-making literature. Hence, the authors engaged in an iteratively revisited process where imagination and practice were shaped as a creative and self-reflexive act, conceived in the counterpoint between the collective and the individual. A series of meetings and exchanges were held systematically over time, which allowed for reflection on both the teaching practice and the role of educators and students along the process. The interpretative work is indeed a spiral that expands infinitely and allows educators to reflect on their own experience and reframe their practice at the same time. Nevertheless, we crystallised our work by defining three hermeneutic circles. Each circle is based on the prior iteration, and sets the basis for structuring the hermeneutic work, being led by questions to spark the search for meaning and building understanding. Each narrative, built

upon voice recording, reading and commenting, reflection, and fieldnote taking, including excerpts of the three educators' materials and activities crystallised through a central message.

Table 1 displays this work, addressing the reporting of the results. The autoethnographic accounts are published as Open Data. As for the instruments, for notetaking, we adopted shared documents, notes in emails, and voice communications that were later transcribed. Instead, since we were working from three distinct locations, we chose different videoconference platforms for our meetings.

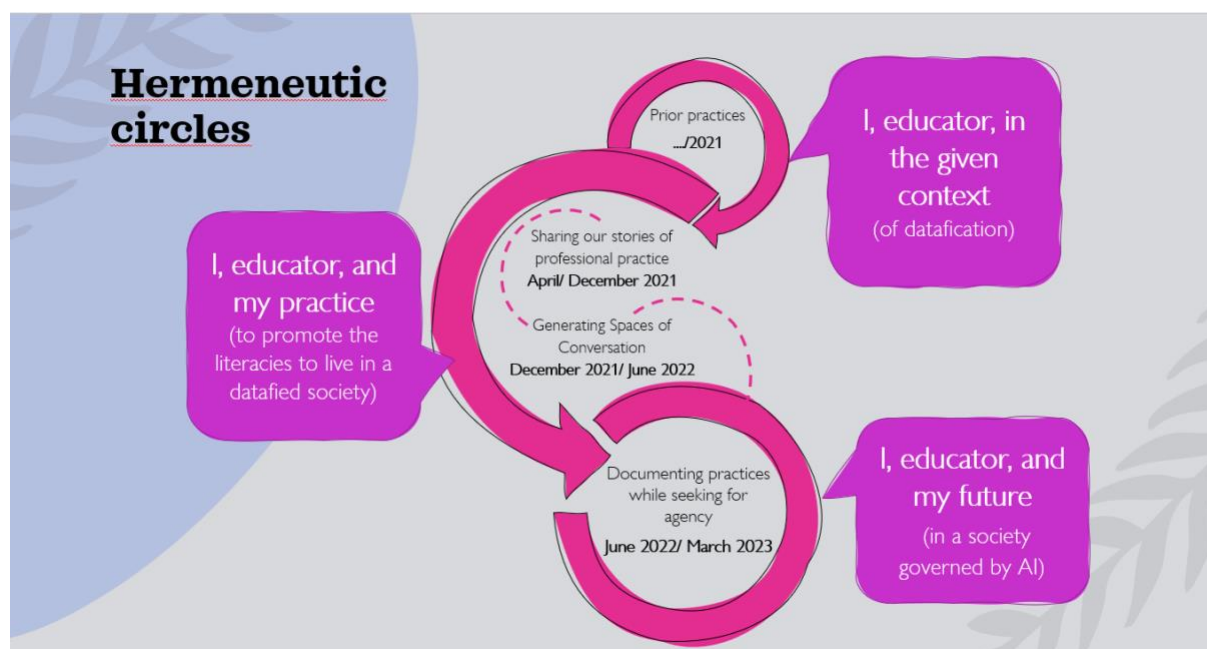
Table 1

Hermeneutic circles, questions leading the hermeneutic work and crystallised meaning.

Hermeneutic Circle	Leading Questions	Crystallised Meaning
The focus of the Hermeneutic Work [32 Encounters, 15 voice notes - VN-, 11 texts commented upon]	[4 Leading questions]	[3 autoethnographic accounts -AA-]
Circle 1 Prior Practices .../2021	How have we engaged with the problem of datafication in our professional practice? How is this related to a (deontological) vision of what it means to be an educator?	I, the educator, in the given context (of datafication)
Circle 2, the first part Sharing our stories of professional practice March/December 2021	Along our conversation, which artefacts do we create...	I, the educator, and my practice (to promote the literacies to live in a datafied society)
Circle 2, the second part Opening the Conversation December 2021/June 2022	...and how can they be adopted by other educators to support them in proactively dealing with datafication in their classroom practice?	
Circle 3 Documenting practices while seeking agency June 2022/March 2023	What is our gained, new understanding of being an educator in a datafied society and how does this relate to our future perspective of practice?	I, the educator, and my future (in a society governed by AI)

Figure 1

The three hermeneutic circles (central) generating spaces of conversation and understanding.



While we recognise that our personal experience is unique, we maintain that sharing our documented effort of meaning-making and, by extension, our subsequent understanding (teachers' professional practices to promote critical data literacies) with the reader is a concrete example of searching for a postdigital positionality. Heuristic vision, rather than reproducibility or generality, is the expected outcome of this idiographic study since it has the potential to inspire others' inner or collective journeys of knowing.

4. RESULTS

In the following, we report the results of our autoethnographic work according to the three hermeneutic circles.

4.1. "I, educator, in a given context"

CK expressed her initial concern after her recently finished doctoral dissertation, in which she engaged with the concept of agency in digital spaces, in particular, young people's agency enrolled in HE. Some of the questions she was interested in were: "*how are people able to mediate the structured context in which they are embedded, i.e., the web? What drives students to engage with some tools and platforms and not others? Are they aware of the wider implications of their choices?*" Thus, she became particularly interested in those tools that students did not engage with. In her research she discovered how students are very unlikely to engage with open and participatory tools (e.g. WordPress, Zotero, Wikipedia, Twine) as they are mostly marginally positioned in the context of the use of the majority of HE institutions (Kuhn, 2022). Through her work, she actively advocates for a more open and just web (Kuhn, 2023); see also the Web Foundation: www.webfoundation.org). By 2020, she was certain about the perils of the general belief that data is objective, neutral and, above all, synonymous with

universal and unequivocal truth: *"the more I immersed myself in the literature the more I realised that the so-called data revolution was not so much about the data and the disruptive innovation, but about historical social injustices"*. Therefore, and based on her engagement with Freire's critical pedagogy, she realised that *"a set of critical data literacies integrated in a critical approach to understand the socio-political and cultural mechanisms hidden in different socio-technical systems that affect individuals and groups in society is urgently needed."*

JR's journey around data started in 2014 when she was preoccupied with aspects of "Digital Scholarship" and how science could be shared, made public and accessible. *"I told that story many times, but you will see it in my blog 'anonymised title' (anonymised url) ...I said let's prepare open data. And that's when I gradually became aware of the digital structures that we were using paradoxically, at that time we used Dropbox, ResearchGate and Google Drive, which are not at all..., let's say, open. They are private platforms. (JR, VN "Post-Workshop Reflections, 13/12/2021, p.1, l.27-31). That was a foundational moment for JR, that led her "to find as many educators as possible, to understand, through dialogue and encounters, how they were experiencing their encounter with the "datafied era"...for her "datafication was like a monster without face or eyes (...) educators could not feel like 'soloists' in front of it" (AA, p.1) mere artisans or technologists of their classroom spaces.*

MF expressed to be particularly concerned about the sense of inevitability that the digital processes in which we are immersed, particularly after the pandemic, are acquiring: *"At times it seems very difficult to question the structure of the platforms and the meanings acquired by their use...One clear example of how technological corporations affect our daily practice in the classroom is the shock many educators experienced when Edmodo shut down. Hours and hours of work, loads of resources and materials, disappeared from one day to the next with little or no backup. The problem arises from having forgotten these are companies that pursue economic interests and goals far different from the ones we aim at as educators"*. As she describes *"Given the celebration of the web 2.0 almost 20 years ago (and of which I was a strong promoter), discomfort and tension emerge between two opposing views when we invite colleagues and students to actively participate in social networks or enter a platform for participation and collaboration. So I wonder: How much participation, collaboration and agency are possible in a framework governed by algorithms and commercial structures that seek to monetise exchanges and predict behaviour? With these concerns in mind, I devised a sequence of classes collaboratively with the technology teacher. Our main goal was to guide students into the process of inquiring into a social problem (domestic violence, business profitability, covid vaccination, etc.) and accessing diverse datasets to produce and organise information about the topic chosen" (AA, p2).*

4.2. "I, educator, and my practice"

Although CK did not have much experience in data, surveillance, and datafication, *there was an open invitation for a workshop on data-human interaction waiting for me in the UK (VN 2)!* CK signed up for the workshop although she was still grappling with the literature and her understanding of this complex phenomenon. However, she wanted to share and contrast her thoughts with other like-minded people. Using a blue-sky methodology, four groups of varied professions (artists, educators, lawyers, and writers) came up with potential solutions to address the problem. After the workshop, CK realised how urgent it was to address this issue pedagogically. From a workshop to an idea, from the idea to the concept and from there to a

real-life project, an open educational resource to foster critical data literacy: *DataPraxis* (www.datapraxis.net)!

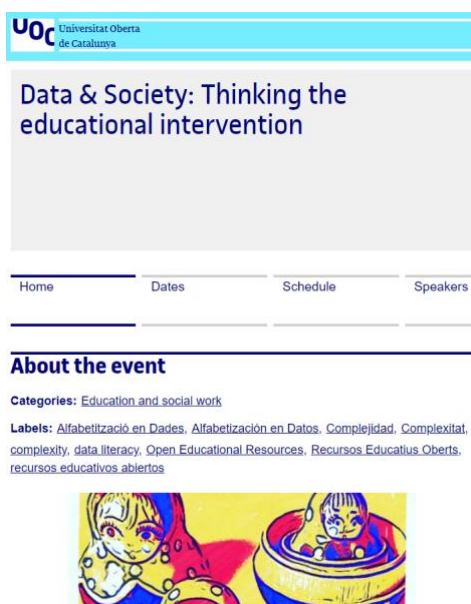
She gathered with a group of colleagues, JR amongst them, and began brainstorming what would be a pedagogical intervention, aimed at fostering educators' political agency to interact proactively with these data-driven sociotechnical systems. CK voraciously read what she could about data and human data interaction with an interest in critical data studies and she became puzzled with issues of data (in)justice (Dencik et al., 2019; Hepp et al., 2022; Taylor, 2017), producing a first educational text (Kuhn, 2020). This political side of data is where the focus of her work has been. This is not by chance but, inextricably tied to her personal story having grown up and working in Venezuela, an extremely unequal country. It becomes clear that our positionally shapes our educational approach, the personal becomes political! Since then, CK has led actions in which she envisions a critical pedagogical approach to professional development rooted in collaborative learning and real life problem-solving.

JR highlighted that the *"DataPraxis' project offered a generative and creative space, where she could encourage other teachers to think about perspectives of professional practice"* (AA, p.2). She finds it a space to overcome her solitude ahead of datafication, by engaging in a collaborative and creative effort to think about the literacies needed to deal with datafication (Fig. 2). To think about and represent the complexity inherent in datafication she used the figure of the Matrioskas. Indeed, in a meeting with 32 educators (Raffaghelli, 2022), JR understands the difficulty that educators face when thinking about what to bring into the classroom to deal with datafication. *"...You are inside a subject and you go on studying it, then it seems to you that a certain operation can be easy...in reality...What surprised me about the educators' user experience on my materials was how it was still necessary to provide(...) more guidelines and orientations so that they could appropriate them, so that could work with them in the classroom. And that was something that had a big impact on me"* (JR, VN "Post-workshop Reflections, 13/12/2021, p.1, l.12-18).

And this powerful encounter leads her to think, from several points of view, about what she wants for her classroom. First of all, the need to accompany the students to meet the data in the web space, to understand how they are published and available, i.e. the "brighter" side of the data. As recorded in my voice memo: *"I'm going to work out this with my students. ...I mean, to see what information there is about (the problem), (...) to build together a dataset made of codified and non-codified information"* (JR, VN "Preparing the semester", 08/02/2022, p.2., l.47-51). She embraces hence a critical vision of data, by leading to discuss how data (and no-data) represents the world, which is the base of AI in education and society.

Figure 2

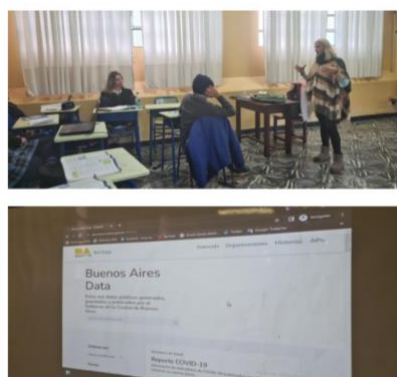
Workshop diffusion space "Data & Society: Thinking the educational intervention".



MF expresses her search for materials and support to design classroom practices that embrace her concerns, as expressed in one of her voice notes: *"From the attentive reading and exploration of the Data Praxis project materials, I began a process of exploration of theoretical sources and practical exercises to develop a global literacy perspective, fluid and adapted to my specific context, to guide my problematisation and reflections on these issues. Pensar con Datos, a project coordinated by Mg. Carolina Gruffat and Margarita Martínez (2018), were also a source of inspiration"*. The use of social networks was the key to becoming acquainted with the materials developed by the Data Praxis team: *"I thoroughly explored those resources and proposals. Based on these materials I created my own resources and guides to take these issues into the classroom"*.

Figure 3

Co-teaching in the analysis of data sets



Cooperation and co-teaching were the means through which additional support was built (Fig.3). MF invited the ICT teacher into the classroom to share ways to process the data sets we found online about the issues that worried my students.

The work not only focused on the technical aspects of data; it also considered the social, ethical and political impact of translating human existence into data: *“Very interesting and compelling questions emerged: How do we know these datasets are valid and reliable? (Agustina L.) How is the data collected? Who processes it? (Martina I.) What happens when the data collected does not benefit the government? (Ramiro R.). We also wondered about what the data tells and what it silences.*

4.3. “I, educator, and my future”

Almost three years of the beginning of DataPraxis, a co-created web of meaning to understand what it means and what is needed to live and teach in a datafied world, one thing becomes clear to CK, namely that very sophisticated data-driven sociotechnical systems (e.g. generative AI) are and increasingly will shake some concepts of education, in particular HE. Different future scenarios are possible, e.g. *“AI Academy, Enhanced Enhancement, Extinction-era university (...)”* to name a few that has been put forward in the project Higher Education Futures (<https://www.de.ed.ac.uk/index.php/news/higher-education-futures-8-scenarios-8-tarot-cards-and-8-short-stories>). Educating in all of them will require a robust community of practice with strong bonds that continue to weave that tapestry of meaning through new conversations about the future of our university and the teaching that is needed to thrive in it. A bit like Penelope’s shroud, which she weaved and unweaved ongoingly during the uncertain times of her husband’s absence to keep her suitors away and gain time for Odysseus to come back. CK believes that the task ahead is to weave and unweave, together, the tapestry of an ever-changing societal landscape of a data-driven futures, to strengthen our collective political agency and act despite what is not yet known. *The future is uncertain but despite that, or maybe because of it, our political agency emerges from that collaborative search for meaning, as we demonstrated in our work with educators (Kuhn & Raffaghelli, 2022). All that is in our hands is to strengthen and enact our collective political agency while we overcome the hurdles we encounter when navigating increasingly powerful and damaging data-driven sociotechnical systems. In doing so, we can craft the future we envision so that a fairer and more inclusive education system is possible (AA, p.2).*

After her experience along the workshops and her translation into specific class activities in educators’ initial training, JR starts considering how to bring to her work recent debates about AI and resisting the ChatGPT’s hype: *“I documented as much as I could my feelings in two blog posts “Trying to imagine life (and educational practice) after ChatGPT” and “Flashback”. Despite her bewilderment and puzzlement JR manages “to make proposals to my students within the course I held this semester ‘Education Evaluation’ (how can we not talk about ChatGPT in this context!)” (AA, p.4) JR shares her feelings with other educators, also to make sense of external critical events “The reflection on BigTech business models, and the injustices nestled in them, lead us to know how to introduce the dark side of this shiny new object of generative AI in the classroom. And I was at it when, in the Italian teaching context, we came across the frightened withdrawal of OpenAI from Italy in the face of the request of the Privacy Authority (Garante per la Privacy)” (AA, ibidem). She thinks about data literacy within her practice, also reading others (Heikkilä, 2023) “as an exercise of the right to be a “data subject” rather than an entity that generates public data that once on the web can be massively extracted to train platforms” (AA, ibidem). However, JR still believes that circulating voices and generating spaces between educators is crucial “we will need, I believe, many more conversations to get to work with these non-human intelligences, from their brighter to their darker sides” (AA., ibidem).*

Regarding the latest developments in generative artificial intelligence, MF offers a series of problematising questions she wants to take to her classes: *“Is it possible to know the dataset from which AI chatbots generate information? What are their sources and, therefore, their biases? What about the copyright of digital artists whose works are used to ‘feed’ automatic image generation models? What is the environmental cost of developing processors for such vast information? I am thinking of water, electricity, and CO2 emissions”*. She expresses her interest in devising concrete forms of activism to address these issues in the classroom: *“It is our responsibility to inform ourselves about various initiatives and adhere to some of them with genuine actions inside and outside the classroom that exceed the discursive level of ephemeral indignation”*. Data literacy emerges as a concept under constant construction: *“I believe literacy in general and data literacy, in particular, is in permanent transformation, I feel knowledge mutates continuously and that learnings articulate and mutually influence and affect each other”*.

5. DISCUSSION

The practices documented in our collaborative autoethnography emerge in the process of meaning-making along our encounters over 21 months. The first hermeneutic circle “I, educator, in a given context” captured our initial positioning as educators and authors in our journey of cultivating relationships within an enlarged network of practitioners and scholars. It was a call for responsible and proactive engagement with a relatively new topic that, to some extent, intersected with commitment to digital literacies in a changing digital landscape. We took different pathways to understand what it means to be an educator in a datafied society. It was at the crossover of our singular processes (timeline) and our attempts to build networks (space of relationships), that a node emerged, namely, the project “DataPraxis”. It gathered a weft of threads, by which, in our effort to build actionable educational resources for critical data literacy, we (CK, JR and MF) engaged in exchanges and reflective practices, particularly documented in the second hermeneutic circle. It was at that moment that co-creation, experience, and reflection occurred.

In this central hermeneutic circle, CK contributed with a narrative about her experience creating such a space and how to make it reverberate; JR arrived at this node searching for a space that could support her while she experimented with these ideas in her workspace; and MF integrated her practice-based narrative of appropriation (and reconstruction) of this space. As women with complex migrant identities, rooted in the Global South as well as bearing European métissages, our story rests on an intersectional foundation that allows us to express rich positionalities (Hayes, 2021), full of examples and resources that can be a sounding board for the construction of ‘otherness’ in the emergent and constantly shifting field of postdigitality (Macgilchrist, 2021). Along with our analysis of the literature, we purported that postdigital positionality foregrounds the relevance of adopting a proactive relationship with the digital, that is, enacting our political agency (Kuhn & Raffaghelli, 2023) and develop instances of political and pedagogical inquiry to address that same complexity from renewed frameworks of thought (Raffaghelli & Sangrà, 2023).

In the context of our teaching practices, we initially experienced tensions between the commercial design of platforms and their marketised views of education, and the ethical values

of the inclusive education we aspired to imbue in our routines. We approached such tensions discovering, maybe, as an unexpected impact the following: CK realised the need of introducing a critical pedagogical perspective on human-data interaction; JR considered the educators' feeling of solitude; MF expressed her concern about the sense of inevitability generated by digital spaces during and after the pandemic. This motivational foundation led us to explore postdigital positionality later, requiring interactions and the search for meaning along educational practices. In addition, we recognised our identity as "individual hybrid, postdigital beings" (Hayes, 2021, p. 63). This reflective work stems from situating our teaching as a nexus of border practices that allow for alternative voices to emerge and contested world views to become visible (Ferrarelli, 2021b). The richness of heterogeneous human experiences in which we engage (particularly with our students or simply, the participants in the events and the users of the resources we create) brings together a diversity of perspectives which push toward an expanded political and pedagogical agenda both inside and outside the classroom. Our autoethnographic accounts display that identities are fluid and arranged in intricate and unpredictable realms, and so are practices when they escape technological rationalism and digital predictability to meet human creativity. The way we deal with data literacy is relational, situated, and connected to past values and experiences, present experiences and reflection, and imagined futures.

6. CONCLUSIONS

Despite being presented as impartial, radical, and inventive, the difficulty to grasp the complexities of datafication resides in its murky and evasive character. Datafication is an emerging phenomenon whose visible side is the output of algorithmic manipulation of digital data. The invisible side requires data infrastructures or, as several authors have pointed out, the physical infrastructure that supports the "lightness" of digital clouds (Crawford, 2021); the ideas and practices surrounding metrics and quantification; the workforce collecting data or unwittingly producing it; the data points generated across multiple systems; the way these are elaborated through simple statistical processing or algorithmic solutions; the engagement with such representations and their implications; and finally, the public's acceptance of and interest in these data-driven insights and solutions. However, the complexity of educational institutions is further complicated by the positionalities (in terms of personal stories and dispositions to technology) brought by educators, management and technical personnel, students, and others who make up the institution. Infrastructure-data point connections are murky, necessitating participants' deep reflection, especially administrators and technical staff. To do this task, familiarity with data as a multifaceted and complex phenomenon is required (Decuyper, 2021). This is key to understanding postdigital literacies as fluid or augmented, occurring at different levels, overlapping and mediating other practices and competencies (Ferrarelli, 2021a). Literacies that configure in a postdigital age our postdigital positionality.

Our intersectional autoethnographies start by becoming aware of and assuming our postdigital positionality (first hermeneutical circle). In the second hermeneutical circle, we took responsible action and thus, participated in co-creational processes to support ourselves and other educators to become aware of their and our situation and context, and to empower them and us in tandem. In this process, it was key to understand ourselves as individuals that are part of communities in the search for alternative identities that go beyond the consumerist and reactive stances promoted by Big-Tech corporations and the platforms they cater for. The third

hermeneutical circle lets us understand our positionalities as part of future scenarios, where we envision ourselves actively engaged in processes of change-making and not as simple objects of change. It is in this sense that our political identity is expressed, building on a postdigital positionality we recognise and embrace complexity and uncertainty, guiding our decisions and sustaining our educational practices.

In a nutshell, we contend that awareness of who we are and how we became to be (persons and professionals) in postdigital spaces is crucial: this is part of recognising the borders, as limitations and opportunities, of our postdigital positionalities. Nonetheless, we recognise the limitations of a study which is focused on our pathways of learning and reflection as protagonists. In this sense, future studies might work through participatory and transformational action research to explore several educators' postdigital positionalities in the making. Though nomothetic studies (which aim at generalisation rather than focus on specific properties in a context) might be superficial in the identification of individual trajectories, they might spot different beliefs, values, representations, or practices within broader contexts. Nevertheless, through our idiographic study (that focuses in detail on the individual), we have justified the need for understanding peculiarities and narratives that build identities and political engagement and serve as basis for collective and communal action. Also, nomothetic studies might embed a structural injustice in the way data is collected and revealed, from the authoritative voice of researchers to 'interested audiences'.

Our study aims to add value to the debate of rethinking data literacy in our contemporary society by making it evident that the educational imaginaries and approaches to data and intelligent agents based on their manipulation are tremendously fragmented. Professional practices, business, and academic disciplinary sectors of data science emerge alongside social science critique and activism, overwhelming educators. Furthermore, in contexts where data practices and narratives might imply obfuscation, marginalisation, and oppression, complexity is often downplayed or portrayed as chaos and entropy, disorder and unpredictability that needs to be controlled (Macgilcrist, 2021). Educators' initiatives as organic intellectuals may be at odds with institutional discourses, and this is especially true in the context of educational institutions embracing platforms and clouds to be more "efficient" or to keep the pace imposed by surveillance capitalism (Perrotta et al., 2020). Though our initial positioning implied degrees of professional freedom, there was a sense of puzzlement connected to our professional practice of supporting educators. Our autoethnographic account did not focus on displaying immediate solutions, but on how difficult it is to become aware of our experience, to deploy and reflect upon our educational practices and about a postdigital, datafied, and AI-based society. Against discourses of efficientism and techno-solutionism that portray data literacy and AI-literacy as advanced skills of data science that are instrumental for the AI industry, our professional and political agency pushed practices in the opposite direction, i.e., meeting educational values as situated and intersectional. There are resounding notes in this direction. For example, the avant-garde Floridi's Onlife Manifesto (Floridi, 2014) urged education to increase citizens' ability to ask relational questions using the infosphere and non-human intelligent agents. In addition, there is a research strand that uses data justice, as a key perspective, to disentangle and scrutinise the impacts that data-intense technologies (Dencik et al., 2019; Hepp et al., 2022; Taylor, 2017) have in marginalised communities. Not least, new research perspectives regarding the detrimental impact that AI has on sustainability, questioning the need of using or not using technologies to carry out human activities (Selwyn, 2023). None of these perspectives could be embraced superficially or naïvely. No educator

should be just 'prepared' to become a professional in a datafied society. Instead, they need to ask themselves, what it means and what it takes personally, professionally and politically, to educate data-literate citizens.

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