IULM

REPRODUCING HEGEMONY, RETURNING TO CRITICAL PEDAGOGY.
THE RELATIONSHIPS OF YOUTH WITH DIGITAL PLATFORMS

Cognome / Surname **PRONZATO**   Nome / Name **RICCARDO**

Matricola / Registration number **1010680**

A Chiara,
ai miei fratelli,
ai miei genitori.
A tutto l'amore che non sarà mai trasformato in dati.

To Chiara,
to my brothers,
to my parents.
To all the love that will never be datafied.

Index

Acknowledgements

In this moment I recognise that strange feeling that comes at the end of a journey, just before you get on the flight that will bring you home, when you look in the mirror and feel all the places, experiences and people who have been part of that journey on your skin. These words are the right occasion to express my gratitude to all the people who have made this moment possible.

To begin, a big thanks go to all the students that participated in my research. This dissertation would not have been possible without you. Thanks for the availability and for sharing such precious parts of your lives with me. I hope I handled them with care and respect. Always remember: things can change for the better.

Then, I want to thank my internal supervisor Prof. Guido Di Fraia for his help and support during the Ph.D. programme. When he supervised my bachelor's thesis, he could not have imagined that he would also be the supervisor of the doctoral one, and that Gramsci would be part of both of them. He was the first in my university career to teach me critical thinking, and I'm glad he was my tutor at IULM University.

My sincere and deepest thanks necessarily go also to my external supervisors: Prof. Tiziano Bonini and Prof. Annette N. Markham.

I consider Tiziano Bonini an inspiring mentor and big-hearted person. He guided me in each phase of this doctoral journey and, more broadly, he helped me understand academic life writ large. Always available for suggestions and eager to listen to my doubts, uncertainties and proposals, he is one of the people you wish to meet in this troubled academic world. I'm grateful that he's been part of this path by supervising this thesis and hosted me at the University of Siena.

Annette N. Markham is one of the greatest scholars I've ever met, and I'm deeply honoured she supervised this dissertation and elaborated with me on the empirical results and theoretical reflections that the reader will find here. Thanks for believing in me and hosting me at the Digital Ethnography Research Centre of the RMIT University. It was a fascinating and exciting experience, and I consider the time spent together in Melbourne a real privilege.

Within the academic realm, a heartfelt thanks goes to my colleague and friend Elisabetta Risi. It's been a pleasure working and writing together in the last four years. We've been a great team, always supporting and learning from each other. She made me

feel at home since the first time we met. Finally, thanks also go to Prof. Mauro Ferraresi for the internal support and availability.

This Ph.D. experience, marked by a global pandemic and other unforeseeable troubles, would have not been the same without my colleagues Alessandro, Camilla, Federico, Massimiliano, Mirko and Riccardo, which I now consider real friends. Thanks for all the support, the complaints, and the shared dramas. It's been a hell of a ride, and we made it.

On a personal level, I want to thank all my friends in Acqui Terme, my hometown, and around the world. I can't name you all, but you know who you are, and you know how much I love you.

Then, I would not be here if it weren't for my parents, Rosanna and Davide. They have loved me, supported me and believed in me all these years of moving around different cities and countries. I've never taken it granted. Thanks for all the things you have been doing to support me.

A special thanks go to my brothers, Damiano and Michele. Only we can understand the special relationship we have. I'm grateful that you're part of my life.

Finally, thanks to Chiara, my person. I feel that the last three crazy years living together have not been an achievement, but just a beginning. The best is yet to come.

Preface

Since the first year of my university career, I've been fascinating with the role played by media and technologies in how individuals access, frame and make sense of the world around them. In 2019, when I started the Ph.D., I decided that my research work would be situated in the field of critical algorithm studies, a research area I had recently become acquainted with, which I considered extremely fascinating and with an interdisciplinary attitude that could fit my multifaceted educational and professional background. Specifically, I was almost obsessed with the "algorithm", and the idea that computational processes designed by a few technological companies could reorganize almost all spheres of social life, from the field of culture to politics, to the realm of the most intimate relationships.

Following this thinking, my research proposal and plan included two studies, respectively focusing on how digital platforms are produced within corporate environments and how young individuals make sense of digital platforms in their everyday life. The idea was to better understand both how these socio-cultural artifacts were intended and shaped by the people working for a tech company, and how end users interpret these objects after their deployment. To do so, I employed two different approaches. Indeed, in the former case an approach closer to cultural and production studies was adopted, while the practices and sensemaking processes of users were investigated through an ethnographic approach rooted in the tradition of interpretive sociology, symbolic interactionism and critical pedagogy. Although both studies were conducted, only the latter one was included and discussed in this dissertation. This preface is intended as an explanation of my choices, an account of the research activities and, more generally, an overview of the work conducted during my Ph.D., which influenced the analytical and creative process underlying this dissertation.

Regarding my research work, it should be noted that, in the last three years, I've collaborated on several projects, situated both outside and inside the realm of critical algorithm studies. Some of the "outsider" contributions I published, mainly in collaboration with Elisabetta Risi and Guido Di Fraia, adopted different approaches and investigated manifold issues, such the construction and perception of fear by women in their urban life in Milan (Pronzato, 2019; Risi and Pronzato, 2020), and several COVID-19-related phenomena, such as the experiences of Italian workers during the Italian

3

lockdown and the reframing of everyday life following the pandemic restrictions (Risi et al., 2021; Pronzato and Risi, 2022), the implications of remote labour during the same health emergency (Risi and Pronzato, 2021; Pronzato, 2022), and how the pandemic was socially represented through memes in the Italian socio-cultural context (Risi et al., 2022). Another ongoing research project, closer to my area of studies, was carried out with my colleague Massimiliano Raffa and focused on the algorithmic imaginaries of cultural creators in the realm of music production (see Raffa and Pronzato, 2021). Although these research endeavours were not included in this dissertation, they helped me improve my theoretical reflections and methodological skills.

Then, as mentioned above, one of the studies I personally carried out during my doctoral programme investigated the production of digital platforms. Drawing on a multi-sited ethnography (e.g., Seaver, 2017; Bonini and Gandini, 2019), including 13 semi-structured qualitative interviews with key informants and an in-depth analysis of advertisements, corporate websites and public documents, I focused on a case-study to better understand how platform design happens in the micro decision-making and communications practices within the corporate environment of a media/tech company in Italy. This work resulted in a first contribution currently under review on an international journal and allowed me to scrutinise where "platform power" take place and the hierarchical relationships sedimented within it. This study was carried out concurrently with the one investigating users. However, during the research process, I was becoming increasingly aware of the granular richness and breadth of the two phenomena under examination and of the research material I had collected. Given this scenario, in this dissertation, I preferred to focus only on the second study conducted during my Ph.D., in order to maintain theoretical coherence and to provide an in-depth analysis of the research results. Thus, this dissertation investigates how young individuals perceive, relate with, and make sense of digital platforms. To do so, it draws on 40 autoethnographic diaries, which were prepared according to a critical pedagogy framework (Markham, 2019; 2020a; 2022a) and structured as a 7-day autoethnographic challenge (Markham et al., 2021).

It should be noted that the study was informed by previous analyses and reflections, developed with my colleagues and supervisors. In 2019 and 2020, Elisabetta Risi, Tiziano Bonini, Guido Di Fraia and I collected and analysed 80 autoethnographies, written as narrative diaries, by students enrolled at IULM University and at the University of Siena.

That first experience resulted in an article published on *Etnografia e ricerca qualitativa* (see Risi et al., 2020) and in two further contributions on edited books (Risi and Pronzato, 2022a; 2022b). Moreover, it allowed me to become familiar with critical pedagogy, autoethnographic methods and the analysis of students' diaries. Then, in May 2020, in the middle of the first-wave of the pandemic, I took part in the "Massive and Microscopic Sensemaking during times of COVID-19" project, directed by Annette Markham and Daniel Harris and involving more than 150 people from 26 countries (see Markham et al., 2021). The goal of this project was to help people "think about the relationships between self and other, or between humans and the planet" and make sense of the pandemic "both as a local and intimate occurrence with microscopic properties, and a planetary-scale event with potentially massive outcomes" (Markham et al., 2021, p. 759). The experiment consisted in a 21-day autoethnographic challenge with daily self-guided prompts aimed at facilitating participants' reflections regarding their own pandemic experiences. Although this project was not directly focused on the impact of algorithmic media, I understood the potential of the structure and prompts included in the challenge, and I thus decided to use some of them for structuring the 7-day autoethnographic challenge that you will find in this thesis.

Following this decision, in October 2020, I held some online lectures regarding the datafication and surveillance dynamics underlying the Internet today at IULM University (Milan, Italy). Afterwards, I invited the 2nd-year students of the B.A. programme "Communication, media and advertising" to participate in my research project. Within one week, 40 students volunteered to participate to it. At the end of February 2021, they received the 7-day autoethnographic challenge I prepared. Within two weeks, all the diaries were sent back to me.

The dissertation that the reader will read is based on the narratives written by these 40 young individuals, which donated me some moments of their lives, sometimes intimate and moving, which occurred in and through digital platforms, in February and March 2021, while the second wave of COVID-19 was harshly hitting Italy. Their accounts were so rich and diverse that this thesis can only focus on some parts of them, but it hopefully sheds light on some of the social, cultural and communicative dynamics and power relationships underlying these lived experiences on, and relationships with digital platforms.

Finally, it should be noted that this research already resulted in different contributions. A first paper on algorithmic resistance was selected for the *2021 AoIR conference* (see Pronzato, 2021) and a presentation was held in July 2022, at the Museum of Science and Technology "Leonardo da Vinci", in Milan (Italy), for the conference *Everyday Algorithms – Algocount Conference*. Then, in January 2023, an article co-authored with Annette Markham (that, in the meantime, became one of the supervisors of this thesis) was published on *Convergence: The International Journal of Research into New Media Technologies* (see Pronzato and Markham, 2023). Some excerpts and theoretical elaborations that the reader can find in this thesis have been previously conceived, written and contemporaneously published in equal collaboration with her and can be found here verbatim or reassembled to extend the scope of analysis.

Introduction

Platforms do not reflect the social: they produce the social structures we live in (Van Dijck, Poell and De Waal, 2018, p. 2)

In some ways, we are the algorithms. *We automatically adapt to the 'order of the world as we find it, with its one-way streets and its no-entry signs', as if programmed to do so.* (Airoldi, 2022, p. 146)

Who benefits the most from widespread narrative that the digital revolution is upon us, digital futures are inevitable, and there is no way to stop, reconsider, or rethink the current configurations? (Markham, 2021a, p. 398)

Today using the Internet implies primarily using digital platforms/algorithmic media, such as social media services, search engines, videotelephony applications, streaming services, e-commerce websites, and so forth. This order of the world seems hard, if not impossible to change, and the powerful role of digital platforms inevitable. As highlighted by several scholars, platforms not only mediate, but contribute to the shaping of social life (Gillespie, 2015; Beer, 2017) and the construction and negotiation of personal and collective identities (Markham, 2013a; 2021b; Cheney-Lippold, 2017). Indeed, everyday activities take place *in* and *through* the socio-technical architectures and affordances of these data infrastructures (Bucher, 2018; Van Dijck et al., 2018), which have become "a multisensory, embodied condition through which most of our basic processes operate" (Boyle et al., 2018, p. 252).

Questions and harsh criticisms have been raised regarding the design, functioning and implications of digital platforms, mainly created by a few Western tech corporations, which impose asymmetrical conditions on users that are difficult to escape. Indeed, it is complex for individuals to avoid the use of these socio-technical artifacts and the "terms of use" imposed by their producers, whether through the persuasive power of algorithmic functions in searching, advertising and newsfeeds (Gerrard and Gillespie, 2019; Beer, 2022), the predominance of colonialist extractive logics, as discussed by Couldry and Mejias (2019a; 2019b), the oversimplification of social reality through what Zuboff has discussed as surveillance capitalism (2019a; 2019b), the unprecedented control over

citizens that blur the difference between mass, targeted and anticipatory surveillance (Lyon, 2015), or the amplification of social, racial and gender inequalities at the level of data modelling, algorithm design, or machine learning (O'Neil, 2016; Noble, 2018; Eubanks, 2019; Benjamin, 2019).

Following their pervasiveness, these computational systems operate in ways that can seem neutral, helpful, and even essential in getting everyday things done. Indeed, the presence of digital platforms "is so ubiquitous we don't think much about it at all; we just think *through* it" (Markham, 2017a, p. 1121, emphasis in the original). Most of the activities we conduct on our online devices have become tacit everyday practices, thereby removing how their use is wrapped up in complex hegemonic systems underlying platform design and deployment, that function powerfully at both macro levels of institutions and public services and micro levels for citizens. This has become an even more central issue since the beginning of the COVID-19 crisis as the pandemic obliged millions of people to live confined in their homes, with their online devices being the main tools to work, communicate with other individuals, and make sense of the world.[1]

By drawing on a relational approach to technology and identity (Markham, 2021b; 2021c), and on Markham's critical pedagogy framework (2019; 2020a; 2022a), this thesis investigates how young individuals perceive, relate with, and make sense of digital platforms in their everyday life, and how these everyday engagements with digital platforms contribute to the shaping of their identities and the reproduction of power asymmetries and hegemonic relationships.

To begin, it is necessary here to clarify and define how specific terms, such as "digital platforms" and related synonyms will be used in the present work. According to van Dijck and colleagues (2018), digital platforms can be defined as "programmable architecture[s]", based on computational procedures, such as algorithms, "designed to organize interactions between users" (p. 9). Another common term to refers to digital platforms is "algorithmic media", as algorithms are an essential part of these computational architectures (see Bucher, 2018). Other contributions simply use the term "algorithm" to indicate "algorithm, model, target goal, data, training data, application, hardware" (Gillespie, 2016, p. 22), while some critical conceptualizations can include in

---

[1] I discussed these issues in different contributions. See, for example, Risi et al., 2021; Risi and Pronzato, 2021; Pronzato and Risi, 2022; Pronzato, 2022.

such terms all the human and non-human elements involved in the complex ecosystems in which these technologies deploy (Markham, 2021b; 2021c). Throughout this work, the terms "digital platforms", "algorithmic media" and "algorithms" will be used interchangeably as a synecdoche to indicate the complex computational networks within which these systems "function, the people who design and operate them, the data and users on which they act, and the institutions that provide these services" (Gillespie, 2016, p. 26).

Regarding the research area, this dissertation is situated within the field of critical algorithm studies. Over the past decade, several critical contributions within this interdisciplinary field have focused on how computational structures are designed, how they intervene in the shaping of social life, and which are the repercussions at the micro and macro level for individual and collective behaviours (e.g., Gillespie, 2014; Beer, 2017; Bucher, 2018; Seaver, 2019a; 2019b). Specifically, studies adopting different approaches have explored the practices, perceptions, imaginaries, relationships and sense-making processes of individuals regarding digital platforms and how these engagements affect their sense of Self and positioning in the world (e.g., Cheney-Lippold, 2011; Bucher, 2012; 2017; Risi et al., 2020; Siles et al., 2019; 2020; Markham, 2021b; 2021c; Paasonen, 2021; Swart, 2021). By taking an unabashedly critical stance towards the design, deployment and use of digital platforms, the present work adds to this user-centred body of literature and strives to make a meaningful contribution to all those research areas focused on the social impact of algorithmic systems and on how platform power plays out in the micro-level situations of everyday life.

At the theoretical level, there are two assumptions that underpin this work. First, algorithms are considered as *socio-cultural artifacts*, i.e., not autonomous technical objects, but rather heterogenous, human-made, unstable, power-laden, and culturally situated systems, which are produced within complex sets of relations and embed specific goals, biases and values (Seaver, 2017; 2019b; Bonini and Gandini, 2019). Second, this project considers algorithms as *social agents*, i.e., nonhuman elements which participate in the social world and are participated in by it (Airoldi, 2022).

To investigate how individuals perceive, relate with, and make sense of digital platforms, at the methodological level, this research employs ethnographic methods and draws on 40 auto-ethnographic diaries, kept by undergraduate students and prepared

according to the aforementioned framework of critical pedagogy, within the tradition of interpretive sociology.

At the epistemological level, this project is rooted in social constructionism and symbolic interactionism. According to social constructionism, meaning is rhetorically and socially constructed by individuals, which interpret the world by categorizing entities, objects and experiences through forms, concepts and rhetorical devices which are historically and culturally shaped (Di Fraia, 2004; Di Fraia et al., 2019). According to symbolic interactionism, this social construction of meaning is necessarily shaped by social interaction, as it is only in and through interaction "that we can (…) know the Self, (…) not only because we always exist in relations — which is to say the Self cannot exist in isolation, but because the meaning we ascribe to anything, including the meaning of the Self, is continuously constructed and adjusted through ongoing interactions" (Markham, 2021b, p. 1560). Within this framework, "identity, meaning, and/or social structures" always "emerge or are negotiated through an ongoing dialogic process" (Markham and Lindgren, 2014, p. 11).

Following these principles, this dissertation provides an important opportunity to advance our understanding of how individuals relate with digital platforms and make sense of these relationships, thus contributing to a better comprehension of how these technologies emerge and intervene in everyday life.

Overall, this research shows how, following the role of captivating infrastructures and loops of proceduralization underlying the functioning of digital platforms, users contribute to the reproduction of structural hegemonic arrangements and the reinforcement of systems of control through consent in diverse ways. Specifically, it draws on what Annette Markham emphasizes in her discussions of method as the core of qualitative approaches: to focus on how this happens when it happens. Thus, based on the work I carried out with Markham herself (see Pronzato and Markham, 2023), findings initially show that critical pedagogical techniques can be useful in enhancing critical awareness regarding hegemonic datafication structures. However, findings also highlight how criticality is diminished or the initial spark of critical consciousness promoted by critical pedagogy is undermined when users blame themselves for their heavy consumption patterns, dismiss critical explanations of platform control, invoke grand narratives of dependency and inevitability, and remove responsibility from tech corporations, thereby naturalizing asymmetrical power relationships and reifying

structural hegemonic arrangements and paradigms. Within a continuous dialogue between macro and micro level, drawing on Gramsci's definition of hegemony (1937/1971; 2012) and on the following elaborations of such theorists as Mumby (1997), Deetz (1992; 1993) and Markham (2021a), I discuss how hegemonic structural arrangements, which secure the power of platform owners, are reproduced by a complex intertwinement of different elements, such as the captological design of data infrastructures and affordances (e.g., Seaver, 2019a) and the proceduralization of human behaviour (e.g. Bolter, 2012; 2019). In particular, I contend that these elements favour specific activities that become routinized and tacit over time, thus facilitating modes of governance through habit and processes of control through consent. Within the framework of Giddens' structure/agency cycle (Giddens, 1984), it is argued that hegemony tightens its grip when processes of agency and structure are interlocked with the process of control through consent, which favour the acceptance of surveillance mechanisms and the colonialist appropriation of data, thus burying corporate control *in* and *as* the "natural" flow of everyday platform experience. Given this scenario, drawing on Markham's micro-level theory of social echolocation (2021b; 2021c), I further discuss what kinds of self and relationships can be built in platform environments, where human and nonhuman elements seem all to act in recursive ways (Beer, 2016; 2022), favouring the reproduction of hegemonic structural arrangements.

Then, I advance a proposal, previously conceived, elaborated and written with Annette Markham (see Pronzato and Markham, 2023) and rooted in the principles of critical pedagogy (Markham, 2019) and data feminism (e.g., D'Ignazio and Klein, 2020), to help people build critical data literacy and go beyond subalternity as it occurs in platform environments. Specifically, a two-step process including both autoethnographic experiments and the development of critical data science skills is proposed, with the goal of helping people become more aware of datafication processes, gain more precise knowledge schemes regarding the power and functioning of digital platforms, and construct counter-narratives and shared alternative imaginaries regarding social and technological futures.

The present dissertation is organised as follows. Chapter 1 provides a review of some key critical literature on algorithms as social concerns and explains the theoretical background of the present work. First, by using the concepts of datafication, surveillance capitalism and data colonialism, I describe the infrastructural aspects of digital platforms

at the macro level (1.2). Then, I explain why it is necessary to go beyond the "black box metaphor" and I show how the functioning of technologies and, specifically, digital platforms, is never neutral, thereby discussing the recursivity of algorithmic systems and how these tools implement impartial regimes of recognition that embed specific values, goals and biases. I conclude this section by arguing for the merits of considering algorithms as socio-cultural artifacts (1.3). Section 1.4 moves from a cultural to a relational approach to technological artifacts and shows how we can consider all the human and non-human elements involved in everyday situations related to digital platforms. Specifically, I focus on the role of affordances, the distributed agency within situations involving algorithmic systems, the role of algorithms as social agents and, finally, how a theory of social echolocation can shed light on identity-building processes in platform environments. Then, the construction of algorithmic identities by digital platforms and the implications of datafication processes for the constitution of the self are discussed (1.5). Finally, in section 1.6, I discuss the role played by digital inequalities in platform experience, provide a definition of critical data literacy and lay out its potential in helping individuals questioning their use of algorithmic media and the structural arrangements underlying platform design.

Chapter 2 is concerned with the research approach, methodology, as well as pedagogical and ethical frameworks used for this study. Here I explain the rationale and aims of the research (2.1), the adoption of a critical pedagogy framework and the collection of the research material through autoethnographic diaries within the pandemic context (2.2), as well as how data were analysed through two rounds of coding (2.3). Furthermore, an explanation of how I attempted to build interpretative authority through techniques enhancing self-reflexivity and of the framework adopted to build ethical representations will be provided (2.4). In this chapter, the reader can also find an overview of the potential limitations of the study (2.5).

Findings are presented in chapter 3, through some composite accounts, snippets and maps from the autoethnographic diaries of the participants. If the first section further supports that autoethnographic techniques, rooted in the principles of critical pedagogy, can increase algorithmic awareness and data literacy (3.1), in the following section we see that, for some participants, the level of criticality and self-reflexivity developed seems insufficient to move beyond neutralizing narratives and dismissions of critical explanations, which are favoured by the illusion of control constructed by digital

12

platforms (3.2). In section 3.3, participants report patterns of heavy consumption to suppress boredom and feelings of frustration arising from the impression of having wasted time in the algorithmic flow of digital platforms, while, in section 3.4, we see how these activities are legitimised, naturalised and explained through narratives of dependency and self-blaming that put all the responsibility on the shoulders of users. Given this scenario, in the last section (3.5), I show how feelings of powerlessness are reinforced by neutralizing discursive constructions of inevitability, instances of digital resignation and the reproduction of hegemonic structures though habit.

Chapter 4 aims to discuss the results and develop a theoretical contribution that can connect reflections at the micro and macro level, within the Gramscian framework of hegemony described above (4.1). Specifically, by explaining the captivating role of data infrastructures and affordances (4.1.1), the proceduralization and routinization of specific practices of usage that become tacit (4.1.2), and the implications for the process of social echolocation (4.1.3), I attempt to shed light on how hegemonic structural arrangements are reproduced on digital platforms. Then, the aforementioned two-step pedagogical proposal, involving both critical pedagogical activities and the development of critical data science skills, will be illustrated (4.2).

I will end my dissertation by giving a brief summary and critique of the findings and by finally returning to critical pedagogy and the role of scholars and teachers in unpacking the power of digital platforms and datafication structures, in order to favour the construction of alternative, more just, social imaginaries and collective futures.

1 Literature review

1.1 Algorithms and platforms everywhere

In a digitally saturated world, our day-to-day infrastructures are increasingly pervaded by algorithmic operations. Most of the people (must) rely upon being connected to online devices throughout the entire day in order to carry out basic tasks, as quotidian activities are now made possible by the continuous presence of digital platforms, which have become pervasive, ubiquitous and taken-for-granted features of human life (Lupton, 2015; Willson, 2017; Markham, 2021a).

In this scenario, digital platforms are not only responsible for the mediation of social reality but play a systemic role in its construction and development (Gillespie, 2015; Couldry and Hepp, 2017; T. Markham, 2020[2]). Indeed, everyday experience increasingly takes place *in* and *through* the relationships we have with algorithmic media (Bucher, 2018), which contribute to shape how individuals experience and perceive the world, thereby becoming an infrastructural element within human sensemaking processes.

The crucial role of digital platforms has also become evident at the macro level, as our societal structures have been inextricably permeated by the design and functioning of these computational procedures. According to Van Dijck and colleagues (2018),

> "…platforms have penetrated the heart of societies — affecting institutions, economic transactions, and social and cultural practices — hence forcing governments and states to adjust their legal and democratic structures (…). Platforms, in our view, do not cause a revolution; instead, they are gradually infiltrating in, and converging with, the (offline, legacy) institutions and practices through which democratic societies are organized." (p. 2).

---

[2] It should be noted that in this dissertation two authors with the same surname, namely, Annette Markham and Tim Markham, will be cited in several instances. This work heavily draws on the work conducted by Annette Markham in the last twenty years, therefore, the surname "Markham" will be used for in-text references to indicate her work and the related references (e.g., Markham, 2019). When a reference indicates a contribution by Tim Markham, it will be reported as "T. Markham" (e.g., T. Markham, 2020).

It seems now clear there is no going back from the ubiquitous presence of digital devices, automated processes and algorithmic operations in almost every facet of human experience. While individuals constantly engage with algorithmic media in their everyday lives, companies keep working to extend the dominance of these computational architectures in even more spheres of social life, and program them to maximise consumer engagement, lock users into consumption patterns, and favour the following data extraction processes and commercial surveillance activities, through which predictive behavioural models and, therefore, profits are generated (Couldy and Mejias, 2019a; Seaver, 2019a; Zuboff, 2019a).

In the last decade, a large and growing body of literature has investigated the role of algorithmic systems in shaping societal structures, power relationships and, more generally, the lives of individuals. Specifically, prior research has been done in the interdisciplinary field of critical algorithm studies, which draws from a mix of different disciplines and approaches, such as sociology, anthropology, philosophy, geography, cultural theory, science and technology studies (STS), media and communication theory, software studies and others (e.g., Gillespie, 2014; Kitchin, 2014; Dourish, 2016; Iliadis and Russo, 2016; Beer, 2017; Seaver, 2017; Bucher, 2018; Lomborg and Kapsch, 2020; Airoldi, 2022).

An extensive literature has explored the politics and the social and cultural implications of digital platforms, and a well-established tenet holds that these algorithmic infrastructures are not value-free tools, but rather technologies "embedded within complex socio-technical assemblages made up of a heterogeneous set of relations including potentially thousands of individuals, data sets, objects, apparatus, elements, protocols, standards, laws, etc. that frame their development." (Kitchin, 2017, p. 20). These systems, in fact, can be considered as *socio-cultural artifacts*, in which are inscribed the values, ideas, biases, practices and goals of the people and organisations who design them (Seaver, 2017). Within this framework, how these technologies are designed, which socio-cultural principles are embedded into them, and, in turn, which dynamics they favour within the social factory, emerged as crucial concerns for social scientists (e.g., O'Neil, 2016; Noble, 2018; Seaver, 2018; 2019b; Bonini and Gandini, 2020). Then, if algorithmic media are the result of human practices and values, once deployed, these systems intervene in how on social activities occur, also by learning from, and adapting to them. Given this scenario, in this dissertation, algorithmic media are also

considered as *social agents*. i.e., nonhuman agents that take part in the social world as active participants in everyday interactions, and are participated in by it (Airoldi, 2022), within an ecosystem where a distributed agency of humans and nonhumans is at play (Bucher and Helmond, 2017; Markham, 2021b).

Finally, how individuals perceive, relate with, and make sense of digital platforms in their everyday life, thereby relating with them within a complex ecosystem of human and non-human elements, has been highlighted as a key research area that can help scholars get a better understanding of the deployment of algorithmic media within social reality (Siles et al., 2019; 2020; Risi et al., 2020; Markham, 2021b; 2022a; Swart, 2021). Indeed, it is in the everyday micro-level taken-for-granted situations involving algorithmic media, such as liking a picture on Facebook, scrolling your Instagram feed or clicking "Play" on a playlist "made for you" on Spotify, that the influence and power exerted by and through these sociotechnical artifacts emerges and takes place (Markham, 2021a). Furthermore, these engagements dramatically impact how individuals construct a sense of selfhood and identity, which is increasingly the result of interactions between human and nonhuman actors (Cheney-Lippold, 2017; Prey, 2018; Markham, 2021c). The present work aims to contribute to this existing knowledge and to enhance our understanding of these processes which occur at the intersection of micro level everyday practices of sensemaking and massive, global scales of context (Markham et al., 2021).

Within this framework, the goal of this section is to outline a literature review of research carried out in the field of critical algorithm studies regarding the social and cultural implications of digital platforms and algorithmic infrastructures, in order to pave the way for the empirical study that will be presented in this thesis, which focus on the relationships young individuals have with algorithmic media and the ways in which these artifacts are perceived and interpreted in everyday life.

To do so, this chapter has been organised in the following way. The first section explores the concept of datafication (e.g., van Dijck et al., 2018; Mejias and Couldry, 2019) and then connect it to surveillance capitalism, i.e., the economic model underlying digital platforms discussed by Shoshana Zuboff (2015; 2019a; 2019b), and to data colonialism, i.e., a novel form of colonial exploitation embedded into these systems (Couldry and Mejias, 2019a; 2019b). Drawing on different authors, the second section unpacks the widespread neutrality claims surrounding digital platforms. To do so, I argue for the merits of going beyond the "black box metaphor" (Bucher, 2016), I focus on the

recursive feedback loops favoured by machine learning algorithms (Airoldi, 2022; Beer, 2022) and the impartial regimes of recognition imposed on users (Striphas, 2015; Amoore, 2020), and I explain why it is crucial to consider the social and cultural situatedness of digital platforms, which can be considered as socio-cultural artifacts (Seaver, 2017; 2018). The next section connects these concepts to a relational approach to technology and identity, by focusing on the role of affordances (e.g., Bucher and Helmond, 2017; Davis, 2020), the potential of considering a framework of distributed agency and algorithms as social agents (e.g., Airoldi, 2022), and the social theory of echolocation, as discussed by Annette Markham (2020b; 2021b; 2021c). Issues regarding how platform environments contribute to the constitution of algorithmic identities and, therefore, of our sense of self will be discussed in the following section (e.g., Cheney-Lippold, 2017; Prey, 2018), while a discussion of the potential role played by digital inequalities and critical data literacy in these dynamics will be provided at the end of the chapter.

1.2 Datafication, surveillance and colonialism

This section focuses on the infrastructural aspects of digital platforms, attempting to explain their functioning and implications at the macro level. First, drawing on the work of José Van Dijck and her colleagues Thomas Poell, and Martijn de Waal, as well as on the writings of Ulises A. Mejias and Nick Couldry, it discusses the contemporary phenomenon of *datafication*, which underlies the functioning of platforms, and defines its core principles. Then, it illustrates how this transformation of human life into data serves the purposes of what Shoshana Zuboff defined *surveillance capitalism*, i.e., an economic model and exploitative commercial logic underlying all the major platforms we use in our daily life. Finally, in the last paragraph, it is shown how the kind of human relations underpinning datafication favour the spread of a novel form of colonialism that Couldry and Mejias defines *data colonialism*.

1.2.1 Datafication

Kitchin (2014) defines data as the "material produced by abstracting the world into categories, measures and other representational forms (…) that constitute the building blocks from which information and knowledge are created" (p. 1). Another commonly used definition of datafication comes from Mayer-Schönberger and Cukier (2013), according to which datafication occurs when a phenomenon is put "in a quantified format so it can be tabulated and analyzed" (p. 78). For them, the possibilities given by computational methods and big data analysis allow the "datafication of everything" (p. 93), following a principle that sees "the world as information, as oceans of data that can be explored at ever greater breadth and depth" (p. 97).

Measurement practices and the following transformation of the world in metrics has a long history and it is certainly not something emerging specifically with the creation and diffusion of the Internet (e.g., Hacking, 1990; 1991; Beer, 2016). However, the pervasiveness and widespread diffusion of online digital technologies allow the systematic monitoring of human life and the constant transformation of social action into online quantified data (Mayer-Schoenberger and Cukier, 2013), which enable forms of real-time tracking and predictive analysis (van Dijck, 2014). If collecting data regarding citizens and consumers, such as demographics and audience data, is certainly something that public institutions and companies have always done (e.g., Driscoll, 2012), the spread of mobile devices and the rise of online platforms allowed the continuous and automatic construction and gathering of behavioural meta-data about users, such as GPS-inferred locations, and of every type of user interaction and exchange, such as visiting a website, liking or commenting a post, sharing a picture, buying a product, and so forth (van Dijck et al., 2018). Thus, today datafication implies the idea that all the elements of human life can be transformed in "a continual source of data" (Mejias and Couldry, 2019, p. 2). Indeed, everything individuals do online (and often also offline) is set in order to be constantly tracked (Andrejevic, 2012), and the main beneficiaries of this process are usually corporations that capture users' activities and translate them into quantifiable data which are stored, filtered, analysed and ultimately turned "into tradable commodities" (van Dijck et al., 2018, p. 37), through which profits are generated.

The reader should bear in mind that data are not "pre-existing" resources that can be "naturally" extracted through "neutral" machines. Datafication is always and primarily a

process of *categorization* and, therefore, *abstraction* (Kitchin, 2014). According to Mejias and Couldry (2019), how data are produced is inextricably linked to the infrastructures that allow the collection, analysis and storage of data, and the processes through which value is generated. Specifically, the quantification of human life takes place through platforms that organize social life, people's activities and relations, in ways that allow the transformation of "the flow of social life and social meaning into streams of numbers" (p. 4) that are used to calculate predictive models through which monetary value is generated. As argued by David Beer (2016), "metrics are now an embedded, multi-scalar, and active component of our everyday lives" and play a crucial role in "how those lives are ordered, governed, crafted, and defined" (p. 4). Thus, one may even argue "that systems of measurement are at the heart of the very functioning of the social world as it is today" (p. 4)

Within this scenario, digital platforms are not only responsible for the organization of social reality, but also for its production, thus emerging as the means through which social life is configured in order to produce data and make these data "useful" (Cheney-Lippold, 2017). Indeed, today it is through these artifacts that is produced "the social for capital, that is, a form of "social" that is ready for appropriation and exploitation for value as data" (Couldry and Mejias, 2019a, p. 339).

Regarding this process, Cheney-Lippold (2017) argues that "algorithmic agents make us and make the knowledges that compose us, but they do so on their own terms" (p. 11), in fact, the categories with which users are rendered into numbers are not neutral, but the outcome of specific decisions, goals and values. Classifying social reality always implies value-laden choices regarding what to track, how to track it, extract it and categorise it (Kitchin, 2017). Employees working for corporations conceive, program and release software programs that then take "some constitutive or performative role in ordering [the] world on our behalf" (Beer, 2017, p. 4). Thus, how code is generated "has significant social, political and aesthetic dimensions" (Monfort et al., 2012, p. 3, cited in Kitchin, 2017) and an "implicit politics" (Cheney-Lippold, 2011, p. 167).

The main goal of the processes of user monitoring, data extraction and categorization operated by digital platforms is to make data monetizable. The economic model underlying this process is surveillance capitalism.

1.2.2 Surveillance capitalism

Surveillance capitalism knows everything about us*, whereas their operations are designed to be unknowable* to us*. They accumulate vast domains of new knowledge* from us*, but not* for us *(*Zuboff, 2019a, p. 11).

In 2019, Shoshana Zuboff, published her already classical book, *The Age of Surveillance Capitalism. The Fight for a Human Future at the New Frontier of Power*. Although it has been highlighted that several of its core arguments had already been developed by surveillance studies in previous years and that the book was mainly "intended as a wake-up call for the educated business reader to recognize the massive power of the tech platforms" (Ball, 2019, p. 253), this work can be considered a thorough account of the history of, and economic model underlying the major digital platforms owned by big tech companies, such as Google, Facebook[3] and Microsoft.

There are nine definitions of "surveillance capitalism" written at the beginning of the book (Zuboff, 2019a). The first two definitions refer to surveillance capitalism as "[a] new economic order that claims human experience as free raw material for hidden commercial practices of extraction, prediction, and sales" (p. ix) and as "[a] parasitic economic logic in which the production of goods and services is subordinated to a new global architecture of behavioral modification" (p. ix). Here, it becomes already clear what is the moral, ethical and political standpoint from which Zuboff looks at the "voracious and utterly novel commercial project" (p. 7) of Big Tech companies, which are responsible for "the ruthless exploitation of surplus from Facebook profiles for the purposes of shaping individual behavior" (p. 9).

It should be noted that, although surveillance capitalism is strictly linked to technological development, it "is not technology; it is a logic that imbues technology and commands it into action", in other words, "a market form that is unimaginable outside the digital milieu" (Zuboff, 2019b, p. 7), but that cannot be reduced to the digital realm per se. Indeed, whereas "it is impossible to imagine surveillance capitalism without the

---

[3] When Zuboff's book was written and published, Facebook had not rebranded the company yet and changed its name to Meta. In this section, the term "Facebook" indicates not only the homonymous social networking service, but also the technology conglomerate owning this service, i.e., Meta, Inc.

affordances of the digital, it is perfectly possible to imagine these technologies and capabilities without surveillance capitalism" (p. 7-8).

Figure 1 The Discovery of Behavioral Surplus

The Discovery of Behavioral Surplus

Surveillance capitalism begins with the discovery of behavioral surplus. More behavioral data are rendered than required for service improvements. This surplus feeds machine intelligence - the new means of production - that fabricates predictions of user behavior. These products are sold to business customers in new behavioral futures markets. The Behavioral Value Reinvestment Cycle is subordinated to this new logic.

Markets in Future Behavior

Prediction Products

SURPLUS

Surveillance Revenues

Rendered Behavior

The New Means of Production

Profits

Users

Behavioral Data

Analytics

Service Improvements

Shoshana Zuboff, The Age of Surveillance Capitalism

Source: Zuboff (2019a, p.97)

According to Zuboff (2015), this "fully institutionalized new logic of accumulation" (p. 85), pioneered by Google and then rapidly adopted by Facebook and Microsoft, uses Big Data analyses to automate, "predict and modify human behavior" (p. 75), in order to generate profits and produce market control. In her view, if industrial capitalism claimed natural resources as raw materials that could be extracted and expropriated from the earth, in the realm of surveillance capitalism, humans are the objects from which companies claim, extract and expropriate raw materials (Zuboff, 2019a). Indeed, today, every aspect

of human life can be extracted and "continuously converted into data streams that are used for opaque and exploitative commercial practices" (Risi and Pronzato, 2021, p. 121).

More specifically, companies, such as Google, track everything individuals do online and extract *data exhaust*, i.e., the digital traces of users' behaviour left online (Figure 1). A small part of these behavioural data is used to improve services and products, but most of them constitute a *behavioral surplus*, that is then fed into machine learning systems, defined by Zuboff (2019a) as "machine intelligence", which constitute the "*twenty-first century* "*means of production*" (p. 96, emphasis in original). The commodities fabricated by these machines are *prediction products*, which are designed to anticipate what and how individuals will think, feel, act in the future. Those predictions are the real product sold by companies to their real customers: advertisers. These economic transactions take place in a type of marketplace defined by Zuboff as *behavioral futures markets*, which allow corporations to obtain *surveillance revenues*, which are then translated into *surveillance capital* (2019a, pp. 93-97). Within this framework, Zuboff argues that (2019b),

> "[i]ndividual "users" are not the subjects of value realization. Nor are they, as some have insisted, "the product" in the sales process. Instead, they are the objects from which raw materials are extracted and expropriated for Google's prediction factories: they are the means to others' ends." (p. 15)

This "parasitic and self-referential" (Zuboff, 2019a, p. 9) system is considered problematic by the author not only for its ability to know and predict human behaviour in fine-grained detail, but for its capacity to shape and intervene in human activities and, more specifically, for its goal: the automation of human behaviour. Indeed, "means of behavioral modification" pursue "to produce behavior that reliably, definitively, and certainly leads to predicted commercial results for surveillance customers" (2019b, p. 19). The aim is to produce "forms of behavior that are algorithmically managed and controlled by data capitalists" (Darmody and Zwick, 2020, p. 3).

According to Zuboff (2019a), this economic system favours the development of a novel type of power that she defines *instrumentarianism*, i.e., "*the instrumentation and instrumentalization of behavior for the purposes of modification, prediction, monetization, and control*" (p. 352, emphasis in original). The principle encoded within this system is Skinnerian behaviourism on a massive scale, which aim to render users

"both predictive and addictive" (Ball, 2019, p. 253), in order to continue extracting data and generating profits, within *regimes of certainty* that risk undermining human freedom and autonomy (Zuboff, 2019a; 2019b).

Zuboff's conceptual scheme has been criticised for its excessively behavioural orientation and "techno-dystopian worldview", which leaves "little space for an account of the user experience of smart tech" (Whitehead, 2019, p. 17). Indeed, her monolithic account of the power of platforms completely denies user agency and the potential benefits that individuals can get from using online technologies (e.g., Risi et al., 2020). However, her work can be considered a brilliant diagnosis of the mechanisms, functioning principles and economic imperatives that have "become the default model for most internet-based businesses" (Zuboff, 2019a, p. 10) and, therefore, a fundamental starting point for further analyses.

1.2.3 Data colonialism

The relation between the imperatives of capitalism, surveillance practices, the exploitation of human life and the role of digital infrastructures, has been furtherly explored by Nick Couldry and Ulises A. Mejias (2019a; 2019b; 2019c), through the concept of *data colonialism*, which they define as

> "…our term for the extension of a global process of extraction that started under colonialism and continued through industrial capitalism, culminating in today's new form: instead of natural resources and labor, what is now being appropriated is human life through its conversion into data. The result degrades life, first by exposing it continuously to monitoring and surveillance (through which data is extracted) and second by thus making human life a direct input to capitalist production. Data colonialism is, in other words, an emerging order for appropriating and extracting social resources for profit through data, practiced via data relations." (2019b, p. xix)

According to this view, we are colonized by data as companies are attempting (and managing) to systematically turn every aspect of human experience into an input that can be extracted, appropriated, and used to generate profits. This emerging economic,

political, and social order is enabled by the existence and maintenance of Internet-enabled communication infrastructures, which are now integrated in every aspect of human life (e.g., van Dijck et al., 2018). It should be noted that human life is not changed by digital platforms per se, in fact, the functioning and meaning of online technologies emerge from their intertwining with individuals' actions and interpretational schemes (Couldry and Hepp, 2017), thereby allowing for the reproduction of data colonialism and its exertion of power within a complex scenario in which human sensemaking and technological development ceaselessly combine.

The analogy with historical colonialism and its modes of value extraction and human exploitation draws on the idea that,

> "…although the modes, intensities, scales, and contexts of today's dispossession are distinctive, the underlying function remains the same as under historical colonialism: to acquire large-scale resources from which economic value can be extracted. If historical colonialism annexed territories, their resources, and the bodies that worked on them, data colonialism's power grab is both simpler and deeper: the capture and control of human life itself through appropriating the data that can be extracted from it for profit. If that is right, then just as historical colonialism created the fuel for industrial capitalism's eventual rise, so too is data colonialism paving the way for a capitalism based on the exploitation of data. Human life is quite literally being annexed to capital." (Couldry and Mejias, 2019b, p. xi)

Under historical colonialism, the natural resources of the occupied territories were framed as raw materials, which could be configured that way in order to be extracted, processed and exploited. Through the massive diffusion of slavery, also human bodies became considered as a raw material to be exploited and from which to extract value, in order to obtain the natural resources that underlay the development of industrial capitalism. Likewise, data colonialism claims human data as raw material. Within this framework, "humans exist to be conquered and used as far as the viewpoint of platforms goes" (Johanssen, 2021, p. 92) and their life on digital platforms is configured in order to be extracted and exploited "for value as data" (Couldry and Mejias, 2019a, p. 339).

This annexation of life to capital is enabled by *data relations*, i.e., "new types of human relations which enable the extraction of data for commodification" (2019a, p. 337). While

Karl Marx (1867/1976) considered labour relations — through which the activity of labour was abstracted and commodified — at the basis of the mode of production of industrial capitalism, Couldry and Mejias (2019a) considers data relations as the mechanism underlying the process through which social data are captured and processed under data colonialism, ensuring the conversion of social life into data streams that are employed to generate profits. Today, in fact, it is not only human labour, but the entire realm of social and personal relations which become commodified, thereby contributing "to surplus value as a *factor of production*, just like seed or manure" (p. 343). Furthermore, data relations not only allow the continuous annexation of the social to capital, but also a constant surveillance of the subject, from whose daily life surplus value is continually extracted for specific commercial and political interests.

A crucial element that enables the functioning of this "new order (…) constructed through the continuous extraction of data from our social lives" (Couldry and Mejias, 2019c, p. 1) is "the naturalization of data capture" (2019a, p. 339), in other words, companies treat user personal data as natural resources that are "just there", ready to be extracted, and configure, through the logics and affordances of digital platforms, the flow of everyday life in a way that allow its collection and exploitation as data (Kitchin, 2014). This unneutral, power-laden and political mechanism is often framed as natural by users, to which this dispossession of personal data seems just the price to pay to be on the Internet, thereby normalizing what Zuboff (2019a) defines "a fundamentally illegitimate choice" (p. 11).

The dramatic transformations of human experience described by Couldry and Mejias (2019b) enable what the authors define *social caching*, i.e., "a new form of knowledge about the social world based on the capture of personal data and its storage for later profitable use", and favour the emergence of a *Cloud Empire*, i.e., "a totalizing vision and organization of business in which the dispossession of data colonialism has been naturalized and extended across all social domains" (p. xiii), thereby favouring a concentration of power in the hands of the few companies operating in the s*ocial quantification sector*.

If Zuboff (2019a) considers surveillance capitalism as "a challenge to the elemental right to the future tense" (p. 20), in the same vein, Couldry and Mejias (2019a) claims that the consequences of data colonialism are the degradation of human life and the transformation of our everyday experiences in colonial dispossessive relations, which are

naturalized and undermine our capacity to freely act in the world. This new economic, social and political order, in fact, offers "unprecedented new opportunities for social discrimination and behavioral influence" (p. 336) and appropriates both physical and cognitive resources. In this scenario, "economic power (the power to make value) and cognitive power (the power over knowledge) converge as never before" (2019b, p. xii), undermining freedom and democracy, as well as causing harms which "are an intrinsic part of how these companies operate, a natural consequence of the (…) colonial rationality (…) that underlies their business model" (Viera Magalhães and Couldry, 2021, p. 356).

1.3 Unpacking platform neutrality and opacity

In the previous paragraphs, it emerged which are the conceptual paradigms, commercial logics and economic models underlying the infrastructures of digital platforms. Although these findings are well-established and discussed in the academic realm, a common narrative about digital platforms in the public debate is that they are neutral, objective, value-free and unbiased. This myth of algorithmic neutrality is often spread by big tech companies to justify the use of their tools and not take full responsibility for their operation (Gillespie, 2017; Bucher, 2018; Rosenbaum, 2020).

Etymologically, the word 'platform' derives from the Middle French *plateforme*, i.e. 'a flat form', in other words, a horizontal area that encourage individuals to remain and lean on its surface. Tarleton Gillespie (2010; 2017) argues that, around ten years ago, this metaphor has been extremely useful for tech corporations, such as social media services, as it allowed these companies to promise users a 'open playing field' for participation, to promise advertisers a limitless space in which to micro-target users, and to promise policymakers a fair and neutral framework for online operations. The idea behind these promises is the one of a flat environment, in which further interventions are not necessary and self-regulation is the rule (see also Risi and Pronzato, 2022b). Today the 'platformization of the web' (Helmond, 2015) is evident and it has become clear that this flatness is only apparent. As mentioned earlier, social, cultural, economic and power relationships are continuously modelled and reproduced by these infrastructures (van Dijck and Poell, 2013; Beer, 2017), which have become a pervasive presence of everyday

life and indispensable tools for individuals, companies and public institutions (van Dijck et al., 2018; Couldry and Hepp, 2017). There is consensus among scholars that algorithmic technologies are not neutral intermediaries, as there are specific socio-cultural norms, business goals and political relations, which are embedded in their design. In other words, algorithms are socio-cultural artifacts (Seaver, 2017).

Then, even when it is recognized that algorithmic media interrelate with their social context, giving and taking shape, another common perspective is that algorithms are "black boxes", i.e., opaque instruments that are not empirically accessible and, therefore, cannot be fully understood (Pasquale, 2015). As we will see, also this idea is limiting in several manners.

The next four sections attempt to unpack claims of neutrality and opacity and to show how researchers can analyse algorithms through a literature review that takes into account contributions situated in interrelated fields. To begin, the first section discusses the "black box metaphor", which has been often used to describe algorithms as unknowable devices directing the experiences of individuals in opaque ways, and shows that this metaphor is an epistemological limit. Then, how the functioning of machine learning algorithms is related to recursive dynamics and the implementation of specific regimes of recognition is explained. The following section shows how these algorithmic regimes of recognition can classify individuals and cultural products following and favouring particular logics and worldviews. Finally, the importance of considering the role of human practices and values in platform design and, therefore, algorithms as socio-cultural artifacts, is discussed.

1.3.1 Beyond the black box metaphor

As previously explained, algorithms are not neutral. There is consensus among social researchers about this principle. However, there is another potentially problematic idea regarding algorithmic systems that is very common also in the academic realm: the "black box metaphor". According to Frank Pasquale (2015), author of the book *The Black Box Society. The Secret Algorithms That Control Money and Information*, it is possible to refer to a black box as "a system whose workings are mysterious; we can observe its inputs and outputs, but we cannot tell how one becomes the other" (Pasquale, 2015, p. 3).

Regarding algorithms, the idea behind this metaphor is that it is not possible to know the inner functioning of digital platforms, "at least not by observation, as the blackness of the box obscures vision" (Bucher, 2016, p. 83). The opacity of these systems is constructed to preserve trade secrecy and makes impossible for researchers and the general public to understand the process through which an input is turned into an output (Burrell, 2016).

Despite this idea of secrecy and inaccessibility with which computational systems are often presented, in the last few years, some scholars have attempted to go beyond the idea of algorithms as black boxes, as this metaphor was considered limiting in several ways. Specifically, Taina Bucher (2016) claims that the black box analogy is a sort of "red herring" that do not allow us to focus on potential key issues regarding how digital platforms are built and interpreted. Indeed, researchers should be more focused on approaches that allow to investigate the social and cultural constructs that lie behind algorithmic infrastructures (Christin, 2017; 2020a; 2020b; Bonini and Gandini, 2019; 2020; Svensson, 2021) and the intertwinement between algorithmic media and everyday experience (Bucher, 2018; Risi et al., 2020).

According to O'Dair and Fry (2019), the black box metaphor may "create the impression that, if we were only able to peer inside one of these black boxes, we would discover a secret key that would somehow "explain" or "solve" the mysteries of" (p. 69) digital platforms. However, taking into account algorithms as black boxes implies "to neglect the fact that power dynamics extend far beyond code" (p. 75), thereby impeding to focus on salient aspects of algorithmic systems.

As already highlighted, digital platforms are technologies "embedded within complex socio-technical assemblages" in which there are interactions between "potentially thousands of individuals, data sets, objects, apparatus, elements, protocols, standards, laws, etc." (Kitchin, 2017, p. 20). Those relations should be a primary concern for scholars that aim to investigate how digital platforms intervene and deploy in social reality (Gillespie, 2014; Gray and Suri, 2017; Aragona and Felaco, 2018; Milan and Treré, 2019; Seaver, 2019a). Indeed, while companies work to make platforms look like black boxes that cannot be scrutinized and whose operations are unknown, "algorithms are neither black nor box, but a lot more gray, fluid, and entangled than we may think", thus we need to go beyond the black box metaphor, which is "an epistemological limit" (Bucher, 2016, p. 94).

1.3.2 Recursive, machine learning algorithms

If, as researchers, we need to go beyond the black box metaphor, it can be useful to define some of the basic principles underlying the functioning of digital platforms, which can also be defined as algorithmic media. While the word "algorithm" has become common also in media news, public discourses and everyday discussions, this term can embody a multitude of concepts. Algorithms are generally defined as computational recipes turning data inputs into a desired output (Airoldi, 2022; Beer, 2022). On such platforms as social media, streaming services, etc., the input data that feed these algorithmic procedures are users' digital traces, which are used with other data points to produce desired outputs, such as a recommended content, that aim to stimulate user engagement and retention, extend datafication processes, produce behavioural models, and so forth (Risi and Pronzato, 2022b). Every time Netflix recommends us a movie or Spotify recommends us a song, that output is the result of a process in which the platform combined the data previously collected about our behaviour, i.e., the data *input*, with other data, in order to produce a result, the data *output*, that favour the goals of platform producers, such as the increase of consumer engagement, and might provide a service to the user. It should be noted that what lies in between the input and the output — i.e., the strings of code that guide the process by which online algorithms ingest data on user behaviour, and then produce a real time personalized output — is not transparent, as only the companies that produce those algorithms precisely know how they are implemented (Airoldi, 2018).

Thus, on those platforms, algorithms learn from our digital footprints to which contents we may be more sensitive, and then foresee our future behaviours. This process is *recursive*. Recursivity is "when the output of a computational process becomes itself embedded in the input of a new iteration" (Airoldi and Rokka, 2019, p. 2). When the system provides an output, such a recommended song or picture, users react to these stimuli, by, for example, skipping, sharing, liking that content. All these activities produce data points that are reabsorbed by the platform as new data inputs that are used to propose new contents, which are in turn consumed by users. In other words, users' responses to the outputs of the machine become themselves a new input for the algorithmic infrastructure and are in turn embedded in every new human-machine interaction. Thus, practices that are favoured by the platform feed back to shape new habits of thought and

expression. Within the recursive relationship between individuals and algorithmic recommendation systems, uses (and users) of platforms are continuously inscribed into the design and functioning of platforms (see Airoldi, 2022; Risi and Pronzato, 2022b).

Given this scenario, David Beer (2022) argues that today we live in a recursive society, which is,

> "…built upon feedback loops, multiple feedback loops, each endlessly feeding into the next. As data are produced by an action they then feed into future actions, repeatedly. This is not a single or unified set of processes, but multiple feedback loops crosspollinating – or cross-data-pollinating – and implicating other feedback loops. The recursive society is found in these algorithmic sorting processes that are built out of data circulations, but it goes beyond this. It is about what happens when the world itself becomes deeply analytic" (p. 1)

Today, most of the algorithmic classification practices through which we become "data subjects" (Ruppert, 2011) to which recommend contents, rely on *machine-learning* (ML) algorithms (Burrell, 2016; Jacobsen, 2021). ML algorithms are "algorithms that can improve automatically through experience and by the use of data" ("Machine learning", 2022, np). Specifically, ML algorithms are programmed to recognise details, objects, individuals, etc. within images, videos, songs, etc.

Regarding the training of image recognition algorithms, Jacobsen (2021) explains that algorithms:

> "…are trained on big datasets of images, where they learn to recognise particular patterns and features at the pixel level of the image. The input data are then assigned a series of weightings or parameters that determine its significance within the model. As a result, the algorithm learns over time to weight some patterns or clusters in the pixel values more than others. For instance, learning to recognise particular breeds of dog in an image or learning to link the image of a face to a concrete individual." (p. 4)

These types of algorithms "afford weight or value to one pixelated part of an image over others" (Amoore, 2020, p. 74) and learn how to adjust their parameters over time, thereby creating what Louise Amoore (2020) defines "regimes of recognition". Indeed, Amoore (2020) argues that machine learning algorithms are not only responsible for the

recognition of individuals and objects "in the sense of identifying – faces, threats, vehicles, animals, languages", these artifacts "actively generate recognizability as such, so that they decide what or who is recognizable as a target of interest in an occluded landscape." (p. 69).

On digital platforms, ML algorithms "parasitically feed on the data and actions of users" (Bucher, 2020, p. 613) and continuously learn how to recognise particular features, how to adjust their parameters, and how to adapt their outputs to users (Airoldi and Gambetta, 2018). However, "the politics of algorithms resides not only in what they output, but also the ways in which they are adjusted or arranged" (Jacobsen, 2021, p. 5) by their developers, or the data that are used to train them. All these elements are part of that complex socio-technical assemblage that shape behaviours, offer outputs, promote contents and people over others, and decide what deserves to be recognised (and what does not). Thus, algorithmic media construct and shape public cultures and social imaginaries and contribute to how we access, interpret, and make sense of social life (Gillespie, 2015).

1.3.3 Impartial regimes of recognition

As previously highlighted, algorithmic media reflect the specific goals, interests and cultural biases of the individuals and organisations that produce them (Airoldi and Gambetta, 2018), and these assumptions, in turn, contribute to the production of particular "regimes of recognition" (Amoore, 2020), which are based on the unneutral categories used to categorise individuals and cultural objects. In this scenario, algorithms can decide "what matters in the world, what or who can be recognised, what can be protested, and which claims can be brought" (p. 10). According to Cheney-Lippold (2017), "all algorithmic interpretations produce their own corrupted truths" (p. 12). How we are categorised by platforms, in fact, "become the discursive terrain from which we, and others, compose our digital selves" (p. 12).

A flourishing and well-established body of literature, mainly based in the USA, has investigated how algorithms embed cultural assumptions about social reality and, based on these assumptions, perpetuate and systematize inequalities. Some of the most notable examples are the works published by Cathy O'Neil (2016), Safiya Umoja Noble (2018),

Ruha Benjamin (2019) and Virginia Eubanks (2019). While the cases analysed by these researchers and activists are diverse (e.g., banking computer models, predictive crime models, search engines, automated welfare systems, etc.), all their investigations show that algorithms are not neutral and impartial entities, but rather artifacts produced by human practices, within specific cultural environments, and embedding particular values and biases. A common risk entailed in the deployment and adoption of these artifacts in different realms of social life without a critical analysis of their production and functioning, in fact, is the automation of power asymmetries, social inequalities, and gender and ethnic discriminations. Indeed, the biases embedded into classification systems can naturalize certain long-standing forms of oppression, as well as dehumanize already marginalised communities.

If such cases as the provision of public services through automated decision-making systems can show how certain regimes of recognition affect the lives of citizens, another realm life in which it has become more evident the intervention of algorithms is that of cultural industries and popular culture in general. Everyday consumptions have been dramatically affected by digital platforms and as argued by Ted Striphas (2015):

> "…[w]hat one sees in Amazon, and in its kin Google, Facebook, Twitter, Netflix and many others, is the enfolding of human thought, conduct, organization and expression into the logic of big data and large-scale computation, a move that alters how the category *culture* has long been practiced, experienced and understood" (p. 398).

He defines this phenomenon as *algorithmic culture* to illuminate on the ways in which, in the last 30 years, "human beings have been delegating the work of culture – the sorting, classifying and hierarchizing of people, places, objects and ideas – to data-intensive computational processes" (Striphas, 2015, p. 398) produced by companies, such as Google, Facebook, Amazon, etc., which developed the capacity, as well as the cultural authority to recognise, rank and classify human products on an unprecedent scale.

Google's algorithms choose which are the "most relevant results" regarding a query; social media, such as Facebook and Instagram, determine which "friends", "followers", posts, pictures, links will pop up first in your "news feed"; shopping sites like Amazon order and offer you the products that "customers frequently viewed" and "products related" to certain item; dating sites, such as Tinder, calculate which is your

"compatibility" with another member; Netflix recommends you movies and tv series which are "popular" or well-suited for you "because you watched" something similar, while Spotify prepares "personalized" playlists that "combines both your personal taste in music with what others are playlisting and listening to around the songs that you listen to" (Spotify Press, 2015, cited in Prey, 2018, p. 1091). All these processes are "cultural and thus highly ambiguous tasks being expressed as and delegated to mechanical procedures" (Rieder, 2017, p. 101), which select, filter, rank and promote some objects over others in an opaque and unneutral manner (Airoldi and Rokka, 2019).

Computational processes are not only responsible for the ordering and filtering of products on digital platforms, but also for the classification of "the habits of thought, conduct, and expression that arise in relationship to those processes" (Hallinan and Striphas, 2016, p. 119), thus triggering those aforementioned recursive loops which underlie the functioning of algorithmic media. In this scenario, Striphas argues that a key concern related to algorithmic culture should be how "algorithmic culture then feeds back to produce new habits of thought, conduct, and expression that likely wouldn't exist in its absence — a culture of algorithms, as it were" (Granieri, 2014, np). Furthermore, also the production of cultural products, such as movies (Lee et al., 2018; Rasmussen, 2020) and music (Prey, 2019; Morris, 2020; Raffa and Pronzato, 2021) has been affected by the automation of culture.

In this scenario, "companies like Amazon, Google and Facebook are fast becoming (…) the new apostles of culture" (Striphas, 2015, p. 407), which privately possess the mechanisms that regulate our personal, social and cultural lives. Thus, this situation can result in "the gradual abandonment of culture's publicness" (p. 395) and the privatization of that struggle through which are determined "the values, practices and artifacts – the culture, as it were – of specific social groups" (p. 406).

Even though this research project does not directly focus on how digital platforms sort and organise contents on their interfaces, this paragraph sought to highlight the role played by automated systems and their regimes of recognition in sorting and classifying humans and human knowledge, as how the ways algorithms relate our algorithmically-created profile to cultural products can have implications for our sense of self and how our identities and social imaginaries are constructed (e.g., Bucher, 2018).

1.3.4 Algorithms as socio-cultural artifacts

We saw that algorithmic media are not neutral intermediaries, but rather technologies in which are embedded socio-cultural values, biases and opinions, applying specific regimes of recognition hierarchising individuals, places and objects. Within the field of critical algorithm studies, the composition of algorithms and their entanglement with societal processes is a highly discussed and continuing concern and different researchers, using different terms, have argued that algorithms ought to be considered as socio-cultural artifacts (e.g., Seaver, 2017; Vicari and Kirby, 2022).

In one of the foundational articles of the field, which has been recently republished, the anthropologist Nick Seaver (2019b) claims that algorithms are not definite objects or "standalone little boxes" but rather:

> "…massive, networked ones with hundreds of hands reaching into them, tweaking and tuning, swapping out parts and experimenting with new arrangements. If we care about the logic of these systems, we need to pay attention to more than the logic and control associated with singular algorithms. We need to examine the logic that guides the hands" (p. 419).

Those "hands" are the ones of the individuals participating, with both "technical" and "non-technical" roles, in the design, implementation, and adjustments of algorithms. Indeed, programmers, developers, engineers, data scientists, etc. constantly engage in discussions regarding the goals, possibilities and functioning of a digital platform with other people which are not technical figures but strictly connected to the aims of the project and these different people hold different views regarding algorithms and their role (Seaver, 2017). Thus, whereas "discourses about algorithms sometimes describe them as "unsupervised," working without a human in the loop, in practice there are no unsupervised algorithms. If you cannot see a human in the loop, you just need to look for a bigger loop" (Seaver, 2018, p. 378). More specifically, this idea points directly to the human decisions involved in each stage of algorithmic design and to the cultural context where these dynamics occur. As noted by Wajcman (2019), in fact, "all artefacts (...) reflect the culture of their makers" as they are the outcome of particular decisions made by specific groups of individuals in specific places and at specific moments in time, hence, also algorithmic media can be considered as "crystallizations of society: they bear

the imprint of the people and social context in which they develop" (p. 1276). I do not consider this idea as an underestimation of the role of automated-decision making tools and their consequences on social life, but rather an attempt to highlight that technologies are always the result of a complex intertwinement of diverse human practices, which need to be considered not to underestimate the responsibilities and agencies involved in the production ecosystem.

Drawing on a practical approach to culture (Bourdieu, 1972; Abu-Lughod, 1991; Mol, 2002; Stern, 2003;), Seaver (2017) argues that researchers should consider algorithms "as culture", in other words, cultural artifacts composed of several, multifaceted human practices and, more specifically, *enacted*, i.e., constantly brought into being at the material level by human activities, perceptions and interpretations. In his view, algorithms should not be considered "as stable objects interacted with from many perspectives, but as the manifold consequences of a variety of human practices" (p. 4).

Within this framework, algorithms are "culturally enacted by the practices people use to engage with them" (p. 5), i.e., brought into being the human practices underlying the design of digital platforms and by the ways in which individuals think, interpret, and relate to algorithms in different settings (see also Seaver, 2018).

My research project does not investigate the practices through which algorithms are created and brought into being by programmers, data scientists, and so forth, although in my doctoral research I focused on those practices in an ethnographic study investigating the micro-decision, communication and negotiation practices surrounding digital platforms within corporate environments. However, it is essential to recognise the social and cultural situatedness of these technologies, and the importance of the diverse practices through which algorithms are shaped. Indeed, the multifaceted activities involved in the design of algorithms play a crucial role in how the architecture, interface and affordances of a platform will work, how individuals will make sense of them, and the types of relationships that will emerge between human and non-human elements. In this scenario, algorithms emerge as socio-cultural artifacts as they are the results of situated human and, therefore, cultural practices, embedding specific values, biases and worldviews and reproducing a specific social order.

1.4 A relational approach to technology and identity

Having defined the social and cultural situatedness of algorithmic media, I will now go beyond this cultural approach and move on to discuss what can be defined as a relational approach to technological artifacts and identity (see Markham, 2021b; 2021c). The purpose of this section is to illustrate a framework that can take into consideration all the human and non-human elements involved in everyday situations related to digital platforms — in and through which individuals derive a sense of self and identity. Specifically, by drawing on a relational approach to technology and identity, I will look at how, at the micro level, routine engagements with digital technologies entail human and machinic agents and asymmetrical relationships, influencing how individuals construct a sense of Self and a relationship with the Other.

To do so, this section is structured as follows. First, I will focus on the concept of affordances and how these relational structures shape everyday experiences. Then, the distributed agency within socio-technical ecosystems and the role of algorithms as social agents will be discussed. Finally, following Markham's theory of social echolocation, I will explain how to apply these tenets in a relational approach to identity.

1.4.1 Affordances and intended uses

As seen in the previous section, when a streaming service or a social media platform prioritises on user interfaces a content over another according to unknown categories, it emerges that algorithmic media are necessarily socio-cultural artifacts, and that, as argued by Adrienne Shaw (2017)[4], there are also always "ideologies embedded into [these] interactive technologies" (p. 593). One of the key sites in which we can observe how cultural values and business goals shape technologies are the affordances of digital platforms.

---

[4] It should be noted that Shaw (2017) uses in her analysis the Encoding/Decoding model elaborated Stuart Hall (1973; 1980), whose work is foundational for the field of British cultural studies.

"Affordances" is a concept firstly developed in ecological psychology by James J. Gibson (1979). For Gibson (1979), "[t[he *affordances* of an environment are what it *offers* the animal, what it *provides* or *furnishes*, either for good or ill" (p. 127, emphasis in the original). The idea of possibilities and constraints enabled by a natural environment, and of a "complementarity of the animal and the environment" (p. 127), has been adapted by sociologists to different situations, such as the relationship between users and digital platforms.

In general, "*affordance* refers to the range of functions and constraints that an object provides for, and places upon, structurally situated subjects" (Davis and Chouinard, 2017, p. 241, emphasis in the original). Similarly, in the realm of digital sociology, the term "affordances" has been used to refer to "the socio-technical architecture of digital media and their capacity to shape the agency of social actors" (Caliandro and Gandini, 2016, p. 11). For example, the visual elements users find on the interface of a social network site, such as the "like" or "share" buttons, or of a streaming service, such as the "play" or "skip" buttons, "say and suggest things" (Bucher and Helmond, 2017, p. 2). More specifically, in her brilliant analysis about technological affordances, drawing on Faraj and Azad (2012), Jenny L. Davis (2020) refers to the term "affordance" as:

> "…the 'multifaceted relational structure' between an object/technology and the use that enables or constrains potential behavioral outcomes in a particular context." That is, affordances mediate between a technology's features and its outcomes. Technologies don't make people do things but instead, push, pull, enable, and constrain. Affordances are how objects shape action for socially situated subjects" (p. 6).

The "technical affordances" (Norman, 1988) of a digital platform are decided and constructed by the companies that produce the artifact. Developers, engineers, etc. participate in the design of a platform and set the actions which are requested, demanded, encouraged, discouraged, refused, or allowed on that platform (Davis, 2020). These affordances are not neutral, they "are a form of power" (Jordan, 2008, p. 139), as they "set specific opportunities and constraints" on users' "actions and interactions" (Caliandro and Gandini, 2016, p. 11). These opportunities and constraints set on users are the results of particular corporate goals and choices of the producers. Indeed, there are "intended uses" (Shaw, 2017, p. 597) which are inscribed in the design of digital

platforms by their programmers. As argued by Bucher and Helmond (2017), when features on an interface are changed or implemented (e.g., a new button), digital platforms "not only standardize a mode of engagement across [their] services", they "also affect the perceived range of possible actions linked to these features of the platform, or its affordances" (p. 3).

It should be noted that the affordances and the architecture of a platform are not the same thing, although they are necessarily intertwined. While the affordances refer the "the possibilities for action", the architecture indicates the "digital structure" (Roskos et al., 2017, p. 42) of a platform. For instance, the algorithms underlying social media services which track users, regulate the ranking of contents and work to maximise consumer engagement, i.e., the extraction of data, are an essential part of the architecture of those platforms, but they are not the affordances. Instead, the affordances are one part of this complex assemblage favouring the functioning of the architecture.

Given this clarification, I argued above that there are "intended uses" (Shaw, 2017) which are inscribed in the affordances of a platform. These "intended uses" can be considered the actions that the designers of a platform imagine that users will perform. Within this scenario, the socio-cultural values, biases and opinions embedded into the architecture of digital platforms, as well as the practices involved in their design, are crucial for what users will be able to do and the activities they are supposed to perform while using these artifacts. Indeed, the actions and uses planned by platform designers are intended to direct individuals towards "predictable, and profitable avenues of interaction", through which modes of "governance through habit" can be iteratively exercised (Docherty, 2020, p. 1). However, the influence of affordances on users does not entail a denial of the presence and importance of user communicative agency (c.f., Lomborg and Kapsch, 2020; Ytre-Arne and Das, 2021), but rather the acknowledgement of a structural role of algorithmic media in enabling everyday individual and collective practices at the micro-level.

Furthermore, the affordances are not completely autonomous elements, which only impose their conditions on users. According to Caliandro and Anselmi (2021), affordances emerge "at the intersection (…) between the technical architecture of a platform that shapes patterns of communication (e.g., hashtags, algorithms, etc.) and the collective practices of those social groups that use the platform and its technicalities for specific communicative purposes" (p. 3). Thus, for researchers, how individuals interpret

affordances and act within the possibilities and constraints imposed by the platform is fundamental to better understand "the communicative ground through which the meanings of technology are negotiated and renegotiated by users through perception, mediation, and materiality" (Nagy and Neff, 2015, p. 7).

Given this scenario, Bucher and Helmond (2017), drawing on Langlois (2014), claim that the features of a platform "are '*communicational actors*' in the sense that they 'produce meanings and meaningfulness'" (p. 2, emphasis in the original). This resonates with Davis (2020), which consider affordances as "the 'multifaceted relational structure' between an object/technology and" (p. 6) its uses, thus highlighting the proactive and relational role of affordances, namely, socio-technical features to which individuals need to adapt in potentially manifold ways. Indeed, individuals adjust their behaviour to the affordances of digital platforms and learn what is possible and impossible to do. This corroborates what Annette Markham (2013a) noted around a decade ago:

> "…[the] hallmark of the Internet is that people adapt software to suit their needs, so we are not simply pawns in some technologically deterministic way. (…) Still, and this is the key point, our forms of interaction are more and more in response to or reaction to the software, interfaces, and devices." (p. 289).

If our communicative exchanges are increasingly enabled by our relations with digital platforms, which have become crucial relational agents in the everyday communicative sphere, how can we better understand their entanglement with users and everyday life? What is their role and agency?

1.4.2 Algorithms as social agents. Relationality and distributed agency

We saw that today human activities are performed in and through algorithmic media (Bucher, 2018), which play an infrastructural role in how social life unfolds (Van Dijck et al., 2018). In his last book *Digital Life*, Tim Markham (2020) highlights that technology and humanity should be considered "mutually constitutive", as humans "do not exist in spite of all the digital infrastructure and content [they] have surrounded ourselves with, but precisely through it" (p. 4). Through this Heidegger-inspired sentence, the author aims to claim that our life is intrinsically and necessarily digital, thereby "existing amongst and

through [digital] manifestations, processes, mechanisms, environments and infrastructures" (T. Markham, 2020, p. 25).

Following this thinking, I argue that a fruitful approach to consider the role of these digital manifestations, environments and mechanisms in everyday symbolic exchanges is the one explained by Markham (2013a), i.e., to embrace and explore "[w]hat has been long considered the medium, setting, stage, or context (…) as an *active* participant in everyday interactions [emphasis added]" (p. 290). Drawing on a symbolic interactionist framework, which considers meaning as always constructed and negotiated through interactions (e.g., Markham and Lindgren, 2014), the main idea is to focus on the ways in which social structures are created by and through interactions that, in the everyday life situations of the platform society, do not involve only human beings communicating between each other. Indeed, several human and nonhuman interactants, such as imagined audiences (Nagy and Neff, 2015; Bucher, 2018), advertisements selected by automated computational tools (Kotras, 2020), posts filtered and ranked on social media newsfeeds (Gillespie, 2018), device settings (Boeker and Urman, 2022), platform architecture and parameters, participate in these daily communicative exchanges (Markham, 2013a; 2021b). Within this scenario, "humans and/or non humans" interact and connect "within temporal frameworks to co-construct patterns and structures of meaning, whether ad hoc and temporary or persistent and highly structured over time" (Markham, 2012a, p. 48). This poses several questions regarding the human and nonhuman elements involved, as well as the role and nature of their agency.

In the 1980s, scholars such as Madeleine Akrich (1992), Bruno Latour (1987) and John Law (1990), develop Actor-Network Theory (ANT), which "radically revised human-centric notions of agency by portraying both material objects and humans as 'actants', that is, as sources of action in networks of relations" (Airoldi, 2022, p. 3). Indeed, one of their main tenets was that "*agency is distributed and relational*, and that nonhumans are actors with agency too [emphasis added]" (Bucher and Helmond, 2017, p. 16). Although the theory has not escaped considerable criticism (e.g., Cerulo, 2009), as highlighted by Airoldi (2022), there is "one key intuition of ANT [that] increasingly resonates throughout the social sciences (…) what we call social life is nothing but the socio-material product of heterogeneous arrays of relations, involving human as well as non-human agents." (p. 3).

Specifically, as argued by Bruno Latour (2005), whose work was foundational for the elaboration and dissemination of ANT, the agency of non-human elements resides in how "things might authorize, allow, afford, encourage, permit, suggest, influence, block, render possible, forbid, and so on" (Latour, 2005, p. 72). Bucher and Helmond (2017) draw on this quote by Latour to reclaim the relational and distributed nature of agency within socio-technical ecosystems. In a previous contribution, following and expanding the same framework in a symbolic interactionist fashion, also Markham (2013) highlighted that agency is not only a "property of individual entities, but a temporal performative element that emerges in the dynamic interplay of people and their technologies for communication" (p. 290).

This does not imply that machine and humans have the same agency (Schraube, 2009, Davis, 2020). Indeed, I concur with Airoldi (2022) that a useful conceptualization of agency can be the one elaborated by Rose and Jones (2005), according to which:

> "…humans and machines can both be understood to demonstrate agency, in the sense of performing actions that have consequences, but the character of that agency should not be understood as equivalent. Human agents have purposes and forms of awareness that machines do not. The two kinds of agency are not separate, but intertwined, and their consequences emergent. (p. 27)

One instance in which the interrelation between human and non-human elements emerges is the recursive relation between users and algorithmic media. I mentioned in one of the previous paragraphs that a platform society can be understood as a recursive society, which is "built upon (…) multiple feedback loops, each endlessly feeding into the next. As data are produced by an action they then feed into future actions, repeatedly" (Beer, 2022, p. 1). As I have argued elsewhere, along with Elisabetta Risi (Risi and Pronzato, 2022b), on digital platforms individuals consume, interpret, share contents, i.e., the results of human activities and algorithmic outputs; all their activities are tracked and produce data points that are reabsorbed by the platform to propose new content, which is in turn consumed by users, thus, the responses of users to algorithmic outputs become themselves a new input for the algorithmic infrastructure and are in turn embedded in every new human-machine interaction. Within these recursive loops folding back into each other, as noted by Airoldi (2022), a machine "learns from patterns in human generated data, and autonomously manipulates human language, knowledge and

relations", hence, it "is more than a machine. It is a *social agent*: a participant in society, simultaneously participated in by it." (p. x, emphasis in the original). Indeed, as much as a "'regular' social agents, the machine learning systems embedded in digital platforms and devices take part in the social world" (p. 23) and intervene in social life, thus shaping relationships, behaviours and identities, and being shaped by them.

Furthermore, the recursive relationship users have with these social agents does not remain within the aforementioned explained "loop". Indeed, the data extracted and analysed by a platform, used on a device, such as a smartphone or a computer, circulate in other networks (e.g., third-party services), in which different humans, technologies and objects are involved (Crawford, 2021). Thus, we can see "how a platform's infrastructure extends its affordances beyond its own environment", how these dynamics can "be integrated in other platforms and services as well as how these activities afford back to the platform and its multiple users" (Bucher and Helmond, 2017, p. 30), within a complex socio-technical ecosystem.

In this scenario, given the role of algorithms as social agents (Airoldi, 2022), it emerges the importance of adopting a relational approach to better understand the implications of algorithmic media on human experiences and on how people come to understand their position in the world (Markham, 2021b; 2021c). Indeed, this approach can be highly useful to better understand the elements and agential forces involved in everyday situations — taking place within complex ecosystems composed of human as well as nonhuman elements, "the question of how a relation may come into being and how it may produce behaviors or actions" (Hookway, 2014, p. 14), as well as the ways in which different "possibilities come into existence by drawing together (sometimes incompatible) entities into new forms of meaningfulness" (Bucher and Helmond, 2017, p. 17). To do so, it is necessary to be "platform-sensitive", as well as to have "a socio-technical sensibility towards the distributed agency of humans and nonhumans at play" (Bucher and Helmond, 2017, p. 29), its multidirectionality, and the relationships that occur "in a multiplicity of globally distributed and diffused networks" (Markham, 2017a, p. 1129), as it is within them that meaning, and therefore identity, is constantly built and negotiated. Indeed, researchers should develop a "network sensibility", in order to focus "less on discrete objects and more on the entanglements among elements that may create meaning" (Markham and Lindgren, 2014, p. 7). As suggested by Markham (2012a), social structures can be "best understood as the result of ongoing and evolving processes

of interrelation among various system and environmental elements", thus, scholars should focus on the "emergent (rather than static) structures that shift along with the people whose connections construct (…) webs of significance" (p. 48).

The next paragraphs will show how a theory of social echolocation can help us build on these theoretical principles.

1.4.3 Echolocating the self. A relational approach to identity

Having explained the tenets of a relational approach to digital technologies, this paragraph will explain how to apply this framework to identity-building processes. To do so, I will discuss the work of Annette Markham who has investigated for decades "the power of algorithms", and online technologies in general, "in implicating the social self" (2013b, p. 1). More specifically, I will focus on her work about *echolocation* as a theory of digital sociality (Markham, 2020b; 2021b; 2021c).

Drawing on the work of Rosi Braidotti (2011) and Donna Haraway (1985), her starting point is that:

> "…we have a sense of a self only through interaction, and in a digital era the "amalgam" or "cyborg" self (…) is one of constant connection, involving not only other people, but multiple nonhuman interactants, (…) elements of what we might oversimplify as the "*relational* situation" are entangled in countless flows of global networks, fueled by data collection, aggregation, and functioning at mind-boggling scales and speed of analytics [emphasis added]" (Markham, 2021b, p. 1559-1560).

Given this framework, Markham (2020b; 2021b; 2021c) develops a theory of social echolocation. Her reflection is inspired by the biological sonar that animals, such as dolphins, whales and bats, use to locate objects and themselves in their environments, and by the echolocation techniques developed by humans, such as RADAR (RAdio Detection and Ranging) systems, usually employed on ships and aircrafts. The basic mechanism behind echolocation is the creation of waves of energy emanating from one source and bouncing off other people and objects in a specific environment, thereby "creating echoes that give valuable information about not only the size and location of other elements in

43

the larger ecology, but also the size and relative positioning of the Self vis-a-vis Other" (Markham, 2021b, p. 1561). Thus, to determine the position of other entities and of the self *in relation to others*, one continuously transmits signals and then attend to the echoes (Markham, 2020b, emphasis in the original).

As mentioned earlier, Markham (2021b) employs this idea to extend on theories of symbolic interactionism (e.g., Blumer, 1969), which support that the self does not "exist in isolation" and can only be known and disclosed relationally, as "the meaning we ascribe to anything, including the meaning of the Self, is continuously constructed and adjusted through ongoing interactions" (Markham, 2021b, p. 1560). Drawing on these concepts, she argues for the merits of employing a theory of social echolocation to take into consideration:

> "…how interactions are processes of continuous pings and echoes, often so microscopic and tacit that they are unnoticed as foundational aspects of identity formation and at broader levels, what we understand as sociality." (Markham, 2021b, p. 1560)

More specifically, Markham (2021c) uses the theory of social echolocation to investigate the sense anxiety and disorientation arising from being disconnected by online media, which young individuals consistently reported in the media fasts inserted in her critical pedagogical experiments. In her work, she noticed that, without using algorithmic media in their everyday life, several participants felt lost at an existential level, as they were no longer able to recognize themselves in their everyday activities. Drawing on Giddens (1984), she relates these feelings to the idea of ontological insecurity, which "occurs when our recognition of ourselves falters, or when a part of the constant comparison framework of Self-Other breaks down, or when the system of interaction between Self and the world is disrupted" (Markham, 2021c, p. 50).

This happens when we do not obtain responses to our performances of the self in everyday activities. For example, when we publish a post on Facebook, upload a picture on Instagram or send an email, we expect likes, comments, replies, i.e., "echoes". If these "social and affective reverberations" (Markham, 2021c, p. 56) are missing, we lose an indicator of our existential relevance, as our post, picture or email was primarily created to "let them know I exist" (Markham, 2021b, p. 1562). In my work with Elisabetta Risi (Risi and Pronzato, 2022b), I found such pings and echoes in "consuming" contents, as

44

users' scrolling, clicking, liking activities produce echoes in response to the imagined audiences (Bucher, 2018) that disappear when one is not connected (e.g., during a media fast). This shows how the transmission of pings and echoes can be considered as providing "a reassuring buzz, a reverberation of informational echoes that constantly position the self in relation to the world, proving repeatedly, if tacitly, that the self exists meaningfully in the social world" (Markham, 2021b, p. 1562). The idea resonates with a long-standing tenet of Markham's work, i.e., that "structure, and thereby culture, is habit writ large" (2021a, p. 388). Indeed, individuals position themselves in social life through repetitive, constant and mainly unnoticed sensemaking activities, which are learnt and routinized until they are no longer perceived.

That locating the self in digital environments draws on both being connected and responded to, through unnoticed and habitual practices, is an idea already present in Markham's reflections since the early years of the Internet (Markham, 1998; 2003). However, what has become more established in recent years is the infrastructural role of digital platforms in shaping and moulding the construction of identities (Markham, 2013b). Indeed, in internet-mediated contexts, it is within the interactions we have with human and machinic agents that meaning and, therefore, also identity, is constructed (see also Bogost, 2007; Bolter, 2019).

To better understand the intertwinement between human and nonhuman elements, and the "profoundly existential significance" (Frosh, 2018, p. 3) of digital platforms, it is crucial to focus on the relational dynamics through which we build a sense of Self in everyday communicative exchanges. Recently, Tim Markham (2020) noted that "[t]here is no such thing as a digital self, but there are all kinds of digital selfing" (p. 17). Indeed, key elements of identity, like gender, ethnicity, etc., are iteratively and "incessantly reconstituted" (Butler, 1990, p. 105), within broader structural arrangements and relations of power, therefore, they are not stable and immutable, but rather continuously enacted by human practices and sensemaking processes. Within this scenario, the Self emerges more "as a temporal or ad hoc assemblage of information" (Markham, 2021b, p. 1564), than as a fixed, embodied entity.

According to Markham (2021b), Giddens' idea of "positioning" (1984) can be highly useful to better understand these processual dynamics, as it describes how, within time and through tacit habitual practices, "the self is always in a process of positioning itself in relation to the image presented by other, (…). One's identity is continually located with

or against actual, ideal, or imagined otherness or otherwise, a comparative process." (Markham, 2021b, p. 1567). In other words, individuals position themselves, "in continuous response to abstract norms or (…) the mirror of the Self held up by the Other" (p. 1560), which can be both a human and non-human Other. The reader should bear in mind that positioning is a constant, iterative, and relational process, therefore, it can conflict with the common-sense idea of a stable self (Markham, 2021c). Within this framework,

> "[i]f we specify Self as a temporary assembling of meaning within a globally distributed ecology of relations, and envision that ecology as digitally networked — that is, with massive and animated tangles of nodes and lines, we might notice that the networks can never be static but continuously shifting as nodes are repositioned and lines grow shorter or longer, fainter or clearer. We are moving in the system along with others." (Markham, 2021b, p. 1567)

From this citation, we can see the agential role of nonhuman elements — discussed in the previous paragraph — in the interactions through which we situate our self and construct our identities. Indeed, as Markham continues (2021b), in a theory of social echolocation, the pings and echoes producing a sense of self that is perceived as stable by individuals, "emerge not only from our direct interactions with others, but also from complex association and interactions among machinic elements of datafied ecologies" (p. 1564). Today these interactions are not only between human beings, but also between the features of interfaces and human beings, which implies that "the elements of platform design become interlocutors, intimate partners in the ongoing dynamic of locating and stabilizing a sense of Self" (Markham, 2021c, p. 39).

At this point, it becomes crucial to comprehend what nonhuman elements do and what they are designed to do, which "kinds of digital selfing" (T. Markham, 2020, p. 17) they contribute to enabling and how their socio-technical functioning influence human subjectivities. By concluding with Markham's (2021c) words,

> "[s]elf-identity is an ongoing dynamic of interdependencies within larger ecosystems of continuous inter/intra-activities. These are neither value-neutral nor formed solely through human conversation. This means the technologies through which the Self can send out signals and use their interpretation of the

echoes to position themselves in social relations are built and controlled by corporate entities, which have specific ambitions to maximize people's time online. They do so by, among other strategies, fine-tuning the algorithmic logics and predictive analytics that filter, or, more precisely, mediate interactions. By controlling how interactions play out in heavily connected environments, companies foster dependence on their platforms and digital technologies in general. The importance of these dynamics is that they most powerfully function at a level beneath our awareness to modulate not only what we pay attention to in competing networks all clambering for our attention (…), but also how the Self is valued in a relational sense." (p. 56)

The implications of datafication and surveillance processes on the relational being will be discussed in the next paragraphs.

1.5 Algorithmic identities

In the previous paragraphs, I showed the role and scope of datafication processes, the related unneutral functioning of digital platforms and the socio-cultural situatedness of their design process. Then, I explained that algorithmic media can act as social agents and play a proactive role in how we echolocate the self in digital environments and construct a sense of selfhood.

How architectural features, affordances and intended uses, as well as categorisations and filtering processes construct algorithmic identities and, therefore, contribute to shaping our sense of self, has been investigated for more than a decade by prominent authors, such as Annette Markham (e.g., 2013a; 2013b; 2021b; 2021c; 2022a), Deborah Lupton (e.g., 2015; 2016a; 2016b; 2021) and John Cheney-Lippold (2011; 2017), which have highlighted the implications of the formation of algorithmic identities within the relationships between digital platforms and individuals.

Drawing on these authors, this section describes and discusses how digital platforms construct "algorithmic identities" (Cheney-Lippold, 2011), thus constituting "new types of selfhood" (Lupton, 2015, p. 103) and impacting "foundational aspects of identity formation" (Markham, 2021b, p. 1560).

1.5.1 We are data. How machines see us

As explained earlier, algorithms define "regimes of recognition" and "actively generate recognizability as such," thus deciding "what or who is recognizable as a target of interest in an occluded landscape" (Amoore, 2020, p. 69). Specifically, algorithmic systems track user behaviour, turn it into data and based on the instructions, parameters and functionalities set by the designers, learn how to better recognise images and texts, categorise users, and adapt their outputs to different profiles (Airoldi and Gambetta, 2018). The non-neutral categorizations formulated by algorithms, and influenced by the indications of advertisers and marketers, affect people's lives and their identity-building processes. Given this scenario, how and for which purposes digital platforms construct data and, hence, algorithmic profiles, emerges as a crucial issue for researchers.

In 2011, John Cheney-Lippold (2011) published a foundational article: *A new algorithmic identity: Soft biopolitics and the modulation of control*, in which he introduced the term "algorithmic identity". This concept refers to:

"…an identity formation that works through mathematical algorithms to infer categories of identity on otherwise anonymous beings. It uses statistical commonality models to determine one's gender, class, or race in an automatic manner at the same time as it defines the actual meaning of gender, class, or race themselves" (p. 165).

In other words, drawing on our activities, the digital traces produced by other million users, and the categories deemed useful for corporate goals, algorithmic systems construct user profiles "on data's terms" (Cheney-Lippold, 2017, p. 11), through which contents, services and advertisements are delivered more precisely and effectively (for marketers and advertisers). As Cheney-Lippold (2017) himself explains a few years later: "algorithmic agents make us and make the knowledges that compose us, but they do so on their own terms", that is, "everything is represented as data. When we are made of data, we are not ourselves in terms of atoms. Rather, we are who we are *in terms of data*" (p. 11), which are a categorization and, therefore, a partial representation and interpretation of social reality. Indeed, "all algorithmic interpretations produce their own corrupted truths (…) in ways particular to their technological capacity and programmed direction" (p. 12). In this scenario, the author continues:

"[w]e are not simply well filled of data but made of data that is interpreted, conferred truth, and disseminated for motives of profit, organization, and/or control. The resulting classifications become the discursive terrain from which we, and others, compose our digital selves" (Cheney-Lippold, 2017, p. 12).

Furthermore, algorithmic systems do not build these computational profiles based on fixed demographic categories, as marketers used to do in the past (e.g., Gandy, 1993), but rather apply shifting classifications which are constantly redefined by statistical (and opaque) correlations, creating predictive behavioural models (Zuboff, 2015). Thus, individuals have multiple layers of algorithmic identities based on "statistically-related, largely market research driven" categories (Cheney-Lippold 2011, p. 170), continuously remodulated by competing interpretive "profiling machines" (Elmer, 2004) that sought to create detailed and endlessly shifting profiles aimed at anticipating consumers' needs and desires (Risi and Pronzato, 2022b).

Within this scenario, how categories such as gender, sexual orientation, ethnicity, religion and social class are defined by algorithmic systems and how these categories shift is a terrain of debate. Indeed, those categories are "not determined by one's genitalia or even physical appearance", and not even "entirely self-selected. Rather, categories of identity are being inferred upon individuals based on their web use" (Cheney-Lippold 2011, p. 165) and the one of other users. Specifically, personal and behavioural data are employed by tech companies "to make predictions about others' actions, interests, preferences or even health states", therefore, "[a]s part of algorithmic veillance and the production of algorithmic identities, people become represented as configurations of others in the social media networks with which they engage and the websites people characterised as 'like them' visit" (Lupton, 2015, p. 146).

Drawing attention to "the algorithmic *episteme*" and the shifting categories used to classify users, it should be noted that, on digital platforms, to "*know* someone does not mean to analytically and empirically understand the reasons for her behavior, but simply to be able to recognize patterns of behavior" (Fisher and Mehozay, 2019, p. 1185). How, when and for which purposes, these computational processes identify patterns of behaviour and, for example, infer users' gender identity, has never been thoroughly explained by tech companies, but it has implications about the contents people meet and consume, their construction of identity and perception of selfhood. As argued by Oren Soffer (2021), the composition of gender "in algorithmic identity might change with time

and data and present math-based calculations of the two gender categories (…). Yet, in the end, such algorithmic identities are used for marketing and will likely refer to traditional categories of distinctions between men and women" (p. 307), thus reiterating value-laden choices and potential discriminations. Regarding this aspect of datafication, Lupton (2015) claims that data infrastructures play a crucial role in the identification of "certain behaviours, activities or outcomes as appropriate or 'normal' and others as deviating from the norm" (p. 103). In this scenario, algorithmic systems "are viewed as arbiters of drawing distinctions between acceptable and unacceptable practices and behaviours: in effect, shaping definitions of 'normality'" (Lupton, 2015, p. 103).

Furthermore, as mentioned earlier, algorithmic categories are not stable and fixed, but constantly shifting and updating. Indeed, the possibility to track user behaviour across different domains removed consumer information from time-bound demographic statistics, with data beginning "to float atop a constant stream of real-time web use that can be matched against existing behavior and identity models — like gender", thus allowing the construction of flexible behavioural models and "the creation of a cybernetic relationship to identification" (Cheney-Lippold, 2011, p. 168).

It is in this situation that the meaning of the claim *we are data* emerge. As users, "we are temporary members of different emergent categories" (Cheney-Lippold, 2017, p. 4), as "we are likely made a thousand times over in the course of just one day. Who we are is composed of an almost innumerable collection of interpretive layers, of hundreds of different companies and agencies identifying us in thousands of competing ways" (p. 6). However, how do algorithmic identities shift? And which are the implications of these shifting algorithmic identities?

1.5.2 Shifting algorithmic identities

Today, on the Internet, it is extremely difficult, if not impossible, "to opt out of participation in these data assemblages that are configured about oneself" (Lupton, 2015, p. 146). Using digital platforms is a prerequisite of several social relationships and cultural activities, and this implies coping with the conditions and settings imposed by the companies providing these services. Individuals are tracked, ranked and categorized

by digital platforms, which create endlessly shifting algorithmic identities to better target users and to develop increasingly precise behavioural models.

As explained above, "our algorithmic identities emerge from a constant interplay between our data and algorithms interpreting that data" (Cheney-Lippold, 2017, p. 25), and the categories employed to define us continuously change, thus allowing a flexible and versatile identification of the user, which allow to "extrapolate not just a future but a present based on the present" (p. 9). The result is what has been defined as the "data subject" (Ruppert, 2011) or the "data derivative", i.e., "a specific form of abstraction that distinctively correlates more conventional state collection of data with emergent and unfolding futures" and "comes into being from an amalgam of disaggregated data reaggregated via mobile algorithm-based association rules" (Amoore, 2011, p. 27).

At the conceptual level, the constant tracking and reaggregation of data points to stimulate user engagement, generate predictive models and provide advertisers with the opportunity to micro-target consumers in fine-grained detail, suggests a move "from the individual to the "dividual." (Cheney-Lippold, 2017, p. 172). To analyse this shift, it is necessary to focus on the work of the French philosopher Gilles Deleuze

In his renown essay *Postscript on the Societies of Control*, Deleuze (1992) argued that "[i]n the societies of control, (…) the code is a password" as "[t]he numerical language of control is made of codes that mark access to information, or reject it. We no longer find ourselves dealing with the mass/individual pair. Individuals have become '*dividuals*,' and masses, samples, data, markets, or '*banks*.'" (p. 5, emphasis in the original). According to Seb Franklin (2015), who adopts a Deleuzian perspective, "[t]he dividual is what might formerly have been understood as "the subject" once it has been divided within itself, broken down into discrete parts that are each representable as symbolic tokens and capturable as labor" (p. 9). Thus, in contemporary platform environments, "the dividual is the subject *digitized*" (p. 9, emphasis in the original).

Following this theoretical stream, Cheney-Lippold (2017) suggests that scholars should pay attention to the "subindividual selves" (p. 102) in which identity is divided and remodulated by algorithmic systems. In his own words, "[t]his form of divided individuality reconceptualizes much of identity into an aggregation of membership in different modulating measurable types. The individual is dislodged from its apogee of identity and thus the index for subjectivity" (Cheney-Lippold, 2017, p. 173). In this scenario, identity becomes "an unstable inventory of potential meaning" that "get[s]

assembled at the whim of my assemblers, an algorithmic calculation of my different, nonspecific dividual selves that eventually come to determine my 'citizenship,' 'celebrity,' and 'gender.'" (p. 173), which remains fluctuating categories in a socio-technical global networks of surveillance tools and data.

An interesting case to observe this process in practice is the conceptualization of listeners carried out by music streaming platforms, which was discussed by Robert Prey (2018) in his work on "algorithmic individuation". On such platforms as Spotify or Deezer, playlists have become the central form of music curation, hence, individuals are encouraged to rely on the platform to choose what music to listen to (Bonini and Gandini, 2019). Indeed, the platform is programmed to alleviate users' "burden of choice" (Cohn, 2019) and guide them through the music they (supposedly) like or need in a specific moment (Raffa and Pronzato, 2021). In this scenario, one of the most successful services on Spotify is Discover Weekly, a playlist generated weekly by the platform to provide users with "personalized" recommendations, based on their "taste profile", which have been computed by the platform's algorithms. Prey (2018) shows that to determine these "taste profiles", streaming services do not use fixed markers of identity, but rather shifting categories that can be continuously readapted. Indeed, to ascertain whether you are a "jazz fan" or a "punk rocker", Spotify can track, store and remodulate your listening behaviour, location, time zone, and so forth, without obtaining in advance traditional demographic variables, such as your gender, age, ethnicity or social class. On these platforms, "I am an urban travel enthusiast with a penchant for the Delta blues … until I am not. You are a suburban lover of smooth jazz … until you are not." (Prey, 2018, p. 1095). In other words, it can be empirically observed that aforementioned "cybernetic relationship to identification", which use "pliable behavioral models" (Cheney-Lippold, 2011, p. 168) to determine one's taste.

The application of this model has allowed what Pagano and colleagues (2016) defined as "the contextual turn" in recommender systems. The idea is to recommend songs always matching the context in which a listener actually is, as "people have more in common with other people in the same situation, or with the same goals, than they do with past versions of themselves" (p. 1). From this view, "one equals one's context" (Prey, 2018, p. 1092), which continuously changes throughout the day. Thus, it is not through categories that remain stable in time that streaming services can favour more precise choices, in fact, "a music listener who is about to go for an early morning jog has more

in common with another jogger than the person they were 30 minutes earlier, when they were just waking up" (p. 1092). This concept has been openly pointed out by Spotify executives. In 2016, a Group product Manager of the company, declared that: "We believe that it's important to recognize that a single music listener is usually many listeners, and a person's preference will vary by the type of music, by their current activity, by the time of day, and so on" (Heath, 2015, np). Drawing on this research material, Prey (2018) argues that the increasing role of these context-sensitive personalisation models shows how music streaming services consider individuals "as multiplicities, or in Deleuzian terms, endlessly subdividable 'dividuals'" (p. 1092), indeed, those services "promise the potential of processual identity: of the perpetually 'becoming-individual'." (p. 1095).

Within this framework, Prey (2018) links the reflections of Deleuze (1992) with the work of another French philosopher, Gilbert Simondon (1992; 2009) — who is also one of the most important influences of the Parisian intellectual — to move his focal point "from studying the individual to studying processes of individuation" (Prey, 2018, p. 1095). Specifically, Gilbert Simondon (1992) criticised perspectives giving "*an ontological privilege to the already constituted individual*." (p. 298, emphasis in the original). For him, the individual who is fully constituted *a priori*, "consistent in its unity, given to itself, founded upon itself, not created, resistant to that which it is" (Simondon, 2009, p. 4), does not exist. The individual is never definitive, fixed or constituted in advance, but rather a transient outcome of the process of individuation, i.e., an ongoing "process whereby a universal (…) becomes instantiated in an individual" (Audi, 1999, p. 424). According to Simondon (1992), this process of individuation:

> "…must be considered primordial, for it is this process that at once brings the individual into being and determines all the distinguishing characteristics of its development, organization and modalities. Thus, the individual is to be understood as having a relative reality, occupying only a certain phase of the whole being in question - a phase that therefore carries the implication of a preceding preindividual state, and that, even after individuation, does not exist in isolation, since individuation does not exhaust in the single act of its appearance all the potentials embedded in the preindividual state." (p. 300).

This allows Simondon to shift the focus of his reflections from the typical tenets of ontology to the idea of ontogenesis and "*to understand the individual from the perspective of the process of individuation rather than the process of individuation by means of the individual*" (Simondon, 1992, p. 300, emphasis in the original). Drawing on this philosophical framework, Prey (2018) argues that our consumptions activities, such as the music we listen to, the movies we watch or the posts we shared, are crucial for how "we produce our identity and modulate ourselves as individuals", and that, within this process, recommendations systems should be thus considered as key contemporary "enabler[s] of individuation" or, more specifically, of "algorithmic individuation", to which Prey refers "as a dynamic socio-technical process engaged in enacting the individual" (p. 1095).

On streaming services like Spotify, Prey (2018) continues, the categories through which the data subject is built are linked to the interests of advertisers and marketers. For example, to produce micro-targeted ads, "[l]istening behavior on ad-supported streaming is used as a proxy for consumer categories" (p. 1096). In this scenario, "the promise of ontogenesis – of the perpetually 'becoming-individual' – is thus submerged by a persistent form of reification that harkens back to the mass media–advertising nexus but one that has been updated to fit the more modulatory, data-driven reality of personalized media", which "do not only 'see' the individual" but also "enact the individual into being, and often through the categories deemed most economically meaningful" (p. 1096).

As noted above, today, the categories employed to categorize individuals on digital platforms play a central role in how we develop a sense of selfhood, encounters others, and represent ourselves and our position into the world (e.g., Lupton, 2021; Markham, 2021c). Indeed, different algorithmic categories "enact different populations as objects of concern and intervention" (Ruppert, 2011, p. 219) and constitute "new types of selfhood" (Lupton, 2015, p. 103) and subjectivation (Bucher, 2018; Risi and Pronzato, 2022b). However, as users, we are almost always unaware of how these categories are constructed. According to Cheney-Lippold (2017), if "identity is formed without our conscious interaction with others, we are never free to develop— nor do we know how to develop" (p. 8). Indeed, while it is extremely difficult to grasp how a category like gender or ethnicity is conceived and calculated on digital platforms, "it remains increasingly efficacious for those who are using our data to market, surveil, or control us." (p. 8).

Given this scenario, as I argued with Elisabetta Risi (2022b), "[t]he constant and pervasive datafication of everyday life highlights how platforms do not reveal the subject, nor its data-materialisation, but rather enact a form of algorithmic individuation that is profitable according to platform capitalist logics" (p. 156). Thus, subjectivities are "brought into being by algorithmic systems that monitor users and foster their engagement in order to favour practices of data extraction and exploitation" (p. 156), which secure the maintenance of colonialist relationships and dynamics (Couldry and Mejias, 2019b).

1.6 The role of digital inequalities and data literacy

Having defined the infrastructural features of platforms, how they can be theoretically framed and the dynamics they favour at the micro and macro level, this section focuses on the role that digital inequalities and critical data literacy can play in how individuals use digital platforms, interpret the interactions with these artifacts and the related outcomes. Indeed, if the functioning of digital platforms and the regimes of recognition and categorization they implement are technically the same for each user, how algorithmic media condition users' experiences and identities varies according to diverse elements.

In this regard, in the last twenty years, such authors as Eszter Hargittai (e.g., 2021; 2022) and then Moritz Büchi (e.g., 2021) and their colleagues at the University of Zurich (Büchi et al., 2017; 2021; Hargittai et al., 2020; Büchi and Hargittai, 2022), have explored the implications of digital inequalities and highlighted the ways in which different levels digital literacy play a key role in how individuals can reduce risks for their well-being on digital platforms while obtaining potential benefits from their use. Within this framework, also the studies carried out by Christoph Lutz (e.g., 2019), Luci Pangrazio (e.g., 2016) and Neil Selwyn (Pangrazio and Selwyn, 2018; 2019), among the others, have added to this body of literature, while critical scholars like Annette Markham (2019; 2020a) or Holger Pötzsch (2019; 2021) have stressed the importance of criticality and self-reflexivity as essential elements of data literacy.

Following these streams of literature, this section examines the significance of digital inequalities and how critical data literacy can empower individuals to develop a more self-determined and critical approach towards the use of digital platforms.

1.6.1 Three levels of digital divide

If digital platforms play an infrastructural role in contemporary societies, as we have already noted, the ways in which datafication processes affect our sense of selfhood and relationships are not the same for each individual. Indeed, digital inequalities — which are inextricably related to social inequalities — have a dramatic impact on individuals' capacity to mitigate the problematic issues embedded in digital technologies and protect their privacy and well-being.

The term digital inequalities refer "to how people's societal position affects their digital access, skills, and types of uses, as well as the outcomes of digital engagement, ultimately feeding back into their life chances" (Büchi and Hargittai, 2022, p. 1). Several studies have highlighted that digital inequalities tend to be strictly related to pre-existing social disparities in terms of social class, educational level, gender, age, ethnicity, geographic location and so forth (see Lutz, 2019). In other words, individuals who are traditionally disadvantaged are more likely to be disadvantaged in similar ways on the Internet. Different forms of inequality can relate to unequal access to technologies, limited opportunities for use and lack of skills that are crucial for navigating contemporary media environments. This implies that more privileged groups are in a better position to reap the potential benefits or limit the most problematic aspects of digital platforms, while already marginalized groups are more likely to be negatively affected by the functioning of these artifacts. To describe "the haves and have-nots of the Internet age", scholars have traditionally used the term *digital divide* (Hargittai, 2022, p. 1).

Given this scenario, Christoph Lutz (2019) has identified three levels of digital divide. The first concerns *access* to the Internet which is unequal for different parts of the population. Without taking into account the access gap at the global level — in 2020 still half of the world's population did not have access to the Internet (García-Escribano, 2020), even within the wealthiest countries there are parts of the population who still

struggle to get access to the Internet and, especially, to a high-speed connection. These include people living in rural areas, those over the age of 65 and with lower levels of education (Lutz, 2019). Furthermore, there are parts of the population who are only able to access the internet via mobile devices. Mobile Internet access can be considered a second-class access compared to traditional/computer access, as using the Internet from a mobile device generally offers inferior features in terms of speed, memory, storage capacity, as well as in terms of screen size, accessible contents, and keyboard usability (Napoli and Obar, 2014; Tsetsi and Rains, 2017; Correa et al., 2020).

Then, the term "second-level digital divide" refers to inequalities in *skills* and *uses* (Hargittai, 2002), which are key in explaining how individuals behave online. For example, prior research found that individuals with higher Internet skills are better positioned to protect their privacy in platform environments (Büchi et al., 2017). Also regarding this aspect, digital inequalities tend to mirror socio-economic inequalities, as several studies have shown that variables such as age, gender and level of education play an important role in how individuals use the Internet (e.g., Blank and Groselj, 2014; Robinson et al., 2015; Leukel et al., 2021).

Finally, the third level of digital divide describes the differences in the *benefits* and *risks* deriving from the use of digital platforms, particularly when the ways of accessing and using them are approximately similar (Lutz, 2019). Here inequalities emerge when individuals show different capabilities "to translate their internet access and use into favorable offline outcomes" (Van Deursen and Helsper, 2015, p. 30), or into risk avoidance. Socio-economic inequalities seem to be crucial also in this realm, indeed, how individuals use algorithmic media has been shown to be dramatically structured by pre-existing power relations and socio-economic inequalities, which can affect individuals' overall subjective well-being and life outcomes (Schradie, 2020; Büchi and Hargittai, 2022). By focusing on the profiling mechanisms of digital platforms, Büchi and colleagues (2021) highlights that it is fundamental to explore "what users know about algorithmic profiling and what perceptions, opinions, and imaginaries they have" (p. 2) and also how their interpretations and practices relate to prior existing inequalities. This idea directly points to the concept of "algorithmic awareness" (Swart, 2021; Dogruel et al., 2022). Within this scenario, Gran and colleagues (2021) carried out a study on a representative sample of the Norwegian population and showed how individuals' education and gender are becoming "more and more critical for online skills, usage and

benefits" (p. 1792), thus suggesting the relevance of socio-economic factors also in this realm.

My research project does not directly investigate digital inequalities and how they intersect with such elements as gender, ethnic group or social class. However, it is essential to recognise the importance of unevenly distributed resources and of different levels of critical capabilities in using digital platforms across the population, also in order to better situate and contextualise this study. Indeed, in the next chapter, I will describe the characteristics of the research participants, which were people in their twenties, resident in the North of Italy — the part of the country with the fastest and most widespread Internet connection — and enrolled in a private university, therefore, most likely, belonging to middle and upper social classes. Furthermore, as shown above, digital inequalities play a key role also in explaining the realm of digital literacy, which today necessarily involves data literacy, in other words, the ability to manage, evaluate and use data in different contexts by adopting a reflexive and critical perspective.

1.6.2 Critical data literacy

We have just seen how capacities, behaviours and outcomes in internet-mediated contexts significantly vary according to social inequalities and how this seems especially relevant in cultural environments of increasing datafication and surveillance. Within this framework, it emerges the key role of *critical data literacy*.

Traditionally, the concept of literacy has referred to the realm of alphabetisation and the capacity to use language in reading and writing tasks. Since the 1990s, scholars have started adapting this term to indicate the ability to communicate through media of different kinds and in diverse situations (Kern, 2015; Pötzsch, 2019), while contemporary approaches to what comes to be defined as digital literacy have highlighted different dimensions shaping the interaction between individuals and media (see Hintz et al., 2022).

According to David Buckingham (2007), digital literacy has frequently been framed through a "competency-based approach", within which the term "literacy" came "to be used merely as a vague synonym for 'competence', or even 'skill'" (p. 43). These approaches do not recognise the social, cultural and ideological constitution of digital

technologies and their ways to organise contents, thus embracing a restricted and instrumental view of information and of the potential issues and biases embedded into technological artifacts. This mischaracterisation of digital literacy as the capacity to use digital tools and carry out basic tasks, such as surfing the Internet, using different applications, producing contents, etc., is highly problematic as "rests on an assumption that information can simply be assessed in terms of its factual accuracy" (Buckingham, 2007, p. 46). A decade later, Luci Pangrazio (2016) highlighted a similar situation and illuminated on a discrepancy between "technical mastery" and "critical mindsets" that risk undermining the cultivation of "a critical disposition in a context in which technical proficiency is prioritised" (p. 163). Indeed, today, in industrial as well as academic conceptualisations, digital literacy is still defined mainly in terms of technical skills (Frank et al., 2016), such as "being able to access, analyse, use, interpret, manipulate and argue with datasets in response to the ubiquity of (digital) data in different fields" (Gray, 2018, p. 2).

Given this scenario, Markham (2019) contends that scholars can do more to teach individuals how to examine their own platform experience through a "critical theory stance", which should be the premise, in her own words, "for anything we might call literacy" (p. 757). In her foundational paper reviving critical pedagogy as a framework to counterbalance platform power, she highlights how, underlying a critical theory stance, there is the idea that problematic issues are embedded into current societal and technological developments, therefore, its proponents work "to investigate the who, what, where, when, and how of this wrongness" (p. 757). This stance emerges as "a strong response to datafication, as it questions everything from the perspective of "who benefits and who loses?" (p. 757). Although the tenets of critical pedagogy will be discussed in the next chapter (2.2.1.), it is useful to draw attention to how literacy can be framed within a critical theory stance. Within this framework, individuals are invited to reflexively analyse their behaviour on algorithmic media, to take into account political and ideological issues embedded into platform experience, and "to question how larger structures come into being and end up dominating them in ways that may not be fair." (Markham, 2019, p. 757). Following this perspective and highlighting the term "data" instead of "digital", Markham (2020a) describes *critical data literacy* as:

"…a type of awareness and curiosity that leads to developing competencies needed to grapple with the complex impacts of digital transformation on

individual and cultural wellbeing. A critical data literacy is built on the premise that to be critical in any effective or sustained way requires deep understanding of the contexts within which digitalization or datafication is occurring." (p. 229)

In this conceptualization, it can be noticed a shift from an idea of literacy as technical skills to the ability to critically reflect and comprehend how certain dynamics occur in mediatised environments and the ways in which social life and personal well-being can be affected. Here datafication is not taken as a granted feature of contemporary technologies, but as a value-laden process to scrutinise. Moreover, the task of teachers is not considered exclusively as that of preparing students to be performing individuals at a professional level, but rather of helping them become more aware citizens.

If Markham's (2020a) definition attempts to situate literacy as "a particular type and trajectory of critical awareness" (p. 229), other authors adopted different terms to indicate similar concepts. For example, Ina Sander (2020) uses the term *critical big data literacy* to define:

"…an awareness, understanding and ability to critically reflect upon big data collection practices, data uses and the possible risks and implications that come with these practices, as well as the ability to implement this knowledge for a more empowered internet usage" (np).

Also in this definition, there is a focus on helping individuals better understand which risks, benefits, purposes and structural arrangements are entailed in how their data are collected, stored and analysed by private and state-owned entities. Furthermore, the public function of data literacy is highlighted. Indeed, the capacity to analyse one's personal platform experience, the cultural environments in which it takes place, and the broader societal implications, emerges as an essential quality to be effective citizens in contemporary societies.

This public perspective can also be seen, for example, in the idea of *critical digital literacy* elaborated by Holger Pötzsch (2019) who adopts a critical stance to question the adoption of corporate technologies in schools and universities without teaching people how to contextualise their production and use. For him, "students should learn to critically reflect upon (…) technologies that have enormous implications for their lives not only as future part of a work force but also as citizens and fully-fledged individuals" (Pötzsch,

2019, p. 221). Overall, highlighting the public function of data literacy is a common trait of contemporary critical approaches to data literacy, which understand critical data literacy as a precondition for civic engagement and conscious participation in political issues.

Then, in the same concept pool, it is possible to identify further terms, such as information literacy (Behrens, 1994; Haider and Sundin, 2021), media literacy (Livingstone, 2004), digital literacy (Koltay, 2011), data infrastructure literacy (Gray et al, 2018), algorithmic literacy (Swart, 2021), personal data literacies (Pangrazio and Selwyn, 2019) and others (see Hintz et al., 2022). However, in all of these diverse conceptualisations, it can be noted a broad concern about people's abilities, reflexivity and critical awareness of digital technologies and their functioning, thus pursuing "a critical disposition" that "is precisely what gives literacy its civic potential" (Hintz et al., 2022, p. 146). Indeed, as argued by Elinor Carmi and colleagues (2020), today the meaning of data literacy necessarily encompasses "understanding and being able to challenge, object and protest contemporary power asymmetries manifested in datafied societies" (p. 5). This conceptualisation implies "moving beyond the individual to networked literacies, developing critical thinking about the online ecosystem and finally – providing literacies which empower people to become active citizens" (Carmi et al., 2020, p. 5).

As it will be explained in the next chapter, in this thesis, I adopt a critical theory stance and, specifically, a critical pedagogy framework. Thus, I attempt to foster critical data literacy through ethical research practices that aim not only to collect data regarding individuals' online behaviours, knowledge and imaginaries, but also to help participants critically reflect on their own platform experience and the connections between their micro-level online activities and the macro-level structural arrangements that are reproduced by these practices.

1.7 Conclusion

This chapter has reviewed some key literature published in the realm of critical algorithm studies and related fields regarding the infrastructural role of digital platforms at the macro level, their socio-cultural situatedness, recursivity, distributed agency and

functioning at the micro level in everyday engagements. Furthermore, the impact of specific regimes of recognition and categorization, shifting algorithmic identities, different levels of digital divide and critical data literacy on individuals' experiences and identities has been discussed.

The first section (1.2) showed how datafication processes are implemented by Big Tech companies to ubiquitously track users and turn their activities into quantifiable data which are stored, filtered, analysed and transformed into tradable commodities. Then, it discussed the economic model underlying this process, which Zuboff defined as surveillance capitalism. This model applies the principles of behaviourism on a massive scale to render individuals predictive, potentially "addicted" and, therefore, continuously dispossessed of their data, which are used for commercial purposes, thereby facilitating the spread of what Couldry and Mejias defined as *data colonialism*, a novel form of social order that, through the datafication of user activities, pursue the continuous appropriation of human life, which becomes a direct input to capitalist production. Both of these two theoretical models highlight that asymmetrical, extractive and oppressive conditions are imposed on users by tech corporations.

In the second section (1.3), I illustrated how neutrality claims frequently associated with technologies have been unpacked by different authors. Specifically, I sought to explain why researchers should go beyond the "black box metaphor", which emerged as an epistemological limit that risk to conceal the relationships underlying the creation of these artifacts. Following this perspective, we saw that algorithmic media work following recursive logics, in other words, how user activities are datafied, absorbed by digital platforms as inputs and then remodulated to produce outputs, such as a recommended content, whose response will itself become a new input for the system and incorporated in every new human-machine interaction. Then, how digital platforms implement specific impartial regimes of recognition to rank individuals and cultural objects, has also been shown. Finally, I argued for the merits of considering algorithms as socio-cultural artifacts. To do so, I drew on the work of Nick Seaver and discussed how algorithms can be considered as unstable, networked objects with hundreds of people participating in their design and deployment, and enacted by the practices of those individuals. Indeed, although I do not apply a cultural framework in this dissertation, this approach helped recognise the social and cultural situatedness of algorithmic media, which are artifacts

embedded in a complex socio-technical assemblages and intervening in every realm of social life.

The next section (1.4) illustrated the relational approach to technology and identity adopted in this thesis. First, I discussed how affordances can be considered as a form of power, given the imposition of specific opportunities and constraints on users' activities and interactions, which frequently adapt to the "intended uses" that the platform producers designed for them. In this scenario, I defined affordances as communicational actors shaping social life and producing meaning within the interactions users have with them. Following this framework, I discussed the role of algorithmic systems as social agents, which participate in social activities and are participated in by them, and highlighted the relational and distributed nature of agency within socio-technical ecosystems. These two steps were preparatory for discussing Markham's social theory of echolocation. Specifically, I explained how individuals continuously acquire a sense of self through interactions with others, which today can be human as well as nonhuman actants, and how those interactions can be framed as processes of constant, microscopic, for the most part unnoticed, pings and echoes, which are foundational elements for the construction of identity and social relationships, as well as for the positioning of the Self in the social world.

In the following section (1.5), I explained how individuals are seen by computational systems, in other words, how we become "data", members of different, always shifting categories, which are the ones calculated and created by algorithmic systems following the goals of tech companies, the instructions of their employees and the actions of users. In this scenario, computational systems produce constantly shifting "algorithmic identities", thus framing individuals as perpetually becoming-individuals or, in Deleuzian/Simondonian terms, endlessly subdividable dividuals, which are continuously enacted by digital platforms in the forms more profitable for tech companies.

In the last section (1.6), I discussed the role played by three different levels of digital divide — i.e., access, skills and uses, risks and benefits — in shaping platform experience and affecting individuals' well-being, thus better situating and contextualising the research presented in this thesis. Then, I concluded by defining critical data literacy and its potential in enabling individuals to develop a critical approach towards their use of digital platforms and the structural arrangements underlying algorithmic design. The next chapter will follow on from this last part of the literature review.

2 Research goals and Methodology

After a discussion of the theoretical background and of the research framework within which this project is situated, this chapter will describe the research goals and illuminates on the methodological approach that was employed in this project. As already mentioned, I consider algorithms as socio-technical artifacts and social agents, with which individuals constantly relate in their everyday experiences. These engagements with algorithmic media contribute to the shaping of their identities and subjectivities, within a complex relational ecosystem, in which human and nonhuman elements interact.

Given this framework, this thesis aims to investigate how young individuals perceive, relate with, and make sense of algorithmic media and how these sensemaking processes contribute to identity-building dynamics. To do so, this study draws on 40 autoethnographic diaries, prepared according to the framework of critical pedagogy.

This chapter is structured as follows. To begin, the rationale and aims of the study will be described. Then, I will discuss the research approach and how the research material, i.e., data, was collected, thus focusing on the use of auto-ethnographic diaries, the tenets of critical pedagogy, as well as the relevance of the research context within which the study was conducted. Data analysis will be explained afterwards. Finally, I will describe how I sought to build interpretative authority and ethical representations during the research process, and the potential limitations of the study.

2.1 Rationale and aims of the research

The main goal of this research is to investigate how young individuals perceive, make sense of, and relate with algorithmic media in their everyday life.

Specifically, I examine the open-ended set of activities individuals carry out in relation to digital platforms, the ways in which algorithmic outputs are interpreted and incorporated in daily routines — which take place in environments characterized by pervasive datafication and surveillance, and how these everyday engagements affect how identities are constructed, performed, and negotiated. Indeed, individuals construct relationships with algorithmic media, "do things to algorithms" (Bucher, 2018, p. 117),

and the responses they obtain from digital platforms dramatically affect the ways in which they build, enable, interpret, and position their Self (Markham, 2021b; 2021c).

To do so, I encompassed in my analysis all the sensemaking and interaction practices through which individuals interpret the role of digital platforms in their everyday activities (e.g., Lomborg and Kapsch, 2020; Risi and Pronzato, 2022b), by looking at the "appropriations, practices, and the human agency around and behind data" (Milan and Treré, 2019, p. 327). Although each digital platform can be considered a particular case study, with specific characteristics enabling specific modes of platform power, this research endeavour did not focus on a specific platform, but rather on the intertwinement of different platform-related activities in everyday life situations (e.g., Risi et al., 2020).

Epistemologically, this thesis relies on common tenets of such frameworks as social constructionism, interpretive sociology and symbolic interactionism, thereby focusing on "how meanings emerge or shift through interaction" (Markham and Lindgren, 2014, p. 13) and "how identity, meaning, and/or social structures emerge or are negotiated through an ongoing dialogic process" (p. 11) that involve both human and nonhuman elements (Markham, 2021b).

At the methodological level, I draw on 40 auto-ethnographic diaries, written by undergraduate students, and prepared according to a critical pedagogical framework and set of techniques (Markham, 2019; 2020a; 2022a), considering individuals not only as subjects from whom data can be collected, but as participants whose algorithmic awareness and critical data literacy can be improved.

Findings ought to add to the growing body of literature interested in algorithmic identities and in how platform power plays out in the micro-level situations of daily experience (e.g., Cheney-Lippold, 2017; Bucher, 2018; Lomborg and Kapsch, 2020; Lupton, 2021; Markham, 2021b), thus contributing to this growing area of research within the field of critical algorithm studies. Furthermore, it should make an important contribution to all those research realms interested in how users interpret digital platforms and how these engagements shape and intervene in their everyday life (e.g., Siles et al., 2020; Büchi et al., 2021; Paasonen, 2021; Swart, 2021).

2.2 Research approach and data collection

In this section, I discuss the methodological strategy of this project, which adopted an ethnographic approach, rooted in the principles of critical pedagogy and interpretive sociology. Specifically, I collected 40 undergraduate students' auto-ethnographic diaries, which were prepared according to Markham's critical pedagogy approach and aimed at two different purposes: the collection of in-depth qualitative data regarding how youth relate with algorithmic media, and the enhancement of students' data literacy and algorithmic awareness. How narratives were collected and analysed, as well as the role of critical pedagogy in this study, are discussed in the next paragraphs.

2.2.1 "You can't be neutral on a moving train". Critical pedagogy in an age of datafication

This research path draws on critical pedagogy as a research, ethical, and moral framework. The concept of critical pedagogy refers to the will to engage in methods of good teaching, learning, and researching "to raise consciousness of citizens about how they are part of larger ideological systems of power and control" (Markham, 2020a, p. 230). This long-standing approach has been revived by Annette Markham (2019) with regards to datafication structures with the aim:

> "…to help others analyze the way data flow in the situations they live in, how algorithmic logics intervene in citizen actions, how actions and responses in everyday interactions are constrained by the grammars of platform infrastructures, and how social media conversations and networked information function rhetorically to frame basic definitions of the self, relationships, politics, and institutional systems and dynamics." (p. 754-755)

Specifically, Markham (2022a) spent a decade (2012-2022) practicing a critical pedagogy approach. Her work has taken place in university classrooms — where she has trained young individuals to analyse their relationships with digital platforms (c.f., Markham, 2019; 2022a) — as well as in public spaces, such as museums and exhibitions,

where she carried out performative arts–based public interventions to help people critically reflect on their digital lives (e.g., Markham, 2020a).

Her work contributes to a well-established tradition. Indeed, critical pedagogy is part of a long history of activist attempts aimed at raising awareness and enabling oppressed individuals to better understand their conditions and the hegemonic structures that enact this subalternity. As highlighted by Markham (2019; 2020; 2022a), a pioneer of this approach was the Italian philosopher, political theorist, and activist Antonio Gramsci (1937/1971), which claimed that "every relationship of hegemony is necessarily an educational relationship" (p. 350). Interestingly, as noted by Massimo Baldacci (2016, p. 156), the connection made by Gramsci between the hegemonic and the pedagogical relationship bounces back on the pedagogical relationship itself, which is the molecular translation of the hegemonic relationship and, therefore, shares with it the structure of a power relationship, and can be inscribed within the horizon of the dialectic between emancipation and subjugation. This implies that the pedagogical relationship can be oriented in two opposite directions: it can become a tool that favour the subjection of the oppressed ones to the dominant power, or it can be an element of emancipation. The idea underlying this process is the Gramscian conception of ideology, which is seen by the Italian theorist not as a static concept, but as "embodied, lived, and dynamic sets of social practices" (Fischman and McLaren, 2005, p. 426). Given this framework, he claimed that members of the working class need to teach themselves to uncover the hegemonic structures present in ordinary institutional practices, i.e., to go "beyond subalternity" (Baldacci, 2017).

The work of Gramsci and, especially, his notion of *praxis*[5] was key for Paolo Freire in the development of his *pedagogy of the oppressed* (1970), which he applied in the "favelas" and rural zones of Brazil (Mayo, 2015). Although Freire's (1970) pedagogy was an important element for the 1960's Brazilian literacy training program, the goal of his approach was not only to make native populations literate but to raise *conscientização* (critical consciousness) regarding the socio-political condition in which they were relegated. Today Freire's work is still considered foundational to studies adopting a

---

[5] For Freire (1970), the term praxis indicates the "reflection and action directed at the structures to be transformed" (p. 126).

critical pedagogy approach and, more generally, to research and pedagogical endeavours aimed at promoting social change (e.g., Roberts, 2015).

As noted by Markham (2019), another illustration of critical pedagogy resting upon similar visions of social transformation are the feminist consciousness-raising circles, organized in the 1960s by the women's liberation movement in the US (Sarachild, 1978). These circles were safe spaces in which women could elaborate on the patriarchal systems in which they participated, and which were simultaneously oppressing them. Importantly, as argued by Weiler (1991), all these approaches "see human beings as subjects and actors in history and hold a strong commitment to justice and a vision of a better world and of the potential for liberation" (p. 450). All these developments allowed critical pedagogy to become important for those research frameworks which embed learning in their designs and aim to raise critical awareness regarding hegemonic oppressive structures (see also Pronzato, 2021).

Recently, drawing on a more than ten-year research and teaching project, Markham (2019; 2020a; 2022a) proposed the use of a critical pedagogy approach in response to datafication, and the oppressive environments in which users are obliged to act. The main idea is to make individuals "auto-ethnographers of their own lives" and to "help people find modes and means of critically examining and understanding the contexts within which they are drawn into a neoliberal position through (…) seemingly innocuous practices" (Markham, 2019, p. 759), such as sharing pictures, using their smartphone's GPS, browsing websites, etc. Thus, the aim is to elicit individuals' autoethnographic reflections on the role of digital technologies in their own social and personal activities, which are increasingly carried out in cultural environments characterized by pervasive datafication, and to foster their critical data literacy, based on the idea "that to be critical in any effective or sustained way requires deep understanding of the contexts within which digitalization or datafication is occurring" and that individuals can "make sense of, respond to, and be empowered with/in the mediated environments in which they live" (Markham, 2020a, p. 229).

Given the oppressive and colonialist relationships imposed on users by digital platforms (Zuboff, 2019a; Couldry and Mejias, 2019a), one of the key challenges for scholars is not only to teach through digital technologies, but to foster reflexivity about digital technologies, that is, to help students critically analyse the systemic role of platforms in the construction of reality (Risi et al., 2020) and to move "beyond the level

of data critique to social action in response to datafication" (Markham, 2019, p. 754). Indeed, our goal, as teachers, is "not to produce productive members of a late capitalist logic or society but rather to produce effective citizens" (Sundvall and Fredlund, 2017, p. 2), and to be an effective citizen today entails to cope with the structural role played in our societies by data assemblages. We cannot remain impartial — if partiality is possible at all, and stick to the idea of being necessarily value-neutral in our role. As famously noted by Howard Zinn, "you can't be neutral on a moving train" (2002).

These pedagogical principles can guide us also while doing social research and dealing with participants. As researchers, we can take on a scholar-activist role (Markham and Pereira, 2019) and practice a relational ethics of care (Ellis, 2007; 2017; Gillies and Alldred, 2012), based on feminist and intersectional values (Miller et al., 2012), aiming at "identifying and respecting diversity, paying attention to how our research may affect those under study, and articulating and acknowledging our intent as researchers and participants, including whether and how we aim to generate potentially transformative engagements" (Luka and Millette, 2018, p. 4). To do so, we need tools that can be used to deconstruct knowledge and ideological structures, and unveil the oppressive colonialist relationships embedded into data and platforms, thereby fostering critical data literacy. Drawing on Markham (2019; 2020a; 2022a), I claim that a critical pedagogy approach can be a valuable framework to enhance reflexivity and increase people's awareness regarding algorithmic processes and platforms' hegemony, while investigating how they perceive and make sense of algorithmic media in everyday life through auto-ethnographic methods.

2.2.2 Auto-ethnographic diaries

After having explained Markham's critical pedagogical framework, this paragraph will explain the importance and potential of auto-ethnographic techniques, which were employed to make students "autoethnographers of their own digital lives" and collect "granular narratives" (Markham, 2019, p. 755) regarding how they relate with algorithmic media in everyday life, also based on previous research experiences in this realm (see Herman et al., 2021; Pronzato, 2021; Risi et al., 2020; Risi and Pronzato, 2022a; 2022b).

The auto-ethnographic approach embraced in this research path is inspired by the principles and ethics of interpretive and narrative sociology and has, at its core, the narrative construction of embodied sensibilities toward routines and everyday activities, as well as taken-for-granted frames of interpretation which we apply in our daily experiences with algorithmic media.

Traditionally, with the term autoethnography, researchers indicate "many diverse species of first-person, vulnerable writing that calls attention to subjectivity, emotionality, and contingency and brings readers into "feeling" contact with the suffering of others." (Bochner and Ellis, 2016, p. 208). The seeds of this approach were planted at the beginning of the 1980s (see also Ellis et al., 2011). Following the "narrative turn" (Di Fraia, 2004), sociologists started acknowledging the potential value of stories at an ontological, epistemological and methodological level (Herman et al., 2005; Goodson, Gill, 2011; Di Fraia et al., 2019). Indeed, by contesting and challenging post-positivist approaches, some researchers argued for "the utility of narratives and vocabularies rather than the objectivity of laws and theories" (Rorty, 1982, p. 195). Specifically, they "wanted readers and/or viewers to be forced to deal with the concrete — particular people in particular places facing particular circumstances of lived experience" (Bochner and Ellis, 2016, p. 210). Within this framework, personal narratives were recognized "as sense-making tools with the capacity to produce, challenge and change the identities of individuals as well as collectives" (Andersen et al., 2020, p. 367).

My study humbly follows this historical path by focusing on 40 auto-ethnographic diaries, written by undergraduate students, and prepared according to the critical pedagogy approach conceived by Annette Markham (2019; 2022a), arguably one of the heirs of this tradition.

It should be noted that exploring the potential of autoethnographic techniques with undergraduate students is not novel. Cunningham and Jones (2005) argue that writing an auto-biographical story allow students to critically reflect on the elements that have shaped their behaviour and sense of self. Likewise, Coia and Taylor (2006; 2009) experienced autoethnography as a fruitful process for both teachers and students to build reflexive knowledge about past, present and future and on the ways in which identity is built within specific social and political environments. As mentioned above, Markham (2019; 2020a; 2022a) linked the use of autoethnographic techniques to the adoption of a critical pedagogy approach, in relation to processes of datafication and surveillance.

Another potential key element to consider, as I argued elsewhere with Elisabetta Risi (Risi and Pronzato, 2022a), is that the application of an autoethnographic lens, inspired by critical pedagogy, can prompt a re-discovery of writing as a means to narrate, conceive and scrutinise human experience, and encourage researchers and participants to focus on the "narratives of the self" (Denzin, 1997). Indeed, for both the researchers and the participants, "writing is (…) a way of 'knowing' - a method of discovery and analysis" (Richardson, 1994, p. 516), through which there is the possibility to become more aware of our sensibility and identity, and of how these processes play out within wider structural arrangements at the social and cultural level.

Furthermore, this orientation should favour the development and improvement of some key characteristics of qualitative research, such as reflexivity, empathy, embodiment, and compassion, through that aforementioned "first-person, vulnerable writing" focused on "subjectivity, emotionality, and contingency" (Bochner and Ellis, 2016, p. 208). Importantly, meaning-making is the epicentre of this framework, as the research and pedagogical purpose, which are inevitably intertwined, is to put "meanings into motion" (Bochner, 2018) and "to perform meaning from and through our bodies, situated daily routines, and relations with embedded, embodied, and everywhere digital technologies" (Markham et al., 2021, p. 760).

Finally, it should be noted that the approach employed in this research resonates also with the values of data feminism, that is, an intersectional feminist approach, elaborated by Catherine D'Ignazio and Lauren Klein (2020), which aim to illuminates on the oppressive relationships inscribed into data assemblages and on how algorithmic technologies can systematize and automate privileges, biases, and discriminations. In particular, the idea that is necessary "to value multiple forms of knowledge, including the knowledge that comes from people as living, feeling bodies in the world" (D'Ignazio and Klein, 2020, p. 73), in order to elaborate on novel ways to scrutinize data and the relationships and dynamics they can impose on the social world, seems to deeply resonate with the principles of critical pedagogy and auto-ethnography applied to digital life.

Given this framework, auto-ethnographic techniques, based on the principles and aims of critical pedagogy, were deemed appropriate to granularly explore how students perceive, make sense of, and relate with algorithmic media in their everyday life.

2.2.3 The case: 7-day auto-ethnographic challenge

As mentioned earlier, the students participating in this research were framed not as informants from which to extrapolate data useful for obtaining results, but as participants that can be empowered and helped become more aware regarding the role of algorithmic media and datafication structures in their everyday life, and more conscious of how algorithmic outputs contribute to their identity-building and sensemaking processes (see also Risi et al., 2020; Risi and Pronzato, 2022a). Prior research highlights that autoethnographic techniques are well-suited for self-exploration, the development of critical discourses, as well as the transformation of individual experiences into an analytical understanding of everyday context and knowledge structures (Spry, 2001; Markham et al., 2021; Risi and Pronzato, 2022b). Given this framework, they were deemed appropriate on a pedagogical, research and ethical level.

At the end of October 2020, I held some online lectures regarding the datafication and surveillance dynamics underlying the Internet today, within a social research course for which I was working as a teaching assistant at the IULM University. Afterwards, I invited the 2nd-year students of the B.A. programme "Communication, media and advertising" to participate in my research project. Within one week, 27 female and 13 male students, all aged between 20 and 22, made themselves available to participate to the project.

In the following weeks, I prepared a pre-structured 7-day autoethnography challenge, utilizing Markham's previous developed techniques (e.g., 2019, 2022a) and also adapting a series of self-guided prompts used previously in a largescale guided autoethnographic project "Massive and Microscopic Sensemaking during times of COVID-19" by Markham and colleagues (Markham, 2019; 2020; Markham and Harris, 2021; Markham et al., 2021) (see Appendix 1). It should be noted that, during previous lectures, participants had been given basic guidance on the practices of close level observation and fieldnoting characteristic of ethnography and autoethnography. Then, participants received and were guided through the pre-structured 7-day autoethnography challenge, where each day they would have to cope with a different prompt, which consisted of a creative task to be completed. In addition to these seven prompts, participants were given three core questions to guide their diary entries: 1) "How are we making sense of ourselves and of our everyday life in and through algorithmic media?", 2) "Which relationships do we develop in and through and with algorithmic media?", and 3) "How

do algorithmic media help us to think about the relationships between self and other, and between us and the world?". Furthermore, an algorithmic media fast of 24 hours was inserted at the end of the daily prompts.

More specifically, prompt 1 was intended as an invitation to participants to start pondering their everyday use of algorithmic media, therefore, it asked them to look at the apps most used in recent days and write reflections regarding their activities with them. Prompt 2 asked participants to capture a screenshot of the two first home screens of their smartphone, select three apps and write a paragraph from the first person perspective of each app, again drawing from Markham's previous critical pedagogy design for youth and digital media (2019). The idea of giving agency to machines was meant as a call to imagine that digital platforms are not only tools that we use, but also nonhuman entities that look at and interact with us. Prompts 3, 4 and 5 focused on drawing allegorical and situational maps (Markham et al., 2021) as a means of exploring what Jones and Harris (2016) defined "the shifting, temporary relationship between experience (a doing), the corporeal (embodiment), and the known (knowledge)" and help participants "chart territories of material and affective connection in and through such landscapes" (p. 1). Participants were first invited to draw an allegorical Victorian map of themselves while using digital platforms and use these "visual and affective representations that materially produce a territory" (p. 5) as a prompt for writing comments about it. Then, participants sketched three iterative situational maps following Markham's (2022b) extension of Clarke (2003), concentrating on a powerful emotional moment they experienced on/through digital platforms in order to explore and write about the human, machinic, and more than human actors involved in their experience with digital platforms, the relationships among them and the feelings emerging within this ecosystem. Prompts 6 and 7 drew on Markham and Harris (2020) to ask participants to write a screenplay regarding a habitual action on a digital platform and then to scrutinize the scene and the elements in it. The goal was to enhance self-reflexivity in analysing taken-for-granted online activities and find "perspective, voice, agency" (p. 932) within them. Finally, drawing again from Markham's experiments from 2012-2021 (Markham, 2021b; 2021c; 2022a), the last task was a 24h algorithmic media fast, after which participants were asked to ponder what it means and how it feels to be disconnected from digital platforms. It should be noted that the tasks favoured the production of both discursive and graphic

materials, aimed at providing in-depth, rich, multifaceted accounts of platform experience.

The diary was emailed to the participants at the end of February 2021. All the students sent back their diary within two weeks and most of them made themselves available for further similar initiatives. No semi-structured interviews or post-test surveys were conducted as it was beyond the scope of this thesis to detect measurable outcomes. Indeed, the procedures followed the tenets of action research where:

> "the action (…) is a spark that helps people come to (…) realization. The methodology is not interested in a long-term evaluation on change, but in the momentary and embodied interaction between researcher and participant, and the moments among researchers" (Markham, 2020a, p. 236).

However, it must be acknowledged that, within a more post-positivist framework, issues regarding the sample and the lack of post-test surveys and interviews could be identified. I will discuss these issues in the "Limitations" section (2.5).

2.2.4 Research context: COVID-19 and home confinement

Diaries were written at the end of February/beginning of March 2021. Thus, when the data collection occurred, in Italy, there were several restrictions in place, such as a national curfew and regional lockdowns, to limit the spread of COVID-19. In February-March 2021, Lombardy, whose capital is Milan, was one of the Italian regions most impacted by the third wave of COVID-19, therefore, schools, universities, offices, and most of the businesses were shut down, and in many cases, it was forbidden to leave one's city and travel, even across one's region, except for reasons of proven necessity, such as going to the hospital or to the pharmacy (e.g., Pronzato and Risi, 2022).

During this period, social distancing measures implied *de facto* home confinement. Most of the people and especially students were obliged to remain confined in their house for most of the day, and possibilities to have in-person interactions were extremely limited. The spaces and possibilities of social and personal activities were dramatically redefined, and individuals were frequently forced to change their habits. Within this scenario, university students were "connected in isolation" (Hargittai, 2022) and could

communicate with other individuals, have class, and access information mainly (and sometimes only) through digital technologies. Indeed, universities remain closed most of the time in 2020 and 2021, and lectures and exams were mainly held in online settings.

These stay-at-home orders have likely affected the results. Indeed, during the COVID-19 emergency, individuals turned to digital platforms, such as social media, to connect with others, share contents, access news, and so forth. Digital platforms became one of the key means through which social connectedness could be cultivated, a sense of togetherness constructed, and relationships maintained (Fuchs, 2020; Nguyen et al., 2022). This situation potentially amplified the systematic role of algorithmic media in everyday life and exacerbated some feelings and reflections that the participants expressed in the diaries. Indeed, prior research has showed that the mental health of young people was negatively impacted by home confinement and social distancing measures, and that, during this period, heavy uses of digital media could have a detrimental impact on youth's well-being (e.g., Marciano et al., 2022).

2.3 Data analysis

This section discusses the analytical strategy adopted to examine the narrative material collected through the autoethnographic diaries, and to generate research questions and produce findings. Specifically, a first round of coding was carried out on the discursive material to identify sensitizing concepts and key themes, to recognise patterns, as well as to generate leading research questions. Then, by drawing on a situational analysis framework, in the second round of the empirical analysis, I scrutinised both the discursive and graphic materials produced by the participants, in order to find and situate meaning in their narratives.

2.3.1 Qualitative coding, round 1. A grounded approach

The discursive material collected with the autoethnographic diaries, such as the written reflections elicited by the scene depicted in the screenplay, the experience of an

algorithmic media fast, having observed daily time usage or the drawn maps, were coded and thematically analysed using Atlas.ti, a computer-assisted qualitative data analysis software program designed to facilitate the analysis of discursive material.

To identify relevant categories and interrelationships between them at the granular level, I used open coding techniques (e.g., Bucher, 2018), commonly associated with a grounded theory approach (Corbin and Strauss, 1990; 2008; Strauss and Corbin, 1994). This type of analysis "consists of coding data; developing, checking, and integrating theoretical categories", as, since "the beginning of the research process, the researcher codes the data, compares data and codes, and identifies analytic leads and tentative categories" (Charmaz and Belgrave, 2015, p. 1).

Similar to Tiidenberg and colleagues (2017), I carried out "sequential and then iterative rounds of open and axial coding", to better understand which "sensitizing concepts" could emerge from the data (p. 4). Codes were constantly checked and revised throughout the process, and theoretical tenets were integrated in order to develop analytic arguments that sought to grasp the multifaceted aspects of the phenomenon under study. Indeed, the goal of the analysis was to start producing different analytic coding categories, as well as connections "between levels such as local/global, relational/structural, and so forth" (Markham, 2012a, p. 49). Furthermore, this round of coding also aimed to generate some early leading research questions, thereby setting the context for further investigation.

During the process, I delved into the material in different moments, following an iterative process. The purpose of this process was to defamiliarize with data, i.e., to try "to refrain from using familiar concepts and frameworks", in order to open up the phenomenon under examination "as an unknown and unfamiliar place" (Alvesson and Kärreman, 2011, p. 41). Given that hegemonic structural arrangements are reproduced through habits and routinized, unnoticed practices at the granular level (Markham, 2021a), it was considered useful to continue asking questions regarding what is happening in the narratives, in a grounded theory fashion, and to put under scrutiny all the situations that seem familiar and taken for granted, in order to detect unforeseen patterns of behaviour and sensemaking (Kennedy and Thornberg, 2018).

Finally, it is crucial to heed how we construct those patterns in the data. As brilliantly noted by Markham (2021d):

"[p]attern recognition, in recent computational thinking and machine learning, is focused on similarities in data. (…) Pattern recognition in interpretivist or constructivist grounded theory is something else. There is the same constant comparison of various samples over time, but there is a moment when one chooses which qualities will become obdurate. Pattern recognition makes data. Or to be more specific to the process of science: When we identify the pattern, we make data." (p. 923).

Indeed, pattern recognition necessarily embodies the particular perspectives of the researchers performing the coding. I acknowledge that my sensemaking activities are at the core of the analytical process through which I find, i.e., construct similarities, and, therefore, my subjectivity is constantly involved in the construction of "the linear flow of argument" (Markham, 2005a, p. 813).

After having carried out this first round of coding on the discursive material produced by participants, by adopting a network sensibility and generative mapping techniques (Markham, 2012a; 2022b), a second round of coding was performed to generate more in-depth data.

2.3.2 Qualitative coding, round 2. Generative mapping

The first part of the analysis allowed to identify key themes in the experiences and reflections written by the participants. In the present paragraph, I will explain the second round of qualitative coding, which involved both the discursive and graphic materials produced by the participants. To do so, I adopted mapping techniques, which can favour a "network sensibility", to produce "*situational*, *relational*, *positional*, and *social arenas* maps of the situation" (Markham, 2012a, p. 50, emphasis in the original). These maps aimed to generate "data, (…) organizational strategies for one's data, (…) multiple analytic coding schemes or categories, and (…) links between levels such as local/global, relational/structural, and so forth" (p. 49).

My starting point were both the emotional (Jones and Harris, 2016) and situational maps (Clarke, 2003; Markham, 2022b) that were drawn and attached in the autoethnographic diaries. Prompts 3, 4, and 5 asked participants to focus on a powerful

moment of joy, anger, anxiety, or frustration relevant to their lived experience with digital platforms, to sketch different maps based on that moment, and then to write reflections about the outcome. This process aimed to explore which human and nonhuman actors were involved in their everyday engagements with digital platforms and the relationships among them.

By using again open coding techniques, I categorized the maps and narratives based on: the salient moments that were chosen by participants (e.g., creation of a social media post, waiting for a reply to a message, loss of access to a platform, etc.), the related self-reported feelings (e.g., frustration, joy, anxiety, tiredness, stress, etc.), the human actions (physical movements, insults, etc.) and entities (e.g., friends, parents, colleagues, etc.) involved, the activities of humans mediated by a technological device (e.g., likes on social media platforms, Instagram stories, tweets, etc.), as well as the nonhuman elements (e.g., notifications, auto-play function, etc.) present in the ecosystem. The related written reflections were also coded and thematically categorized.

Figure 2
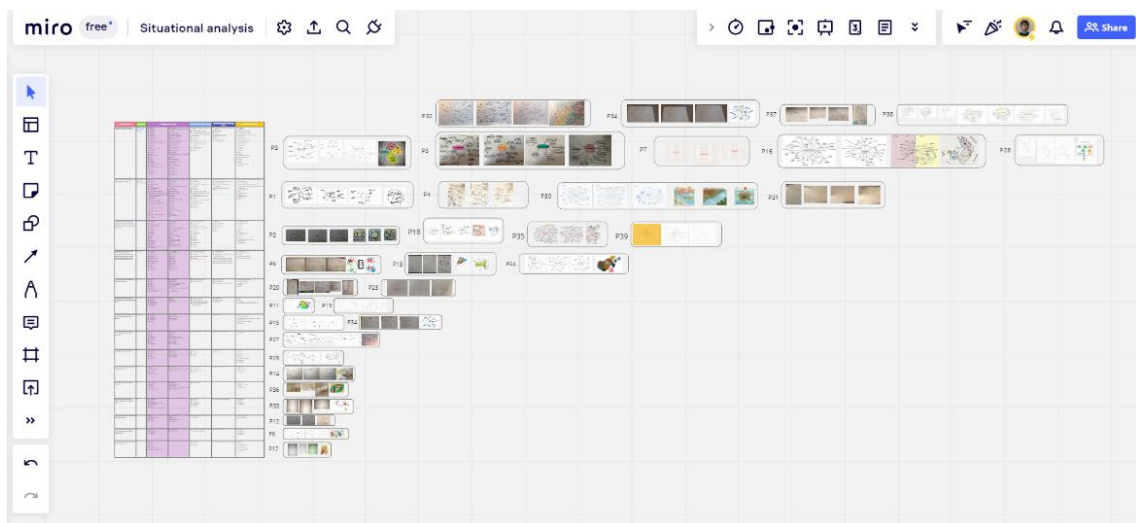
Source: my elaboration.

To carry out this stage of analysis, I used Miro, a visual collaboration platform suitable for education and research purposes (see Johnson, 2022). This software program allowed me to add on an open whiteboard the emotional and situational maps drawn by the participants, their reflections, as well as the codes, tables and comments I generated (see figure 2). Moreover, I could also integrate theoretical concepts and relevant literature in

an open space board, and create situational and conceptual maps that could be always edited and updated (see figure 3).

These mapping techniques were used in a situational analysis fashion (Clarke, 2003; Markham, 2022b), in order to generate further data for analytical purposes (Markham, 2012a) and to seek "depth and complexity in order to reach thick description" (Markham and Lindgren, 2014, p. 13), which are fundamental elements of qualitative inquiry. In particular, classifying narratives, creating categories, connecting theoretical concepts and, therefore, generating additional layers of meaning, are iterative activities that result in a novel dataset, "which represents the phenomenon in a new way. The act of transformation is one of interpretation and remix" (Markham, 2013c, p. 74).

Figure 3
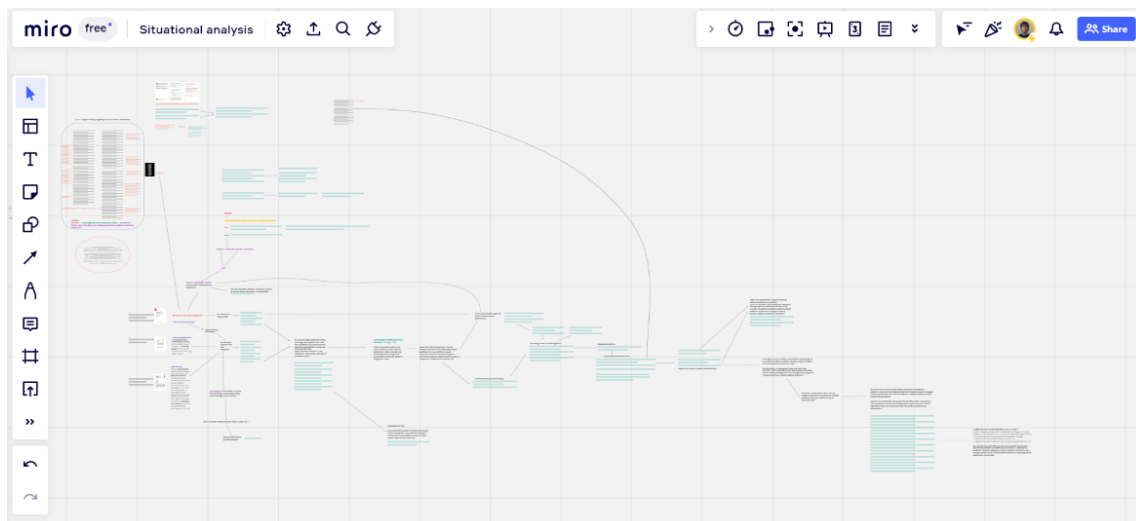
Source: my elaboration.

These activities resonate with what Markham defines as a "network perspective", i.e., a sensibility that can allow scholars "to move into the flow of culture to find meaning" (Markham and Lindgren, 2014, p. 38). More specifically, Markham (2012a) identifies two main purposes of network visualizations that can be fruitful for researchers:

> "[f]irst, the activity of producing multiple renderings of the context surrounding a phenomenon destabilizes both the context and the phenomenon, an essential step toward shifting to more complex accounts of contemporary culture. Second,

multiple layers of visualizations can provide a systematic trace of one's movement through various analytical categories and interpretations" (p. 50).

Thus, this second phase of coding through mapping techniques allowed me to keep track of my interpretive movements into the research material, and to generate additional data for the analysis. It should be noted that this process "is not only about simplifying and narrowing, but generating layers upon layers of informational units that influence our interpretations." (Markham, 2013c, p. 74). Indeed, as argued by Markham (2013c), "we generate a 'new' participant every time we transform their raw activities into a different form, such as (…) a summary of themes emerging from their activities and interactions" (p. 74).

Specifically, through mapping techniques, a researcher can "generate many layers of what might be construed as data, each laid over previous or alternate iterations to illustrate different orientations, generate different objects for analysis, identify different patterns, and demonstrate analytical shifts over time" (Markham and Lindgren, 2014, p. 12). This analytical approach was considered appropriate for the purpose of the study as it offers an effective way to investigate unexplored topics within an iterative and constant interaction between empirical data and theoretical elaboration, thereby allowing to immerse and delve into the "flow" of research material (Markham and Gammelby, 2018).

2.4 Building interpretive authority and ethical representations

Studies drawing on an approach similar to grounded theory always involve a performative side. Markham (2021d) contends that "[w]here we work out how the objectivity of the world emerges not from just constant comparison and "themes emerging from the data" we encounter and analyze, but from our noticing and highlighting certain things while suppressing other plausible meanings." (p. 921). In this process, "a world of choices can get narrowed" and "seem inevitable", therefore, we need to remember the potential, but also the issues involved in "recognizing patterns in the microscopic to transform the future, without losing the uniqueness of the granular" (p. 921).

Within this framework, it is crucial to critically reflect on how "we make data" (p. 932), as well as how we make participants. In other words, researchers should

continuously scrutinise and discuss how they analyse, select, and employ specific elements in the dataset to build representations of the people participating in their studies and, therefore, wider interpretations of social life, which are rooted in specific frames of references and elaborated from specific standpoints. The ethical implications of these processes are also a long-standing concern for scholars discussing research ethics and future-oriented approaches (e.g., Markham, 2006; 2018). Given this scenario, how interpretative authority and ethical representations were built will be discussed in the following paragraphs.

2.4.1 Enhancing reflexivity to construct interpretive authority

As already argued earlier, it is crucial for researchers to pay attention to the ways in which their movements produce a specific "path through meaning", as their decisions regarding "what to focus on create, not discover, what we eventually examine as data" (Markham and Gammelby, 2018, p. 453). Our sensemaking activities play a proactive role in the ways in which social reality will be interpreted and represented. Indeed, knowledge is produced by feeling, living bodies in the world, which co-construct and participate in social life while writing explanations about its functioning (Ellingson, 2006; Markham, 2012b).

During the analytical phase of a study, while recognizing patterns may be about detecting pre-existing similarities in the dataset, it should be noted "that there are patterns that are so overwhelming, they must be found to fight against their tendency toward homeostasis at best, entropy and ecological (and social) demise at worst" (Markham, 2021d, p. 923). Within this process, where we stand as researchers is a crucial issue. Indeed, our theoretical backgrounds, methodological approaches and interpretations of social life are always situated in specific contexts. Thus, how meaning is found into datasets is also the outcome of prior positions and frames of reference, that favour particular standpoints towards reality that will limit our understanding and interpretations of a certain phenomenon.

If this premise is well-established in interpretive inquiry, it is not that simple to take it into account during our daily research practices. To do so, it is fundamental to learn and

train a sensibility toward one's research material, that Markham (2020c) frames as *reflexivity*, i.e.,

> "…a practice that helps researchers reflect on their own role and situatedness, to understand better how they influence what is identified as relevant in the field, how their choice of a unit of analysis is entangled with their embodied positionality" (np).

Practices enhancing self-reflexivity aim to help researchers acknowledge their role in the generation of findings, build interpretive authority and foster a more conscious production of meaning regarding the research material. In my project, I attempted to follow the four types of reflexivity described by Markham (2017b) in her online essay *Reflexivity: Some techniques for interpretive researchers*, namely, reflexivity as a method of locating the self's position, as outward focus on the standpoint or situation, as critical focus on the object of research, and as inward focus on the self.

2.4.1.1 Reflexivity as a method of locating the self's position

As a researcher, my work is necessarily situated in a specific historical and cultural place, and rooted in unneutral frames of reference, through which I interpret the research material I collected and, more generally, social life. According to Ashmore (1989), to recognise "fully the notoriously ambivalent relation of a researcher's text to the realities studied", a scholar has to pay attention "to the interpretive, political and rhetorical nature of empirical research" (p. vii). To do so, I concur with Markham (2017b) that it can be extremely fruitful to analyse "the self recursively and critically in relation to the object, context, and process of inquiry" (np). Specifically, drawing on authors, such as Ashmore himself (1989), Lynch (2000), Woolgar (1988), and Alvesson and Sköldberg (2009), Markham (2017b) highlights that this process of acknowledging one's role is not only about reflection, "which is what we get when we look in a mirror. Rather, it's like trying to look at yourself looking in the mirror" (np). If the self, the phenomenon under scrutiny and the study itself are always "located in particular, small arenas" (Markham, 2017b, np), it is crucial for researchers to place themselves and to better understand from where they are observing from.

As a starting point, I need to highlight that I am a white, middle-class, cisgender, heterosexual, nondisabled, Italian (i.e., Western and European) male, at the end of his 20s/beginning of his 30s, who has always lived in Western countries (mainly in the North of Italy, but also in Ireland, the Netherlands and Australia for a few months) and has always been enrolled in Italian universities (with working and academic experiences in the aforementioned foreign countries). I am a heavy consumer of contents on social media, music streaming platforms and video on-demand services and I frequently take care of my personal image in online contexts, such as social networking sites for scholars and researchers. Thus, I am embedded into specific social spheres and media ecosystems. All these factors affect the ways in which I can access different perspectives and incorporate them into my research activities in a reflexive manner. Then, it should be noted that, although this list of personal characteristics is neither exhaustive nor complete, it highlights how my work comes out of privilege and how what is personal necessarily intertwines with the political. Indeed, "coming to know something is [always] a political and ethical matter" (Markham, 2021d, 914-915).

2.4.1.2 Reflexivity as outward focus on the standpoint or situation

A basic tenet of interpretive inquiry is that meaning is always constructed in a particular context. Indeed, individuals ascribe meaning to artifacts, rituals, and activities in multifaceted and contingent ways (Tanweer et al., 2021). To build rigor into their research practices, researchers ought to consider this principle also when it comes to their interpretative activities.

Specifically, it is crucial to clearly situate the research design of a study within a larger field of research and school of thought, and "the object of analysis and method of inquiry in relation to other people, places, and things" (Markham, 2017b, np). Markham (2017b) defines this activity as the *interpretive challenge*. Then, when the interpretive activity takes place and researchers attempt to communicate their work in a concise, clear and meaningful manner, "the challenge shifts to the *rhetorical* level [emphasis added]" (np). If the boundaries between interpretive and rhetorical activities may be blurred, as "reality is constituted through the rhetoric we use to talk about it" (Foss, 2018, p. 24), this analytical distinction is useful to point out that:

"…it is the researcher's responsibility to be clear. This is a matter of first knowing where we stand in relation to others (the reflexive interpretive exercise) and then making it clear to others (the rhetorically sensitive exercise)" (Markham, 2017b, np).

Thus, analysing and writing processes can be enhanced by self-reflexive exercises aiming to situate disciplinary terms, research questions, approaches, methodologies, analytical decisions, and personal standpoints. I attempted to follow this epistemological path not only to make my research outputs more accessible for different audiences, but also to refine my analytical lens and become more aware of the ways in which I look at the research material.

2.4.1.3 Reflexivity as critical focus on the object of research

Markham (2020a) has constantly argued for the merits of using "self-reflexivity as a form of meta-analysis" (p. 229). For researchers, this implies tracing their own activities, the analytical procedures, the decisions made about what elements to analyse and the reasons underlying these choices (see also Markham and Gammelby, 2018).

During this process, researchers can continuously shift "both naturally and deliberately from the empirical to the theoretical and back again in such a way as to include room for an analytical gaze on the self doing the analysis" (Markham, 2017b, np). As already argued, collecting research material, analysing it, and giving interpretations of the narratives inscribed in a dataset, are sensemaking activities located in a specific context and, more specifically, practices through which a researcher constructs meaning regarding the object of research. It is fundamental to trace one's actions and, instead of deleting what the researchers has done or thought in previous stages of the analysis, keep track of the edits and additions. Within this scenario, Markham (2017b) suggests that researchers ask themselves self-reflexive questions, such as: "What led me to that perception? How do I know that? So what? Why did I conclude that?" (np).

Reflexivity thus emerges "as a honing and sharpening practice" (Markham, 2020a, p. 229) through which one constitutes "the self as a subject of study" that must be critically examined "along with the other materials, objects, or units of analysis" (Markham, 2017b,

np). Self-reflexive techniques should help the researcher better understand the ways in which research questions are generated and how they change, how perspectives and viewpoints shift, how interpretations are constructed over time and situated in broader analytical debates. Overall, all these activities concern how interpretative rigor and authority are constructed by focusing on the procedural elements of the analytical process.

2.4.1.4 Reflexivity as inward focus on the self

Finally, the construction of interpretive authority can be helped by exercises focusing on the self and attempting to situate the researcher and critically "orient the perspective from which an interpretation is generated" (Markham, 2017b, np). In other words, as argued by Goodall (2000), "the persona you create to represent your ethnographic self, and the voice that carries it through the narrative, is the source of your *authorial* character, your rhetorical *ethos*" (p. 131, emphasis in the original), and the construction of this persona "is all about *rhetorical and narrative choices*" (p. 132, emphasis in the original) that a researcher makes, and which will affect one's interpretive perspective.

Becoming aware of these often-implicit choices is not an easy task. If I can be eager to expose the situatedness of my knowledge-construction process, digging into my research practices can be complex. Practically, this implies to locate myself and to comprehend where I am and where I am not, where I come from and the places I can go given where I am. Within this scenario, the aforementioned "network lens" (Markham, 2012a, p. 52) can be useful not only to move into the research material, but also to better understand the different perspectives embedded into the analytical, interpretive, and writing procedures.

To detect my embedded viewpoints and frames of references that inform and situate my analytical activities, during the research process, I incorporated in my practices some of the exercises suggested by Markham (2017b) in the online essay that is underpinning these paragraphs, and then applied by Tanweer and colleagues (2021).

Brain dump

This "self-directed introspective elicitation" technique draws on the typical elicitation exercises commonly associated with brainstorming, and is typically employed in

psychology and ethnography. In a predefined and calculated period of time, the researcher writes on a blank sheet, without stopping, everything that comes to mind following a prompting question. The exercise aims to "to produce material to critically analyze one's premises, decisions, and interpretations" (Markham, 2017b, np).

Describing one's sensemaking tools

The goal of this exercise is to detect some of the assumptions, perspectives and principles that inform one's research process. To do so, I replied to the following questions posed by Markham (2017b). It should be noted that this list of questions does not aim to be exhaustive, but rather to enhance my reflexive faculties and expose the standpoints from which, as a researcher, I analyse and interpret the research material.

What is my perspective?

I am a sociologist and media scholar, whose work is mainly situated within the field of critical algorithm studies. I consider technologies as socio-cultural artifacts and as social agents, and I investigate how individuals relate to digital platforms in their everyday life and how these engagements with technologies contribute to the shaping of their processes of identity-construction. To do so, I draw on a relational approach to technology and identity, and my analysis of the research material is informed by my familiarity with critical theory, cultural and media studies, critical pedagogy, narrative inquiry and, more generally, interpretive sociology.

Moreover, while conducting the present study based on autoethnographic diaries, I also carried out another study examining how algorithmic media are designed within corporate environments, following a case-study design, and drawing on a multi-sited ethnography, in a production studies fashion.

Generally, I believe that it is crucial to scrutinise the relationships individuals have with digital technologies in their everyday life, which take place within complex ecosystems composed of human as well as nonhuman elements, as well as to examine the environments where, and the processes through which, humans design algorithmic technologies.

What methods do I tend to use in collecting data?

In all my publications I mainly used qualitative methods, such as in-depth semi-structured interviews, focus groups, discourse and content analysis, auto-ethnographic diaries. Moreover, I use speculative mapping techniques both to elicit participants' reflections and, on a personal level, to better understand my research process.

What methods do I use in analysing data?

I tend to read and code textual material, by using open coding techniques, in a grounded theory fashion. This process consists in breaking the structure of a text, such as the transcript of an interview or a corporate document, into smaller units of text, to which I initially associate open thematic categories. These categories will be iteratively refined and used to identify key themes that should allow me to move from the granular level of the lived experiences of the participants to a more general level of theoretical elaboration. Thus, my analysis is mainly based on text. During the analytical process, I attempt to defamiliarize with the collected data in order to open up the narratives under examination.

What else might make my work incomprehensible to someone else?

Following Markham's work (2017b; 2019a; 2022b; 2022c), the methods I use in this research project draw from different research traditions, such as interpretive sociology, critical theory, and postmodern schools of research. Then, to elaborate on findings on a theoretical level, I may draw on different literature streams focusing on how algorithmic media affect social life and use terms from diverse research fields. Although I acknowledge the importance of disciplinary boundaries, I also firmly believe that connections between different disciplines and terminologies are fundamental to developing deeper interpretations of social life. This must be done by handling concepts from different traditions with great care.

Situational mapping

Finally, I also used situational mapping techniques, originally elaborated by Adele Clarke (2003; 2005) and heavily revised by Markham (2022b), to explore my position as a researcher regarding other entities, such as people, objects, companies, institutions, and so forth. As highlighted by Tanweer and colleagues (2021), the aim "is not only to surface

links between the self and others, but also to expose variations and interrogate asymmetries that exist in these relationships" (p. 12).

These techniques should help the researcher collect information regarding the quality of the links between different entities in a situation (Markham, 2017b) and generate additional research material for the analysis (Markham, 2022b). Indeed, Markham and Harris (2021) argued that this type of technique:

> "…can help "open up" the situation, finding relevant voices and agency, revealing silences, absences, and other things that lie beyond the boundaries of our observing mind. It is also a good technique for finding complexity by repeatedly mapping elements of situations, without worrying about accuracy or results" (p. 935).

Their experiments extend on the work of Adele Clarke (2003), which noted how situational maps aim "to capture and discuss the messy complexities of [a] situation in their dense relations and permutations" (p. 559). More specifically, situational mapping techniques align with Markham's work on concepts like remix (2013) and bricolage (2017c), as well as her contributions on the movements of researchers into and through digital flows (Markham, 2012a; Markham and Lindgren, 2014; Markham and Gammelby, 2018). Indeed,

> "…mappings illuminate the power of thinking about situations through a network lens. They also form networks of meaning of their own, not only by virtue of a viewer's experience of them, but also more directly when and if they influence each others' re-renderings over time." (Markham, 2012a, p. 52)

Within this framework, during my research process, I have drawn several situational maps to orient myself in the analysis and discuss the self from which I was making sense of the dataset. These exercises were carried out in the belief that "the researcher must take seriously the role of cultural interpreter, and gain interpretive authority through rigorous and constant practice of their craft" (Markham, 2012b, p. 348).

Finally, it should be noted that, in most of the cases, even when an interpretive, postmodern, or autoethnographic approach is embraced, these types of exercises are not included in publications and dissertations. Indeed, frequently, "weaving this information

into the research may not be warranted or advisable" as it "could be read as theoretically inconsistent, or smack of self indulgence" (Markham, 2017b, np), especially in research environments in which sociological inquiry converges with hard science epistemologies and interpretations (Markham, 2018).

However, I concur with Markham (2017b) that "reflexivity is in many ways the final step of ethical decision making" (np) and that there are political and epistemological reasons for being reflexive regarding how certain methodological and analytical choices are taken, and findings formulated (Markham, 2021d). This brief report of the activities I have undertaken to enhance my self-reflexivity is inserted in this thesis to be more transparent about a part of my analytical process and to show the potential of self-reflexive techniques in constructing interpretive authority. Indeed, I argue that exposing our reasoning and subjectivity does not necessarily entail an undermining of our methodological choices and practices. Rather, it can show how our "*authorial* character" and "rhetorical *ethos*" (Goodall, 2000, p. 131, emphasis in the original) were built, thereby increasing the transparency of our work and embodiment.

2.4.2 Ethic as a method

In the previous paragraphs I discussed which self-reflexive exercises I carried out to better situate my interpretations of the collected material. If, as scholars, "we make data" (Markham, 2021d, p. 923), it follows that we also "make participants". Indeed, researchers should be accountable for how they select and use certain parts of their datasets to construct explanations of social life and, therefore, how they represent their participants within this process. According to Van Maanen (1998), "[e]thnography irrevocably influences the interests and lives of the people represented in them - individually and collectively, for better or for worse" (p. 19). This implies that researchers need to constantly interrogate themselves regarding the implications of how they depict others.

Drawing on this framework, this study pays particular attention to the adoption of an ethical stance towards participants (Markham, 2004; 2005b; 2006; 2012). To do so, it attempts "to reflexively interrogate (…) practices and assumptions throughout the course of the study" (Markham, 2006, p. 49). This sort of activities has been long established in

ethnographic research, where "the critical junctures and questions" are not "pre-determined but emergent in the iterative process of inquiry and the *in situ* application of appropriate methods" (p. 49). Specifically, in ethnographic studies, participants are frequently turned into "textual beings" (Markham, 2005b) as researchers construct a "textual representation of the participants" (Markham, 2003, p. 59), which is then remodulated to carry out a "reconstruction of a given social world" (Atkinson and Delamont, 2005, p. 834). Given this scenario, how researchers represent people's experiences, feelings, opinions, and attitudes reconfigures the subject under study and can affect the integrity of the people involved. Indeed, as researchers, we are "afforded a tremendous degree of control in representing the realities of the people and contexts under study" (Markham, 2005b, p. 811), and this control entails political and ethical responsibilities.

To consider the implications of one's actions and choices in the construction of ethical representations of social life, during the research process, the principles of reflexivity and context sensitivity emerge as crucial elements to partition "what appears to be a smooth flow of one's choices and movements" and to identify "where one is currently standing and what one's intentions are in choosing from a range of possibilities." (Markham, 2006, p. 39). As also discussed above, this project carried out self-reflexive exercises and attempted to critically analyse the research work while it was carried out. One of the aims of the study was, infact, to build ethical representations (Markham, 2012b; 2017a) of the students who wrote the autoethnographic diaries, which were framed since the first stages as participants which could be helped increase their awareness of datafication and surveillance practices (Markham, 2019; 2022a; Pronzato, 2021).

In the sections that follow, I explain how I focused on relational ethics of care, how ethical descriptions of participants' experiences were constructed, and the proactive role that researchers can play adopting a critical pedagogical framework.

2.4.2.1 Representing others through relational ethics of care

As pointed out in the previous sections, the interpretive endeavour is a question of choosing what to consider meaningful, what to consider as unimportant, and how to create honest and ethical — but necessarily not neutral, representations of the participants.

Almost twenty years ago, Markham (2005b) highlighted that while "[c]ertain editing choices may not alter the meaning of the utterances, interaction, or identity of the textual being embodied through these utterances", others "can function to devalue, ignore, or silence a fundamental aspect of a persona" (p. 812). Thus, researchers need to cope with the double challenge of "providing accounts that present rich descriptions and important details about the context or people" (Markham, 2012b, p. 336) and making "case-based decisions to better protect the interests of participants" (p. 334).

A fruitful approach to do so is to recognise that "any method decision is an ethics decision" (Markham, 2005b, p. 811). Specifically, Markham (2006) focuses on the axiom "*methods first, ethics follows*", thus highlighting that:

> "…ethics is embedded in one's everyday method of approaching, understanding, evaluating, and producing academic texts about a social phenomenon. To say methods first, ethics follows is to emphasize that all methods decisions are in actuality ethics decisions and that all ethics decisions are in actuality methods decisions" (Markham, 2006, p. 42).

Every methodological and, therefore, epistemological approach implies procedures and choices which have ethical implications. However, these critical aspects of research design are often neglected or underestimated, especially in post-positivist approaches, as methodological choices are often based on habit, thus playing out as routinized activities which conceal the role of "ethics in practice" (see Markham, 2006). Given this scenario, methodological reflexivity and context sensitivity emerge as crucial aspects to consider to better situate one's decisions and practices, as "[i]dentifying the values embedded in even mundane decisions is the first step to creating an ethical *in situ* research stance" (p. 45, emphasis in the original). It should be now clear that our principles may not be the same for all times and situations. As researchers, in fact, we often have to adapt to different people, cultural contexts, stories, and critically reflect on our practices and ethical choices at every step (see Frank, 2004; Ellis, 2007).

At the methodological level, this research project employs autoethnographic diaries, prepared according to the framework of critical pedagogy. For Bochner and Ellis (2016), autoethnography is a way to focus on "particular people in particular places facing particular circumstances of lived experience", emphasizing "subjectivity, self-reflexivity, emotionality" (p. 210). Regarding traditional autoethnography, Carolyn Ellis and

colleagues (2011) discuss the "relational ethics" involved in this technique, as "autoethnographers not only implicate themselves with their work, but also close, intimate others" (p. 281). Indeed, when describing one's life and experiences, other individuals and, therefore, personal stories, result involved. In the case of my research, participants were autoethnographers of their own lives (Markham, 2019; Risi et al., 2020), therefore, I have a dual responsibility, as I must secure that both the people participating in the study and those described in the diaries are protected and that their perspectives are respected by my analysis. This resonates with Ellis' idea (2007) of holding "relational concerns" (p. 25). More specifically, Ellis (2017) emphasizes the need to embrace "relational ethics of care", thus paying particular attention to:

> "…the role of connection and feeling in the principles that guide my work. I concentrate on the way people relate with one another in their various roles and commitments. I ask, what is going on here, what is needed to make this interaction go well, to honor the other person and bring more love and kindness into what we do and who we are as researchers. Researchers and participants work collaboratively, sharing authority and responsibility. They listen deeply to, speak responsibly with, feel passionately for, share vulnerably with, and connect relationally and ethically to each other with care." (p. 58).

I argue that this approach to ethics deeply resonates with Markham's idea that being an ethical researcher implies being "a reflexive researcher who works from the center, the heart. This entails being knowledgeable and prepared; present and aware; adaptive and context sensitive; and honest or mindful" (Markham, 2006, p. 44).

Drawing on these ethical and methodological tenets, I adopt an ethnographic approach, emphasizing relational ethics of care and enacting the potential of a critical pedagogical framework. This multi-layered approach results in the construction of ethical representations of participants' experiences, and in a shift "from descriptions to interventions" (Markham, 2017a) aimed at promoting social change.

2.4.2.2 Constructing ethical representations

In the autoethnographic diaries I collected, I attempted to remodulate the narratives created by participants in order to provide ethical descriptions of their situations, activities, and feelings.

To begin, one of the goals of ethnography is "to grapple with complex cultural phenomena, to help us build *thick* descriptions of "what is going on here" [emphasis added]" (Markham, 2017a, p. 1142). The term "thick descriptions", commonly associated with the work of Clifford Geertz (1973), is not only about recording what people are doing or amassing detailed narratives. Indeed, "[a] thick description (…) goes beyond mere fact and surface appearances. It presents detail, context, emotion, and the webs of social relationships that join persons to one another" (Denzin, 1989, p. 83). Specifically, "to thickly describe social action is (…) to begin to interpret it be recording the circumstances, meanings, intentions, strategies, motivations, and so on that characterize a particular episode. It is this interpretive characteristic of description rather than detail per se that makes it thick" (Schwandt, 2001, p. 255). Researchers are cultural interpreters that record, transcribe and remix different materials, thereby participating in the construction of their "data", which are then transformed into something else (Markham, 2012b).

How these thick descriptions can also become "thick ethical descriptions" (Brinkmann and Kvale, 2005) is a major concern for researchers which have to deal with "the good, the bad, and the ugly" (Berbary, 2014, p. 1214) of the stories they collect, the following representations, as well as the integrity of participants. To begin, to construct ethical representations[6] of the students participating in my studies, I used some protective devices commonly associated with the protection of safety and privacy in social research, such as the anonymization of sensible data (e.g., names, places, etc.). Thus, in the transcripts of the interviews, in the situational and emotional maps, and in my fieldnotes, I erased those personal details that could make students identifiable by readers. A classical practice of ethnographers is to prevent readers from recognising certain participants, who have not

---

[6] This project supports that each description of social life is necessarily a representation constructed by the researcher and that a major concern should not be how to erase the researcher' subjectivity, but how to build ethical descriptions, i.e., representations, of social life.

allowed their identity to be revealed (Ellis, 2007). Indeed, "the essence and meaningfulness of the research story is more important than the precise recounting of detail" (Ellis et al., 2011, p. 282) and, as researchers, it is our duty and responsibility to protect the safety of the people participating in our studies.

Then, during the analytical process, I attempted to pay attention to how I *contextualized* and *narrativized* the participants' stories, and the *particular examples* I focused on (Brinkmann and Kvale, 2005, p. 177-178). These principles are considered by Brinkmann and Kvale (2005) as useful "ways of learning to thicken events to help us act morally" (p. 177). One of the realms in which I had to deal with these issues, for example, is the language used to describe the participants.

As mentioned early, participants' are transformed by researchers into "textual beings" (Markham, 2005b), and their words play a central role in this process. In qualitative research, a typical manner to present results (and therefore construct the narrative representations of findings) consists in reporting snippets and excerpts from interviews and fieldnotes. Apart a few emotional and situational maps written in English, all the diaries were written in Italian. The snippets and excerpts chosen to represent participants and their experiences were translated in English (see chapter 3), attempting to maintain the originally intended meaning and nuances of their accounts. Although I am a native speaker in Italian, and I have been speaking and writing in English for many years, both at the professional and personal level, this role of translator further highlights my role as "the fabricator of the story" (Markham, 2012b, p. 345).

It should be now clear the proactive role of the ethnographer in producing representations and interpretations of social life. All the choices made at the methodological and interpretive level affect how the phenomenon is considered, data collected and, therefore, social reality explained. Indeed,

> "[a]ll data are narrowed, altered, and abstracted through various filters before they are analyzed. Research reports are partial accounts and snapshot versions of truth – our best effort to encapsulate for particular audiences the studied experience of everyday life." (Markham, 2012b, p. 341).

Given this scenario, Markham (2012b) claims that to protect users' privacy in online settings a useful practice is *fabrication*. This word is often associated with research misconduct and unethically falsification and production of data. However, the term has a

different meaning within the inductive framework of interpretive, postmodernist, feminist inquiry, where a typical tenet is that it is misleading to focus on "objective observations", because, as researchers, we only deal with "observations socially situated in the worlds of – and between – the observer and the observed' (Denzin and Lincoln 2000, p. 19).

Within this framework, Markham (2012b) explains that fabrication can be "a rigorous model for analysis and representation" and a highly practical, "sensible and ethically grounded solution for protecting privacy in arenas of shifting public/private contexts" (p. 341). Indeed, as Markham (2012b) continues, fabrication can be considered a "creative means of embedding ethics inductively into research practice, by allowing the specific needs of the context to play a stronger role in determining 'best practice' procedures" (p. 341).

An example of a typical ethically sensitive fabrication practice is the creation of composite accounts, which can be about events, people, interactions, and processes. At a basic level, "creating a composite account is (…) a straightforward activity of selecting representative elements from the data set and composing a new original that is not traceable back to the originals. This reconstruction is accomplished through careful attention to the context, the questions, and the purpose of the report" and can be considered "a useful adaptation to the current concerns about privacy and anonymity in Internet-related social spaces." (Markham, 2012b, p. 342).

To better explain how individuals interpret algorithmic media and how engagements with digital technologies take place in their everyday life, I created some composite accounts of their experiences. This also aimed to provide thick and ethical descriptions of their activities by respecting their privacy, safety, and integrity.

2.4.2.3 Critical pedagogy. From descriptions to interventions

In the previous section about critical pedagogy (2.2.1.), I introduced the idea that research activities can be aimed at raising "consciousness of citizens about how they are part of larger ideological systems of power and control" (Markham, 2020a, p. 230). As already argued, my work draws on Markham's critical pedagogy framework (2019; 2020a; 2022a). The adoption of this framework has implications for how "the ethics of the future" is produced "as we go about our everyday academic lives of producing

research" (Markham, 2017a, p. 1142). Indeed, the approach adopted in this study is not only about the protection of participants from potential harm, but also about reconsidering the goals of qualitative inquiry and, therefore, our role as researchers, whose purpose can be to shift "from descriptions to interventions".

Following Markham's reflections and writings on the topic (2019; 2020a; 2022a), I take on a scholar-activist role and concur with her on the idea that researchers can design their studies to proactively promote social change. In her own words:

> "[i]f we consider how such units of cultural knowledge travel and function in the broader ecosystem, we can begin to recognize that our audiences are no longer just our students or colleagues. Our ideas are much less likely in the 21st century to sit quietly in books on library shelves. Our research matters, in that every action we take to focus on a phenomenon and then somehow transform our witnessing into something else through the interpretive ethnographic filtering process "reconfigures the world in its becoming" (Barad, 2007, p. 396)." (Markham, 2017a, p. 1135).

Markham's work is rooted in the tradition of interpretive, feminist and postmodernist scholarship, applied to Internet studies, and strongly focuses on how to foster social change. Her idea is that researchers should not only collect and analyse "data" — a term she has critically discussed and criticised (e.g., Markham, 2013d), and elaborate on "findings" that will be published, but rather give participants the tools to scrutinise their own digital experience and increase their data literacy. More precisely, the point of her approach "is to do the research, and the findings are not for me, as the facilitator, but for the users who become researchers themselves" (Markham, 2019, p. 756). Given this scenario, she assumes more the role of a pedagogue than an empirical researcher, as the goal is not to construct findings but to encourage critical reflections and, the emergence of questions regarding taken for granted aspects of digital experience.

Although, in my research, the material collected was also used to elaborate on results and findings, I embrace Markham's critical pedagogy framework, and the following ethical approach, in order to move "beyond the level of data critique to social action in response to datafication" (Markham, 2019, p. 754). Thus, this research that is not only for me, but also "for them" (Markham, 2017a), i.e., for the participants who undertook this research path with me and accepted to openly share their lives, feelings, fragilities, and

emotions. Indeed, one of the goals of my work is to help build new literacies regarding how, when and for whom algorithmic media function in our daily activities, and which are the political and ethical consequences of the disappearance of these artifacts, within the fabric of social and cultural life, as a simple "way of being" (Markham, 1998; 2020b).

This applied research endeavour shows that, as researchers, we can play a proactive role and intervene in the ways in which individuals make sense of their everyday engagements with algorithmic media, which occur in environments of ubiquitous datafication. Specifically, the aim is to help people challenge those "deep structures" (Mumby, 1988) of meaning that secure the dominance of digital platforms, which work according to colonialist extractive logics (Couldry and Mejias, 2019a), embedded within a surveillance capitalist model (Zuboff, 2019a; 2019b).

To conclude with Markham's words, our interventions and contributions as researchers can favour the development of "critical data literacy skills for the public" (Markham, 2019, p. 758) and "become frameworks that can shape how users, designers, and other researchers conceptualize the sociotechnical ecologies within which we are saturated" (Markham, 2017a, p. 1142).

2.5 Limitations

Finally, it needs to be acknowledged that there are several potential limitations to this research, some of which have already been anticipated. Certain limitations are the ones typically related to qualitative inquiry, which follows an inductive style, a non-probabilistic research design and focuses on the meaning individuals ascribe to complex situations (e.g., Creswell, 2014). To begin, results are based on what can be commonly defined as a "convenience sample" (Di Fraia and Risi, 2019) of undergraduate students, who volunteered to participate in this research process. Then, it should be noted that most of them were resident in the North of Italy, and enrolled in a private university, hence, most likely, middle and upper-class individuals. Given this scenario, the role of digital inequalities results difficult to explore and findings cannot be generalised to the whole population of young individuals in Italy but should be rather considered the outcome of a specific socio-cultural environment and relational situation. Notwithstanding these issues, the reader should bear in mind that the aim of qualitative inquiry is not to obtain

results that are generalisable to the entire population, but to pursue analytical generalisation, i.e., a generalisation to wider theoretical constructs, thereby providing a richer understanding of certain aspects of human experience (Firestone, 1993; Polit and Beck, 2010). Furthermore, as already discussed (se 2.2.3; 2.4.2.3), the use of a critical pedagogy framework aims to help individuals increase their awareness of algorithmic operations and datafication processes, through momentary and embodied interactions that involve both participants and researchers, therefore it is beyond the scope of this research to examine long-term impacts or measurable outcomes (see Markham, 2020a). However, if one examines the adopted methodology from a more post-positivist angle, it must be acknowledged that further data collection could have been useful to better understand the phenomenon under scrutiny. Within this framework, in fact, semi-structured interviews would have enabled to discuss more in-depth with the participants the events and emotions reported in their writings, thus providing a richer understanding of their experiences. A survey would also have allowed to assess the impact of the diaries on the participants' future habits and activities, thus measuring how their algorithmic media use changed following this autoethnographic experience.

By considering the research from the same post-positivist perspective, a further limitation of this study is embedded in the adopted technique. Indeed, autoethnographic diaries can be considered limited in their scope as the collected data consist of self-reported behaviours, which necessarily embed biases regarding what is observed and selected, as well as how it is reported (e.g., Poerwandari, 2021). Despite these issues, the technique was considered suitable for the research goals as the study draws on an interpretive approach, adopts a critical pedagogy framework, and focuses on the sensemaking processes of young individuals in their everyday activities, thereby aiming to investigate how algorithmic media are perceived and framed, as well as to help youth become more aware of their relationships with digital platforms.

Another potential problem concerns the power differentials that are systematically built into the study. I had the opportunity to meet the students participating in my study while working as an assistant at IULM University, teaching within a university course for which they had to take a final exam in the following spring. Students' recruitment has multiple facets and potential issues (Foot and Sanford, 2004; Khatamian Far, 2018). One of them, for example, is that, given my position as a tutor, students may have concealed or highlighted specific aspects of their lives. However, it should be noted that this study

is constructed as an action-research intervention, which is focused on students on purpose (Markham, 2019). Thus, as noted by Ling Shi (2006), "participating students" should be considered as "collaborators (…) as their learning experiences form the action of reflection and construction of knowledge" (p. 206). As Shi continues (2006), within this framework, "[w]ith the unique roles of the action researcher and a collaborative relationship between the researcher and the researched, we can best understand action research as both research in practice and research with people" (p. 206).

Then, I acknowledge that the scope of my thesis may be too broad, as it does not focus on a single platform, but rather scrutinise the relationships individuals have with different artifacts, such as social media (e.g., Facebook, Instagram, TikTok, etc.) and streaming services (e.g., Spotify, Netflix, etc.). Although each platform has its own specificities, this contribution focused on all the sensemaking activities and interactions related to different digital platforms individuals have in their everyday life, thus drawing connections between potentially different socio-technical dynamics. This decision is the outcome of previous autoethnographic experiments (e.g., Risi et al., 2020; Risi and Pronzato, 2022a; 2022b) where I had observed that different platforms are used in different moments of the day or contemporarily, thus seamlessly flowing from one to the other. Moreover, this idea was corroborated by research results, as we will see in the next chapter. Finally, there are certainly other important themes that emerged from the results and that could not be further analysed or were not included in the dissertation. In the next future, these narratives will be examined to better understand the wider implications of digital platforms for how individuals make sense of everyday life and construct their identities.

2.6 Conclusion

In this chapter, I showed the rationale and aims of this research project, as well as the methodological, analytical, and ethical approaches I adopted. Specifically, I illustrated how, to investigate how young individuals perceive, relate with, and make sense of digital platforms in their everyday life, I collected 40 undergraduate students' diaries, structured as an autoethnographic challenge and prepared according to Markham's critical pedagogical framework, the history and tenets of which were previously explained. In

this scenario, I showed that critical pedagogy can help both researchers and participants to scrutinize taken for granted online activities, deconstruct knowledge and ideological structures, and unveil the oppressive colonialist relationships embedded into data and platforms, thus facilitating the development of algorithmic awareness and critical data literacy. Moreover, I situated the study in the specific context of the COVID-19 pandemic.

In section 2.3, the two rounds of qualitative coding conducted to analyse the research material were described. Here I illustrated the first analytical phase carried out using open coding techniques commonly associated with a grounded theory approach and then, the second round of analysis, which relied on mapping techniques applied in a situational analysis fashion. This part highlighted how classifying narratives, creating categories, connecting theoretical concepts and, therefore, generating additional layers of meaning, are iterative activities that transform and remix the narratives initially collected and, therefore, represent and construct the phenomenon under study in a different way.

Given this scenario, in section 2.4, the overall ethical and interpretive approach was examined. To begin, I discussed the techniques and exercises through which I attempted to foster self-reflexivity and, therefore, construct interpretive rigor and authority. Then, I explained how researchers "make participants" and, therefore, how I strove to build ethical descriptions of the experiences narrated by the students partaking in my research, finally returning to the principles of critical pedagogy.

In the following chapters, I proceed to show how the ethical and research purposes were followed and how this methodological approach was valuable to shed light on the relationships and sensemaking processes youth build with and around algorithmic media.

3. Findings. Autoethnographic sparks

1 March 2021: The third wave of COVID-19 is hitting Italy and the city of Milan is blocked. Most businesses are closed and it is not possible to travel or leave the city, except for reasons of proven necessity. Students cannot go to the university or high schools and have to take lectures online via videoconferencing digital platforms. Elena, a 21-year-old university student, sits in front of her computer to have class through Microsoft Teams, a business communication platform developed by the US technology corporation Microsoft and adopted by her university as the official channel through which lectures are held. She finds the link to the class in her inbox, which she accesses through a Google account - another US technology corporation, whose subscription is mandatory in order to access university communications. A few minutes after the lecture begins, she grasps her smartphone and, with an automatic hand gesture, opens Instagram, a photo and video sharing social media app owned by Meta Platforms, Inc. (still known as Facebook at that time), a US technology conglomerate. Elena clicks on the Instagram "stories" highlighted at the top of the screen and scrolls through them until she feels she is losing time. She goes back to the lecture, but it is not clear what the Professor is talking about. It occurs to her that it seems more difficult to concentrate during online lessons versus in-person classrooms. As if to prove her point to herself, another notification appears on the screen of her mobile. The communication is from WhatsApp, yet another Facebook-owned IM and VoIP app. She replies to a message from a colleague, then closes WhatsApp, but her thumb ends up on the Instagram app again. Her thumb's position on the screen, each click, like, reaction, each hesitation, each time she skips a story or stops the flow of contents; it's all tracked, extracted and stored as data that Elena cannot access but will be used for opaque business goals. In the evening, Elena writes in her ethnographic diary her disappointment for the time she wasted on social media. She considers this an addiction, but at the same time she reflects on the fact that to stop using those platforms would mean being excluded from social life. (Composite account, compiled from my fieldnotes and the autoethnographic diaries kept by undergraduate students).

The situation depicted in this composite account was common in Western countries even before the COVID-19 pandemic turned several homes into primary learning and working spaces. Specifically, it describes some typical challenges of trying to remain focused in internet-mediated contexts involving multiple ongoing connections to different digital platforms. It also shows a persistent trend for young people to blame themselves for being lured and distracted by technologies that are designed to captivate users in order for companies to capitalise on the data they produce (e.g., Tiidenberg et al., 2017; Markham, 2021a).

This chapter discusses the findings of this study and explores in depth some of these issues related to how young individuals perceive, make sense and relate with algorithmic media, by looking at the narratives written in the diaries — which were structured as an autoethnographic challenge and prepared according to a critical pedagogical framework, by the 40 participants.

As mentioned in the previous chapters, this research material was written and collected in February and March 2021, i.e., during the third wave of the COVID-19 pandemic, which favoured the implementation of laws severely restricting the opportunity of moving and socializing in person. As a result, universities, offices, and most of the businesses were closed and travel possibilities were strictly limited, thus, individuals mainly had to rely on digital devices to communicate with each other. Although findings could theoretically be extended beyond the pandemic situation, as I have already argued elsewhere in collaboration with Elisabetta Risi and Guido Di Fraia (see Risi et al., 2021; Risi and Pronzato, 2021; Pronzato and Risi, 2022; Risi et al., 2022), the restrictions in place during that period, and the infrastructural role of digital platforms in communication exchanges, have certainly exacerbated some relational modes and social dynamics.

Finally, the reader should note that this chapter builds on pieces of "Returning to critical pedagogy in a world of datafication", an article co-authored with Annette N. Markham and published on *Convergence: The International Journal of Research into New Media Technologies* (see Pronzato and Markham, 2023). Thus, some fragments and excerpts in this chapter, as well as theoretical elaborations and interpretations, have been previously conceived, written and contemporaneously published in equal collaboration with her. They have been reassembled here to extend the scope of analysis.

Overall, this chapter shows how criticality is diminished or the initial spark of critical consciousness promoted by critical pedagogy is undermined when users blame

themselves, dismiss critical explanations, invoke grand narratives of dependency and inevitability, and remove responsibility from corporations, thereby reifying hegemonic relationships and paradigms. Regarding the structure of this chapter, the first group of excerpts corroborates the potential of autoethnographic diaries to increase self-awareness, if not self-reflexivity, about media use. Then, the snippets in the second section show how self-awareness can lack criticality or how power imbalances can be reinforced, through neutralizing views of technologies and the illusion of control favoured by digital platforms. The third section highlights patterns of heavy consumption to suppress boredom and feelings of frustration arising from the impression of having wasted time in the algorithmic flow, while the next one shows how these activities are legitimised drawing on narratives of dependency and self-blaming. The last section discusses how feelings of powerlessness and resignation are reinforced by neutralizing discursive constructions of inevitability and the reproduction of hegemonic structures though habit.

3.1 Becoming more self-aware

The following excerpts illustrate how the autoethnographic diaries were useful in helping participants reflect deeply and carefully on the micro-texture of their everyday life with digital media. These exercises, in fact, allowed to explore and favoured the development of diverse forms of "algorithmic literacy", i.e., "awareness, knowledge, imaginaries, and tactics around algorithms" (Swart, 2021, p. 2). In this regards, results seem to be consistent with other studies which found that autoethnographic techniques generate rich and self-reflexive accounts of experience around digital technologies (Markham, 2020a; 2022a; Risi et al., 2020; Risi and Pronzato, 2022b).

> *I would like to say two more things about how I felt after this whole diary experience. I feel much more focused on my life, much more connected to reality. It was an experience that opened my eyes a lot and helped me get back on track since lately I had my head everywhere except where I had to keep it. [I realized how much] I ended up eating overcooked pasta, [dashing through breakfast], always arriving late for class or without brushing my teeth. (…) at the beginning of the [autoethnography] I thought of using media only for "artistic" reasons,*

now I clearly realize how much I used it to escape from reality, distract myself and lose track of time. I think that sometimes the media (…) leads you to detach yourself from reality and it becomes more complex to take care of yourself. Thank you. [7] (Participant 14, Female, 22 years old) [8]

Several participants interpreted the experience of the auto-ethnographic challenge as a "re-connection" with "reality", which it seemed considered by them as a different realm apart from that of social media. Although this idea can be considered as a reinforcement of the grand narrative dividing the "true self" from a "less authentic" one that emerges "when mediated through networked technologies" (Tiidenberg et al., 2017, p. 6), keeping an auto-ethnographic diary allowed students to examine their use of algorithmic media from a distance, and to realize in how many instances of their everyday life these artifacts intervene and the plethora of diverse emotions connected to these moments. Look at the following Victorian map.
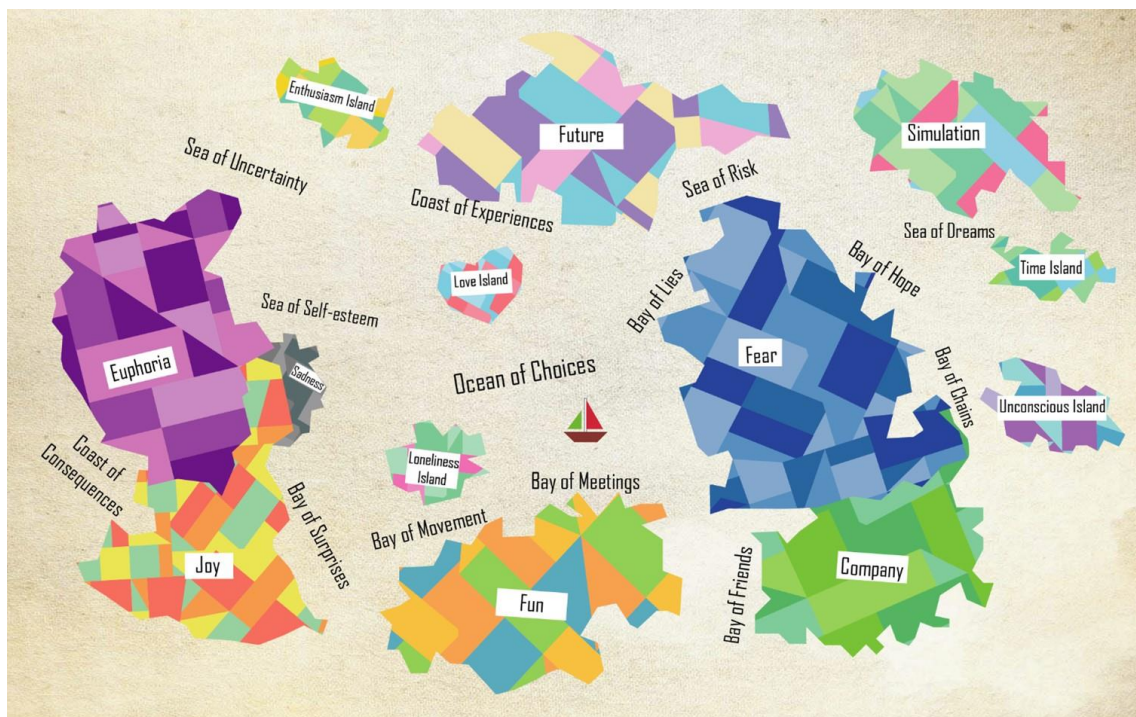
(P8, F, 21)

---

[7] This excerpt is my English translation of a diary excerpt written in Italian. All the excerpts provided to the reader in the following pages were translated from Italian into English.

[8] Hereafter, P refers to Participant, F, M, or NB refer to participant's self-identified gender category, number indicates stated age of participant.

The occasions and feelings that take the shape of islands, bays, coasts and seas, can be considered as a materialization of the reflections enabled by the autoethnographic challenge, which allowed students to focus on, and put under scrutiny, their relationships with digital platforms and how the functioning of these artifacts is involved in their daily experiences in subtle and microscopic ways. Indeed, manifold and multifaceted excerpts support that diaries helped students focus on how the use of platforms make them feel, thus developing more critical consciousness regarding the relationship between their routine activities and the socio-technical functioning of digital platforms.

Following one week of prompts and reflections, for several participants, the role of algorithmic media as impartial and taken for granted elements of routine activities, and social life writ large, started being questioned.

> *While I was doing this autoethnography, I was able to realize that I was discovering new aspects of myself, aspects that I had previously tended to ignore, or to avoid bringing to light in order to avoid feeling badly [about myself], and, instead, now I realize that it was useful to [acknowledge] what I feel, and express the feelings and factors influencing myself and my activities on platforms, (...) and this has made me more self-confident.* (P32, M, 20)

> *This experience helped me understand that the time I spend with applications like Instagram, YouTube and Twitter is wasted time, from which I don't get any benefit. They barely give me a slight sense of entertainment.* (P22, F, 20)

Specifically, in diverse accounts there was a growing sense of critical concern from both a first person and third person stance toward the use of digital technologies. It also seems that this autoethnographic challenge helped young individuals express feelings of irritation, annoyance, worry and uneasiness related to their activities with digital platforms which were already lurking in their everyday experience.

> *Lately, Instagram only proposes me advertisements about products or brands I have already searched for on the web, and it does so consistently and heavily (...). It is a really annoying factor after a while. (...) it is frustrating because now it seems that the app does not want me to see the content published by the people I follow but just to make me follow other pages.* (P32, M, 20)

105

In this excerpt, a participant expresses his "digital irritation", through different "emotional reactions" such as "frustration and annoyance" (Ytre-Arne and Moe, 2021, p. 820) — towards micro-targeted advertisements on Instagram that shape user's experience in ways that explicitly privilege marketers rather than users. These expressions of digital irritation have recently been highlighted as holding potential to foster user agency and critical engagement with digital platforms, with individuals "actively noticing [platforms'] imperfections, rather than accepting them as seamlessly integrated into media experiences" (Ytre-Arne and Moe, 2021, p. 820).

> *[Netflix] always makes me waste a lot of time, because I find that more than recommendations based on what I've seen in the past there are always (...) suggestions related to new Netflix productions (...) that, most part of the time, they are not in the least of interest to me and I find myself "navigating" among a sea of contents that are all the same.* (P14, F, 22)

As it can be noted from this participant's reflections regarding the Netflix interface, one of the cases in which a space for critical thinking emerge, within feelings of digital irritation, is when people notice "algorithmic mismatches" (Bucher, 2018, p. 103) between how they expect a platform should work and how they perceive it actually works. Indeed, as argued by Haider and Sundin (2021), these "frictions" can foster a discussion regarding the functioning of digital platforms and the interests underlying their architecture, and "enable individual agency to defy algorithmic power" (p. 140).

> *It's crazy how all my knowledge is on Google, it's even annoying. (...) Everything: news and photos are provided to us by algorithmic media. I find this very frustrating. It's like a gate: if you want access to all the beautiful things behind it, you have to give me your data, you have to let us manipulate you. It's not fair...* (P14, F, 22)

The same participant questioned her own practices also in relation to Google and Amazon, thereby elaborating on how the platforms she uses in daily activities function not to provide a service but rather to extract her personal data following asymmetrical relationships that are unilaterally imposed on users. For example, in the following snippets, it can be noted a level of critical consciousness that occurs when self-awareness shifts to self-reflexivity, whereby the participant takes a critical outsider's perspective on

their own relationship with technology or explores the complex ideological relationships at play in everyday digital media use. This outcome is a part of Markham's (2019) pedagogical design: as noted earlier, keeping an intensive auto-ethnographic diary affords a certain level of remove, enabling students to observe their devices and digital platforms from a distance, as if from an etic versus emic perspective. Through this stance, which is actually more meta-emic than etic, a participant can begin to unpack, critically analyse, and develop more "critical consciousness" of the socio-technical entanglements they are intimately involved in. Take the following excerpt:

> [Speaking from the point of view of the app Amazon Music] *I offer you radio stations based on your mood. What do I get from it? Very simple, I know exactly your state of mind. What should I do with your state of mind? Well, I know perfectly well what to offer you on Amazon (...) based on your mood. Or I know that if you listen to the soundtrack of that film over and over again, maybe I could try to sell it to you on Amazon, or maybe the book, the gadget or the comic. Do you really think the music you listen to is free, just because you have an Amazon Prime subscription? [Not at all!] I collect your data and your attitudes and yes, it may seem like a harmless application but (...) harmless applications no longer exist. I am part of an empire: Amazon, Amazon Prime Video, Audible, Amazon Music.* (P14, F, 22)

This example illustrates critical consciousness in that the participant uses brackets "[Not at all!]" and overstatement ("Very simple. I know exactly your state of mind.") to critique the substantive power of Amazon as a corporation. Building dialogues or giving an actual (humanistic) voice to their selected platform or digital media is one of many ways to not just express but discover this critical awareness.

Prior to this project, it may be assumed that many participants were already aware that platforms extract personal data not only (and not even primarily) to "improve user experience", but for commercial purposes and other opaque and unknown goals, through potentially fraudulent processes, such as the ones emerged in the Facebook-Cambridge Analytica data scandal. However, autoethnographic diaries provided a means for systematic and repeated attention on how extraction and appropriation of data happen, as well as the opportunity to explore issues of control and power in personal and playful

ways. These interpretations are supported by participants' narrative reflections, such as the following comments:

> *This research (…) made me think a lot about [what companies are doing to track me and extract data] and convinced me to seriously commit to being more aware and less attached to social media from now on.* (P6, F, 20)

> *Maybe I should make an effort, certainly, to find new time fillers, hobbies, commitments, even trivial but more constructive, to avoid wasting all the free time I have exclusively with platforms of all kinds: not signing an exclusive contract in every sector and area of ourselves and our life…* (P18, M, 20)

Many students shared similar remarks that this self-directed research process enabled them to understand more clearly how the platforms can track them in fine-grained detail. This shows how diaries can favour critical reflections and self-reflexivity regarding the ways in which digital platforms granularly intervene in everyday life, thus favouring considerations that can be taken into account as a first step to go "beyond subalternity" (Baldacci, 2017). Furthermore, it corroborates the tenets and goals of Markham's critical pedagogy framework and experiments (2019; 2020a; 2022a).

3.2 Neutralizing views and illusion of control

While in the first group of excerpts it could be observed the potential of autoethnographic diaries to increase self-awareness and self-reflexivity regarding the use of algorithmic media, some participants simply continued to accept the positive elements of digital media at face value, even when they were also reading and discussing critical approaches as part of the curriculum. There are diaries in which digital platforms, such as social media, are considered as neutral tools that can give opportunities to everyone both at the personal and professional level, and foster freedom of expression and human creativity. The following four excerpts are a good illustration of this sort of uncritical response:

I believe in the beneficial use of social media, a place where everyone can express themselves freely and thus find people similar to them, for interests, passions. I hope this can be an ideal that, little by little, will be shared by many more people, that way the social media world would be a better place. (P37, F, 20)

[Writing about TikTok] *Freedom of expression (...) is what is most appreciable in this app, in which no one is poor and no one is King and everybody is immersed in the flow and has the same chances to make themselves visible.* (P30, M, 20)

I believe that social media are a river of possibilities (...) we can carefully find the right opportunity to make acquaintances that can open us to new horizons of work, friendship and love. (P25, M, 20)

[The] time spent on social media is not a bad thing itself, it depends on the way you use the platforms and how long you spend there. (P37, F, 20)

In their exploratory study investigating how individuals know, understand and evaluate algorithms, Lomborg and Kapsch (2020) found similar responses among Danish participants. Specifically, also in the autoethnographic diaries collected for this research, it can be observed what they defined — by adapting Stuart Hall's decoding model (1973; 1980; 1993), a "dominant position of decoding algorithms". This concept indicates those instances where people embrace and praise "the smartness and convenience of algorithmic operations in daily life" and accept "being a commodity in a digital infrastructure" (Lomborg and Kapsch, 2020, p. 756), thus interacting with digital platforms as intended by the designers.

The types of explanation given by these participants remove the power of agential forces and highlight how platforms and all their functions are simply machinic. Here it can be seen the adoption of a "machine metaphor", as explicated by Gareth Morgan (1986), or the interpretation of these relationships between human and non-human actors through "machine heuristics" (e.g., Büchi et al., 2021), i.e., the practice of applying "common stereotypes about machines, namely that they are mechanical, objective, ideologically unbiased" if "the perceived locus of our interaction is a machine, rather than another human being" (Sundar and Kim, 2019, p. 2).

Other responses depict digital platforms as tools, another neutral metaphor to indicate these socio-technical artifacts as instruments that provide similar opportunities to every user and helps individuals reach their personal goals, as well as favour freedom of expression. This can function to reify the typical ideological narratives of tech corporations which propose technologies as neutral (Mager, 2012; Beer, 2017; Bucher, 2018), while hiding how platforms direct user activities towards profitable paths of interaction through their affordances, thereby hiding their extractive practices.

(P30, M, 20)

Looking at this Victorian map focused on TikTok, in the upper left it can be seen "the mountain range of the rediscovered youth", below there are "the region of passions" and "the upland of learning", which are separated from "the plain of loud laughter" by an expanse of water that includes "the sea of freedom of expression", "the strait of danger" and "the sea of leisure time". Also in this example, it emerges the reification of a perspective that consider social media platforms as entertaining, formative, and free tools, overlooking the extractive and surveillance mechanisms underlying their functioning.

Here digital platforms are framed as innocuous and liberating, rather than extractive and exploitative.

> *Pinterest (…) is addictive, but in a positive way. (…) it keeps you glued to the screen because there is too much good stuff to see!!!* (P35, F, 20)

> *I find Amazon an incredible resource, I also have a Prime subscription and I make purchases of any kind, (…) I find it very tidy. Perhaps the reason that leads me to visit these platforms so often are the pop-ups that then appear when I view different pages. Before I started this autoethnography, I was amazed at how advertisements and pop-ups were so detailed and showed exactly what I liked. Then, I woke up from this numbness and I realized that each [thing I do online, every search I make], is carefully studied. This fascinates me a lot and makes me feel in close contact with my device (as if he knows me best of all).* (P30, M, 20)

Some participants, as shown in these two excerpts, articulate not only good awareness of surveillance and the procedures of data analytics that generate personalized contents, but an appreciation for datafication activities. Rather than thinking of themselves as commodities in the algorithmic infrastructures, they express gratitude for these processes as a condition to obtain better recommendations. Indeed, in their accounts, algorithmic media appear charming to them given the automated capacity to precisely predict the contents in which they might be interested and to display relevant results in line with their expectations. Some of them even found "themselves actively feeding algorithm-driven media with as much data as possible, to make them work in the best way" (Lomborg and Kapsch, 2020, p. 756). As this participant explains in an account of his activities on Twitter:

> *I started to follow three openly gay guys which are also active on the subject on their profiles: the algorithm then continued to suggest me users similar to those I had just started following. Within a few weeks, I've obtained an updated feed, full of contents that I felt closer to my present self, (…) I created a bubble filter by myself; surely a positive bubble.* (P18, M, 20)

It should be noted that "feeding the system excessively with content, user information, and behavioral data" reinforces "a dominant way of interacting with algorithms."

(Lomborg and Kapsch, 2020, p. 756). When digital platforms are framed as "surveillant buddies" (Siles et al., 2020, p. 5), surveillance and datafication processes are naturalized as natural elements in how these technologies should work, even allowing them to function and recommend contents more precisely.

> [Speaking from the point of view of Google Chrome] *I am everything you are looking for, I am everything you want to know and I am everything you need. Some pour their knowledge into me and I only propose it to those who seek it: so I have now become a cognitive well, something that quickly offers you the opportunity to know anything, and I mean anything.* (P12, F, 20)

The naturalization of how platforms work is also reinforced by the impression that users are in control of their (the platform's) functioning. This "illusion of control" (Markham et al., 2019) is accomplished not only by design of digital platforms as they build in specific affordances and defaults (e.g., van Dijck, 2013), but through ideology-laden advertising narratives explaining how the platforms function, and the overall concealment of algorithmic operations. For example, classification and hierarchization processes are not neutral, as they entail deliberate and power-laden choices over what is shown and what remains hidden (Beer, 2017). Similarly, the actions recommended by a platform are the result of specific decisions, reflecting particular interests and activities that create platform environments (Davis, 2020).

These excerpts also show how the impartial features of a platform become routinised, and thus naturalized, over time, thus disappearing and being interpreted as taken for granted.

> *It is a particular routine. A routine and nothing more. Nothing happens if one day I don't open YouTube while I have breakfast. Yet, I feel annoyed, like when I wake up too late and at 9am I have class and therefore I can't watch YouTube. It isn't even that bad. In one way or another I keep myself updated on numerous issues with this tool. I would say perhaps that it even better than having the habit of watching television in the morning.* (P28, M, 20)

These and other factors create situations whereby specific procedures and limited options offered by digital platforms appear as natural features of the interface to which individuals have simply adapted over time. Yet, as Markham and colleagues (2019)

found, users still believe to have control over the interface, or that they would have control if they could only figure out how to game the algorithm sufficiently. As users adapt to the peculiarities of platforms, "soft conditioning" steers them toward preferred (and corporately profitable) behaviours through "seemingly innocuous practices" (Markham, 2019, p. 759) that conceal and contribute to the reproduction of hegemonic arrangements (Markham, 2021a). Indeed, over time, "the individual adapts to the system parameters or defaults" (Markham et al., 2019, p. 35) and the paradox is that "the user may feel empowered even as possibilities are constrained" as "this controlled autonomy impacts behavior by conditioning its potential (Cheney-Lippold, 2011) rather than removing the possibility of choice" (p. 35). In this scenario, it can be observed "a gentle conditioning that occurs by the narrowing of possibilities, which ensures the "proper" or "adequate" functioning of the system of protocols (…) and defaults" (p. 36).

3.3 Algorithmic flow and the seize of time

A common theme in several accounts regards the passing, consumption and seizing of time on and by digital platforms. Specifically, participants became more aware of the actual amount of time spent consuming contents and maintaining relationships in, through and with their devices. Look, for example, at the following three excerpts.

> *The apps I used the most were Instagram, Netflix, TikTok and WhatsApp, for about an hour, an hour and a half each a day. I use the first three usually during study breaks to distract my mind (...), even though I didn't think I would spend so much time on these applications (...) it's about 3-4 hours a day.* (P2, F, 20)

> *The average daily use of my iPhone last week is 5 hours and 33 minutes for a total of 38 hours and 55 minutes, of which 32 hours and 9 minutes spent on social media.* (P33, F, 21)

> *I also occasionally noticed 8-9 hours of cell phone use, and I admit I got pretty scared.* (P37, F, 20)

Discovering the time spent daily on each app on their mobile phones, and reflecting on that data recorded by the phone but rarely checked, was a specific prompt of the autoethnographic challenge — intended as an invitation to participants to ponder their daily use of digital platforms. This favoured an initial "momentary and embodied" (Markham, 2020a, p. 236) spark of critical consciousness, namely, one of the main goals of any critical pedagogical initiative. In this scenario, participants partly explained their heavy platform consumption patterns with the restrictions imposed by the Italian government to contain the COVID-19 pandemic, thus focusing on conditions and restrictions outside of their control.

> *Unfortunately, the apps I use most often are Instagram and TikTok. (...) there are days when I spend even more than 7 hours there and they are a waste of time (...) [but] there is not much else to do. Since the COVID situation began (...) I have noticed that the hours I spend on social media have doubled if not tripled.* (P38, F, 22)

> *I think that in a pandemic period, such as the one that we have been experiencing for more than a year now, (...) staying at home for so long has certainly pushed people (...) to be more attached to devices of all kinds...* (P18, M, 20)

Several contributions (e.g., Fuchs, 2020; Hjálmsdóttir and Bjarnadóttir, 2021) have showed how, in this specific period, "a 'housewifisation' of working and personal spaces" (Risi and Pronzato, 2021, p. 109) took place. In other words, the pandemic crisis favoured situations of social isolation where, to cope with the disruption of their everyday life, being online became essential. Indeed, individuals had to expand their online activities and learn to use new platforms, in order to communicate and relate with others. As explained by Hargittai (2022), the outbreak of COVID-19 pandemic "was the first time in the Internet's history that it became completely front-and-center for the digitally connected parts of the world that were suddenly relying on it for the most essential of daily needs" (p. 3).

> *Sometimes, [WhatsApp] is the only way to keep in touch with someone, and I have noticed this especially during the COVID-19 lockdown, while experiencing a long-distance relationship.* (P2, F, 20)

114

I noticed a huge approach to social media during the last year of the pandemic: I was much more attached to them during the days [I had to spend] at home. I am an only child, I live in a small village and my friends live more than 40km away from me. The only way to be in contact with them during these days is to be on the phone with them. (P37, F, 20)

As described in the last two snippets, digital platforms were considered the *only* way to maintain social relationships outside of one's house, especially for university students. The new reality imposed on them through stay-at-home orders, which dramatically reduced the possibility of taking part in in-person social activities, resulted in an increase in the use of algorithmic media and it is likely to have played a role in the consumption patterns of the participants, which were forced into a condition of social isolation. However, what it is also possible to start noticing in these explanations is how one can attempt to legitimise and justify the time spent on algorithmic media as something that is inevitable given the state of affairs outside their houses. The depictions of the pandemic scenario also seem to naturalize the functioning of digital platforms, which is accepted as just "the way it is" and "just the way I can use these technologies". Indeed, the choice to grab one's mobile phone, open one or more digital platforms in the form of mobile applications, and consume contents on them, is presented as the easiest or only possible activity in pandemic times. Here individuals seem to recognise their complicity in the exploitative dynamics of these systems, while, interestingly, coupling these reflections with narratives and feelings of powerlessness. This situation illustrates how responsibility constantly shifts from one's actions to the platform (Tiidenberg et at., 2017), as it can be seen in the two following excerpts.

We are all, most of the time, forced to stay indoors, many afternoons are thrown away by being on the phone. Everything starts from boredom, from the frustration of not knowing what to do, so my thoughts directly focus on Instagram or YouTube. These platforms allow me to "kill" the moments in which I don't know what to do. (P3, F, 21)

The important thing is time, which I very often waste using my mobile phone without a real need. I use it to reply to a message and then I find myself after an

115

*hour still in the same position, maybe scrolling my Instagram feed or watching
a video on YouTube.* (P36, F, 20)

As already found in prior studies (e.g., Baym et al., 2020; Risi et al., 2020; Ytre-Arne et al., 2020), the time spent on such platforms as social media is described as "wasted by default", with digital practices that are trivialized and "rhetorically [positioned] as insignificant" (Tiidenberg et al., 2017, p. 7). When there are perceived interstitial moments as well as instances of boredom, individuals feel the need to enter what Ytre-Arne and colleagues (2020) defined as "smartphone checking cycles", in order to turn what is deemed passive time into an active endeavour. However, the outcome is often that "checking cycles intended to fill time-gaps expand at the expense of other activities; so that filling time becomes connected with losing time" (p. 1717). At the end of these cycles, the resulting feeling is that time has been wasted, while it could have been spent in more productive ways. Within this scenario, a term used by some participants to describe the experience of platform consumption in the written parts of their diaries, as well as in the maps, is "flow",

(P28, M, 20) [9]

---

[9] In this part of a Victorian map, the word flow is connected to two green boxes in which the participants wrote "Total immersion" and "Loss of conception of time". Below, the reader can find two blue boxes with the words "Interest" and "Boredom".

The flow experience that comes from the use of the platforms is what always strikes me the most. The cocktail of boredom and use of Instagram, for example, often turns into hours wasted without even noticing it. (P28, M, 20)

I realize I'm totally immersed in what I'm doing (…). I would define this sensation as "flow", the total sinking into something that, actually, is not really useful. (P3, F, 21)

"Flow" is a long-standing concept originally developed by Raymond Williams (1974/2003) to describe the experience of watching television. For the British critical theorist, "broadcasting introduced a fundamentally different experience to the discrete activities of reading a book or watching a play by unifying different forms of communication into a singular continuous flow" (Johnson, 2013, p. 27). These participants' narratives seem consistent with the idea "that social media are experienced as continuous flows" (Lupinacci, 2021, p. 280), thereby generating "the overflowing feeling of being sunk; of drowning in an endless informational flow" (p. 286).

...I got lost in the flow of videos. (P1, F, 21)

[Excerpt from a screenplay] *The girl picks up the phone and while she dunks the cookies in the milk she keeps looking at Pinterest, engrossed in all that flow of images.* (P27, F, 20)

...what I have noticed is how algorithmic platforms have become a bit what (…) devices for listening to music once were: I put on headphones and isolate myself, (…). [So] we stick into that flow of images and never get out. We enter the image playlist that was created for us and we don't leave it (…) until we realize how much time has passed... (P2, F, 20)

Being "lost" in the "continuous flow", "most obviously materialized in the now widespread structure of the infinite 'stream'" (Lupinacci, 2021, p. 277) of contents that algorithmic media rank, prioritise and propose, is a common experience among users. This further corroborates the idea that "the centrality of streams in (…) platforms creates a spacio-temporality of immediacy and privileges real time engagement" (Gerlitz, 2012, np). Indeed, these self-reported accounts could show how digital platforms contribute to the construction, perception, and mediation of temporal experience.

...time is a factor that I've only recently been taking a lot into consideration because I discover that these platforms (...) are eating [my time] up... (P32, M, 20)

...the online reality ends up marking the passage of time in the offline reality. Indeed, not only does the time spent online subtract time from the (...) reality that we experience outside platforms, but it also often becomes a parameter for establishing the rhythm of our actions there. (P16, F, 22)

Specifically, the temporal dimension of platform experience is often highlighted by the participants through two dynamics. On the one hand, algorithmic media consume users' time while they are consuming online contents; on the other hand, digital platforms favour the adoption of specific routines in, and play a key role in how individuals organise and schedule their "offline" daily activities. Their narratives further illustrate how computing has become so entrenched into daily experiences that the distinction between time spent "offline" and "online" realms is not only blurred, but obsolete (Lupton, 2015). Furthermore, digital platforms dictate the organisation of personal time, while contemporarily seizing users' temporal experience, which is conquered for the colonialist purposes of tech corporations (Couldry and Mejias, 2019b).

In this regard, Ed Finn (2019) argues that, if humans "have been engineering temporality for centuries, (…) its production is now dictated by vibrating crystals embedded in silicon and light racing through fiber" (p. 559). Indeed, "what is "happening now" is produced by the machine and delivered to us" (Finn, 2019, p. 568-569), in order to maintain users engaged, turn their behaviour into data streams and make their time productive and valuable for surveillance capitalists, which can extract value from the time users spend on their interfaces.

3.4 Grand narratives of dependency and self-blaming

In the previous sections, we saw how the autoethnographic accounts highlighted that participants seemed to reach some good levels of critical consciousness regarding the ideologies operating in platforms, to reflect on the time spent on these technologies and

also to recognize the complicity of their actions in the reproduction of potentially oppressive systems. The irony for many of them, however, is that they diminish the power and influence exerted by external forces by blaming themselves for their own dependencies.

> *I have not touched the phone all afternoon and this allowed me to understand what I really feel, which factors influence me, and I realize that it's an addiction…* (P32, M, 20)

> *Social media are literally an addiction for me. (…) Like smokers, every now and then, I have to access the app even if I'm not interested in anything, I just get in and spend time there, (…) just scrolling through Instagram stories or videos on TikTok.* (P1, F, 21)

In several diaries, students refer to their experience on algorithmic media as addictive, thereby medicalising their activities, feelings and the related outcomes (e.g., Johnson and Keane, 2017). The time spent on digital platforms and the incapacity to effectively regulate algorithmic consumption are framed as parts of a pathological behaviour, therefore, a subjective suffering becomes a clinical mental disorder (i.e., disease) on the basis of a pathologizing biomedical frame (Maturo and Moretti, 2019). In this interpretation, users emerge as individuals suffering from a disorder that impede them to stop going through contents on digital platforms, while digital platforms are framed as drugs that users cannot stop consuming.

> *…many people, especially me, are addicted to platforms.* (P23, F, 21)

> *Instagram is a drug. When I do not know what to do, I get bored, the professor (…) explains something that does not generate so much interest, I open Instagram and I get distracted.* (P3, F, 21)

> *…I have a strong addiction, of which I was well aware, my relationship with platforms is based on this addiction.* (P14, F, 22)

The addiction narrative has been often employed to explain the relationship youth have with technology. Specifically, this addictive experience has been variously described "as an experience of moral disorder, a physical failing, a social failing or as an infectious

disease that must be contained or monitored" (Cover, 2006, np), as well "as a social problem stemming directly from technology" (Tiidenberg et al., 2017, p. 3). One decade ago, in her work about the online experiences of teens in the USA, danah boyd (2014) has already highlighted how the addiction metaphor "sensationalizes teens' engagement with technology", "suggests that mere participation leads to pathology" and "that technologies alone (…) determine social outcomes (p. 78).

Recently, this self-labelling of "I'm an addict" was also explored by Tiidenberg and colleagues (2017). Specifically, in their analysis of narratives from students in Denmark and in the USA, they identify a pattern whereby youth invoke various popular discourses and "grand narratives" about how the self is to blame, for example, for addiction and dependency. Likewise, in the narratives presented here, relationships with digital platforms are often framed as a problem of addiction or lack of personal control. Take for example these excerpts of two participants writing about using their mobile phone as the first action every morning, just the day before the 24h algorithmic media fast required by the autoethnographic challenge.

...our addiction to platforms is evident. The morning, especially when I wake up, should be a moment of contemplation and relaxation, when surrounded by devices (...) we almost forget ourselves and the reality in which we are immersed to connect passively with others. Often when I do this (...) I tell myself that none [of these contents] is interesting for me. It just became an automatic action that is difficult to control. (P5, F, 20)

It's such a natural action, I pick up the phone and I don't think. But here problems emerge: since the morning I am immersed in a world of data and information, then, how can I do without it? I already think about tomorrow when I will have to wake up and not open anything, it will be really difficult. (...) I'm so used to filling in empty moments using platforms that I don't know what these moments will be like without them. (...) From my reflections, I think we (I hope I'm not the only one) are addicted to platforms because now they are part of so many, little, almost meaningless, moments that it's hard to do without it. If you do not use platforms, you feel isolated, less informed, but actually it is us, we isolate ourselves from real life (...). Is it real knowledge that we receive or is it simply data? They are data made for us, which satisfy us, they are not knowledge

because they do not increase our knowledge in any way, rather they limit it. (...) So, I ask myself: in a world with so many possibilities, why can't we take our eyes off the phone and enjoy what's around us? (P27, F, 20)

In the last excerpt, there are two interrelated elements that can be noted. First, we can see an inward focus on the activities carried out on digital platforms, the related feelings and personal concerns. In the idea of being without platforms for a day, it seems to be already emerging a sense of "ontological insecurity" (Giddens, 1984; 1991) and existential disorientation associated with being "disconnected" (Markham, 2021c). Then, the discourse shifts towards cultural observations more at the macro level, thereby connecting to larger ecosystems encompassing individuals and machines. Here, addiction is further employed as a metaphor to explain how algorithmic media intervene in everyday life. Similar pathological frames are then used by the same student, as well as by other participants, to express feelings regarding the 24h algorithmic media fast the day after this experience.

After this day without platforms I felt like a smoker without cigarettes... (P27, F, 20)

I would really like to stop using my phone so much and feeling like an addict without drugs, because that's how I felt this day. (P25, M, 20)

Even though explanations drawing on concepts like "dependency" and "addiction" are traditionally common in popular and media narratives (e.g., Lanette and Mazmanian, 2018), the addiction metaphor has been fairly criticized by scholars for not being a productive epistemological heuristic as user activities on digital platforms "need to be understood within the specific social contexts of users' lives rather than being interpreted through a universal and medicalised model of addiction" (Johnson and Keane, 2017, p. 268). However, what is interesting is that participants openly rely on this metaphor, which "blame technology" as a drug and themselves for being addicted instead of considering "other social, cultural, and personal factors that may be at play" (boyd, 2014, p. 79). This way of interpreting an unpleasant situation puts all the responsibility on the shoulders of the individual, who imagines problems or solutions to be a personal matter, not a corporate, systemic, or collective issue.

Now, I am partly dependent on this type of platforms and media, and this is a fact, but also, through this type of belief we can reach a great awareness of what these tools are and what we need to ask them or not. They are (...) effective technologies, which help us do a lot of things better, partly facilitating our daily life. (...) We must ask them to help us make our lives more dynamic, fast and effective... (P24, M, 20)

Today, I think I have a more aware relationship [with platforms] than before but still conflicted at times. (...) I think I better understand their value and above all the non-value they must have on influencing me, but it is certain that sometimes it is inevitable; by having grown up in adolescence with social media, they have been an integral part of my life for years and using them in everyday life is absolutely normal and routine, it would make me feel strange to be without them, indeed, if for many hours I don't have access to the phone or the internet (...) I feel like I'm missing out on something important. Thus, I think it is a relationship of addiction but that I feel I can control, especially regarding the "quality" of use. (P23, F, 21)

Again, one can see how there is a continuous attempt to legitimise and normalize this "addiction." The widespread presence and operations of algorithmic media within the texture of daily activities, and online media socialization in the early stages of adolescence are often employed as explanations for a felt powerlessness. Situated everyday habits, increased and settled over time, are one of the privileged sites in which individuals learn to follow certain paths, behave in specific ways and take value-laden actions and thoughts for granted. In other words, habit is "ideology in action" (Chun, 2017, p. 7). This corroborates Gramsci's idea (1937/1971) that hegemonic relationships are naturalized by educational experiences and "how structure, and thereby culture, is habit writ large." (Markham, 2021a, p. 388). Indeed, even when students become more aware of the intervention of algorithmic systems in their everyday activities, the structural elements of datafication seem to remain hidden and potential issues related to the use of digital platforms are framed as inevitable personal inconveniences that individuals have to deal with on their own.

3.5 Impossible alternatives and discursive closures

As shown in the previous section, self-blaming is often paired with narratives framing the functioning of algorithmic media and personal use of different platforms as an inevitable feature of contemporary society. Feelings of powerlessness and inevitability are reinforced by a type of "there is no alternative" (TINA) discursive construction, or an absorption of the digital into the everyday as a "way of being" (Markham, 1998; Markham, 2020b), such that being subscribed, available, and active on digital platforms is equivalent to participating in society. The following three excerpts can be considered a good illustration of this sort of reflection:

> *By now interacting with platforms, social media, blogs, applications is equivalent to being there, being present, existing (...) I don't consider the possibility of eliminating my presence, because I recognize how it would be equivalent to cancelling everything, disappearing.* (P24, M, 20)

> *Today, social media are essential for getting to know and maintaining relationships with other individuals.* (P8, F, 21)

> *[This experience] made me understand how, regardless of the contents, using [algorithmic] media has become a daily action like brushing your teeth or eating. However, I have also become aware of how they are now a necessary element not to be excluded from the rest of the world and to remain updated on any type of things.* (P19, M, 20)

Algorithmic media are so entrenched in daily activities and relationships that even when they are no longer taken for granted following an autoethnographic exercise, they are still considered inevitable features of contemporary environments and activities. Although the use of digital platforms is often associated to negative feelings and experiences, in the interpretations of these participants, there are no other ways digital platforms can be, and there are no alternatives to the use of digital platforms as it is today. This idea resonates with the concept of "digital resignation" (Draper and Turow, 2019), which is an "emotional response" that arise "in the face of undesirable situations that individuals believe they cannot combat" (p. 1828). Indeed, when opting out is not

considered as a potential choice by individuals, "resignation" emerges "as a rational response" (Ytre-Arne and Moe, 2021, p. 819). As argued by anthropologists Peter Benson and Stuart Kirsch (2010), feelings of resignation are cultivated by, and beneficial for corporations and capitalist systems writ large, as these types of views contribute to the neutralization of political discourses potentially questioning corporate power. On the one hand, people experience resignation at the individual level; on the other hand, even though individuals may be worried about the datafication and surveillance practices underlying their online activities, "their concerns are unlikely to be accompanied by collective anger that motivates action to change the status quo. Rather, resignation likely results in frustration that such action would be futile" (Draper and Turow, 2019, p. 1829).

> *...this autoethnography made me think: on the one hand, the use of platforms covers a large amount of time in daily life, sometimes going so far as to "steal" space from other activities, but on the other hand, there are now too many actions we carry out through these platforms, and it is therefore impossible to imagine a world outside of them. Ultimately, you are required to find an appropriate balance.* (P39, F, 20)

Specifically, this last excerpt shows how the depth of resignation and hegemonic arrangements becomes more profound because of the way that alternative discourses are shut down, through many types of "discursive closure." Drawing on the critical organizational theorist Stanley Deetz (1992), Markham (2021a) describes discursive closure as "certain types of communication practices [that] shut down or close off options for thinking otherwise"; in this way, "certain practices or technological designs are (...) removed from any chains of causality or results of decision-making, so that they seem like processes that just exist. Thus neutralized, they become value-free routines or routine ways of thinking, removing both agency and the origin point" (Markham, 2021a, p. 392).

> *...the use of platforms (...) dominates me and I am quite addicted to them. Unfortunately, (...) platforms are so integrated into my offline reality that trying to eliminate them completely would also mean upsetting the rhythms that I have established, relationships that I try to and must maintain.* (P16, F, 22)

This level of neutralizing also builds an anticipation that this way of being will simply go on, as Markham continues (2021a), where it becomes less possible to imagine a future

without digital platforms or with digital platforms functioning differently. The only alternative to the current situation is to stop using digital platforms, which is considered as an unattainable choice. Unsurprisingly, participants were often unable to elaborate creative narratives through which to imagine alternative futures. This is particularly noticeable when students strive to make sense of the ambivalences and contradictions of their platform experience.

> *During this autoethnography, I thought about all those aspects that really always make me feel bad. I also thought that our life is now within those platforms and many people have let themselves go there completely, as if it were a second home, or even the first one. For this I feel sad. (…) I discover that these platforms are eating up my time, (...) to the point that I started measuring the maximum time I can remain on a platform. I don't want to get rid of it. I know that I feel more negative emotions by staying in it, but it is essential at the same time because now life happens there.* (P32, M, 20)

This participant, for example, realizes the invasive role that digital platforms play in their life. He feels the use of algorithmic media occupies precious time and also makes him experience negative emotions. At the same time, he shoulders the responsibility ("I know that I feel more negative emotions by staying in it"). An "inevitable trajectory" narrative is invoked as a potential explanation for this. Life is "impossible ("but it is essential because now, life happens there"), which may help ease the cognitive dissonance or tension of recognizing one is suffering from self-inflicted negative emotions. The casual dismissal of it all in the excerpts above can function to normalize certain actions and their inevitability. And it certainly removes responsibility from the companies producing these interfaces.

This was a common pattern of response. Participants in these exercises express feeling powerless and simultaneously, they argue they are the ones that must control their own use of online technologies and find ways to adopt digital platforms fruitfully (which often means "productively"). Thus, these narratives illustrate the difficulty of meeting "the not insignificant challenge of breaking frames at discursive and material levels" (Markham, 2021a, p. 387).

3.6 Conclusion

In conclusion, this chapter has showcased the usefulness of critical pedagogical techniques in enhancing critical awareness regarding datafication structures and the infrastructural role of digital platforms, while also arguing that despite a good level of consciousness raising, it remains difficult for people to go beyond subalternity, to contrast the power of digital platforms and to make more concrete changes in personal and collective behaviours. Indeed, some participants kept relying on neutralizing views, which naturalize how platforms work, to describe their relationship with algorithmic artifacts. These views seemed reinforced by the illusion of control constructed by the affordances and architecture of digital platforms.

Furthermore, even when heavy consumption patterns and the following "waste" of time were detected and discussed, individuals felt powerless and resigned, blamed themselves for their behaviour and shouldered responsibility for their activities, which were interpreted through the popular "addiction" metaphor — which remove corporate responsibilities and the complex intertwinement of social and cultural values, as well as political interests, underlying algorithmic design. Here the role of routines and habits as a privileged site for the reproduction of structural arrangements and asymmetrical power relationships emerged. Indeed, participants framed platforms' usage and their functioning as inevitable and, drawing on several types of "discursive closure", argued for the impossibility of imagining alternative futures.

That written, in the next chapter, I will discuss the theoretical implications of these findings, highlighting how captivating platform infrastructures, loops of procedurality and the routinization of online activities facilitate processes of governance through habit and the reproduction of hegemonic structural arrangements.

4. Reproducing hegemony, returning to critical pedagogy

The findings of the current study showed that, while keeping an autoethnographic diary increased what can be defined as algorithmic awareness, the level of self-reflexivity developed by the participants seems insufficient to move beyond discourses of helplessness, inevitability and trajectorism, as well as adoption of grand narratives that place blame on the shoulders of users, such as addiction and poor lack of self-control. Thus, although auto-ethnographic techniques can empower people by making them critically examine the pervasive processes of datafication and surveillance to which they are exposed, it still seems extremely difficult for students "to identify, comprehend, and then critically reflect on the material elements of multiple suprastructures that help us accomplish everyday activities" (Markham, 2021a, p. 388).

In their self-reported accounts, to explain their relationships with algorithmic media, participants kept relying on narratives neutralizing and normalizing the data infrastructures underlying digital platforms. They seemed to implicitly accept the colonialist conditions of data extraction and exploitation imposed by tech corporations (Couldry and Mejias, 2019a), by using systems in ways that have become tacit, taken for granted routines, and explaining their practices as difficult to change, or even inevitable ways of getting things done. In this way, control structures of various commercial and surveillance (state or otherwise) institutions are not left out of or removed from discussion — they are simply not considered in the first place. Furthermore, even when they are noticed, they are deemed as inevitable, as possible alternatives are shut down through patterns of "discursive closure", which, "more than simply closing off alternatives, (…) continually strengthen the dominant frames of inevitability and powerlessness" (Markham, 2021a, p. 390).

Given this scenario, in the first section of this chapter (4.1), I draw on Gramsci's definition of hegemony and control through consent to discuss these processes whereby the routinization of interactions on digital platforms — even as these might be understood as vaguely annoying or disruptive, generates conditions for accepting the entire ecosystem. Specifically, within a constant dialogue between micro and macro level, empirical results and theoretical construction, I discuss the role of data infrastructures and

affordances, i.e., nonhuman actors, in favouring hegemonic practices of usage, how hegemonic processes are reproduced by proceduralized and routinized activities on digital platforms, as well as the implications for the previously described echolocation process.

Then, a pedagogical contribution is proposed to help people go beyond subalternity as it occurs in platform environments (4.2). As mentioned earlier, one of the key challenges for scholars is to help students critically analyse the complicated entanglements of digitalization, datafication, and various powerful agential forces operating in the construction of reality, and to foster reflexivity and critique about what sort of social shaping is happening through digital technologies, how it happens, and who is benefitting. Drawing on the reflections conceived, elaborated and written with Annette Markham (see Pronzato and Markham, 2023), it is argued that to break persistent feelings of dependency and help individuals go beyond subalternity, it is necessary to return to critical pedagogical activities. Specifically, it is proposed a two-step process combining autoethnographic tools, aimed at increasing algorithmic awareness, with the development of critical data science skills that can help individuals acquiring more precise knowledge schemes and scaling down the power of giant corporations, thereby building individual and collective capacities to use data for developing counter-narratives about possible futures.

4.1 Reproducing hegemonic relationships

Hegemony is a highly debated concept (e.g., Nardone, 1971; Femia, 1981; Baldacci, 2017). In his own writings, Gramsci (2012) argued that there two ways in which a social group or class maintains its supremacy over other social groups: through "domination" (*dominio*), or through "intellectual and moral leadership" (*direzione intellettuale e morale*), i.e., hegemony (*egemonia*). Within this scenario, for Gramsci, there are two key forms through which ruling classes exert social control. As explained by Joseph Femia (1981):

> "…besides influencing behaviour and choice *externally*, through rewards and punishments, it also affects them internally, by moulding personal convictions into a replica of prevailing norms. Such 'internal control' is based on hegemony,

which refers to an order in which a common social-moral language is spoken, in which one concept of reality is dominant, informing with its spirit all modes of thought and behaviour. It follows that hegemony is the predominance obtained by *consent* rather than force of one class or group over other classes." (p. 24, emphasis in the original).

In other words, hegemony is the type of noncoercive intellectual and ideological relations "in which subordinated groups actively consent to and support belief systems and structures of power relations that do not necessarily serve (…) those groups' interests" (Mumby, 1997, p. 344). These relations allow to maintain societal *control through consent* (Simon, 1982; Deetz, 1993). This latter concept is in contrast with the idea of domination, where control is exerted through force. Indeed, domination is exercised by a powerful actor, such as the state, through what Louis Althusser (1970/2014) defined the repressive state apparatuses, composed by administrative actors including the police, the army, and the magistracy, among the others.

Thus, when it comes to the attainment of hegemony, externally, the ruling class can use political influence, repressive laws, punishments, and incentives "to achieve desirable behaviours and choices from societal actors" that will "act more predictably in accordance with what is permitted, avoid what is prohibited, and consider what is ambiguously regulated" (Bui, 2015, p. 38). At the internal level, the main goal is to shape personal beliefs to become similar to prevailing norms (Femia, 1981). It should be noted the constitutive role of hegemony in this regard as "it constructs rules and norms codified in a single narrative and a single conception of reality at the expense of all alternative narratives. These rules and norms become the kind of identity embedded in societal actors" which attempt "to naturalize their adherence and compliance and destroy resistance and challenges" (Bui, 2015, p. 38). Furthermore, to do so, it is essential to hold a strong economic power. In Gramsci's words: "for though hegemony is ethical-political, it must also be economic, must necessarily be based on the decisive function exercised by the leading group in the decisive nucleus of economic activity" (Gramsci, 1937/1971, p. 161).

If the main goal of hegemonic actors is to shape, in direct or indirect ways, "the cognitive and affective structures whereby men [sic] perceive and evaluate problematic social reality" (Femia, 1981, p. 24), to understand how hegemony occurs and is secured, it is crucial to take into account the pedagogical element of hegemonic relationships.

According to Giorgio Nardone (1971), one of the first scholars trying to systematically reconstruct Gramsci's thought and work, hegemony takes place when a certain social agent is the principle of behaviour for another (see also Baldacci, 2016). This resonates with a Gramsci's quote appeared earlier in this document, that is, "every relationship of hegemony is necessarily an educational relationship" (Gramsci, 1937/1971, p. 350).

The concept of hegemony has been applied in different research fields to diverse spheres of social life. Indeed, contributions extending on Gramsci's ideas go from the work of Stuart Hall (e.g., 1986; 1987), discussing the post-war hegemony of British capitalism, to the work of scholars such as Deetz (1992; 1993) and Mumby (1997), which applied the concept of hegemony to critical organizational communication studies, thereby observing how hegemony takes place in "the communicative constitution of quotidian, taken-for-granted realities" (p. 344). Adopting a similar lens, in the already quoted contribution I developed with Annette Markham (2023), we drew on such theorists as Gramsci, Mumby and Deetz to interpret the narratives written in the diaries by young individuals participating in this research. This allowed me to describe the hegemonic processes of infrastructures underlying digital platforms, and how the routinization of interactions, and the naturalization of the role and functioning of algorithmic media by young individuals generate conditions for accepting the entire ecosystem, thus securing hegemonic processes and the seemingly monolithic power of digital platforms. In the following paragraphs, the scope of those reflections will be broadened by considering the role of algorithmic infrastructures as traps, how loops of procedurality favour the naturalization of platform activities and users' activities on platforms, and the implications of these dynamics for the process of social echolocation.

4.1.1 Captivating infrastructures

In the construction of the "relational situation" (Markham, 2021b) where hegemonic processes are reproduced, there are both human and nonhuman actors involved. Crucial, but seemingly invisible elements in how users relate with digital platform at the granular level are the ranking and recommendation infrastructures designed by Big Tech corporations. While relating with them, individuals are often in specific states of minds, such as the experience of "flow", and carry out activities which become tacit and

unnoticed over time, thus allowing surveillance capitalists to track them and extract value from their behaviours. What follows is a discussion of how digital platforms can favour these dynamics.

In his ethnography of the practices and values underlying music streaming services in the US, Nick Seaver (2019a) showed how people working for these companies described the main goal of digital platforms as "hooking people", i.e., "enticing them into frequent or enduring usage", with "every single change that happens on the service [that] has been exactly measured for its (…) retentive impact" (p. 421). Drawing on cultural analyses of traps (e.g., Gell, 1988; 1992; 1996), his work shows that, when examined culturally, algorithms emerge as artifacts embedded in specific cultures of capture and can be seen to function like traps. In the 2000s, following the captological turn in recommender systems (e.g., Hallinan and Striphas, 2016), platform designers started adopting what have been defined as captivation metrics, i.e., measures of user retention, which aim to measure how efficient is a system in capturing user attention. In this scenario, Seaver (2019a) explains that developers did no longer focus on anticipating user ratings of cultural products, but rather adopted a captological approach to design, consisting in the manipulation of user digital traces to develop systems whose purpose was to elicit more user engagements and lock users in loops of interactions. The result was that "the prototypical recommender system was no longer a support for finding information, but a trap for capturing fickle users" (p. 430).

This idea of algorithmic infrastructures as traps follows tenets of the so-called anthropology of entrapment (e.g., Corsìn Jiménez and Nahum-Claudel, 2019) that considers traps as agents of *environmentalisation*, holding the capacity of "weaving worlds into existence at the same time as it recaptures existing worlds" (Corsín Jiménez, 2018, p. 54). Preys are provided with a certain environment, which implies not only being caught but also being equipped with conditions that favour certain activities while constraining the possibilities of others. Within this framework, a trap is "a complex architecture of gradations where bodies and landscapes and nonhuman persons move and orient their capacities towards one another in an uncertain game of alignments" (Corsìn Jiménez and Nahum-Claudel, 2019, p. 393). Thus, in Seaver's words, a trap should not be framed as "simply the unilateral application of technical force, but rather a fundamentally uncertain effort to relate to others which thereby produces a world" (2019a, p. 432). I argue that this tenet highlights both the predatory and productive nature

131

of captivating devices, such as the interfaces of digital platforms, as well as their potential role as socio-cultural artifacts (Seaver, 2017) and social agents (Airoldi, 2022). In other words, traps/digital platforms emerge as socio-cultural artifacts as they reflect the values and goals of the individuals that designed them. Then, once deployed in the social world, they act as social agent providing specific environments to the preys/users and adapting to their behaviours. Extending on Airoldi (2022) and Seaver (2019a), it can be argued that digital platforms participate in the social world as traps by creating constraints and possibilities for human and human-machine relationships, while contemporarily adapting to the activities of users.

By focusing on how algorithmic recommendations systems emerge as types of traps shaping user behaviours and providing opportunities for actions while capturing their data (see also Dieter and Gauthier, 2019), I also contend that this idea resonates with critical conceptualisations of affordances, which are "multifaceted relational structure[s]" that construct specific environments of interaction, enabling and constraining the potential behavioural outcomes of users (Davis, 2020, p. 6), also through certain "intended uses" (Shaw, 2017), which are inscribed in a platform environment by its producers. As was pointed out earlier, the features and possibilities provided by a platform are "communicational actors" (Bucher and Helmond, 2017), i.e., another term for "social agents", which are designed by data scientists and related professional figures to favour specific, unneutral, value-laden actions that will appear natural over time, thus directing users towards avenues of interaction which are profitable and constantly predictable. Furthermore, these technologies also set expectations towards the medium which function persuasively to encourage certain types of responses, while avoiding others (see Nagy and Neff, 2015).

Looking at digital platforms from a similar angle, Niall Docherty (2020) discusses these processes through the idea of "socio-technical scripting". In his analysis, digital platforms "script" discursive material configurations of the ideal user and, therefore, of the ideal actions that ought to be performed online. Indeed, algorithmic media, as each technology, undergo a "process of configuration, whereby certain human and nonhuman entities are positioned in relation to each other, [that] attempts to ensure that certain actions over others become more prevalent than others in technological use-contexts." (p. 3). It is also through this "socio-technical scripting" (p. 2) that tech corporations direct user actions and iteratively exercise modes of "*governance through habit* [emphasis

132

added]" (p. 1). Thus, users are trained to follow certain paths, and, in this way, specific behaviours become tacit, taken for granted routines, allowing the maintenance of asymmetrical power relationships.

As noted above, hegemonic processes are secured by educating individuals to behave and perceive social issues following particular frames of interpretations and normative values. We just saw how algorithmic infrastructures and affordances educate users to conduct specific activities that, over time, will seem natural ways of getting things done. This pedagogical feature can be considered a key element of how hegemonic processes of infrastructure work (Gramsci, 1937/1971; Baldacci, 2016). Indeed, the routinization of behaviour, facilitated by particular environmental conditions designed by the producers of digital platforms, favour the removal of the colonialist extractive logics and unequal relationships underlying these technologies. The next section will address how this "governance through habit" takes place and the implications.

4.1.2 Procedurality, habits, structures

I explained that, when examined culturally, algorithms can be seen to function like traps, i.e., social agents creating fields of possibilities and routinised actions which remove from view the asymmetrical power relationships underlying their design. Similarly, Jay David Bolter refers to the tacit practices through which individuals use digital media as loops of procedurality (2012), whereby people do not notice what is happening and computational procedures become a taken for granted part of digital experience (see also Markham, 2013a; 2021a).

The proceduralization of user activities is a crucial element of how digital platforms work, in fact, "the essence of the digital medium lies in the fact that it executes a procedure in code" (Bolter et al., 2013, p. 323). Such platforms as social media are procedural as "they require human users to enter into a procedural loop that both constrains and empowers them" (Bolter, 2019, p. 23), by favouring specific activities and state of minds. Indeed, relating with digital technologies implies for individuals the need to accommodate to the boundaries imposed by these artifacts, thereby adjusting behaviours and modes of interactions.

More than a decade ago, Bolter (2012) noted that how digital media are designed "encourages (…) users to proceduralize their behavior in order to enter into the interactions, and a large portion of those in developed countries have accepted this as the path to participation in digital media culture" (p. 45). More recently, he extended on these reflections regarding the intertwinement between human behaviour and computational procedures, thereby claiming that, in the present situation:

> "…each program not only reconfigures the machine, it also reconfigures its human users, offering them a new interface with new modes of interaction. In order to use any digital device, the user must become part of the procedure." (Bolter, 2019, p. 148)

Drawing on Bolter (2012), Markham (2013a) argues that these loops of procedurality have emerged as an essential feature of contemporary social life also following the configuration of these "event loops", which are "designed to appear seamless" (p. 289). In this scenario, individuals learn and incorporate activities and ways of behaving in their digital life. Then, when one's supposed understanding of how a technology works grows more concrete, these communication rituals will go unnoticed. This "proceduralization of human beings" (Bolter, 2019, p. 147), therefore, occurs also because people lose track of what is happening, or when they still realise it, as we have noticed in the previous chapter, they feel unable to change their actions and alter the trajectories of contemporary technological developments, thereby thinking that accepting the current situation is the sole viable alternative (see also Markham, 2021a).

These interpretations are reflected in the narratives and self-reported activities of the young people that took part in this research. Indeed, we noticed how the extractive colonialist processes through which "digital platforms produce the social for capitalism" (Couldry and Mejias, 2019b, p. 27) remain often invisible because they are not tangible, since the data extraction and transformation is rarely part of the visible interaction between the user and a digital platform. Alongside this neutralization process, certain practices are learned, shared, adopted, and adapted, gradually becoming taken for granted routines for getting things done. Within this scenario, it can be observed "how structure, and thereby culture, is habit writ large" (Markham, 2021a, p. 388), and the ways in which hegemonic relationships are imposed, accepted and naturalized by educational hegemonic experiences.

The reader should bear in mind that this discussion does not deny the presence of human agency in digital activities (e.g., Bucher, 2018; Risi et al., 2020; Siles et al., 2019; 2020; Ytre-Arne and Das, 2021), as hegemony is never totalizing, but rather part of what Anthony Giddens (1984) would call a dialectic of control or a structure/agency cycle. Specifically, in his structuration theory (1984), Giddens conceives structure and agency as relational to one another. For him, structure and agency are an iterative process. On the one hand, individuals act under certain social structures; on the other hand, their actions recreate those same social structures. Thus, "the moment of the production of action is also one of reproduction in the contexts of the day-to-day enactment of social life" (Giddens, 1984, p. 26). This implies that individuals have agency, i.e., the capability to do things and "to be able to deploy (chronically, in the flow of daily life) a range of causal powers, including that of influencing those deployed by others" (p.14).

However, individuals are not only agents that exert their free will. Indeed, "structure and agency imply each other. Structure is enabling, not just constraining, and makes creative action possible, but the repeated actions of many individuals work to reproduce and change the social structure" (Giddens and Sutton, 2014, p. 56). Thus, agents participate in the reproduction of structure. Media scholars Brita Ytre-Arne and Ranjana Das (2021) argue that this relational dynamic sheds light on the relationships between datafied media structures and individuals (see also Kennedy, 2018; Airoldi, 2022). Indeed, users exert their agency in datafied environments, while contemporarily participating in the reworking and consolidation of datafication structures. In other words, their everyday engagements with digital platforms are agential. Nevertheless, these engagements are enabled by datafication structures, which contemporarily allow "such engagements to be co-opted and adapted to different purposes beyond the reach of audiences, utilized by different or even opposing interests, thereby inviting or mandating audiences to take part in the reproduction of structures" (Ytre-Arne and Das, 2021, p. 785).

If, in Giddens' words, humans "always know what they are doing on the level of discursive consciousness under some description", it should be noted that "what they do may be quite unfamiliar under other descriptions, and they may know little of the ramified consequences of the activities in which they engage" (Giddens, 1984, p. 26). Indeed, "human knowledgeability is always bounded. The flow of action continually produces consequences which are unintended by actors, and these unintended consequences also

may form unacknowledged conditions of action in a feedback fashion" (p. 27). Regarding the functioning, deployment and use of digital platforms, as I elaborated on with Annette Markham (Pronzato and Markham, 2023), it can be argued that hegemony tightens its grip when these processes of agency and structure are interlocked with the process of control through consent, which favour the acceptance of surveillance and colonialist practices of data extraction and exploitation. Specifically, the findings of this study show that even when the wrongness and criticalities of the system are comprehended by everyday users, the arising issues are often considered too big to question, or simplified as not a big deal, or dismissed as simply the price one consents to pay for "free" platforms, games, and services. Within this scenario, several elements of corporate control remain buried, both *in* and *as* the "natural" flow of everyday experience. In this scenario, "[t]he strength of the self-regulating system marks a transition from the "agency" to the "structure" end of the structuration cycle. At that point, Giddens would argue, the imaginaries that are used (…) operate within existing meaning structures, or frames", and specific beliefs, imaginaries and forms of interaction become naturalized, thus "neutralizing certain relations between humans and technology" (Markham, 2021a, p. 399).

Control through consent even goes further when the responsibility is shouldered by individuals, who blame themselves for being addicted, lacking balance in their lives, not reading terms and conditions. The aim of this study was to enact a critical pedagogic standpoint and train users to become critically conscious of their relationships with algorithmic media through autoethnography. This implied shifting the acts of self-reflexivity and introspection beyond the self to consider the intersections of various micro and macro entities functioning with agency and power in everyday uses of digital media (Markham et al., 2021). However, participants mostly framed their relationship with these artifacts, and the related issues, as a completely personal problem, rather than as a collective one with shared responsibility, which may require collective actions and shared ideas.

That responsibility falls on the single individual is a long-standing process in neoliberal societies, as already highlighted around twenty years ago by authors such as Ulrich Beck (1999) and Zygmunt Bauman (2005) and more recently by David Beer (2016). To deal with everyday life, in fact, individuals are continuously encouraged to apply a "business-like individualistic rationality for the life-course", which is difficult to

achieve for many people "but promoted as a general life goal" (Domingues, 2022, p. 14-15). The resulting feelings of helplessness and incapacity to modify the procedural loops (Bolter, 2012) or algorithmic traps (Seaver, 2019a) that keep individuals locked into particular patterns and responses, favoured by the socio-technical functioning of digital platforms (Docherty, 2020), can make people feel inadequate as humans who must be primarily productive and perform well in a late capitalist society. Narratives of rationalization and efficiency are thus one of the many ways through which hegemonic structures are internalized.

Moreover, the individualization and atomization of social and personal experience favours a de-responsibilisation of the producers of digital platforms, whose role is not questioned. This is how hegemony is secured: guaranteeing the maintenance of asymmetrical power relations and the strengthening of a dominant position of selective agents within the social factory.

4.1.3 Echolocating the Self in hegemonic processes of infrastructures

After having discussed how hegemonic processes are reproduced, maintained and reinforced by routinized, tacit activities on digital platforms, and the narratives of addiction and self-blaming emerged within this process, I will now move on to discuss how these findings can extend on the social theory of echolocation that I previously described in the literature review (1.4.3).

We saw that individuals constantly acquire a sense of self through interactions with others. Indeed, through interaction, we construct and adjust the meaning of the Self, of the environment where the Self is embedded and our position in that environment. According to the theory of social echolocation developed by Annette Markham, interactions can be considered as "processes of continuous pings and echoes, often so microscopic and tacit that they are unnoticed as foundational aspects of identity formation and at broader levels, what we understand as sociality" (2021b, p. 1560). Today, the Other includes human beings as well as other nonhuman actants, such as the elements of algorithmic media. Indeed, the (captivating) features of digital platforms are among the nonhuman actors with which individuals relate and acquire a sense of Self, therefore, elements such as a like or a comment on a picture posted on social media, or a song

137

recommended by a streaming service, work as echoes — and our online actions as pings — that contribute to the formation of the Self. Specifically, it is also through the mainly unnoticed pings and echoes occurring in platform environments that the Self is continuously positioned in relation to others, thus providing a sense of ontological security, a reassuring feeling of a meaningful presence and stability emerging from "the need to experience oneself as a whole, continuous person in time — as being rather than constantly changing — in order to realize a sense of agency" (Mitzen, 2006, p. 342). However, this positioning of the Self is always transient (Giddens, 1984), as different types of digital selfing are continuously reconstituted over time (T. Markham, 2020), within those processes of continuous pings and echoes underlying sensemaking activities.

Then, ontological security could disappear, as there are instances where one may hesitate or fail to recognise themselves and must cope with a sense of existential disorientation, namely, ontological insecurity (Giddens, 1984; 1991). The sense of ontological insecurity emerging in the narratives collected by Markham for ten years (2021c) is also present in the self-reported accounts of the people participating in my research. Being without platforms is experienced by individuals as something causing disorientation, anxiety, and dislocation. By grabbing the phone and opening an application on it, individuals send pings, receive echoes, send other pings as a reaction to those echoes, and so forth, within a recursive relationship that resonates with those "multiple feedback loops, each endlessly feeding into the next" that David Beer (2022) theorises as the "looping of the social" underlying the recursive society, i.e., a "society defined by feedback loops and processes of recursivity. Circulation upon circulation. Loop upon loop. A multiplied repeating of algorithmic processes (…) built up over time" (p. 1). While, within those feedback loops, individuals continuously position themselves and acquire a sense of selfhood, outside of that recursive process one can miss those social reverberations that indicate their existential relevance. This resonates with classical theories focused on the communication process. Indeed, if applied at the micro-level, this loop resembles Karl Weick's "double interact" model (1969), consisting in a three-stage interaction cycle forming what Markham (2021c) describe as "the basic building blocks of culture: the act, the response (the interact), and the response to the response (the double interact)" (p. 44). Without using digital platforms, individuals seem to stop receiving those responses through which they position themselves, thus no longer knowing where and who they are. In this scenario, digital platforms emerge as Others holding up a mirror

138

of our Self, i.e., nonhuman interlocutors with whom we interact and in whose relationships we locate and stabilise our identity (Markham, 2021b). Hence, how that mirror is held up, which images is programmed to show and for which interests, and what identity-building processes are favoured, emerge as crucial issues.

As noted earlier, processes of pings and echoes are, for the most part, unnoticed by individuals. We relate with others — i.e., with people, objects, elements of platform design, etc. — mainly at a level beneath our awareness, through interpretive frames, discursive practices and sensemaking activities that we take for granted (see Weick, 1995; Markham, 2021a). However, how exchanges of pings and echoes occur in platform environments is strictly structured by the infrastructures underlying these socio-technical artifacts, which are built according to colonialist and surveillance capitalist purposes (Couldry and Mejias, 2019a; Zuboff, 2019a), in order to keep users locked into particular behavioural patterns. As explained in the previous sections, algorithmic media can be considered as traps, i.e., captivating environments, favouring the routinization of specific unneutral, power-laden activities that will naturalise over time. Within this framework, the echoes transmitted by a platform can be seen as signals that, following specific cultures of captures, are designed to be captivating, i.e., to "hook" people and entice them into enduring usage (Seaver, 2019a). Likewise, the pings suggested in a platform environment (e.g., "like", "share", "comment", "next episode", etc.) can be considered as features designed to facilitate the goals and activities of tech corporations, which become unnoticed following the routinization of particular platform experiences. Once adopted, "peculiar" ways of interacting with technologies, in other words, specific processes of pings and echoes, become tacit. This process both normalizes and neutralizes potential conditions of exploitation and favours the burying of "codes of normalization" (Foucault, 2004, p. 38) — whether notationally or discursively (Beer, 2017), which become implicit assumptions between the lines of stories we tell ourselves and each other about how things work. In this scenario, the functioning of platforms, their affordances and metrics "become indisputable truths, selected to produce apparently justified inequalities" (Beer, 2016, p. 116), thus appearing as natural and inevitable features of digital life. Within recursive feedback loops, where pings and echoes seem all to work to produce the conditions for the reproduction of hegemonic processes, "we are captured as objects in innumerable measurements. We are then subject to the outcomes that those measurements

139

produce. We respond, we react, we are provoked or stimulated into action, we are inhibited and cowed into inactivity" (Beer, 2016, p. 118).

Given this scenario, persistent questions arise: what kinds of self can we constitute if the environments where processes of continuous pings and echoes take place are designed to trap users? What kinds of self can we constitute if the echoes we receive are built to favour the reification of colonialist extractive practices appearing natural over time? What if the pings we sent are activities intended and designed to subtly and recursively reproduce patterns which underlie the reproduction of hegemonic structures? If human behaviour is shaped by social interaction, today social interaction is shaped by the logics of digital platforms that aim to stimulate user engagement, favour user retention and therefore, processes of data extraction, through the routinization of interactions that generate the social and environmental conditions for accepting the entire ecosystem in which platform design and deployment are embedded. Following the framework of critical pedagogy underlying this thesis, it can be asked, as teachers and researchers, how can we help individuals break persistent frames at discursive and material levels? How can hegemonic patterns of control through consent be challenged? How can we help people go beyond subalternity?

In the next section, I attempt to illustrate how initiatives of critical pedagogy and critical data science could favour the construction of individual and collective capacities to use data for developing counter-narratives about possible futures.

4.2 Returning to critical pedagogy

In the previous section, we saw how the captivating design of digital platforms and the routinization of interactions with them, within proceduralization loops, generate conditions for accepting the entire complex socio-technical ecosystem in which these technologies are embedded, and the issues arising regarding the construction and positioning of the Self within this ecosystem. Now, following the reflections and the proposal previously elaborated with Annette Markham (see Pronzato and Markham, 2023), it is claimed that to help individuals go beyond subalternity, it is necessary to return to critical pedagogical activities and favour the development of critical data science skills.

Pedagogy is a conflicting and unneutral field of knowledge, since it refers directly to the idea of the possible, i.e., the potential to favour change and move towards a future that is never defined from the start and has the capacity to stimulate changes in existing ideological and socio-economic constraints (Straniero, 2019). Specifically, what is deemed feasible or plausible in a specific socio-cultural context is strongly influenced by the social imaginaries people hold regarding everyday situations, which influence how individuals frame and interpret social reality.

Philosopher Charles Taylor (2004) refers to the social imaginary, as "the ways people imagine their social existence, how they fit together with others, how things go on between them and their fellows, the expectations that are normally met, and the deeper normative notions and images that underlie these expectations" (p. 23). Within this framework, different social imaginaries play a proactive role in how individuals interpret social life as they contribute to the construction of "that common understanding that makes possible common practices and a widely shared sense of legitimacy" (p. 23). As previously argued by Markham (2021a), social imaginaries about the possible futures of digitalisation and algorithms have a strong normative power and one of the goals of critical pedagogy ought to be prompting modes of self-inquiry that identify and break those discursive frames that constrain the possibility to imagine different futures. Thus, given the challenges highlighted in the findings above, it is argued that it is necessary to go back to consider critical pedagogy models and extend on them even more convincingly than before.

This research involved 40 young students, in other words, the subjects which have been the starting point of Markham's one-decade experiments (2022a) and of the present research. This is no coincidence, as classrooms are key places where cultural biases, socio-economic differences and, more generally, hegemonic relationships may be questioned and overcome through cultural tools (Sundvall and Fredlund, 2017). Gramsci (1937/1971) supported that if the ruling classes lose cultural, ideal and moral hegemony, they cease to be leaders and thus need to exercise a dominion that is destined to decline or collapse. Big Tech is hardly in decline, but the hegemonic power of these corporations, which is maintained by TINA discourses framing the present datafication and surveillance practices as inevitable, can be iteratively challenged by students and teachers. Given this scenario, the proposal I elaborated with Markham is the following one.

To make more concrete changes in personal and collective behaviours, the first step is to engage in various critical pedagogical exercises to raise critical consciousness about datafication, algorithms, and digital transformations in larger contexts of power, control, justice, and inclusion. But we saw that this is not enough. Pushing to the next level of unpacking the black boxes of technology requires addressing the basis of data science from various angles. Specifically, a nuanced and proactive critical data literacy can be fostered with a two-step process that combines autoethnographic tools aimed at increasing algorithmic consciousness (as stage one), with critical data science discussions and practical training aimed at developing more precise knowledge schemes and individual and collective capacities (as stage two).

First, autoethnographic diaries and experiments can allow individuals to construct embodied sensibilities toward their daily, taken for granted activities carried out with, in, on and through digital platforms. This is something corroborated by different studies (e.g., Markham, 2019; Risi et al., 2020; 2022a; Risi and Pronzato, 2022a; 2022b). Focusing on "narratives of the self" (Denzin, 1997) enhances certain qualities of qualitative inquiry, such as empathy, embodiment, compassion, and reflexivity. Within this framework, the intent is to favour a "first-person, vulnerable writing that calls attention to subjectivity, emotionality, and contingency" (Bochner and Ellis, 2016, p. 208). At the core of this process there is meaning making. Indeed, the research and, therefore the pedagogical goal (which, at this point, should be clear that are necessarily intertwined), is to put "meanings into motion" (Bochner, 2013) and "to perform meaning from and through our bodies, situated daily routines, and relations with embedded, embodied, and everywhere digital technologies" (Markham et al., 2021, p. 760). This first part of the proposal reaffirms the principles of critical pedagogy and the goals of critical data literacy.

However, this study has found that there are limitations in how much self-reflexive writing actually enables people to reach beneath the surface level to become first aware of, then frustrated by, and finally in a position to proactively respond to, rather than simply accept, hegemonic systems wrapped up in everyday digital media use. To make more concrete changes in personal and collective behaviours, the second step would be to begin unpacking the black boxes of technology by addressing the basis of data science first conceptually and then more practically, building on users' interests and experiences — if not existing skillsets — of data management and analysis.

Building comprehension of where data science begins and something like the common AI ethics stance of, or taking a stance of "fairness, accountability, and transparency" requires understanding how constructs of power, control, justice, and inclusion can and do alter what counts as data, what data analytics are performed, who is served by datafication and digital transformations, and what processes and systems are involved in the massive ecosystems undergirding and powering digitalisation and datafication infrastructures. There are many resources to guide these types of discussions, which do not require data science skills per se, but help reveal and then explore the complexities involved, and how we might "think otherwise" within larger contexts of data science and society. This process should be favoured by diverse stakeholders, such as national and supranational institutions, no-profit organisations and other private actors interested in building a more just and equal society.

These two steps can be a strong model for facilitating digital and critical data literacy. As we previously saw (1.6.2), those frameworks that classify digital or data literacy as (only) a matter of computational skills and data analytics are insufficient, especially when limited to practical skills such as programming (see also Hintz et al., 2022). Emphasis on the practical, to the exclusion of the cultural and contextual, tends to sideline the social part of the now widely acknowledged socio-technical intersections, along with the notions that any data point is ideological as much as it is a constructed object, that digital platforms emerge from a "vast planetary network, fueled by the extraction of non-renewable materials, labor, and data" (Crawford and Joler, 2018, p. 2), or that data and automated decision making processes are products of socio-cultural values and implicit and explicit biases (e.g., O'Neil, 2016; Noble, 2018; Eubanks, 2019; Benjamin, 2019).

This two-step process helps respond to some of the persistent questions of teachers and practitioners: how can we make sure that these critical approaches, found across major threads of current public media and academic conversations, shift from distant ideas for students and citizens to transformations in attitudes, behaviours, and practices that might lead to different — that is, less hegemonically powerful structures? And how is it possible to foster a future orientation toward the goal of "thinking otherwise" that can shape, rather than only respond to, larger contexts of data science and society? The "critical" goal need not be to abandon or erase digital technologies from daily experiences, but rather, to be conscious of the oppressive and asymmetrical relationships underlying digital platforms. Comprehending the type of relationship that exists can help

users re-consider what type of relationship they would rather develop. Indeed, combining critical consciousness with data analytical skills can embed mindful, transversal capabilities that every future citizen should possess.

This analytical and pedagogical approach, which is rooted in the principles of narrative inquiry and interpretive sociology, can also be linked to, and enriched by, the framework of data feminism. As already noted, data feminism is an orientation toward data and their uses, informed by intersectional feminist principles, conceived and formalized by Catherine D'Ignazio and Lauren Klein (2020), which scrutinize the power relationships embedded into data and the ways in which privilege and oppression are reiterated through them. One of the core principles of this approach is "to value multiple forms of knowledge, including the knowledge that comes from people as living, feeling bodies in the world" (p. 73), in order to help the emergence of the impossible, unneutral standpoints from which technologies impose partial, dominant depictions of reality, thereby favouring the reproduction of a discriminative social order. This research endeavour adheres to these principles and, accordingly, proposes the use of autoethnographic tools to question datafied routines, in combination with critical data literacy courses that can train students not to ignore the role of "data as ideology" (Markham, 2019, p. 757).

It should be noted that this proposal extends on the role and scope of critical data literacy previously explained in this dissertation (1.6.2) in a twofold way. On the one hand, it reaffirms the necessity to enhance the ability to comprehend and critically reflect on "the contexts within which digitalization or datafication is occurring" (Markham, 2020a, p. 229); on the other hand, it connects these reflexive capacities to practical activities that can be carried out within the framework of critical data science, by applying the principles of critical pedagogy (Markham, 2019) and data feminism (D'Ignazio and Klein, 2020).

Surely, the two proposed steps are not small and requires not least, openness of educational systems to encourage such training, pressure on corporations to relinquish their control of users' data, as well as shifts in mindsets on the part of data scientists and social researchers, to encourage them to do the hard work of opening up their own discipline-centric models and frameworks to favour such transversal explorations on the parts of their students. Still, following the proposal previously conceived and written in equal collaboration with Annette Markham (see Pronzato ad Markham, 2023), who revived critical pedagogy with regards to datafication structures (Markham, 2019; 2020a;

2022a), it is argued that there are clear merits of strong critical pedagogy efforts that, in taking proactive steps, can continue to build momentum toward uncovering hegemonic conditions and constructing alternatives.

It is worth noting that Gramsci's or Freire's purposes were not to leave or exit the condition they were struggling within but to transform the hegemonic relations. To carry out this transformation, critical pedagogues, or more simply teachers in the public sphere, should organise, provoke, act, construct. We need to be what Antonio Gramsci defined as "permanent persuaders". Indeed, in his own words:

> "[t]he mode of being of the new intellectual can no longer consist in eloquence, which is an exterior and momentary mover of feelings and passions, but in active participation in practical life, as constructor, organiser, "permanent persuader" and not just a simple orator" (Gramsci, 1937/1971, p. 10).

This implies an openly activist role for scholars and a continued value for the deep intertwinement between sociological research and pedagogical practices.

Conclusions

This work investigated how young individuals perceive, relate with, and make sense of digital platforms in their everyday life. To do so, I collected and analysed 40 autoethnographic diaries, which were structured as a 7-day-autoethnographic challenge (Markham et al., 2021) and prepared according to Markham's framework of critical pedagogy (2019; 2020a; 2022a).

Theoretically, I considered algorithmic media as socio-cultural artifacts — i.e., culturally situated systems embedding specific values and goals, produced by human practices within complex environments and relationships (Seaver, 2017; Bonini and Gandini, 2019), and as social agents — i.e., proactive systems which participate in the social world and are participated in by it (Airoldi, 2022). Epistemologically, this project is rooted in such frameworks as social constructionism, interpretive sociology and symbolic interactionism, thus considering how meanings and identities are constructed and negotiated, and how they emerge and shift through interactions with both human and nonhuman elements (Di Fraia, 2004; Markham and Lindgren, 2014; Markham, 2021b), with the latter ones being considered the results of particular human practices and favouring particular social and cultural dynamics, as well as identity-building processes. At the analytical level, students' narratives were analysed through two rounds of qualitative coding that combined a grounded approach (e.g., Corbin and Strauss, 2008; Bucher, 2018) and generative mapping techniques (Clarke, 2003; Markham, 2022b), and findings corroborated and extended on existing knowledge situated within the field of critical algorithm studies and related research areas.

To begin, these findings further support that critical pedagogical initiatives and techniques can be useful in enhancing algorithmic awareness and self-reflexivity, as well as in helping develop critical data literacy, thus confirming what has been found by prior studies structured in a similar fashion (Markham, 2019; 2020a; 2022a; Risi et al., 2020). However, it could be noticed that, despite a good level of awareness raising, it remained complex for participants to go beyond subalternity, to oppose the power of digital platforms and to implement more concrete changes in personal and collective behaviours. There were participants, in fact, that kept describing their relationship with these artifacts through neutralizing views (e.g., Lomborg and Kapsch, 2020; Büchi et al., 2021), which naturalise how platforms work and favour the reproduction of colonialist extractive logics

and asymmetrical power relationships. These reflections appeared reinforced by the illusion of control constructed by corporate narratives, as well as the affordances and architecture of digital platforms, which soft-condition individuals, by facilitating seemingly innocuous and profitable activities concealing algorithmic operations, and the subtly reproduction of hegemonic arrangements (Cheney-Lippold, 2011; Markham et al., 2019; Markham, 2021a). Indeed, individuals seemed to adapt to digital platforms and to adjust their behaviours to accommodate to the possibilities and constraints imposed by these artifacts. Then, I illustrated self-reported patterns of heavy platform consumption to suppress boredom and feelings of frustration arising from the impression of having wasted time in the algorithmic "flow" of contents (Lupinacci, 2021). In this regard, results are consistent with those of other studies (Baym et al., 2020; Risi et al., 2020; Ytre-Arne et al., 2020), and show how digital platforms contribute to the construction, perception, and mediation of temporal experience and its following appropriation for the commercial purposes of tech companies (Finn, 2019). These activities were legitimised and explained drawing on narratives of powerlessness, self-blaming and dependency (Markham, 2021a), such as the popular "addiction" metaphor (e.g., boyd, 2014; Johnson and Keane, 2017; Tiidenberg et al., 2017), i.e., ideology-laden interpretations that remove corporate responsibilities and the multifaceted entanglement of socio-cultural values and political interests underlying algorithmic design, while putting all the responsibility on the shoulders of the individual, who imagines problems or solutions to be a personal matter, not a corporate, systemic, or collective issue (Beck, 1999; Bauman, 2005). Here it emerged how forms of digital resignation (Draper and Turow, 2019) and neutralizing discursive constructions of inevitability, such as diverse forms of "discursive closure" (Deetz, 1992; Markham, 2021a), can reinforce feelings of powerlessness and narratives of trajectorism, thereby constraining the possibility of imagining alternative social and technological futures, as well as showing how difficult can be to break frames, both discursively and materially.

Given this scenario, within a continuous exchange between micro and macro level, I drew on Gramsci's definition of hegemony (1937/1971; 2012) and on the interpretations of such theorists as Mumby (1997), Deetz (1992; 1993) and Markham (2021a) to interpret the findings. Specifically, I highlighted how hegemonical structural arrangements are reproduced by a complex intertwinement of different elements. To begin, I highlighted the role of data infrastructures and affordances that can be seen to function like traps, i.e.,

socio-cultural artifacts embedded in particular cultures of capture and designed according to captological principles (Seaver, 2019a), which then act like social agents (Airoldi, 2022) that facilitate and adapt to specific user activities, thereby favouring the exertion of modes of "governance through habit" (Docherty, 2020).

Another element I discussed in this regard is how the proceduralization of human behaviour, which is a prerequisite for using digital technologies (Bolter, 2012; 2019), favour specific states of mind and practices becoming routinized and tacit over time. Specifically, following these loops of procedurality, individuals no longer notice what is happening in the seamless flow of digital experience, hence, computational procedures become a taken for granted part of it, while the power and interests of digital platforms remain concealed (Markham, 2021a). By situating this interpretation within Giddens' structure/agency cycle (Giddens, 1984; Ytre-Arne and Das, 2021), according to which structure is both enabling and constraining, I did not deny the presence of user agency, but rather argued that hegemony tightens its grip when these processes of agency and structure are interlocked with the process of control through consent, which favour the acceptance of surveillance and colonialist practices of data extraction and exploitation, and the burying of corporate control *in* and *as* the "natural" flow of everyday platform experience.

Then, I explained the implications of these theoretical elaborations for the process of social echolocation (Markham, 2021b; 2021c). If processes of pings and echoes are, for the most part, unnoticed, how these communicative exchanges take place in the environments of algorithmic media is strictly structured by platform infrastructures, which we have seen to be designed following colonialist and surveillance capitalist logics and to function like traps, in other words, captivating environments aimed at facilitating user retention and the routinization and naturalization of specific behaviours which are in the interests of tech corporations. Indeed, over time, certain modes of interaction, i.e., certain processes of pings and echoes, become tacit activities, thus normalizing conditions of exploitation and appropriation. Within recursive feedback loops (Beer, 2016; 2022), pings and echoes seem all to work to produce the conditions for the reproduction of hegemonic structural arrangements, thus posing crucial questions and challenges regarding what kinds of self and relationships we can build in platform environments.

Finally, given this scenario, I focused on how, as teachers and researchers, we can help people go beyond subalternity. Specifically, a pedagogical contribution was proposed,

148

based on research conducted throughout my doctoral program and the work done with Annette Markham (see Pronzato and Markham, 2023), to promote reflexivity and critique about what sort of social shaping is happening through digital platforms and to challenge persistent interpretative schemes at the discursive and material level. To do so, the proposal is to advance and promote, in accordance with diverse stakeholders, such as national and supranational institutions, no-profit organisations and private actors interested in social justice initiatives, a two-step process combining autoethnographic tools with the development of critical data science skills. Following the framework of critical pedagogy (Markham, 2019), autoethnography could increase citizens' critical data literacy, while courses of critical data science embedding the principles of data feminism (D'Ignazio and Klein, 2020) could help individuals acquire more precise knowledge schemes and scale down the power of giant corporations, thereby building individual and collective capacities to use data for developing counter-narratives about possible futures. Indeed, if hegemonic processes are reproduced through habit, i.e., by routinized, tacit activities favoured by the functioning of digital platforms, we can continue to build momentum toward uncovering hegemonic conditions and construct alternatives. Scrutinising and becoming more conscious of the oppressive and asymmetrical relationships underlying digital platforms and of the role of "data as ideology" (Markham, 2019, p. 757), while combining these insights with critical data analytical skills, can embed mindful, transversal capabilities that every future citizen should possess. Furthermore, it can help open up debates regarding a crucial issue of our epoch: "who benefits the most from widespread narrative that the digital revolution is upon us, digital futures are inevitable, and there is no way to stop, reconsider, or rethink the current configurations?" (Markham, 2021a, p. 398).

As noted by Airoldi, "the locus of the power piloting our digital lives is ultimately not the algorithmic code, but rather the hierarchical culture sedimented within it and elsewhere", which is a socially and culturally situated issue made "of platform owners' and machine creators' arbitrary goals and interested assumptions", as well as "of machine trainers' habitual practices, tacit rules, prejudices and implicit associations" (Airoldi, 2022, p. 146). As we saw in this dissertation, these dynamics intertwine in social life with the technological infrastructures deriving from them, the practices and sensemaking processes of end-users, as well as wider social and political dynamics. All these processes are the results of human-made arrangements which can be challenged and changed. I

believe that, as teachers and scholars, we can have a role in this process and we can help people participate in the construction of alternative, more just, social futures. In this scenario, using Michael Burawoy's (2005) words:

> "…we must think of [people] as carriers of a rich lived experience that we elaborate into a deeper self-understanding of the historical and social contexts that have made them who they are. With the aid of our grand traditions of sociology, we turn their private troubles into public issues. We do this by engaging their lives not suspending them; starting from where they are, not from where we are." (p. 266).

This idea resonates with long-standing activist approaches within the social sciences. More than twenty years ago, in a film directed by Pierre Carles (2001), Pierre Bourdieu claimed that "sociology is a combat sport" that we can use to defend ourselves. This seems more relevant than ever as I believe that we can favour a proactive process where citizens can learn to defend themselves from hegemonic arrangements which are potentially automating inequalities, exploitative processes, and asymmetrical power relationships, while risking being deeply detrimental to human life. In a similar vein, Burawoy (2014) argued that sociology offers "inconvenient truths" (p. 140) that can have important subversive impacts when launched in the public sphere. In this work, I attempted to show a research and pedagogical path through which "inconvenient truths" about digital platforms and datafication structures can be exposed, and different social and technological imaginaries constructed. I believe that these ideas can be guiding principles in what we do everyday, both as social researchers and teachers, as the challenges that lie ahead for the future of technology and humanity cannot be overlooked.

References

Abu-Lughod, L. (1991). Writing against culture. In R.G. Fox (ed.), *Recapturing Anthropology* (pp. 137–162). Santa Fe, New Mexico: School of American Research Press.

Airoldi, M. (2015). Potrebbe interessarti anche: recommender algorithms e immaginario, il caso YouTube. *IM@GO*, 1(6), 132-150. Retrieved from: https://bit.ly/3x0uCXE

Airoldi, M. (2018). L'output non calcolabile. Verso una cultura algoritmica. In D. Gambetta (ed.), *Datacrazia. Politica, cultura algoritmica e conflitti al tempo dei big data*. Roma, Italy: D Editore.

Airoldi, M. (2022). Machine Habitus: Toward a Sociology of Algorithms. Cambridge, UK: Polity.

Airoldi, M., & Gambetta, D. (2018). Sul mito della neutralità algoritmica. *The Lab's Quarterly,* 20(4), 25-46. Retrieved from: https://bit.ly/3GNGPnj

Airoldi, M., & Rokka, J. (2019). *Algorithmic consumer cultures*. Paper presented at the Interpretive Consumer Research Conference 2019. Lyon, France.

Akrich M. (1992). The De-scription of Technical Objects. In W. Bijker and J. Law (eds.), *Shaping Technology, Building Society: Studies in Sociotechnical Change* (pp. 205-224). Cambridge, MA: MIT Press.

Alvesson, M. & Kärreman, D. (2011). Qualitative Research and Theory Development: Mystery as Method. London, UK: Sage.

Alvesson, M., & Sköldberg, K. (2009). *Reflexive methodology: New vistas for qualitative research*. Los Angeles, CA: Sage.

Althusser, L. (1970/2014). *On the Reproduction of Capitalism. Ideology and Ideological State Apparatuses*. London, UK: Verso.

Amoore, L. (2011). Data derivatives: On the emergence of a security risk calculus for our times. *Theory, Culture & Society*, 28(6), 24-43. DOI: https://doi.org/10.1177/0263276411417430

Amoore, L. (2020). *Cloud Ethics*. Durham, NC: Duke University Press.

Andersen, D., Ravn, S., & Thomson, R. (2020). Narrative sense-making and prospective social action: methodological challenges and new directions. *International*

Journal of Social Research Methodology, 23(4), 367-375. DOI: https://doi.org/10.1080/13645579.2020.1723204

Andrejevic, M. (2012). Exploitation in the data-mine. In C. Fuchs, K. Boersma, A. Albrechtslund, and M. Sandoval (eds.), *Internet and Surveillance: The Challenges of Web 2.0 and Social Media* (pp. 71-88). New York, NY: Routledge.

Aragona, B., & Felaco, C. (2018). La costruzione socio-tecnica degli algoritmi. Una ricerca nelle infrastrutture dei dati. *The Lab's Quarterly*, 20(4), 97-115. Retrieved from: https://bit.ly/3x0pFPK

Ashmore, M. (1989). *The reflexive thesis: Wrighting sociology of scientific knowledge*. Chicago, IL: University of Chicago Press.

Atkinson, P. & Delamont, S. (2005). Analytic perspectives. In N. Denzin and Y. Lincoln (eds.), *Handbook of Qualitative Research* (3rd ed.) (pp. 821–840). Thousand Oaks, CA: Sage.

Audi, R. (1999). *The Cambridge dictionary of philosophy*. Cambridge, UK: Cambridge University Press.

Baldacci, M. (2016). Egemonia e pedagogia. Una critica delle interpretazioni di Gramsci. *Materialismo Storico*, 1(1-2), 142-160. DOI: https://doi.org/10.14276/2531-9582.607

Baldacci, M. (2017*). Oltre la subalternità. Praxis e educazione in Gramsci*. Roma, Italy: Carocci editore.

Ball, K. (2019). Review of Zuboff's The age of surveillance capitalism. *surveillance & society*, 17(1/2), 252-256. DOI: https://doi.org/10.24908/ss.v17i1/2.13126

Bauman, Z. (2005). *Liquid life*. Cambridge, UK: Polity.

Baym, N. K., Wagman, K. B., & Persaud, C. J. (2020). Mindfully scrolling: Rethinking Facebook after time deactivated. *Social Media+ Society*, 6(2), 2056305120919105. DOI: https://doi.org/10.1177/2056305120919105

Beck, U. (1999). *World Risk Society*. Cambridge, UK: Polity.

Beer, D. (2017). The Social Power of Algorithms. *Information, Communication & Society*, 20(1), 1–13. DOI: https://doi.org/10.1080/1369118X.2016.1216147

Beer, D. (2022). The problem of researching a recursive society: Algorithms, data coils and the looping of the social. *Big Data & Society*, 9(2), 20539517221104997. DOI: https://doi.org/10.1177/20539517221104997

Benjamin, R. (2019). *Race After Technology: Abolitionist Tools for the New Jim Code*. Cambridge, MA: Polity.

Benson, P., & Kirsch, S. (2010). Capitalism and the Politics of Resignation. *Current anthropology*, 51(4), 459-486. DOI: https://doi.org/10.1086/653091

Berbary, L. A. (2014). Too good at fitting in: Methodological consequences and ethical adjustments. *International Journal of Qualitative Studies in Education*, 27(10), 1205-1225. DOI: https://doi.org/10.1080/09518398.2013.820856

Behrens, S. J. (1994). A conceptual analysis and historical overview of information literacy. *College & research libraries*, 55(4), 309-322. Retrieved from: https://crl.acrl.org/index.php/crl/article/viewFile/14902/16348

Blank, G. & Groselj, D. (2014). The dimensions of Internet use: Amount, variety and types. *Information, Communication & Society*, 17(4), 417-435. DOI: https://doi.org/10.1080/1369118X.2014.889189

Blumer, H. (1969). *Symbolic Interactionism: Perspective and Method*. Englewood Cliffs, NJ: Prentice-Hall.

Bochner, A. P. (2013). Putting meanings into motion. In S. H. Jones, T. E. Adams, and C. Ellis, *Handbook of Autoethnography* (pp. 50-56). London, UK: Routledge.

Bochner, A. P. (2018). Unfurling rigor: On continuity and change in qualitative inquiry. *Qualitative Inquiry*, 24(6), 359-368. DOI: https://doi.org/10.1177/1077800417727766

Bochner, A. P., & Ellis, C. (2016). The ICQI and the rise of autoethnography: Solidarity through community. *International review of qualitative research*, *9*(2), 208-217. DOI: https://doi.org/10.1525/irqr.2016.9.2.208

Boeker, M., & Urman, A. (2022, April). An Empirical Investigation of Personalization Factors on TikTok. In *Proceedings of the ACM Web Conference 2022* (pp. 2298-2309). DOI: https://doi.org/10.1145/3485447.3512102

Bogost, I. (2007). *Persuasive Games: The Expressive Power of Videogames*. Cambridge, MA: MIT Press.

Bolter, J.D. (2012) Procedure and performance in an era of digital media. In R.A. Lind (ed.) *Produsing theory in a digital world: The intersection of audiences and production in contemporary theory* (pp. 33-50). New York, NY: Peter Lang.

Bolter, J. D. (2019). *The digital plenitude: The decline of elite culture and the rise of new media*. Cambridge, MA: MIT Press.

Bolter, J. D., MacIntyre, B., Nitsche, M., & Farley, K. (2013). Liveness, Presence, and Performance in Contemporary Digital Media. In U. Ekman (eds.), *Throughout: Art and culture emerging with ubiquitous computing* (pp. 323-336). Cambridge, MA: MIT Press.

Bonini, T., & Gandini, A. (2019). "First week is editorial, second week is algorithmic": Platform gatekeepers and the platformization of music curation. *Social Media+ Society*, 5(4), 2056305119880006. DOI: https://doi.org/10.1177/2056305119880006

Bonini, T., & Gandini, A. (2020). The field as a black box: Ethnographic research in the age of platforms. *Social Media+ Society*, 6(4), 2056305120984477. DOI: https://doi.org/10.1177/2056305120984477

Bourdieu, P. (1972). *Outline of a Theory of Practice*. Cambridge, UK: Cambridge University Press.

boyd, d. (2014). *It's complicated: The social lives of networked teens*. New Haven, CT: Yale University Press.

Boyle, C., Brown, J.J. Jr & Ceraso, S. (2018). The digital: Rhetoric behind and beyond the screen. *Rhetoric Society Quarterly*, 48(3), 251-259. DOI: https://doi.org/10.1080/02773945.2018.1454187

Braidotti, R. (2011). *Nomadic Subjects: Embodiment and Sexual Difference in Contemporary Feminist Theory*. New York, NY: Columbia University Press.

Brinkmann, S., & Kvale, S. (2005). Confronting the ethics of qualitative research. *Journal of constructivist psychology*, 18(2), 157-181. DOI: https://doi.org/10.1080/10720530590914789

Bucher, T. (2012). Want to be on the top? Algorithmic power and the threat of invisibility on Facebook. *New media & society*, 14(7), 1164-1180. DOI: https://doi.org/10.1177/1461444812440159

Bucher, T. (2016). Neither black nor box: Ways of knowing algorithms. In S. Kubitschko and A. Kaun, *Innovative methods in media and communication research* (pp. 81-98). Cham, Switzerland: Palgrave Macmillan

Bucher, T. (2017). The algorithmic imaginary: exploring the ordinary affects of Facebook algorithms. *Information, communication & society*, 20(1), 30-44. DOI: https://doi.org/10.1080/1369118X.2016.1154086

Bucher, T. (2018). *If... then: Algorithmic power and politics*. Oxford, UK: Oxford University Press.

Bucher, T. (2020). Nothing to disconnect from? Being singular plural in an age of machine learning. *Media, Culture & Society*, 42(4), 610-617. DOI: https://doi.org/10.1177/0163443720914028

Bucher, T., & Helmond, A. (2017). The affordances of social media platforms. In J. Burgess, T. Poell, and A. Marwick (eds.), *The SAGE Handbook of Social Media*. London and New York: Sage.

Büchi, M. (2021). Digital well-being theory and research. *New Media & Society*, 1-18. DOI: https://doi.org/10.1177/14614448211056851

Büchi, M., Fosch-Villaronga, E., Lutz, C., Tamò-Larrieux, A., & Velidi, S. (2021). Making sense of algorithmic profiling: user perceptions on Facebook. *Information, Communication & Society*, 1-17. DOI: https://doi.org/10.1080/1369118X.2021.1989011

Büchi, M., & Hargittai, E. (2022). A need for considering digital inequality when studying social media use and well-being. *Social Media+ Society*, 8(1), 1-7. DOI: https://doi.org/10.1177/20563051211069125

Büchi, M., Just, N., & Latzer, M. (2017). Caring is not enough: the importance of Internet skills for online privacy protection. *Information, Communication & Society*, *20*(8), 1261-1278. DOI: https://doi.org/10.1080/1369118X.2016.1229001

Buckingham. D. (2007). Digital media literacies: Rethinking media education in the age of the internet. *Research in Comparative and International Education*, 2(1), 43-55. DOI: https://doi.org/10.2304/rcie.2007.2.1.43

Bui, H. T. (2015). *Civil society and governance in Vietnam's one party system*. Unpublished Ph.D. thesis. Retrieved from: https://core.ac.uk/download/pdf/43373127.pdf

Burawoy, M. (2005). 2004 American Sociological Association presidential address: for public sociology. *The British journal of sociology*, 56(2), 259-294. DOI: https://doi.org/10.1111/j.1468-4446.2005.00059.x

Burawoy, M. (2014). Introduction: Sociology as a combat sport. *Current Sociology*, *62*(2), 140-155. DOI: https://doi.org/10.1177/0011392113514713

Burrell, J. (2016). How the machine 'thinks': Understanding opacity in machine learning algorithms. *Big Data & Society*, 3(1), 2053951715622512. DOI: https://doi.org/10.1177/2053951715622512

Butler, J. (1990). *Gender Trouble: Feminism and the Subversion of Identity*. New York, NY: Routledge Press.

Caliandro, A., & Anselmi, G. (2021). Affordances-based brand relations: An inquire on memetic brands on Instagram. *Social Media+ Society*, 7(2), 20563051211021367. DOI: https://doi.org/10.1177/20563051211021367

Caliandro, A., & Gandini, A. (2016). *Qualitative research in digital environments: A research toolkit*. London, UK: Routledge.

Carles, P. (2001). *La sociologie est un sport de combat*. France: CP Productions et VF Films.

Carmi, E., Yates, S. J., Lockley, E., & Pawluczuk, A. (2020). Data citizenship: Rethinking data literacy in the age of disinformation, misinformation, and malinformation. *Internet Policy Review*, 9(2), 1-22. DOI: 10.14763/2020.2.1481

Cerulo, K. A. (2009). Nonhumans in social interaction. *Annual Review of Sociology*, 531-552. DOI: 10.1146/anmirev-soc-0703 08-120008

Cheney-Lippold, J. (2011). A new algorithmic identity: Soft biopolitics and the modulation of control. *Theory, culture & society*, 28(6), 164-181. DOI: https://doi.org/10.1177/02632764114244

Cheney-Lippold, J. (2017). *We are data. Algorithms and the Making of Our Digital Selves*. New York, NY: New York University Press.

Christin, A. (2017). Algorithms in practice: Comparing web journalism and criminal justice. *Big Data & Society*, 4(2), 2053951717718855. DOI: https://doi.org/10.1177/2053951717718855

Christin, A. (2020a). The ethnographer and the algorithm: beyond the black box. *Theory and Society*, 49(5), 897-918. DOI: https://doi.org/10.1007/s11186-020-09411-3

Christin, A. (2020b). *Metrics at Work: Journalism and the Contested Meaning of Algorithms*. Princeton, NJ: Princeton University Press.

Chun, W.H.K. (2017). *Updating to Remain the Same. Habitual New Media*. Cambridge, MA: MIT Press.

Clarke, A. E. (2003). Situational analyses: Grounded theory mapping after the postmodern turn. *Symbolic interaction*, 26(4), 553-576. DOI: https://doi.org/10.1525/si.2003.26.4.553

Coia, L., & Taylor, M. (2005). From the Inside Out and the Outside. In C. Kosnik, C. Beck, A. R. Freese, & A. P. Samaras (Eds.), *Making a Difference in Teacher Education*

Through Self-Study. Self Study of Teaching and Teacher Education Practices (pp. 19-33). Dordrecht, Netherlands: Springer.

Coia, L., & Taylor, M. (2009). Co/autoethnography: Exploring our teaching selves collaboratively. In D. Tidwell, M. Heston, & L. Fitzgerald (Eds.), *Research methods for the self-study of practice* (pp. 3-16). Dordrecht, Netherlands: Springer.

Corbin, J. & Strauss, A. (1990). Grounded theory research: procedures, canons, and evaluative criteria. *Qualitative Sociology*, 13(3), 3-21, doi: https://doi.org/10.1007/BF00988593

Corsìn Jiménez, A. (2018). Ecologies, Infrastructures, Entanglements. In M. de la Cadena and M. Blaser, *A World of Many Worlds* (pp. 53-82). Durham, NC: Duke University Press.

Corsín Jiménez, A., & Nahum-Claudel, C. (2019). *The anthropology of traps: Concrete technologies and theoretical interfaces. Journal of Material Culture,* 24(4), 383-400. DOI: https://doi.org/10.1177/1359183518820368

Cohn, J. (2019). *The burden of choice: Recommendations, subversion, and algorithmic culture*. New Brunswick, NJ: Rutgers University Press.

Corbin, J. & Strauss, A. (2008). *Basics of Qualitative Research*. London, UK: Sage.

Correa, T., Pavez, I., & Contreras, J. (2020). Digital inclusion through mobile phones?: A comparison between mobile-only and computer users in internet access, skills and use. *Information, Communication & Society*, 23(7), 1074-1091. DOI: https://doi.org/10.1080/1369118X.2018.1555270

Couldry, N., & Hepp, A. (2017). *The mediated construction of reality*. Cambridge, UK: Polity Press.

Couldry, N., & Mejias, U. A. (2019a). Data colonialism: Rethinking big data's relation to the contemporary subject. *Television & New Media*, 20(4), 336-349. DOI: https://doi.org/10.1177/1527476418796632

Couldry, N., & Mejias, U. A. (2019b). The costs of connection: how data is colonizing human life and appropriating it for capitalism. Stanford, CA: Stanford University Press.

Couldry, N., & Mejias, U. (2019c). Making data colonialism liveable: how might data's social order be regulated?. *Internet Policy Review*, 8(2), 1-16. DOI: https://doi.org/10.14763/2019.2.1411

Cover, R. (2006). Gaming (ad) diction: Discourse, identity, time and play in the production of the gamer addiction myth. *Game Studies*, 6(1). 1-15. Retrieved from: http://gamestudies.org/0601/articles/cover

Crawford, K. (2021). *The atlas of AI: Power, politics, and the planetary costs of artificial intelligence*. New Haven, CT: Yale University Press.

Crawford, K. & Joler, V. (2018). *Anatomy of an AI System*. Retrieved from: https://bit.ly/3IXe47V

Creswell, J. W. (2014). *Research Design: Qualitative, Quantitative and Mixed Methods Approaches*. Thousand Oaks, CA: Sage

Cunningham, S. J., & Jones, M. (2005). Autoethnography: a tool for practice and education. In *CHINZ '05: Proceedings of the 6th ACM SIGCHI New Zealand Chapter's International Conference on Computer-Human Interaction: Making CHI Natural* (pp. 1-8). New York, NY: Association for Computing Machinery. DOI: https://doi.org/10.1145/1073943.1073944

Darmody, A., & Zwick, D. (2020). Manipulate to empower: Hyper-relevance and the contradictions of marketing in the age of surveillance capitalism. *Big Data & Society*, 7(1), 2053951720904112. DOI: https://doi.org/10.1177/2053951720904112

Davis, J. L. (2020). How artifacts afford: The power and politics of everyday things. Cambridge, MA: MIT Press.

Davis, J. L., & Chouinard, J. B. (2017). Theorizing affordances: From request to refuse. *Bulletin of science, technology & society*, 36(4), 241-248. DOI: https://doi.org/10.1177/0270467617714944

Deetz, S. (1992). *Democracy in an Age of Corporate Colonization: Developments in Communication and the Politics of Everyday Life*. New York, NY: State University of New York Press.

Deetz, S. A. (1993). Ethical communicative practice as a basis for evaluating corporate cultures. *Atlantic Journal of Communication*, 1(2), 63-83. DOI: https://doi.org/10.1080/15456879309367254

Deleuze, G. (1992). Postscript on the Societies of Control. *October*, 59(Winter): 3-7.

Denzin, N. K. (1989). *Interpretive interactionism.* Newbury Park, CA: Sage.

Denzin, N.K. (1997). *Interpretive ethnography: Ethnographic practices for the 21ˢᵗ century*. Thousand Oaks, CA: Sage.

Denzin, N. & Lincoln, Y. (2000). The discipline and practice of qualitative research. In N. Denzin and Y. Lincoln (eds.), *Handbook of Qualitative Research* (2ⁿᵈ ed.) (pp. 1–36). Thousand Oaks, CA: Sage.

Di Fraia, G. (2004). *Storie con-fuse. Pensiero narrativo, sociologia e media*. Milano, Italy: Franco Angeli.

Di Fraia, G. & Risi, E., (2019). *Empiria: metodi e tecniche della ricerca sociale*. Milano, Italy: Hoepli Editore.

Di Fraia, G., Risi, E., & Pronzato, R. (2019). Socio-Narrative Representations of Immigrants by Italian Young People. *Italian Journal of Sociology of Education*, 11(2), 126-146. DOI: 10.14658/pupj-ijse-2019-2-7

D'Ignazio, C. & Klein, L.F. (2020). *Data feminism*. Cambridge, MA: MIT Press.

Docherty, N. (2020). Facebook's ideal user: Healthy habits, social capital, and the politics of well-being online. *Social Media+ Society*, 6(2), 2056305120915606. DOI: https://doi.org/10.1177/2056305120915606

Dogruel, L., Facciorusso, D., & Stark, B. (2022). 'I'm still the master of the machine.'Internet users' awareness of algorithmic decision-making and their perception of its effect on their autonomy. *Information, Communication & Society*, 25(9), 1311-1332. DOI: https://doi.org/10.1080/1369118X.2020.1863999

Domingues, J. M. (2022). From global risk to global threat: State capabilities and modernity in times of coronavirus. *Current Sociology*, 70(1), 6-23. DOI: https://doi.org/10.1177/0011392120963369

Dourish, P. (2016). Algorithms and their others: Algorithmic culture in context. *Big Data & Society*, 3(2), 2053951716665128. DOI: https://doi.org/10.1177/2053951716665128

Draper, N. A., & Turow, J. (2019). The corporate cultivation of digital resignation. *New media & society*, 21(8), 1824-1839. DOI: https://doi.org/10.1177/1461444819833331

Driscoll, K. (2012). From Punched Cards to" Big Data": A Social History of Database Populism. *communication+ 1*, *1*(1), 1-33. DOI: 10.7275/R5B8562P

Ellingson, L. L. (2006). Embodied knowledge: Writing researchers' bodies into qualitative health research. *Qualitative health research*, 16(2), 298-310. DOI: 10.1177/1049732305281944

Ellis, C. (2007). Telling secrets, revealing lives: Relational ethics in research with intimate others. *Qualitative inquiry*, 13(1), 3-29. DOI: https://doi.org/10.1177/1077800406294947

Ellis, C. (2017). Manifesting compassionate autoethnographic research: Focusing on others. *International Review of Qualitative Research*, 10(1), 54-61. DOI: https://doi.org/10.1525/irqr.2017.10.1.54

Ellis, C., Adams, T. E., & Bochner, A. P. (2011). Autoethnography: an overview. *Historical social research/Historische sozialforschung*, 36(4), 273-290. Retrieved from: https://www.jstor.org/stable/23032294

Elmer, G. (2004). *Profiling Machines: Mapping the Personal Information Economy*. Cambridge, MA: MIT Press.

Eubanks, V. (2019). *Automating inequality: How high-tech tools profile, police, and punish the poor*. New York, NY: St. Martin's Press.

Faraj, S., & Azad, B. (2012). The materiality of technology: An affordance perspective. In P. M. Leonardi, B. A. Nardi and J. Kallinikos, *Materiality and organizing: Social interaction in a technological world* (pp. 237-258). Oxford, UK: Oxford University Press.

Femia, J. V. (1981). *Gramsci's political thought: hegemony, consciousness, and the revolutionary process*. Oxford, UK: Clarendon Press.

Finn, E. (2019). The black Box of the present: Time in the Age of algorithms. *Social Research: An International Quarterly*, 86(2), 557-579. DOI: 10.1353/sor.2019.0027

Firestone, W. A. (1993). Alternative arguments for generalizing from data as applied to qualitative research. *Educational researcher*, 22(4), 16-23. DOI: https://doi.org/10.3102/0013189X022004016

Fischman, G. E., & McLaren, P. (2005). Rethinking critical pedagogy and the Gramscian and Freirean legacies: From organic to committed intellectuals or critical pedagogy, commitment, and praxis. *Cultural Studies? Critical Methodologies*, 5(4), 425-446. DOI: https://doi.org/10.1177/1532708605279701

Fisher, E., & Mehozay, Y. (2019). How algorithms see their audience: Media epistemes and the changing conception of the individual. *Media, Culture & Society*, 41(8), 1176-1191. DOI: https://doi.org/10.1177/0163443719831598

Foot, H., & Sanford, A. (2004). The use and abuse of student participants. *The Psychologist,* 17(5), 256-259. Retrieved from: https://cms.bps.org.uk/sites/default/files/2022-11/foot04.pdf

Foss, S. K. (2018). *Rhetorical criticism: Exploration and practice*. Long Grove, IL: Waveland Press.

Frank, A. (2004). Moral non-fiction: Life writing and children's disability. In P. J. Eakin (Ed.), *The ethics of life writing* (pp. 174-194). Ithaca, NY: Cornell University Press.

Frank, M., Walker, J., Attard, J., & Tygel, A. (2016). Data Literacy-What is it and how can we make it happen?. *The Journal of Community Informatics*, 12(3), 4-8. DOI: https://doi.org/10.15353/joci.v12i3.3274

Franklin, S. (2015). *Control: Digitality as cultural logic*. Cambridge, MA: MIT Press.

Freire, P. (1970). *Pedagogy of the oppressed*. New York, NY: Herder & Herder.

Frosh, P. (2018). *The Poetics of Digital Media*. Cambridge, UK: Polity.

Fuchs, C. (2020). Everyday life and everyday communication in coronavirus capitalism. *tripleC: Communication, Capitalism & Critique*, 18(1), 375-399. DOI: https://doi.org/10.31269/triplec.v18i1.1167

Gandy, O. (1993). *The Panoptic Sort: A Political Economy of Personal Information*. Boulder, CO: Westview Press.

García-Escribano, M. (2020, June 29). Low Internet Access Driving Inequality. *IMF Blog*. Retrieved from: https://www.imf.org/en/Blogs/Articles/2020/06/29/low-internet-access-driving-inequality

Geertz, C. (1973). *The interpretation of cultures: Selected essays*. New York, NY: Basic Books.

Gell, A. (1988). Technology and magic. *Anthropology Today*, 4(2), 6-9. DOI: https://doi.org/10.2307/3033230

Gell, A. (1992). The technology of enchantment and the enchantment of technology. In J. Coote and A. Shelton (eds.), *Anthropology, Art, and Aesthetics* (pp. 40-63). Oxford, UK: Oxford University Press.

Gell, A. (1996). Vogel's net: Traps as artworks and artworks as traps. *Journal of Material Culture,* 1(1), 15-38. DOI: https://doi.org/10.1177/135918359600100102

Gerlitz, C. (2012). *Acting on data: temporality and self-evaluation in social media*. Goldsmiths Research Online. Retrieved from: https://research.gold.ac.uk/id/eprint/7076

Gerrard, Y. & Gillespie, T. (2019, February 21). When Algorithms Think You Want to Die. *Wired*. Retrieved from: https://www.wired.com/story/when-algorithms-think-you-want-to-die/

Gibson, J. J. (1979). *The Ecological Approach to Visual Perception*. Boston, MA: Houghton Mifflin.

Giddens, A. (1984). *The constitution of society: Outline of the theory of structuration*. Cambridge, UK: Polity Press.

Giddens, A. (1991). *Modernity and Self-Identity: Self and Society in the Late Modern Age*. Cambridge, UK: Polity.

Giddens, A. & Sutton, P. W. (2014). *Essential Concepts in Sociology*. Cambridge, UK: Polity Press.

Gillies, V., & Alldred, P. (2012). The ethics of intention: research as a political tool. In T. Miller, M. Birch and M. Mauthner, (ed.) *Ethics in qualitative research* (pp. 43-60). Thousands Oaks, CA: Sage.

Gillespie, T. (2010). The politics of 'platforms'. *New media & society*, 12(3), 347-364. DOI: https://doi.org/10.1177/1461444809342738

Gillespie, T. (2014). The Relevance of Algorithms. In T. Gillespie, P. Boczkowski, K. Foot, *Media Technologies: Essays on Communication, Materiality, and Society* (pp. 167-194). Cambridge, MA: MIT Press.

Gillespie, T. (2015). Platforms intervene. *Social Media + Society*, 1(1), 1-2. DOI: https://doi.org/10.1177/2056305115580479

Gillespie, T. (2016). Algorithm. In B. Peters (ed.), *Digital keywords: A vocabulary of information society and culture* (pp. 18-30). Princeton, NJ: Princeton University Press.

Gillespie, T. (2017, August 24). The platform metaphor, revisited, *Culture Digitally*. Retrieved from: http://culturedigitally.org/2017/08/platform-metaphor/

Gillespie, T. (2018). *Custodians of the Internet: Platforms, content moderation, and the hidden decisions that shape social media*. New Haven, CT: Yale University Press.

Gillies, V. & Alldred, P. (2012). The ethics of intention: Research as a political tool. In T. Miller, M. Birch, M. Mauthner and J. Jessop (eds.), *Ethics in qualitative research* (2nd ed.) (pp. 43-60). Thousand Oaks, CA: Sage.

Goodall, Jr, H. L. (2000). *Writing the new ethnography*. Lanham et al.: AltaMira Press.

Goodson, I. F., & Gill, S. R. (2011). The narrative turn in social research. *Counterpoints*, 386, 17-33. Retrieved from: https://www.jstor.org/stable/42981362

Gramsci, A. (1937/1971). *Selections from the prison notebooks*. New York, NY: International Publishers.

Gramsci, A. (2012). *Il Risorgimento e l'unità d'Italia*. Roma, Italy: Donzelli Editore.

Gran, A. B., Booth, P., & Bucher, T. (2021). To be or not to be algorithm aware: a question of a new digital divide?. *Information, Communication & Society*, 24(12), 1779-1796. DOI: https://doi.org/10.1080/1369118X.2020.1736124

Granieri, G. (2014, April 30). Algorithmic culture. "Culture now has two audiences: people and machines". A conversation with Ted Striphas. *Medium*. Retrieved from: https://bit.ly/33wqSQb

Gray, J. (2018). Three aspects of data worlds. *Krisis Journal for Contemporary Philosophy*. 1, 5-17. Retrieved from: https://kclpure.kcl.ac.uk/portal/files/138850903/Three_Aspects_of_Data_GRAY_Published2018_GOLD_VoR_CC_BY_NC_.pdf

Gray, M. L., & Suri, S. (2017, January 9). The humans working behind the AI curtain. *Harvard Business Review*. Retrieved from: https://hbr.org/2017/01/the-humans-working-behind-the-ai-curtain

Hacking, I. (1990). *The taming of chance*. Cambridge, UK: Cambridge University Press.

Hacking, I. (1991). How should we do the history of statistics? In G. Burchill, C. Gordon and P. Miller (eds.), *The Foucault effect* (pp. 181-195). Chicago, IL: The University of Chicago Press.

Haider, J., & Sundin, O. (2021). Information literacy as a site for anticipation: temporal tactics for infrastructural meaning-making and algo-rhythm awareness. *Journal of Documentation*, 78(1), 129-143. DOI: https://doi.org/10.1108/JD-11-2020-0204

Hall, S. (1973). *Encoding and decoding in television discourse*. Birmingham, UK: Centre for Contemporary Cultural Studies, University of Birmingham.

Hall, S. (1980). Encoding/decoding. In S. Hall, D. Hobson, A. Love, and P. Willis (eds.), *Culture, Media, Language* (pp. 128-138). London, UK: Hutchinson.

Hall, S. (1986). Gramsci's Relevance for the Study of Race and Ethnicity. *Journal of Communication Inquiry*, 10(2), 5-27. https://doi.org/10.1177/019685998601000202

Hall, S. (1987). Gramsci and Us. *Marxism Today*, June, 16-21.

Hall, S. (1993). Reflections upon the encoding/decoding model: an interview with Stuart Hall. In J. Cruz and J. Lewis (eds.), *Reading, Listening: Audiences and Cultural Reception* (pp. 253-274). Boulder: Westview Press.

Hallinan, B., & Striphas, T. (2016). Recommended for you: The Netflix Prize and the production of algorithmic culture. *New media & society*, 18(1), 117-137. DOI: https://doi.org/10.1177/1461444814538646

Haraway, D. (1985). Manifesto for cyborgs: science, technology, and socialist feminism in the 1980s. *Socialist Review*, 80, 65-108.

Hargittai, E. (2002). Second-level digital divide: Differences in people's online skills. *First Monday*, 7(4), 1–14. DOI: https://doi.org/10.5210/fm.v7i4.942

Hargittai, E. (ed.). (2021). *Handbook of digital inequality*. Cheltenham, UK: Edward Elgar Publishing.

Hargittai, E. (2022). *Connected in isolation: Digital privilege in unsettled times*. Mabridge, MA: MIT Press.

Hargittai, E., Gruber, J., Djukaric, T., Fuchs, J., & Brombach, L. (2020). Black box measures? How to study people's algorithm skills. *Information, Communication & Society*, 23(5), 764-775. DOI: https://doi.org/10.1080/1369118X.2020.1713846

Heath, A. (2015, September 14). Spotify has a secret 'taste profile' on everyone, and they showed me mine. *Business Insider*. Retrieved from: https://www.businessinsider.com/how-spotify-taste-profiles-work-2015-9?international=trueandr=USandIR=T&r=US&IR=T

Helmond, A. (2015). The platformization of the web: Making web data platform ready. *Social media+ society*, 1(2), 2056305115603080. DOI: https://doi.org/10.1177/2056305115603080

Herman, D., Jahn, M., & Ryan, M. (Eds.). (2005*). Routledge encyclopedia of narrative theory*. London, UK: Routledge.

Herman, A., Markham, A., Luka, M., Carlson, R., Dilkes, D., Stirling, F., Pronzato, R., & Sarwatay, D. (2021). Collaborating at microscopic and massive scales: the challenge and value of covid isolation for critical internet studies. *AoIR Selected Papers of Internet Research*, *2021*. DOI: https://doi.org/10.5210/spir.v2021i0.12116

Hintz, A., Dencik, L., Redden, J., Treré, E., Brand, J. & Warne, H. (2022). *Civic Participation in the Datafied Society: Towards Democratic Auditing?* (Report). Cardiff,

UK: Data Justice Lab. Retrieved from: https://datajusticelab.org/wp-content/uploads/2022/08/CivicParticipation_DataJusticeLab_Report2022.pdf

Hjálmsdóttir, A., & Bjarnadóttir, V. S. (2021). "I have turned into a foreman here at home": Families and work–life balance in times of COVID-19 in a gender equality paradise. *Gender, Work & Organization*, 28(1), 268-283. DOI: https://doi.org/10.1111/gwao.12552

Hookway, B. (2014). *Interface*. Cambridge, MA: MIT Press.

Iliadis, A., & Russo, F. (2016). Critical data studies: An introduction. *Big Data & Society*, 3(2), 2053951716674238. DOI: https://doi.org/10.1177/2053951716674238

Jacobsen, B. N. (2021). Regimes of recognition on algorithmic media. *New Media & Society*, 14614448211053555. DOI: https://doi.org/10.1177/14614448211053555

Johanssen, J. (2021). Data perversion: A psychoanalytic perspective on datafication. *Journal of Digital Social Research*, 3(1), 88-105. DOI: https://doi.org/10.33621/jdsr.v3i1.57

Johnson, C. (2013). The Continuity of 'Continuity'. *Key Words: A Journal of Cultural Materialism*, 11, 27-43. Retrieved from: https://www-jstor-org.ezproxy.unibo.it/stable/26920339

Johnson, E. K. (2022, October). Miro, Miro: Student perceptions of a visual discussion board. In *Proceedings of the 40th ACM International Conference on Design of Communication* (pp. 96-101). New York, NY: Association for Computing Machinery DOI: https://doi.org/10.1145/3513130.3558983

Johnson, N. F., & Keane, H. (2017). Internet addiction? Temporality and life online in the networked society. *Time & Society*, 26(3), 267-285. DOI: https://doi.org/10.1177/0961463X15577279

Jones, S. H., & Harris, A. (2016). Traveling skin: A cartography of the body. *Liminalities*, 12(1), 1-27.

Jordan, T. (2008). *Hacking: Digital media and technological determinism*. Cambridge, UK: Polity Press.

Khatamian Far, P. (2018). Challenges of recruitment and retention of university students as research participants: Lessons learned from a pilot study. *Journal of the Australian Library and Information Association*, 67(3), 278-292. DOI: https://doi.org/10.1080/24750158.2018.1500436

165

Kennedy, H. (2018). Living with Data: Aligning Data Studies and Data Activism Through a Focus on Everyday Experiences of Datafication. *Krisis: Journal for Contemporary Philosophy*, 1, 18-30.

Kennedy, B. L. & Thornberg, R. (2018). Deduction, Induction, and Abduction. In U. Flick, *The Sage Handbook of Qualitative Data Collection* (pp. 49-64). Los Angeles et al.: Sage.

Kern, R. (2015). *Language, Literacy, and Technology*. Cambridge, UK: Cambridge University Press.

Kitchin, R. (2014). The Data Revolution: Big Data, Open Data, Data Infrastructures and Their Consequences. London, UK: Sage.

Kitchin, R. (2017). Thinking critically about and researching algorithms. *Information, communication & society*, 20(1), 14-29. DOI: https://doi.org/10.1080/1369118X.2016.1154087

Koltay, T. (2011). The media and the literacies: Media literacy, information literacy, digital literacy. *Media, culture & society*, 33(2), 211-221. DOI: https://doi.org/10.1177/0163443710393382

Kotras, B. (2020). Mass personalization: Predictive marketing algorithms and the reshaping of consumer knowledge. *Big Data & Society*, 7(2), 2053951720951581. DOI: https://doi.org/10.1177/2053951720951581

Lanette, S., & Mazmanian, M. (2018, April). The Smartphone" Addiction" Narrative is Compelling, but Largely Unfounded. In *Extended Abstracts of the 2018 CHI Conference on Human Factors in Computing Systems* (pp. 1-6). New York, NY: Association for Computing Machinery. DOI: https://doi.org/10.1145/3170427.3188584

Latour, B. (1987). *Science in Action: How to Follow Scientists and Engineers Through Society*. Cambridge, MA: Harvard University Press.

Latour, B. (2005). *Reassembling the Social: An Introduction to Actor-Network-Theory*. Oxford, UK: Oxford University Press.

Law, J. (1990). Introduction: Monsters, Machines and Sociotechnical Relations. *The Sociological Review*, 38(1 suppl), 1–23. DOI: https://doi.org/10.1111/j.1467-954X.1990.tb03346.x

Lee, K., Park, J., Kim, I., & Choi, Y. (2018). Predicting movie success with machine learning techniques: ways to improve accuracy. *Information Systems Frontiers*, *20*(3), 577-588. DOI: https://doi.org/10.1007/s10796-016-9689-z

Leukel, J., Schehl, B., & Sugumaran, V. (2021). Digital inequality among older adults: Explaining differences in the breadth of Internet use. *Information, Communication & Society*, 1-16. DOI: https://doi.org/10.1080/1369118X.2021.1942951

Livingstone, S. (2004). What is media literacy?. *Intermedia*, 32(3), 18-20. Retrieved from: https://eprints.lse.ac.uk/1027/1/What_is_media_literacy_(LSERO).pdf

Lomborg, S., & Kapsch, P. H. (2020). Decoding algorithms. *Media, Culture & Society*, 42(5), 745-761. DOI: https://doi.org/10.1177/0163443719855301

Luka, M. E., & Millette, M. (2018). (Re) framing big data: Activating situated knowledges and a feminist ethics of care in social media research. *Social Media+ Society*, 4(2), 2056305118768297. DOI: https://doi.org/10.1177/2056305118768297

Lupinacci, L. (2021). 'Absentmindedly scrolling through nothing': liveness and compulsory continuous connectedness in social media. *Media, Culture & Society*, 43(2), 273-290. DOI: https://doi.org/10.1177/0163443720939454

Lupton, D. (2015). *Digital Sociology*. New York, NY: Routledge.

Lupton, D. (2016a). The diverse domains of quantified selves: self-tracking modes and dataveillance. *Economy and Society*, 45(1), 101-122. DOI: https://doi.org/10.1080/03085147.2016.1143726

Lupton, D. (2016b). *The quantified self*. Cambridge, UK: Polity.

Lupton, D. (2021). 'Not the real me': Social imaginaries of personal data profiling. *Cultural Sociology*, 15(1), 3-21. DOI: https://doi.org/10.1177/1749975520939779

Lutz, C. (2019). Digital inequalities in the age of artificial intelligence and big data. *Human Behavior and Emerging Technologies*, 1(2), 141-148. DOI: https://doi.org/10.1002/hbe2.140

Lyon, D. (2015). The Snowden stakes: Challenges for understanding surveillance today. *Surveillance & Society*, 13(2), 139-152. DOI: https://doi.org/10.24908/ss.v13i2.5363

Lynch, M. (2000). Against reflexivity as an academic virtue and source of privileged knowledge. *Theory, Culture & Society*, 17(3), 26-54. DOI: https://doi.org/10.1177/02632760022051202

Machine Learning (2022, April 27). In *Wikipedia*. Retrieved from: https://en.wikipedia.org/wiki/Machine_learning

Mager, A. (2012). Algorithmic ideology: How capitalist society shapes search engines. *Information, Communication & Society*, 15(5), 769-787. DOI: https://doi.org/10.1080/1369118X.2012.676056

Marciano, L., Ostroumova, M., Schulz, P. J., & Camerini, A. L. (2022). Digital media use and adolescents' mental health during the COVID-19 pandemic: a systematic review and meta-analysis. *Frontiers in public health*, 9, 1-28. DOI: https://doi.org/10.3389/fpubh.2021.793868

Marcus, G. E. (1995). Ethnography in/of the world system: The emergence of multi-sited ethnography. *Annual Review of Anthropology*, 24(1), 95-117. DOI: https://doi.org/10.1146/annurev.an.24.100195.000523

Markham, A. N. (1998). *Life online: Researching real experience in virtual space*. Walnut Creek, CA: Altamira Press.

Markham, A. N. (2003). Critical Junctures and Ethical Choices in Internet Ethnography. In M. Thorseth (ed.), *Applied Ethics in Internet Research* (pp. 51-67). Trondheim, Norway: NTNU University Press.

Markham, A. N. (2004). Representation in online ethnographies: A matter of Context Sensitivity. M. D. Johns, S. Chen, G. J. Hall, *Online Social Research: Methods, Issues & Ethics* (pp. 131-145). New York, NY: Peter Lang.

Markham, A. N. (2005a). "Go ugly early": Fragmented narrative and bricolage as interpretive method. *Qualitative Inquiry*, *11*(6), 813-839. DOI: https://doi.org/10.1177/107780040528066

Markham, A. N. (2005b). The politics, ethics, and methods of representation in online ethnography. In N. Denzin and Y. Lincoln (eds.), *Handbook of Qualitative Research* (3rd ed., pp. 793-820). London et al.: Sage.

Markham, A. (2006). Method as ethic, ethic as method. *Journal of Information Ethics*, 15(2), 37-55. DOI: 10.3172/jie.15.2.37

Markham, A. N. (2012a). Moving into the flow: Using a network perspective to explore complexity in Internet contexts. In S. Lomborg (ed.), *Network analysis–methodological challenges* (pp. 47-58). Aarhus, Denmark: Center for Internetforskning.

Markham, A. N. (2012b). Fabrication as ethical practice: Qualitative inquiry in ambiguous internet contexts. *Information, Communication & Society*, 15(3), 334-353. DOI: https://doi.org/10.1080/1369118X.2011.641993

Markham, A. N. (2013a). The Dramaturgy of Digital Experience. In C. Edgley, *The Drama of Social Life. A Dramaturgical Handbook* (pp. 279-293). New York, NY: Routledge.

Markham, A. N. (2013b). The algorithmic self: Layered accounts of life and identity in the 21st century. *AoIR Selected Papers of Internet Research, 2013*.

Markham, A. N. (2013c). Remix Cultures, Remix Methods Reframing Qualitative Inquiry for Social Media Contexts. In N. K. Denzin and M. D. Giardina, *Global Dimensions of Qualitative Inquiry* (pp. 63–81). Walnut Creek, CA: Left Coast Press, Inc.

Markham, A. N. (2013d). Undermining 'data': A critical examination of a core term in scientific inquiry. *First Monday*. Retrieved from: https://firstmonday.org/ojs/index.php/fm/article/download/4868/3749

Markham, A. N. (2015). Produsing ethics [for the digital near-future]. In R.A. Lind (ed.), *Produsing Theory in a Digital World 2.0* (pp. 247-256). New York, NY: Peter Lang.

Markham, A. N. (2017a). Ethnography in the Digital Internet Era: From Fields to Flows, Descriptions to Interventions. In N. K Denzin and Y. S. Lincoln, *The SAGE Handbook of Qualitative Research* (5th ed.) (pp. 1121-1153). Los Angeles et al.: Sage.

Markham, A. N. (2017b, February 28). Reflexivity: Some techniques for interpretive researchers. Retrieved from: https://annettemarkham.com/2017/02/reflexivity-for-interpretive-researchers/

Markham, A. N. (2017c, January 4). Bricolage: A keyword in remix studies. Retrieved from: https://annettemarkham.com/2017/01/bricolage-a-keyword-in-remix-studies/

Markham, A. N. (2018). Afterword: Ethics as impact—Moving from error-avoidance and concept-driven models to a future-oriented approach. *Social media+ society*, 4(3), 2056305118784504. DOI: https://doi.org/10.1177/2056305118784504

Markham, A. N. (2019). Critical pedagogy as a response to datafication. *Qualitative Inquiry*, *25*(8), 754-760. DOI: https://doi.org/10.1177/1077800418809470

Markham, A. N. (2020a). Taking data literacy to the streets: critical pedagogy in the public sphere. *Qualitative Inquiry*, *26*(2), 227-237. DOI: https://doi.org/10.1177/1077800419859024

Markham, A. N. (2020b). Echolocating the Digital Self. In A.N. Markham and K. Tiidenberg, *Metaphors of Internet: Ways of Being in the Age of Ubiquity* (197-199). New York, NY: Peter Lang.

Markham, A.N. (2020c, March 25). Qualitative Research is…. Retrieved from: https://annettemarkham.com/2020/03/qual-research/

Markham, A. N. (2021a). The limits of the imaginary: Challenges to intervening in future speculations of memory, data, and algorithms. *New media & society*, *23*(2), 382-405. DOI: https://doi.org/10.1177/1461444820929322

Markham, A. N. (2021b). Echolocation as theory of digital sociality. *Convergence* 27(6), 1558-1570. DOI: https://doi.org/10.1177/13548565211047158

Markham, A. N. (2021c). The ontological insecurity of disconnecting. In A. Chia, A. Jorge and T. Karppi, *Reckoning with Social Media* (pp. 37-59). Lanham, MD: Rowman and Littlefield.

Markham, A. N. (2021d). Pattern recognition: Using rocks, wind, water, anxiety, and doom scrolling in a slow apocalypse (to learn more about methods for changing the world). *Qualitative Inquiry*, *27*(7), 914-927. DOI: https://doi.org/10.1177/1077800420960191

Markham, A. N. (2022a, November 19). Youth + Digital Literacy + Algorithmic Relations: A ten year pedagogical model. Retrieved from: https://annettemarkham.com/2022/11/digital-literacy-ten-year-pedagogy/

Markham, A. N. (2022b, September 7). Situational Mapping. Retrieved from: https://annettemarkham.com/2022/09/situational-mapping/

Markham, A. N., & Harris, A. (2021). Prompts for making sense of a pandemic: The 21-day autoethnography challenge. *Qualitative Inquiry*, 27(7), 928-941. DOI: https://doi.org/10.1177/1077800420962487

Markham, A.N., Harris, A., & Luka, M.E. (2021). Massive and microscopic sensemaking during COVID-19 times. *Qualitative Inquiry*, 27(7), 759-766. DOI: https://doi.org/10.1177/1077800420962477

Markham, A. N., & Gammelby, A. K. (2018). Moving Through Digital Flows: An Epistemological and Practical Approach. In U. Flick, *The Sage Handbook of Qualitative Data Collection* (pp. 451-465). Los Angeles et al.: Sage.

Markham, A. N., & Lindgren, S. (2014). From object to flow: Network sensibility, symbolic interactionism, and social media. In M. D. Johns, S. S. Chen and L. A. Terlip, *Symbolic interaction and new social media* (pp. 7-41). Bingley, UK: Emerald Group Publishing Limited.

Markham, A. N., & Pereira, G. (2019). Experimenting With Algorithms and Memory-Making: Lived Experience and Future-Oriented Ethics in Critical Data Science. *Frontiers in Big Data*, 2, 1-9. DOI: https://doi.org/10.3389/fdata.2019.00035

Markham, A. N., Stavrova, S., & Schlüter, M. (2019). Netflix, imagined affordances, and the illusion of control. In T. Plothe and A. M. Buck, *Netflix at the Nexus. Content, Practice, and Production in the Age of Streaming Television* (pp. 29-46). New York, NY: Peter Lang.

Markham, T. (2020). *Digital life*. Cambridge, UK: Polity.

Marx, K. (1867/1976). *Capital: A Critique of Political Economy, Volume I.* Harmondsworth, UK: Penguin Books.

Maturo, A., & Moretti, V. (2019). La medicalizzazione della vita tra quantificazione e gamification. *Rassegna Italiana di Sociologia*, 60(3), 509-530. DOI: 10.1423/95506

Mayer, V., Banks, M.J. & Caldwell, J.T. (eds.) (2009). *Production studies. Cultural studies of media industries*. New York, NY: Routledge.

Mayer-Schoenberger, V. and K. Cukier. (2013). *Big Data. A Revolution that will transform how we live, work, and think*. London, UK: John Murray Publishers

Mayo, P. (2015). Antonio Gramsci's impact on critical pedagogy. *Critical Sociology*, *41*(7-8), 1121-1136. DOI: https://doi.org/10.1177/0896920513512694

Mejias, U.A. & Couldry, N. (2019) Datafication. *Internet Policy Review*, 8(4), 1-10. DOI: https://doi.org/10.14763/2019.4.1428

Milan, S. & Treré, E: (2019). Big data from the South(s): Beyond data universalism. *Television & New Media,* 20(4), 319-335. DOI: https://doi.org/10.1177/1527476419837739

Miller, T., Birch, M., Mauthner, M. & Jessop, J. (2012). *Ethics in qualitative research* (2nd ed.). Thousand Oaks, CA: Sage.

Mitzen, J. (2006). Ontological security in world politics: State identity and the security dilemma. *European journal of international relations*, 12(3), 341-370. DOI: https://doi.org/10.1177/1354066106067346

Mol, A. (2002). *The Body Multiple: Ontology in Medical Practice*. Durham, NC: Duke University Press.

Morgan, G. (1986). *Images of Organization*. London, UK: Sage Publications.

Morris, J. W. (2020). Music platforms and the optimization of culture. *Social Media+ Society*, *6*(3), 2056305120940690. DOI: https://doi.org/10.1177/2056305120940690

Mumby, D. K. (1988). *Communication and Power in Organizations: Discourse, Ideology, and Domination*. Norwood, NJ: Axley Press.

Mumby, D. K. (1997). The problem of hegemony: Rereading Gramsci for organizational communication studies. *Western Journal of Communication*, 61(4), 343-375. DOI: https://doi.org/10.1080/10570319709374585

Nagy, P., & Neff, G. (2015). Imagined affordance: Reconstructing a keyword for communication theory. *Social Media+ Society*, 1(2), 2056305115603385. DOI: https://doi.org/10.1177/2056305115603385

Napoli, P. M., & Obar, J. A. (2014). The emerging mobile Internet underclass: A critique of mobile Internet access. *The Information Society*, 30(5), 323-334. DOI: https://doi.org/10.1080/01972243.2014.944726

Nardone, G. (1971). *Il pensiero di Gramsci*. Bari, Italy: De Donato.

Nguyen, M. H., Gruber, J., Marler, W., Hunsaker, A., Fuchs, J., & Hargittai, E. (2022). Staying connected while physically apart: Digital communication when face-to-face interactions are limited. *New Media & Society*, 24(9), 2046-2067. DOI: https://doi.org/10.1177/1461444820985442

Nieborg, D. B., & Poell, T. (2018). The platformization of cultural production: Theorizing the contingent cultural commodity. *New media & society*, 20(11), 4275-4292. DOI: https://doi.org/10.1177/1461444818769694

Noble, S. U. (2018). *Algorithms of oppression: How search engines reinforce racism*. New York, NY: New York University Press.

O'Dair, M., & Fry, A. (2020). Beyond the black box in music streaming: the impact of recommendation systems upon artists. *Popular Communication*, 18(1), 65-77. DOI: https://doi.org/10.1080/15405702.2019.1627548

O'Neil, C. (2016). *Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy*. London, UK: Penguin Books.

Paasonen, S. (2021). *Dependent, distracted, bored: Affective formations in networked media*. Cambridge, MA: MIT Press.

Pagano, R., Cremonesi. P., Larson, M., et al. (2016, September). The contextual turn: from context-aware to context-driven recommender systems. In *Proceedings of the 10th ACM conference on recommender systems* (pp. 249-252). New York, NY: Association for Computing Machinery. DOI: https://doi.org/10.1145/2959100.2959136

Pangrazio, L. (2016). Reconceptualising critical digital literacy. *Discourse: Studies in the cultural politics of education*, 37(2), 163-174. DOI: https://doi.org/10.1080/01596306.2014.942836

Pangrazio, L., & Selwyn, N. (2018). "It's not like it's life or death or whatever": Young people's understandings of social media data. *Social Media+ Society*, 4(3), 1-9. DOI: https://doi.org/10.1177/2056305118787808

Pangrazio, L., & Selwyn, N. (2019). 'Personal data literacies': A critical literacies approach to enhancing understandings of personal digital data. *New Media & Society*, 21(2), 419-437. DOI: https://doi.org/10.1177/1461444818799523

Pasquale, F. (2015). *The black box society: The secret algorithms that control money and information*. Cambridge, MA: Harvard University Press.

Poerwandari, E. K. (2021). Minimizing bias and maximizing the potential strengths of autoethnography as a narrative research. *Japanese Psychological Research*, 63(4), 310-323. DOI: https://doi.org/10.1111/jpr.12320

Polit, D. F., & Beck, C. T. (2010). Generalization in quantitative and qualitative research: Myths and strategies. *International journal of nursing studies*, 47(11), 1451-1458. DOI: https://doi.org/10.1016/j.ijnurstu.2010.06.004

Pötzsch, H. (2019). Critical digital literacy: Technology in education beyond issues of user competence and labour-market qualifications. *TripleC: Communication, Capitalism & Critique. Open Access Journal for a Global Sustainable Information Society*, 17(2), 221-240. DOI: https://doi.org/10.31269/triplec.v17i2.1093

Pötzsch, H. (2021). Bringing materiality into thinking about digital literacy: Theories and practices of critical education in a digital age. In J. Ávila (ed.), *Critical digital literacies: Boundary-crossing practices* (pp. 52-73). Leiden, Netherlands: Brill. DOI: https://doi.org/10.1163/9789004467040_004

Prey, R. (2018). Nothing personal: algorithmic individuation on music streaming platforms. *Media, Culture & Society*, 40(7), 1086-1100. DOI: https://doi.org/10.1177/0163443717745147

Prey, R. (2019). Background by Design: Listening in the Age of Streaming. *Naxos Musicology International*, 1(1), 1-10.

Pronzato, R. (2019). L'approccio socio-cognitivo per studiare la percezione del rischio e l'attenzione al pericolo. Cos'è in frame? In G. Di Fraia (eds.), *Per una città senza paura. Esperienze e vissuti femminili a Milano* (pp. 15-29). Verona, Italy: Ombrecorte.

Pronzato, R. (2021, October). Critical pedagogy as a practice of resistance to algorithms. *AoIR Selected Papers of Internet Research*. DOI: https://doi.org/10.5210/spir.v2021i0.12018

Pronzato, R. (2022). Smart working e piattaforme digitali. Tra le esperienze dei lavoratori, le sfide aziendali e i compiti dello stato. In F. Massara and M. Polesana, *Rapporto IULM 2022 sulla comunicazione d'impresa* (pp. 68-89). Milano, Italy: FrancoAngeli.

Pronzato, R., & Markham, A. N. (2023). Returning to critical pedagogy in a world of datafication. *Convergence*, 1-19. DOI: https://doi.org/10.1177/13548565221148108

Pronzato, R. & Risi, E. (2022). Reframing everyday life. Implications of social distancing in Italy. *International Journal of Sociology and Social Policy*, 42(3/4), 348-368. DOI: https://doi.org/10.1108/IJSSP-07-2020-0350

Raffa, M. & Pronzato, R. (2021). The algorithmic imaginary of cultural producers. Towards platform optimized music? *H-ermes. Journal of Communication*, 19(2021), 293-321. DOI: 10.1285/i22840753n19p293

Rasmussen, N. V. (2020). Data, camera, action: how algorithms are shaking up European screen production. *AoIR Selected Papers of Internet Research*, *2020*. https://doi.org/10.5210/spir.v2020i0.11311

Richardson, L. (1994). Writing: A method of inquiry? In N. K. Denzin and Y. S. Lincoln (Eds.), *Handbook of qualitative research* (pp. 516-529). Thousand Oaks, CA: Sage.

Rieder, B. (2017). Scrutinizing an algorithmic technique: The Bayes classifier as interested reading of reality. *Information, Communication & Society*, 20(1), 100-117. DOI: https://doi.org/10.1080/1369118X.2016.1181195

Risi, E., Bonini, T. & Pronzato, R. (2020). Algorithmic media in everyday life. An experience with auto-ethnographic student diaries. *Etnografia e ricerca qualitativa*, 13(3), 407-422. DOI: 10.3240/99552

Risi, E., & Pronzato, R. (2020). Nuances, boundaries and subjects of the fear in the city. Women's experiences in Milan. *Lo Squaderno*, 57(3), 17-21.

Risi, E., & Pronzato, R. (2021). Smart working is not so smart: Always-on lives and the dark side of platformisation. *Work Organisation, Labour & Globalisation*, 15(1), 107-125. DOI: 10.2307/j50010512

Risi, E., & Pronzato, R. (2022a). Back to practices and narratives. Auto-ethnography as a practice of access to data and algorithms. In G. Punziano and A. Delli Paoli (eds.), *Handbook of Research on Advanced Research Methodologies for a Digital Society* (pp. 265-279). IGI Global.

Risi, E., & Pronzato, R. (2022b). Algorithmic prosumers. In E. Risi, M. Briziarelli and E. Armano (eds.), *Digital Platforms and Algorithmic Self. Theory, Experiences, Resistance and Counter Cooperation* (pp. 149-165). London, UK: Westminster University Press.

Risi, E., Pronzato, R., & Di Fraia, G. (2021). Everything is inside the home: the boundaries of home confinement during the Italian lockdown. *European Societies*, 23(S1), S464-S477. DOI: https://doi.org/10.1080/14616696.2020.1828977

Risi, E., Pronzato, R., & Di Fraia, G. (2022). Memes as socio-narrative representations: Themes, protagonists, and narratives of the pandemic memes in Italy. *Mediascapes journal*, 20(2), 26-46. Retrieved from: https://rosa.uniroma1.it/rosa03/mediascapes/article/view/18038

Roberts, P. (2015). Paulo Freire and utopian education. *Review of Education, Pedagogy, and Cultural Studies*, 37(5), 376-392. DOI: https://doi.org/10.1080/10714413.2015.1091256

Robinson, L., Cotten, S. R., Ono, H., Quan-Haase, A., Mesch, G., Chen, W., Schulz, J., Hale, T. M. & Stern, M. J. (2015). Digital inequalities and why they matter. *Information, communication & society*, 18(5), 569-582. DOI: https://doi.org/10.1080/1369118X.2015.1012532

Rose, J., & Jones, M. (2005). The double dance of agency: a socio-theoretic account of how machines and humans interact. *Systems, Signs & Actions*, 1(1), 19-37. Retrieved from: https://sysiac.org/uploads/1-1-Rose.pdf

Rosenbaum, H. (2020). Algorithmic neutrality, algorithmic assemblages, and the lifeworld. *Proceedings of the Americas Conference on Information Systems (AMCIS) 2020*. Retrieved from: https://aisel.aisnet.org/amcis2020/philosophical_is/philosophical_is/6

Roskos, K., Brueck, J., & Lenhart, L. (2017). An analysis of e-book learning platforms: Affordances, architecture, functionality and analytics. *International Journal of Child-Computer Interaction*, *12*, 37-45. DOI: https://doi.org/10.1016/j.ijcci.2017.01.003

Ruppert, E. (2011). Population objects: Interpassive subjects. *Sociology*, 45(2), 218-233. DOI: https://doi.org/10.1177/0038038510394027

Sander, I. (2020). What is critical big data literacy and how can it be implemented?. *Internet Policy Review*, 9(2). DOI: https://doi.org/10.14763/2020.2.1479

Sarachild, K. (1978). Consciousness-raising: A radical weapon. In Redstockings (ed.), *Feminist revolution* (pp. 144-150). New York, NY: Random House.

Schradie, J. (2020). The Great Equalizer Reproduces Inequality: How the Digital Divide Is a Class Power Divide. In B. Eidlin, and M. A. McCarthy, M.A. (eds.), *Rethinking Class and Social Difference* (pp. 81-101). Bingley, UK: Emerald Publishing Limited. DOI: https://doi.org/10.1108/S0198-871920200000037005

Schraube, E. (2009). Technology as materialized action and its ambivalences. *Theory & Psychology*, 19(2), 296-312. DOI: https://doi.org/10.1177/0959354309103543

Schwandt, T. A. (2001). *Dictionary of qualitative inquiry* (2nd ed.). Thousand Oaks, CA: Sage.

Seaver, N. (2017). Algorithms as culture: Some tactics for the ethnography of algorithmic systems. *Big Data & Society*, 4(2), 2053951717738104. DOI: https://doi.org/10.1177/2053951717738104

Seaver, N. (2018). What should an anthropology of algorithms do?. *Cultural anthropology*, *33*(3), 375-385. DOI: 10.14506/ca33.3.04

Seaver, N. (2019a). Captivating algorithms: Recommender systems as traps. *Journal of Material Culture*, 24(4), 421-436. DOI: https://doi.org/10.1177/1359183518820366

Seaver, N. (2019b). Knowing algorithms. In J. Vertesi and D. Ribes (eds.), *digitalSTS: A Field Guide for Science & Technology Studies* (pp. 412-422). Princeton, NJ: Princeton University Press.

Shaw, A. (2017). Encoding and decoding affordances: Stuart Hall and interactive media technologies. *Media, Culture & Society*, 39(4), 592-602. DOI: https://doi.org/10.1177/0163443717692741

Shi, L. (2006). Students as research participants or as learners?. *Journal of Academic Ethics*, 4, 205-220. DOI: 10.1007/s10805-006-9028-y

Siles, I., Espinoza-Rojas, J., Naranjo, A., & Tristán, M. F. (2019). The mutual domestication of users and algorithmic recommendations on Netflix. *Communication, Culture & Critique*, 12(4), 499-518. DOI: https://doi.org/10.1093/ccc/tcz025

Siles, I., Segura-Castillo, A., Solís, R., & Sancho, M. (2020). Folk theories of algorithmic recommendations on Spotify: Enacting data assemblages in the global South. *Big Data & Society*, 7(1), 2053951720923377. DOI: https://doi.org/10.1177/2053951720923377

Simon, R. (1982). *Gramsci's Political Thought: An Introduction*. London, UK: Lawrence and Wishart.

Simondon, G. (1992). The genesis of the individual. *Incorporations*, 6, 296-319.

Simondon, G. (2009). The position of the problem of ontogenesis. *Parrhesia*, 7(1), 4-16.

Soffer, O. (2021). Algorithmic personalization and the two-step flow of communication. *Communication Theory*, 31(3), 297-315. DOI: https://doi.org/10.1093/ct/qtz008

Stern, D. G. (2003). The practical turn. In S. P. Turner and P. A. Roth (eds.), *The Blackwell guide to the philosophy of the social sciences* (pp. 185-206). Oxford, UK: Blackwell Publishing.

Spry, T. (2001). Performing autoethnography: An embodied methodological praxis. *Qualitative Inquiry*, 7(6), 706–732. DOI: https://doi.org/10.1177/107780040100700605

Straniero, A. (2019). Per una pedagogia militante. Il pensiero di Gramsci a confronto con la Pedagogia Speciale. *Italian Journal of Special Education for Inclusion*, 7(1), 79-90. DOI: https://doi.org/10.7346/sipes-01-2019-08

Strauss, A. & Corbin, J. (1994). Grounded theory methodology. An Overview. In N. K. Denzin and Y. S. Lincoln (eds.), *Handbook of Qualitative Research* (pp. 273-285). Thousand Oaks, CA: Sage.

Striphas, T. (2015). Algorithmic culture. *European journal of cultural studies*, 18(4-5), 395-412. DOI: https://doi.org/10.1177/1367549415577392

Sundar, S.S. & Kim, J. (2019, May). Machine heuristic: When we trust computers more than humans with our personal information. In *Proceedings of the 2019 CHI conference on human factors in computing systems* (pp. 1-9). New York, NY: Association for Computing Machinery. DOI: 10.1145/3290605.3300768

Sundvall, S. & Fredlund, K. (2017). The Writing on the Wall: Activist Rhetorics, Public Writing, and Responsible Pedagogy. *Composition Forum*, 36, 1-13.

Svensson, J. (2021). *Wizards of the Web: An outsider's journey into tech culture programming and mathemagics*. Gothenburg, Sweden: Nordicom.

Swart, J. (2021). Experiencing algorithms: How young people understand, feel about, and engage with algorithmic news selection on social media. *Social media+ society*, 7(2), 1-11. https://doi.org/10.1177/20563051211008828

Tanweer, A., Gade, E., Krafft, P. M., & Dreier, S. (2021). Why the data revolution needs qualitative thinking. *Harvard Data Science Review*, 3(3). DOI: https://doi.org/10.1162/99608f92.eee0b0da

Taylor, C. (2004). *Modern social imaginaries*. London, UK: Duke University Press.

Tsetsi, E., & Rains, S. (2017). Smartphone Internet access and use: Extending the digital divide and usage gap. *Mobile Media & Communication*, 5(3), 239-255. DOI: https://doi.org/10.1177/2050157917708329

Van Deursen, A., & Helsper, E. (2015). The third-level digital divide: Who benefits most from being online? In *Communication and information technologies annual* (pp. 29–52). Bingley, UK: Emerald Group Publishing Limited.

Van Dijck, J. (2013). *The Culture of Connectivity. A Critical History of Social Media*. Oxford, UK: Oxford University Press.

Van Dijck, J. (2014). Datafication, dataism and dataveillance: Big Data between scientific paradigm and ideology. *Surveillance & society*, 12(2), 197-208. DOI: https://doi.org/10.24908/ss.v12i2.4776

Van Dijck, J., & Poell, T. (2013). Understanding social media logic. *Media and communication*, 1(1), 2-14. DOI: 10.12924/mac2013.01010002

Van Dijck, J., Poell, T., & De Waal, M. (2018). *The platform society: Public values in a connective world*. Oxford, UK: Oxford University Press.

Vicari, S., & Kirby, D. (2022). Digital platforms as socio-cultural artifacts: developing digital methods for cultural research. *Information, Communication & Society*, 1-23. DOI: https://doi.org/10.1080/1369118X.2022.2027498

Wajcman, J. (2019). How silicon valley sets time. *New Media & Society*, 21(6), 1272-1289. DOI: https://doi.org/10.1177/1461444818820073

Weiler, K. (1991). Freire and a feminist pedagogy of difference. *Harvard educational review*, 61(4), 449-475. DOI: https://doi.org/10.17763/haer.61.4.a102265jl68rju84

Whitehead, M. (2019). The Age of Surveillance Capitalism - A Review Essay. *Antipode. A Radical Journal of Geography*. Retrieved from: https://antipodeonline.org/wp-content/uploads/2019/10/Book-review_Whitehead-on-Zuboff.pdf

Van Maanen, J. (1988). *Tales of the field.* Chicago, IL: University of Chicago Press.

Viera Magalhães, J., & Couldry, N. (2021). Giving by taking away: big tech, data colonialism and the reconfiguration of social good. *International Journal of Communication*, 15, 343-362. Retrieved from: http://eprints.lse.ac.uk/107516/2/Couldry_giving_by_taking_away_published.pdf

Weick, K. (1969). *The social psychology of organizing*. Boston, MA: Addison-Wesley.

Weick, K. E. (1995). *Sensemaking in organizations*. Thousand Oaks, CA: Sage.

Williams, R. (1974/2003). *Television. Technology and Cultural Form*. London and New York: Routledge.

Willson, M. (2017). Algorithms (and the) everyday. *Information, Communication & Society*, *20*(1), 137-150. DOI: https://doi.org/10.1080/1369118X.2016.1200645

Woolgar, S. (ed.) (1988). *Knowledge and Reflexivity: New Frontiers in the Sociology of Knowledge*. London, UK: Sage.

Ytre-Arne, B., & Das, R. (2021). Audiences' communicative agency in a datafied Age: Interpretative, relational and increasingly prospective. *Communication Theory*, 31(4), 779-797. DOI: https://doi.org/10.1093/ct/qtaa018

Ytre-Arne, B., & Moe, H. (2021). Folk theories of algorithms: Understanding digital irritation. *Media, Culture & Society*, 43(5), 807-824. DOI: https://doi.org/10.1177/0163443720972314

Ytre-Arne, B., Syvertsen, T., Moe, H., & Karlsen, F. (2020). Temporal ambivalences in smartphone use: Conflicting flows, conflicting responsibilities. *new media & society*, 22(9), 1715-1732. DOI: https://doi.org/10.1177/1461444820913561

Zinn, H. (2002). *You Can't Be Neutral on a Moving Train: A Personal History of Our Times*. Boston, MA: Beacon Press.

Zuboff, S. (2015). Big other: surveillance capitalism and the prospects of an information civilization. *Journal of information technology*, 30(1), 75-89. DOI: https://doi.org/10.1057/jit.2015.5

Zuboff, S. (2019a). *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power*. London, UK: Profile Books.

Zuboff, S. (2019b). 'We Make Them Dance': Surveillance Capitalism, the Rise of Instrumentarian Power, and the Threat to Human Rights. In R. K. Jørgensen, *Human rights in the age of platforms* (pp. 3-51). Cambridge, MA: MIT Press.

Appendixes

Appendix 1

Auto-ethnographic challenge. Italian version

AUTO-ETHNOGRAPHIC CHALLENGE

🇮🇹 **IT**: Ogni giorno ci sarà una task da compiere in relazione alle seguenti domande.

1. Come conosciamo noi stessi e la nostra vita quotidiana su/attraverso le piattaforme?
2. Che relazioni sviluppiamo su/attraverso e con le piattaforme?
3. In che maniera le piattaforme ci aiutano a pensare le relazioni tra noi e l'altro, tra noi e quello che ci sta intorno?

L'obiettivo è di praticare l'auto-etnografia come una forma di analisi e trasformare la nostra relazione con gli algoritmi in un momento di comprensione critica della relazionalità e dei processi di senso che portiamo avanti ogni giorno attraverso e sulle piattaforme.

Avete 24 ore per completare ogni task. In ogni caso, trovate il vostro ritmo per ogni task, non è importante rispettare la scadenza quanto completare tutte le prove ed ottenere un risultato di cui siete soddisfatti.

Task #1.

22 febbraio 2021
Guarda quali app hai usato e per quanto tempo negli ultimi giorni. Quali sono quelle su cui spendi più tempo? Che cosa ti hanno dato? Che cosa ci hai cercato? Lascia fluire le tue riflessioni, scrivi tutto ciò che ti passa per la mente.

….

….

….

Task #2.

23 febbraio 2021
Fai uno screenshot delle tue due schermate principali. Rifletti poi su quelle che usi di più e come le usi. Per almeno tre di esse, scrivi qualche paragrafo usando la prospettiva dell'app stessa. Usa la prima persona.

In questa task, pensa alle macchine come esseri con una propria capacità e volontà di agire (*agency*), alla tecnologia come ad un essere relazionale, all'automazione come ad un mediatore della nostra vita quotidiana.

…

…

…

Task #3.

24 febbraio 2021

Mappe allegoriche vittoriane.

In epoca vittoriana, era molto popolare disegnare delle mappe dei sentimenti o mappe allegoriche, come quelle riportate negli esempi qui sotto.

"Le mappe sono rappresentazioni visive e affettive che producono materialmente dei territori" (Jones, Harris, 2016), dei territori del sé.

Usando questa sensibilità, disegna una o più mappe di te stesso/a pensando a quando usi delle piattaforme. Puoi creare diverse varianti delle mappe che disegnerai, anche in seguito. Usa diversi colori, sii giocosa/o. Finite le mappe, rifletti poi su di esse ed il tuo rapporto con le piattaforme, scrivendo le tue riflessioni.

(source: Markham, Harris, 2020)

…

…

…

Task #4.

| **25 febbraio 2021**	
Questo esercizio richiede carta e penna. L'obiettivo è esplorare attori umani e macchinici e più che umani nella nostra esperienza con le piattaforme. Mappare la situazione attraverso tecniche come l'analisi situazionale (Situational Analysis) di Adele Clarke può aiutarci ad "aprire" la situazione, a trovare voci e azioni rilevanti, a rivelare silenzi, assenze e altre cose che si trovano oltre i confini della nostra mente. Inoltre, questo esercizio può aiutarci a trovare ed analizzare la complessità delle nostre interazioni, mappando ripetutamente diversi elementi, senza preoccuparsi dell'accuratezza o dei risultati.	*(source: Markham, Harris, 2020)*

"Le mappe situazionali delineano elementi umani, non umani, discorsivi e altri elementi di interesse per la ricerca e portano all'analisi delle relazioni tra questi elementi. Queste mappe hanno lo scopo di catturare e discutere le caotiche complicazioni della situazione, nelle loro dense relazioni e permutazioni. Lavorano intenzionalmente contro le consuete semplificazioni ..." (Clarke, 2003, p. 559.)

Ecco la **task**.
Concediti un unico, potente momento di gioia, rabbia, ansia o frustrazione riguardo la tua esperienza con le piattaforme. Crea almeno tre mappe utilizzando le seguenti istruzioni.
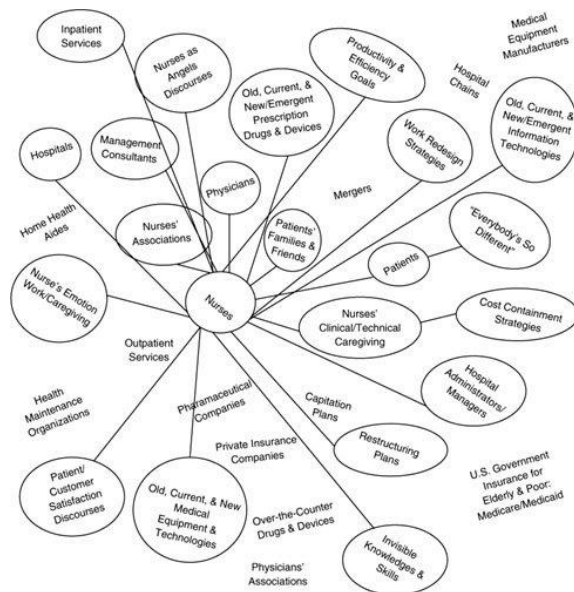
Mappa 1: metti il nome o la rappresentazione del momento al centro di un grande foglio di carta e cerchialo. Ora, fai un brainstorming (spidergram o concept map fashion) su quanti elementi umani e non umani pensi che abbiano influenzato quel momento. Nessun confine è troppo lontano. Il motivo per utilizzare fogli di grandi

dimensioni è che se lasci la tua mente libera, potresti vedere che la dimensione del testo, il raggruppamento delle parole, o la distanza da una parola all'altra, possono rivelare alcuni schemi.

Mappa 2: finita la mappa 1, prendi un oggetto a caso dalla mappa 1 e posizionalo al centro di un nuovo foglio bianco. Non perdere traccia del momento iniziale da cui è partito tutto, ma non concentrarti neanche troppo sulla prima mappa, fai nuovamente il brainstorming come con la mappa 1 e scrivi nuovamente gli elementi umani e non umani che emergono.

Mappa 3: prendi un nuovo foglio e rimetti al centro la stessa cosa che è al centro nella mappa 1. Chiediti "Come mi sono sentito? Come mi sento?". Quindi, con un colore diverso di penna/matita, fai un brainstorming: "oltre al mio, quali altri sentimenti ci sono stati intorno a questa situazione?"

…

…

…

Task #5.

26 febbraio 2021
Ripensa alla task 4. Al momento che hai scelto, alla/e piattaforma/a che ne facevano parte e alle mappe che hai disegnato.

Cosa emerge? Scrivi liberamente le tue riflessioni, tutto ciò che pensi e scrivi è importante.

…

…

…

Task #6.

27 febbraio 2021
DEEP OBSERVATION: FINDING PERSPECTIVE, VOICE, AGENCY. Parte 1.

Pensa una piccola cosa che fai abitualmente o hai fatto oggi con un social media. Scrivi una sorta di storia/scena di quell'attività, concentrandoti sull'azione ed il movimento. Per riuscire a comprendere la complessità della situazione attorno a questo elemento microscopico, scrivi questa storia/scena come se fosse la sceneggiatura di un film. La tua descrizione sarà usata per guidare il regista e gli attori, costruire il set e impostare la scena.

Perciò, scrivi quali sono i personaggi della scena, il momento temporale, l'ambiente in cui verrà girata, gli attori coinvolti, le inquadrature, ecc.

…

…

…

Task #7.

28 febbraio 2021

DEEP OBSERVATION: FINDING PERSPECTIVE, VOICE, AGENCY. Parte 2.

Rileggi attentamente e rifletti sulla scena che hai scritto nella task precedente. Poi completa questi tre passaggi:

1. Rispondi e rifletti su queste domande: quindi? Cosa è importante? Perché è importante? Quali questioni/problematiche (*matters of concern*) emergono?
2. Dopo aver risposto al punto 1, rileggi e considera quali preoccupazioni stai esprimendo nelle tue risposte. Che tipo di questioni/problematiche sono emerse? Quali possono essere le implicazioni future di queste questioni/problematiche?
3. Restringi lo sguardo. Che cosa indicano o suggeriscono le tue risposte su di te, le tue azioni e la tua relazione con le piattaforme?

…

…

…

Task #8.

1 marzo 2021

Rimani un giorno interno senza utilizzare media algoritmici (social media, servizi di video streaming, app per la musica, ecc.)

Rifletti su questa esperienza di "digiuno algoritmico". Durante queste 24h tieni un diario audio/video/scritto dell'esperienza per riflettere su cosa significa e come ci si sente a essere scollegati e non utilizzare le piattaforme. Scrivi poi qui di seguito le tue riflessioni.

Se proprio non riesci a non utilizzare media algoritmici, scrivi quali hai usato e perché non ne hai potuto fare a meno. Rifletti in profondità riguardo agli aspetti che emergono.

…

…

…

Auto-ethnographic challenge. English version

AUTO-ETHNOGRAPHIC CHALLENGE

🇬🇧 **ENG**: Every day there will be a task for you to consider in relation to the following questions.

1. How are we making sense of ourselves and of our everyday life in and through algorithmic media?
2. Which relationships do we develop in and through and with algorithmic media?
3. How does algorithmic media help us to think about the relationships between self and other, and between us and the world?

The goal is to build our embodied sensibilities toward our everyday life, and to practice autoethnography as a form of analysis, and transform our personal experiences and relationships with algorithmic media into a critical understanding of sensemaking and relationality in and through digital platforms.

You have 24 hours to complete each task. Nevertheless, you need to find your own rhythm. Meeting the deadline is not the most important thing. You should be more focused on completing each task and being satisfied with your diary.

Task #1.

22 February 2021
Look which apps you used and for how long in the last few days. Which are the apps on which you spend more time? What did you get from them? What did you search through them? Let your reflections flow, write whatever comes to your mind.

…

…

…

Task #2.

| 23 February 2021 |
|---|
| Take a screenshot or look carefully at the two first home screens of your smartphone. Reflect on the apps you use more and how you use it. For at least three of them, write some paragraphs each from the perspective of each app. Write in the first person. |
| |
| In this task, think about machines as entities with the capacity and willingness to act (agency), technology as relational, automation as a mediator of our everyday life. |

…

…

…

Task #3.

Victorian allegorical maps.

In Victorian times, it was popular to draw maps of the sentiments, or allegorical maps, as the ones in the examples below.
"Maps are visual and affective representations that materially produce territories" "
(Jones, Harris, 2016), territories of self.
Using this sensibility, draw one or more map of yourself, thinking about when you use platforms. You can create different variations of the maps you will draw, even later. Use different colours, be playful.

Once you finished your maps, reflect on them and on your relationship with platforms, writing your reflections.

(source: Markham, Harris, 2020)

…

…

…

Task #4.

This exercise requires paper and pencil. The goal is to explore human, machinic, and more than human actors in our experience with platforms. Mapping the situation through techniques like Adele Clarke's Situational Analysis can help 'open up' the situation, finding relevant voices and actions, revealing silences, absences, and other things that lie beyond the boundaries of our mind. Moreover, this exercise can help us finding and analysing the complexity of our interactions, by repeatedly mapping different elements, without worrying about accuracy or results.
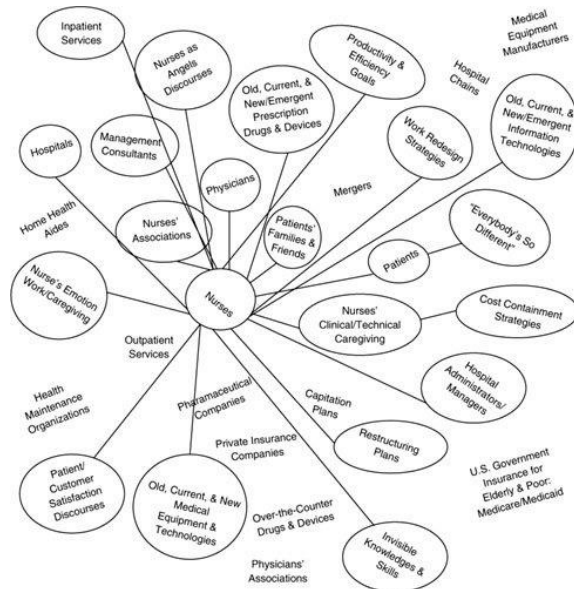
(source: Markham, Harris, 2020)

"*Situational maps lay out the human, nonhuman, discursive, and other elements in the research situation of concern and provoke analyses of relations among them. These maps are intended to capture and discuss the messy complexities of the situation in their dense relations and permutations. They intentionally work against the usual simplifications...*" (Clarke, 2003, p. 559.)

Here the task.
Take a single, powerful moment of joy, anger, anxiety, or frustration relevant to your lived experience with platforms. Create at least three maps using the following instructions. Then, take a picture of your maps and past them in the diary,

Map 1: put the name or representation of the moment in the center of a large sheet of paper and circle it. Now, brainstorm (spidergram or concept map fashion) as many human and non-human elements you can think of that influenced that moment. No

188

boundary is too far. The reason to use large paper is that if you let your mind be free, you might see that size of text, clustering of words, or distance from one word to another begins to reveal some patterns.

Map 2: Once you finished Map 1, take one item randomly from Map 1 and place it in the center of a blank page. Neither losing track of the initial moment nor focusing on the first map too closely, brainstorm again, as with map 1, and write again the human and non-human elements that emerge.

Map 3: Take a new paper and center the same thing you did for Map 1. Ask yourself "How did I feel? How do I feel?". Then, with a different color of pen/ink, brainstorm "what other feelings or responses (likely) occurred in and around this situation, beyond my own?"

…

…

…

Task #5.

26 February 2021

Think again about task 4. About the moment you chose, the platform/s that was/were part of it and about the maps you drew. What does it emerge? Write your reflections freely, everything you think and write is important.

…

…

…

Task #6.

27 February 2021

DEEP OBSERVATION: FINDING PERSPECTIVE, VOICE, AGENCY. Part 1.

Recall one tiny thing you do habitually or that you did today on a social media. Write a sort of story/scene of that activity, focusing on action and movement. To get toward the idea of understanding the complexity of the situation around this microscopic element, consider writing this story/scene as if for a screenplay for a movie, where your description will be used to guide the director and actors, build the set, and set the scene. Thus, write which are the characters, the temporal moment, the environment in which it will be shot, the actors involved, the framings, etc.

…

…

…

Task #7.

28 February 2021
DEEP OBSERVATION: FINDING PERSPECTIVE, VOICE, AGENCY. Part 2. Read carefully and reflect on the scene you wrote in the precedent task. Then, complete these 3 steps: 1. Reply and reflect on these questions: so? What is it important? Why is it important? Which matters of concerns emerge?   2. After having replied to step 1, read again and consider which concerns you are expressing in your replies. Which type of matters of concerns emerge? Which can be the future implications of these matters of concerns?   3. Narrow your gaze. What does your replies suggest about you, your actions and your relationship with platforms?

…

…

…

Task #8.

1 March 2021
Stay a full day without using algorithmic media (social media, video streaming services, music streaming apps, etc.)   Reflect on this experience of "algorithmic fasting". During these 24 hours, keep an audio / video / written diary of the experience to reflect on what it means and how it feels to be disconnected and not use platforms. Then write your reflections below.   If you really cannot avoid using algorithmic media, write which ones you used and why you couldn't do without it. Think deeply about the aspects that emerge.   If you have classes online, of course, follow them and if you need to access material for study purposes, don't stop. Perhaps this usage can be a way to deepen your reflection.

…

…

…