



Afterword: Platformed professional(itie)s and the ongoing digital transformation of education

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As this special issue illustrates, teacher professionalism stands at a crossroads of multiple influences. Well-documented trends like pervasive managerialism and punitive accountability are now going hand in hand with datafication and the rise of ever more powerful technologies for surveilling activities and performance (Williamson, 2017). Indeed, the expert professional practice of education is now increasingly organized around the demands and affordances of platformed governance, with obvious repercussions on professional and personal identities. In their editorial, *Hartong* and *Decuyper* set the scene admirably by addressing the definitional vagueness that surrounds the study of platformization in education, proposing a taxonomy based on three key features:

- a) the presence of pervasive digital architectures that include dedicated *Graphical User Interfaces* (GUIs) and, perhaps more significant, *Application Programming Interfaces* (APIs) which underpin datafied infrastructures where functionalities, affordances, and even other platforms interoperate (Helmond, 2015; Snodgrass & Soon, 2019; Venturini & Rogers, 2019)
- b) a discourse of boundless intermediation, which promises enabling connections between actors, data and contexts but conceals a distinct form of power that manifests in the regulation of access and the (biased) streamlining of informational flows (Gillespie, 2018; Hartong, 2016; Rahman & Thelen, 2019)
- c) the existence of socioeconomic arrangements devoted for the most part to the extraction of value from engagement, affect, cognition and rapidly colonizing other aspects of social and biological life (Beer, 2018; Langley & Leyshon, 2017; Zuboff, 2019)

There is another perspective that, in hindsight, can complement this account – one less focused on the taxonomic analysis of platformization and more on the conditions in which it emerged. These conditions can be described as the concurrence of institutional mimesis and parasitism, whereby platforms rapidly adapted to and then mimicked established socioeconomic orderings. These orderings historically produced great amounts of value for their members, but their contractual and ritualistic over-complexity placed limits on who could access and appropriate such value. Ethico-political arrangements had to be developed over time with gatekeepers, guarantors, legal protocols, tacit rituals and so forth. Platformization reshaped these arrangements, configuring proprietary infrastructures as the main regulators of pre-existing networks of value, and reorganizing the relationships between people and resources along individualistic lines that invite to bypass complex relational and contractual entanglements in the name of speed, efficiency, and personal gain: just plug yourself in and play.

This has led to multiple consequences in the sphere of professional work, including the acceleration of precarity, the rise of digital micro-entrepreneurship and a general capitulation to pervasive managerial surveillance. Among these consequences there are problematic changes in professional subjectivities, with the rapid rise of forms of hyperindividualism where people no longer see themselves as part of disciplinary communities and value-based traditions, but as semi-entrepreneurs focused on improving their own relative position compared to others (Warner, 2022). *Lewis and Decuyper*'s notion of 'projectification' (this issue) is an empirical manifestation of this phenomenon, which subsumes multiple aspects of professional practice under trajectories of self-improvement and networking, with personal projects folding into larger institutional and policy projects to create a never-ending, inevitably alienating, search for excellence and distinction. *Lewis and Decuyper* rightly argue that this totalizing 'project form' has become an omnipresent feature, and that our existences are increasingly goal-oriented endeavors where outcomes are quantified, efforts tracked and where time is channeled in the interest of efficiency and accountability. It is little surprise then that entire ecologies of platforms and apps have adopted the project as an individualistic framing for action: self-improvement projects, fitness projects, financial autonomy projects, career and entrepreneurship projects and so forth. After all, the demands and affordances of digitization are perfectly aligned with projectification, understood here as an ontological and epistemological re-configuration based on the re-formatting of space, time and relations. Social life is thus operationalized, often arbitrarily, as a collection of behavioral proxies and then molded through structures of reward: achievements, badges, credits and all the other signifiers of 'project success.'

Yet there is no room for facile determinisms here, as multiple forms of contextual usage and (re-)interpretation can be empirically detected, with much diversity and localization occurring across national contexts or within distinctive sociotechnical arrangements, i.e., a specific platform or policy initiative. *Dabisch*, for instance, examines the interactions between ‘datafied structurations’ and educators’ professional self-perceptions in the German context. The argument, in this case, is that pervasive datafication is shaping the culture and practice of school supervision, which is an area distinct from teaching but still a central and established form of expert educational practice. The notion of structuration assumes that data and platforms exercise an influence on agency, but *Dabisch* is well aware of the deterministic pitfall lying in this argument, so he rightly acknowledges the contextual factors and subjective dispositions that moderate professional enactments (see also Landri, 2021). A familiar tension is thus played out with the supervisors adding interpretive nuance to the datafied formations. The distinction between the different properties of structuration is also useful from a descriptive point of view: centrality, visualization and modifiability/automation. The latter one is probably the most interesting as it suggests a dynamic relationship between data representation and agency, with a spectrum from fully customizable to fully automated.

The structuring function of platformization is again placed front and centre in *Clutterbuck’s* article, which proposes ‘diffraction’ as a framing to describe the alteration of professional practices as they travel through the prism of digital infrastructure. Diffraction is a valuable analogy because it captures something of the dynamic interaction between physical and perceptual qualities; it effectively complicates the narrative of structuration as agency is fragmented and becomes reconstituted in often problematic, but never simplistic ways. Indeed, *Clutterbuck’s* educational actors are not mere spectators of their own diffraction but are fully involved through an amalgam of deliberate entanglement and occasional resistance. In the Queensland-specific OneSchool case study, changes in the professional make up of teachers and leaders are visible but they are not a simple matter of top-down imposition: choices were made, and paths were taken as part of an attempt to engage with calls for standardization and datafication, while retaining local and sometimes resistive connotations. This negotiation is apparent in the second part of *Clutterbuck’s* account, which focuses on how the ‘OneSchool actor’ interfaced with professional decision making. Issues of implementation, acceptance and adoption are thus brought to the fore, with access protocols in particular influencing organizational structures and the division of labor, creating a fragile alignment between professional competence and digital affordance: only those with the ‘right’ qualifications could request access to certain functionalities, leading to structures within structures as technical responsibilities (requesting or approving specific technical functions) blended with educational ones

(see also Perrotta, Gulson, Williamson & Witzemberger, 2020). Once more, the goal is to rescue agency without shying away from the regimentation and disciplining effects enacted through and by the platform. Diffraction is therefore framed as an active ‘doing’ that binds humans and non-humans, leading in some cases to a productive sense of ‘wariness’ among educators who are committed to using the system while remaining suspicious of its weaknesses.

The ever-shifting terrain of structuration is again explored in *Hartong* and *Manolev*’s contribution, which brings its own fresh perspective by tackling a most interesting issue: the educational professionalism of parents. The article effectively bridges the critical study of educational platforms with literature on parenthood studies, proposing the notion of ‘platformed parent.’ The authors remind us that platformization has not caused a transformation in parental responsibilities in education. This transformation was the result of a slower process of intensification which coincided with the extension of educational remit into personal and emotional well-being, as well as the growth and diversification of academic curricula. As a result, parents and guardians have been implicitly allocated formal and informal duties relating to discipline, motivation and performance. Platforms have simply adapted to these historical transformations, enabling and accelerating the recruitment of parents in processes of datafied surveillance; they re-socialize and re-educate parents by requiring habituation to the digital infrastructure and a functional alignment with formal assessment procedures. The concept of platformed parenthood will surely resonate with those navigating first-hand the many parental responsibilities of modern education, with dinner-time household discussions moving away from the age old ‘how was school today?’ to morph into a much more professionalized discourse about tasks, deadlines and performance profiles, enabled by dashboards and other reporting mechanisms that blur boundaries between home and school. Once more, however, *Hartong* and *Manolev* choose to operate in a multidimensional and relational framework that refuses to see platforms as mere structuration devices, but as inchoate assemblages with multiple cracks and fissures. These ambivalences can enable more appropriative and emancipatory enactments, where platforms surely nudge – sometimes in insidiously oppressive ways – but can also be nudged.

Looking ahead

Something hinted at but not fully explored in the special issue is the involvement of platform logics in the partial automation of educational work. This problematic seems poised to become more prominent in the near future, but it is important to proceed with caution. A short detour through macroeconomics may help frame the topic productively in the current discussion. The word automation conjures up sce-

narios of technological pervasiveness (e.g., ‘robots in the classroom’) which may be suggestive but do not reflect the current trajectory of platformization so effectively documented in this special issue. A terminological clarification is needed. Work automation involves two rather different scenarios: the first entails the development of software or hardware systems that can augment social practices; the second is based on the creation of autonomous, self-organizing systems that can completely supplant humans in a particular line of work. This distinction has been captured effectively by Benanav:

with labor-augmenting technologies, a given job category will continue to exist, but each worker in that category will be more productive ... By contrast ... no matter how much production might increase, another telephone-switchboard operator or hand-manipulator of rolled steel will never be hired. (Benanav, 2019, pp. 9 f.)

In his analysis, Benanav reports oft-cited research (Frey & Osborne, 2017) which suggested that 47 per cent of US jobs are at high risk of automation. A recent OECD study (Nedelkoska & Quintini, 2018) made a useful distinction between global jobs that are likely to become fully automated (15%), and jobs which are set to undergo significant labor-saving and task-specific automation over the next years (32%). Similar forecasts have been proposed in relation to teaching. According to a recent report from McKinsey Global Institute (Madgavkar et al., 2019), more than 40 per cent of tasks performed by primary educators (most of whom are women) during a typical workday could be automated, resulting in the need to develop new skills and develop familiarity with platforms and the algorithmic systems that operate within them (ibid.).

Benanav’s distinction between full (‘lights out’, i.e., requiring no human presence so that lights can be turned off) and partial automation is another helpful compass to navigate the debate. To begin with, lights out automation is not a 21st century novelty but is part of a techno-utopian imaginary, which spontaneously re-arises whenever “the global economy’s failure to create enough jobs causes people to question its fundamental viability” (Benanav, 2019, p. 15). The traditional logic, in this argument, is reversed – it is not the unstoppable pace of *Artificial Intelligence* (AI) innovation that fuels the automation imaginary, but the consequences of well-documented cycles of economic stagnation and under-productivity. An ideological myopia to these structural weaknesses of capitalist modes production generates, according to Benanav (p. 38):

the upside-down world of the automation discourse. Proponents of this discourse then search for the technological evidence that supports their view of the causes for the declining demand for labour. In making this leap, the automation theorists miss the true story of overcrowded markets and economic slowdown that actually explains the decline in labour

demand ... Technological change then acts as a secondary cause of a low labour demand, operating within the context of the first.

Following this argument, automation will or will not take hold in a sector depending on two intertwined reasons. The first reason has to do with output demand; in lines of work where there is a growing demand for productivity there will be a stronger tendency to absorb human work and little appetite for automation. Concomitantly, in sectors with low productivity-growth rates there will be incentives to automate – not to liberate workers from daily toil, but to manufacture conditions of under-employment as part of cost-saving strategies. The second reason has to do with the inherent nature of human activity in many productive and professional settings. Not all tasks can be automated, and indeed there is a correspondence between the nature of work in large labor-absorbing sectors and the lack of automation. For instance, automation has not impacted in any significant way on textile work (sewing) and, notably, on first-link electronic assembling, which occurs before electronics are sent further up the productivity chain towards more ‘advanced’ automated factories. Applied to education, this line of reasoning has two consequences. Firstly, the strong societal demand for teaching as a form of work (UNESCO, 2016) is the first factor to consider when speculating on the future of automation in education: the higher the demand, the less automation will be a viable proposition, because societies benefit greatly from sectors that can absorb human labor. Employed humans, however inefficient or hard to govern, produce healthy economies. Alongside this macro-economic reason, there is the nature of pedagogical practice which cannot be fully automated because it remains stubbornly relational and embodied to a considerable degree – a ‘form of life’ and an adaptive component of the human experience, manifested in multiple forms during the life course, sustained by an evolutionary and biological substratum and deeply embedded in linguistic and value-based traditions.

With these structural and ontological (relating to the nature of pedagogical practice) factors in mind we can now return to the topic at hand: platformed professionalities. What we are left with is a view of automation as cybernetic governance – a form of control that does not pursue human replacement, but standardization, docility, and the stultification of practice. This is more akin to the notion of *automated decision making* (ADM), described as a sociotechnical paradigm driven by ‘cascading logics’, which proceed in a cumulative fashion until they gather pace and eventually reshape entire fields of cultural production and professional practice (Andrejevic, 2020). While ADM may streamline human activity and make many tasks less onerous, it also generates new trivial tasks that demand people to coordinate effectively with a plethora of platforms and data-based administrative systems. According to OECD research from 2018 (Thomson & Hillman, 2019), teachers’ workload is increasing in most ‘developed’ countries. The international average (across

30 nations) was 38.8 hours a week, with many countries exceeding this average, for instance Japanese teachers clocking an average of 56 hours a week, and several English-speaking countries (US, Australia and England and New Zealand) sitting above 40. The average working week for Australian teachers also increased by 2.1 hours since the previous survey was conducted in 2013. The main reasons for this increase are bloated reporting requirements, having to coach students for standardized testing, and other established professional duties like planning lessons and general administration. The key point is that such tasks are already considerably hybrid, requiring multiple human-machine interactions with institutional *Learning Management Systems* (LMSs), apps, dashboards, and databases. In other words, there is already a significant amount of task automation occurring in formal educational settings, which however goes hand in hand with the growing labor demands placed upon teachers. Thus, the true horizon of automation – and its relevance in the present discussion about platformed professionalism – becomes apparent: not lights out automation, but the capture of educational practice and leadership in the name of managerial accountability.

Alongside these issues, we must examine the consequences of automation on the ‘pedagogical decision making’ routinely performed by educators. The risk here is the undermining of the educational sensemaking that emerges organically from many routinized tasks (Selwyn, 2021). As Selwyn argues, the automated educational decisions enabled by platform logics and AI often elide small acts of autonomy which may produce valuable pedagogical insights, for instance when a teacher uses the daily rollcall as a pretext for establishing rapport at the start of the day, and to ‘set the scene’ for pre-planned instructional activities. This, Selwyn contends, reflects a trend detectable throughout the empirical literature: ADM often seeks to automate “practices that operators do not consider automatic” (O’Grady, 2021, p. 238). Without dismissing that many aspects of pedagogical work could be safely offloaded onto automated systems, we ought not to forget that there are epistemological and indeed formative dimensions associated with many labor-intensive processes, which could lead to more informed and ethical educational decisions. The choice perhaps should not be between an overwhelming burden and an automated one, but between technological systems that foster pedagogical sensemaking in a context of supportive and non-exploitative labor relations, and systems that unwittingly (or worse, deliberately) thwart it. From this perspective, it may be warranted to contemplate the actual ‘professional harms’ that materialize under conditions of datafied governance, which exercises dominance over practice through a pervasive and deceptive demand for compliance through the modification of ‘choice architectures’, i.e. carefully engineered nudges which reflect a fundamentally paternalistic view of labor control (Decuyper & Hartong, 2022).

At present, the magnitude of these shifts in the labor of teachers should not be overstated, especially when education is compared to other sectors where automated decision-making is already deeply embedded. Nonetheless, there are clear signs of this trend owing to the ubiquitous involvement of digital platforms in multiple aspects of teacher performance and accountability. With the prospect of task automation and automated decision-making gathering pace, a crucial challenge for platform studies in education over the next years will be to critically examine forms of delegation that undermine personal and social accountability, exacerbating educational harms ‘downstream’, that is, at the point where the behavior of an algorithmic model (to predict, to classify, to evaluate etc.) meets real life. For example, in the context of *automated essay grading* (AEG) a teacher may delegate an assessment decision to a platform trusting it to be superior to their own performance. This may occur because they have been selectively exposed to instances of accurate functioning of that AEG, where false positives and negatives have been deliberately or unintentionally concealed; or perhaps because they have been instructed by a higher authority that the system is more accurate than a human (Bainbridge, 1983). Such misplaced trust then leads to errors with multiple harmful consequences: the teacher may omit to act or react, or they may passively follow the system’s instruction trusting it over their own pedagogical judgement. These blatant cases of algorithmic misrecognition are of course important, but ‘educational harm’ in this case should be understood more broadly as something that impacts negatively on the sphere of professional work and has subjective, moral, and epistemological ramifications. The harm, in this sense, is a diminished notion of what it means to be a responsible educator, ultimately leading to ‘worst case scenario’ where teachers have become unable to exercise judgement or even to recognize a problem beyond the purview of multiple automated systems operating synchronously and often behind the scenes.

Discussion and concluding remarks

The empirical nuance offered in this issue strongly implies that platforms and professionals are still entangled in a mutually constitutive relationship. This stance bears reasserting as the critical study of educational technology is often caught up in a narrative of totalizing surveillance that does not reflect the more compromised reality of modern education. At the same time, lest we forget that while the contextual (re-)enactments of the platform logic can be empirically rich, their conditions of possibility are still preordained and beholden to extractive and exploitative prescriptions. Examining the special issue’s case studies in retrospect, what strikes the most is the intensification and, at the same time, the fragmentation of personal responsibility – a process of subjectification which allows platforms to impose their own logics by

enacting a process of deontological structuration by means of digital governance, where educators (a broad category that increasingly includes parents and guardians) must internalize how they should act, where they should go, and who they should speak to in order to be viewed as ‘successful.’ Slowly but surely, the enactments described in the papers morph into extractive operations that seek to capture the value generated through subjective labor, as educators are locked in a state of constant readiness and coiled performativity. They become themselves quantified projects (often with actual scores) governed by digital infrastructures in the interest of value extraction through cognitive and emotional labor. This brings me to the first (of two) suggestion: the very notion professionalism – even in its most affirmative connotations – is based on the reductionist concealment of antagonistic labor relations, with educators becoming entangled in a labor-intensive process that conflates tactical performativity and genuine commitment to education, displaying allegiance to the governance structure while operating despite or even against it in many cases.

Platforms and automated decision making may never be able to fully bind the idiosyncratic nature of human agency, but they are certainly causing a cascading reduction of the decision space, curtailing the actions which are available in any given situation and reducing them to arbitrary selections that leave out alternative courses of action. The reclaiming of that decision space represents a field of biopolitical struggle where a more meaningful and humane understanding of ‘educational work’, across times and contexts (e.g., school and home) can emerge. Therefore, documenting the contextual enactments of data-based governance succeeds in rescuing agency, but it glosses over the more laborious and easily exploited aspects, that is, the human labor of ‘making sense’ of multiple platformed operations, to discover within them a semblance of subjective salience (Perrotta, Selwyn & Ewin, 2022).

The second suggestion veers toward the more ‘hopeful’ side of the argument, turning to some of the more invigorating contributions from the study of networked governance in education, whose influence can be detected in this special issue. Recent work in this space offered valuable insights into the ‘topological’ nature of modern governance, which can no longer be understood as a linear, top-down imposition of directives and regulations, but is more akin to a diffused process of strategic steering, where human and non-human actors become entangled in relational assemblages which mostly operate in the service of neoliberal agendas. This ‘networked governance’ permits the movement of ideas, people, knowledge and capital across borders, shaping imaginaries where technology is simultaneously a learning enhancer and a market enabler (Decuyper, 2021; Decuyper & Lewis, 2021). The consequences are often problematic (e.g., surveillance) but not deterministic, because networked governance displays a degree of dynamism which leaves room for active or passive resistance, or mere misalignment, producing live and dynamic shapes rather than rigid

structures: ‘patterns, flows, articulations and orderings’ (Decuypere, 2021, p. 71) which are operationalized as observable practices. A topological approach frames platformization and its attendant logics as problems but also as opportunities affording new and potentially progressive forms of local educational agency. Part and parcel of these opportunities is a view of algorithmic architectures as capable of generating novel socio-spatial arrangements ‘because they are geared to profit from uncertainty, or to output something that had not been spoken or anticipated’ (Amoore, 2020, p. 111). In the same vein, recent contributions have produced rich theoretical accounts negotiating a fragile equilibrium between structure and hybrid (human and non-human) agency. For example, Gulson, Sellar and Webb (2022) suggested that predictive methods of ‘synthetic governance’ may create ‘new, possibly unsettling, political rationalities in education based on the cooperation between human and algorithmic cognition.’ In such hybrid conditions, the locus of control moves out of the individuated mind to be repositioned in the generative milieu that exists between subject, culture, and computation (Parisi, 2013).

The key thesis to take forward and expand is that the platform logic acts as a distinct form of space-time – a set of topological (geographical and chronological) arrangements super-imposed on the pre-existing structures of formal schooling and propagating across other informal contexts. As education professionals navigate this complex ecology, they must learn to adapt and coordinate, mediating between the demands of the infrastructure and the human need to ‘make a home.’ A solid point of departure in this regard is McFarlane’s anthropological analysis of learning, not in the psychological connotation so commonplace in educational discourse, but as participation and belonging in urban infrastructures (McFarlane, 2011, p. 18): “[a] heterogeneous engineering that demands a relational materialism.”

From this perspective, learning goes beyond formal knowledge acquisition and skill development, to encompass the political and lived-in dimension of geographical and symbolic space and the dynamic ‘assembling’ of affordances, resources, materials, histories. Together, these features form a generative ‘spatial grammar’ (McFarlane, 2011, p. 9) of learning which brings into view the experiences and contestations through which modern life is produced – a ‘learning to dwell’ with others, peacefully or in conflict. Applied to the topic at hand such an expanded view of ‘learning to dwell’ offers a way forward. Ingold’s anthropology of human cognition, which inspired McFarlane’s work, is the overarching theoretical compass (Ingold, 2021). Ingold was inspired by research on the ecological nature of cognition as something that does not reside inside people’s heads but happens everywhere, unfolding in the relationship between the whole organism and the surrounding environment. Once immersed in this ecology, the mind emerges as a unified experience of consciousness and agency. The influence of Bateson’s ecology is particularly strong

here, especially its rejection of a hard boundary between human subjective experience and the world, and the related dismissal of a layer of information processing between the mind and the world, through which experience passes and is then reorganized according to perceptual and cognitive schemas (Bateson, 2000). Bateson's famous example of the blind man with a cane is still very pertinent in this regard, acting as a powerful metaphor of the ecological entanglement between human experience, technology and the environment. Where does the blind person's experience end? Perhaps where the cognitive systems are located, in the brain? Or where the body meets the cane? Perhaps this boundary can be extended even further out, where the cane interacts with the environment as an extension of the blind person's perceptual system. All answers will be unsatisfactory, as the boundary (if one must be found) is constantly shifting, not least because the person is not static but dynamically moving in the surrounding space – not as an entirely individuated agent, but as an “organism plus environment” (Bateson, 1972, p. 507). In this scenario, learning becomes a sequence of practical engagements within intersecting ecologies, where minds-in-society operate following principles of apprehension, understood as a holistic and organismic act of grasping complex phenomena, not by breaking them down in their constituent parts but by coming to terms with their incomputable nature and enfolding them within a unified – intuited – experience (Whitehead, 1967).

Against this backdrop, learning-as-dwelling can be explained as a process of fitting and retrofitting (apprehending) reality to suit shifting ontological requirements; a constitutive act of world-making that makes life as we know it possible and is not entirely human, but human-plus-environment, which of course includes technology. As Ingold (2021, p. 154) puts it “worlds are made before they are lived in; or in other words, acts of dwelling are preceded by acts of worldmaking.” In this sense, learning to dwell is a universal feature of the human (plus-environment) condition, realized in multiple intersecting ecologies which include the modern educational ecologies being redefined by platformization. However, more research is clearly needed. Indeed, the very possibility of ‘dwelling’ as a form of ontological and epistemological coordination with a digital infrastructure remains unclear. First Ingold and then McFarlane developed their ideas with largely pre-digital contexts in mind. For them, learning to dwell is an adaptive, slow, and incremental process that rests upon not centuries but millennia of sedimented knowledge, manifesting as heterogenous and improvised cultural practice. The extent to which this applies to modern platformed education remains an open question. After all, digital infrastructures are not only topologies, but also meteorologies. They are certainly space-times but are also the air, the temperature and light in which we increasingly live. The recent vernacular popularity of the term ‘gaslighting’ comes to mind, as a strategy of ambient manipulation in which it is not much the space that changes but subtle environmental

aspects, which are modulated to steer behaviors and feelings towards specific outcomes.

In conclusion, the final (modest) proposal I wish to offer to the study of platformed educational professionalities – one which I believe is aligned with the broader assumptions that informed this special issue – is to pay attention to forms of local dwelling which reflect the almost atavistic need to ‘make a home.’ Learning to dwell in platformed educational ecosystems means engaging in individual and collective tactical enactments, often to find a ‘good enough’ rather than optimal degree of coordination with infrastructures and their messy retinue of actors and sociotechnical arrangements: assessment regimes, datafication, curriculum contraction, international benchmarks, predictive modelling, marketisation and privatization, and so forth. It manifests in daily routines, shortcuts, habitual movements, and deliberately disruptive omissions – the idiosyncratic actions that make life under increasingly oppressive and surveilling conditions bearable.

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