

A day in the (datafied) life

Digital education platforms, commercial infrastructures, and the (im)possibilities of disconnection

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ABSTRACT

In classrooms, schools, and homes around the globe, digital education platforms are becoming increasingly vital partners in preparing, conducting, monitoring, and evaluating formal educational encounters. In Denmark, the swift and extensive efforts to digitalise educational practices, institutional administration, and other aspects of schooling have availed a series of questions pertaining to the material and micro-political effects of imbricating public education with commercial digital infrastructures that operate beyond the auspices of democratic control. This chapter combines thick descriptions of school life with (big) data on user tracking to unravel a day in the life of teachers and students intertwined in the digital economies of commercial platforms and datafication. Weaving together accounts of the (datafied) school lives of two individuals – a teacher and a student in Denmark – with visualisations of data flowing from individual and collective devices to platform owners and third-party corporations, we discuss the implications of an unchecked, continuous, and increasing influx of digital education platforms in public primary education as well as the (im)possibilities of disconnecting from the hyperconnected school.

KEYWORDS: education, datafication, data infrastructures, digital platforms, welfare state, tracking

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Introduction

In classrooms, schools, and homes around the globe, digital education platforms are becoming increasingly crucial partners in preparing, conducting, monitoring, and evaluating formal educational encounters (Cone, 2023a; Decuyper et al., 2021; Kerssens & Dijck, 2021). Anchored in a global ecosystem of apps, websites, and other software available at little or no monetary charge, the expansive growth in access to the Internet and personal hardware has made it difficult to imagine life in the wealthiest education systems without the involvement of Workspace, Class Dojo, Evernote, Padlet, and Facebook. The extent of this infrastructural dependency became clear to many during the Covid-19 pandemic. As schools were shut down and students and teachers sent home to prevent further spread of the virus, local and global tech companies lined up to keep the wheels of teaching and learning turning, hereby opening a profitable pathway to a future of schooling that explodes the traditional boundaries between school and home (Cone et al., 2021).

The swift and largely unregulated platformisation of teaching and learning processes introduces a variety of issues in relation to the formal responsibilities of the school as an enactment of digital educational forms. These issues are especially salient in school systems marked by high degrees of local autonomy and democratic accountability (Telhaug et al., 2006). As still more aspects of teaching and learning are untethered from cords, buildings, and fixed hours, school administrations and practitioners are frequently left to themselves with challenges of navigating the murky waters of the digital data economy (Bergviken Rensfeldt et al., 2018; Lupton, 2021; Perrotta et al., 2021). While transnational actors, governments, and municipalities have recently gotten increasingly involved in problematising digital technologies in education – a tendency seen in political discussions revolving around limiting or banning the use of digital devices in schools in Denmark and elsewhere – most involvements of platforms in formal education remain bound to what the OECD (2014: 3) describes as a “‘wild west’ of commercial practice”.

In effect, a horde of commercial apps and websites are entering the everyday lives of teachers and students beyond the confines of formal education policies or regulations (Pangrazio et al., 2022). Although some of these were developed for educational purposes, the majority were not. And although some offer a premium or paid version, many are free-to-use platforms that sustain themselves through the dominant business model of the commercial Internet: harvesting and reselling user data (Lai et al., 2023). Taken together, the *de facto* responsibility often falls on teachers, students, school leaders, and parents to control and grapple with the implications of a data economy that they have little chance of, or resources for, understanding. We close our eyes, press “accept all cookies”, and hope for the best.

In this chapter, we combine thick descriptions of (datafied) school life with (big) data on user tracking to unravel a day in the life of two individuals –

a teacher and a student in Denmark – intertwined in the digital economies of commercial datafication (Mayer-Schönberger & Cukier, 2013; Mejias & Couldry, 2019; van Dijck, 2014). Introducing infrastructural and political economist perspectives to the lived experiences of a hyperconnected school, the chapter weaves together ethnographic accounts of school life with visualisations of data flowing from individual and collective devices to platform owners and third-party corporations throughout the day. In doing so, it addresses a predominant emphasis in existing studies where “most research to date has focused excessively on user practices and experiences of disconnection, rather than on the technical, economic and political infrastructures that shape the (im)possibilities of opting out” (Kuntsman & Miyake, 2022: 3). That is, the (im)possibility of disconnecting is not just a social and personal problem, but also an infrastructural challenge, in the sense that the recent efforts to digitalise education in Denmark and many other spaces is intricately tied to commercial data infrastructures and underlying business logics emerging through the entanglement of public governance and big technology companies. Our analyses thereby provide a foundation for questioning the structural implications of the everyday practices of teachers and students in a political and economic environment where connection, rather than disconnection, is key. Finally, the empirical material serves as a backdrop for discussing, throughout the chapter, the challenges that arise from an unchecked and ad hoc influx of commercial digital platforms in public primary education.

Digitalised welfare: Schools and the public teacher

In recent decades, Danish government agencies have invested heavily in digital infrastructures to increase the efficiency and connectivity of the public sector. The Danish public school system, which serves approximately 540,000 children aged six to fifteen, has not escaped this trend. Lodged in reformatory ambitions up through the 2000s and 2010s to “make digital teaching and learning an integral part of all relevant activities in school” (Danish Government et al., 2013: 16), the introduction of digital technologies has been conceived as a pivotal part of modernising the public school.¹ Invoking the promises of digital technologies to enhance student motivation and individualise teaching and learning processes, these shifts are particularly salient in a tradition of liberal-democratic schooling where the practices, content, and purposes of schooling are closely tied to the teacher as an organic and reflective intellectual (Larsen et al., 2021). By propagating the ability of digital technologies to “continuously monitor the child’s learning, progression in different subjects, and well-being” (Danish Ministry of Education, 2014: 1), a growing body of digital platforms have emerged as a purportedly necessary requirement for breaking open the classroom door to a data-rich future of efficient – and economically feasible – teaching and learning (Flyverbom, 2019; Knox et al., 2020).

As a corollary, the Danish state and local government agencies have played a highly proactive role in promoting the “potentials of digital technologies to make welfare more efficient and cost-effective” (Danish Government et al., 2013: 3). Looking across the last decade, these attempts have resulted in a broad ecosystem of digital platforms that include small Danish start-ups, global tech corporations, and education publishing houses that have overlaid their contents with an intermediary website (Balslev, 2020; Ratner et al., 2019). While the largest actors in this ecosystem² are contracted through municipal subscriptions, recent surveys suggest that many of the platforms presently involved in the day-to-day school activities of teachers and students are used on an ad hoc basis outside of formal municipal agreements (The Danish Ministry of Education, 2021). Anchored in mobile applications and desktop websites that are often available at no monetary cost, the relative (if diminished) autonomy of teachers and widespread accessibility of digital platforms mean that the extent of the actual involvement of platforms in everyday schooling is largely unknown – and critically underexamined. While scholars in education have begun exploring how global tech companies are enrolled in the production of educational imaginaries and ontologies (Ideland, 2020; Sims, 2017; Williamson, 2017), the ad hoc nature of digitalisation as a phenomenon enacted across the distributed agencies of everyday life makes it challenging to recognise exactly when and how platforms are endorsed as educational, and how these enactments legitimise and potentially conceal the commercial interests at stake (Bucher, 2018; Pangrazio et al., 2022). By combining ethnographic fieldwork with (big) data on user tracking, in this chapter we hope to elicit some of these problematic entanglements.

(Dis)entangling the datafied school

The discussions in this chapter are based on a merging of empirical material on data infrastructures infiltrated in the digital school, on the one hand, and lived experiences of the same, on the other. As such, we draw on ethnographic methods like participant observations and semi-structured interviews as well as reverse-engineering of datafication processes through scraping of the fundamental infrastructures for data distributions and their ownership structures. This mixing of methods – combining (big) data and thick descriptions (Bornakke & Due, 2018) – serves as a foundation for revealing power asymmetries at the micro level of student–teacher relationships, the meso level of schools and other digitalised public institutions, and the macro level of the welfare state system and its waltz with global platforms. Against a backdrop of qualitative and quantitative ways of studying the digital and datafied school, our discussions problematise the entangled ecosystem of connectedness that individual teachers and students navigate daily in Denmark and elsewhere.

Specifically, the ethnographic accounts of a day in the life of a teacher and a student are based on a four-month long period of fieldwork in a Danish public

primary school in 2019 and 2020 focusing on the use of digital technologies, conducted by Lucas Cone (2023b). Drawing on interviews, audio recordings, observations, and teacher and student diaries, the accounts offer a dramatised illustration of the use of digital technologies as they are involved in the daily lives of one teacher and one student: Evy, an arts and crafts teacher, and Aisha, a fourth-grade student. The dramatisation of episodes from Evy's and Aisha's lives through fieldnotes, diaries, and other forms of empirical material provides a methodological pathway to draw forth how and when technologies are involved in everyday acts of teaching and learning within and outside schools (Braidotti, 2018; Pink et al., 2022).

The visual mappings of data flows are, in turn, based on scraping of the infrastructures for tracking and profiting from user data that are embedded in the ethnographic accounts: For apps on Apple and Android devices, we look at 1) the kinds of data harvested by the apps – for instance, through the app accessing the phone's microphone and recording sound or by tracking the phone's location through GPS coordinates – and 2) the third-party services that are built into the same apps with the capacity to access user data for the purpose of optimising the app, selling ads, building profiles, targeting users, and so forth (for a thorough walk-through of the methods, see Lai & Flensburg, 2020). For websites accessed through desktop devices, we also look at third-party services, in this case through small scripts commonly known as web cookies (see Helles et al., 2020; Libert, 2015). Taken together, these sources allow us to uncover otherwise black-boxed and invisible data infrastructures through mappings of what kinds of data travel to how many and which actors and platforms – including but not limited to the immediate interface that meets the teacher and her student. Moreover, the mappings of data flows are not limited to any one device, nor do they focus on particular platforms, but rather traverse the many technologies and platforms involved in a normal school day.

As a common denominator, the empirical data is structured according to a day in the life of a teacher and student (see, e.g., Thorhauge & Lomborg, 2016). That is, the temporal aspects of a school day – getting up, commuting, being physically present “at school”, and so forth – structure both the ethnographic accounts and the data flows. Focusing on the temporal aspects of digitalisation allows us to highlight when different platforms and hardware are enrolled throughout the day with important implications for datafication processes and commercial practices. In other words, while the data flows target questions surrounding what data and what actors, the ethnographic accounts draw forth the micro-political processes through which certain forms of powerful connectivity are enacted as part of data travelling to and from different actors in the midst of pedagogical and parental relations (Bucher, 2018).

By shedding light on these processes, the chapter contributes to recent discussions surrounding connection to and disconnection from digital platforms and services (Bucher, 2020; Treré et al., 2020) through a material

approach to studying the relationship between infrastructures and individuals. After presenting three empirical sections focusing on a day in the life of, respectively, Evy the teacher and Aisha the student, we discuss the value of this approach in relation to bridging the gap between political economist studies of digital infrastructures, on the one hand (e.g., Lai & Flensburg, 2021; Nieborg, 2016; Winseck, 2019), and the field of digital disconnection, on the other (e.g., Lomborg & Ytre-Arne, 2021; Moe & Madsen, 2021; Syvertsen & Enli, 2020). In other words, we consider how the approach can contribute to efforts at understanding and monitoring the ways data infrastructures tie into the everyday lives of individuals and thereby ground future regulatory initiatives or digital public infrastructure projects.

07:05 – The uncontained school

Evy, an arts and crafts teacher employed at a public primary school in the vicinity of Copenhagen, Denmark, is putting a final touch on today's first lesson, scheduled to begin in little more than an hour. For the past couple of weeks, the fourth graders at her school have been creating digital posters about different European countries; today, the plan is to draw maps of their respective countries and place them on their posters. Evy logs in to her Pinterest account using her MacBook and browses through a couple of her favourite arts and crafts pages looking for inspiration. Meanwhile, she pulls up her iPhone to make a post on the school's communication platform, Aula, reminding the students in class 4A to look at maps of the country they are working with. Evy continues to browse through Pinterest before stumbling upon a map of Germany drawn with charcoal, which she copies into a note in Evernote labelled "inspiration for country posters, fourth grade".

Around the same time, the fourth-grade student Aisha is finishing breakfast and getting ready to leave for school with her little brother Osman. While she waits for her brother, she takes her Samsung Galaxy phone out of her back pocket and swipes open a picture just posted by Amira in a Snapchat group called "4A forever". Aisha snaps a picture of her face from below and sends it to the group, writing "tired" across her forehead. Still waiting, she uses her fingerprint to open Aula, the dedicated intranet for her school, looking for any new notifications concerning today's schedule: math in the first lesson, arts and crafts in the second, natural sciences and physical education after lunch. Clicking on the bulletin board function, Aisha opens a message just posted by Evy reminding the class to look at maps of the countries they are making posters of in arts and crafts.

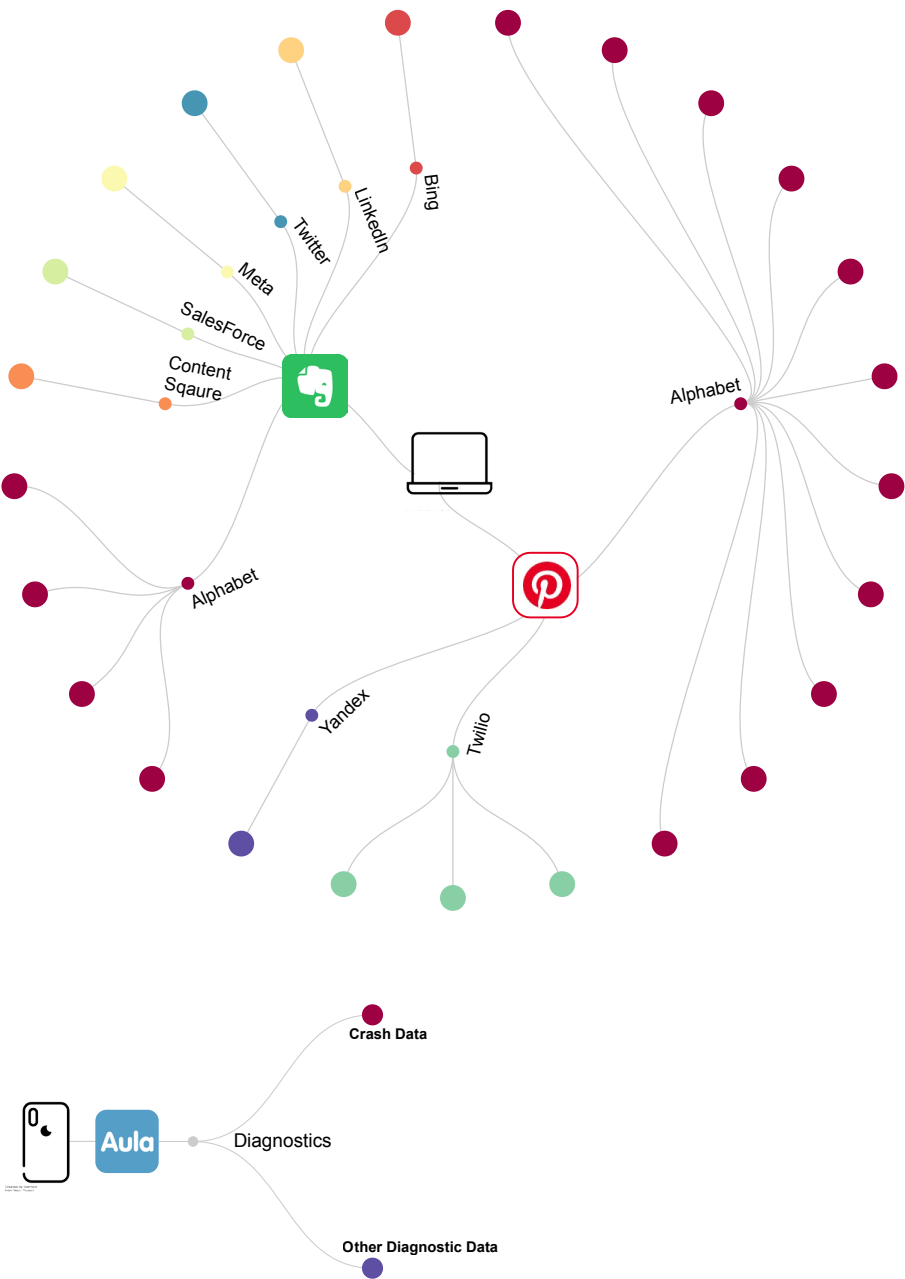
Partly a result of most people's own educational experiences, schools are often imagined as geographically and temporally isolated spaces (Lefebvre, 1991). Following what many of us have learned on the back of "sixteen continuous years of contact with teachers and professors" (Lortie, 1975: 61), dominant discourses surrounding schools are often closely tied to our own apprenticeships in observation: School is something that begins and ends in a building, and teaching is a form of labour that takes place in classrooms, hallways, and faculty lounges. Drawing on the personal accounts of Evy and Aisha, the vignette above illustrates the difficulties of maintaining such ontological boundaries in a profoundly distributed, mobile, and hyperconnected space of formal education. Aided by the affordances (Hutchby, 2001) of digital technologies, Evy and Aisha's involvement in the enactment of schooling are already well under way long before they show up at the school premises. In Evy's case, this enactment unfolds through the use of Pinterest and Evernote for exploring and organising inspiring images online for her lesson later that day, and the communication platform Aula to post a reminder to the students in her class; in Aisha's case, it unfolds through the social media application Snapchat, where she engages with her classmates through a class chat, and Aula, for reading her teacher's post concerning the day's lesson.

The lapse of conventional educational contexts highlighted above is not restricted to the interaction between teachers, students, and the content of lessons. As different platforms such as Pinterest and Snapchat become involved in the enactment of schooling, so too are a wide range of actors and commercial interests that shatter the regulatory capacities and organisation of the school as a bounded organisation under the auspices of the sovereign state. Using the examples drawn forth in the episode above, Figure 14.1a demonstrates how many teachers' and students' proliferating uses of commercial digital platforms involves data infrastructures that far exceed what is normally conceived as the "boundaries" (or regions) of public education. Specifically, the figure illustrates the data flows prompted by Evy's morning routine: At the centre it shows Evy's devices – an iPhone and a MacBook. Surrounding the devices are the various platforms used as part of either communicating with her students about the day's class (the Aula app) or preparing her teaching (the Evernote and Pinterest websites). And finally, it shows the kinds of access to harvest data that the app requests (diagnostics data), the third-party corporations accessing data from the websites, and the number of third-party services or trackers they have for each site (e.g., the Twilio company has three different third-party services on Pinterest). The figure also highlights how websites can use different strategies for cooperating with third-party companies: Whereas Pinterest collaborates with just a few (Alphabet in the US and Yandex in Russia), Evernote has many data partners (including US-based Meta and Bing). As a common denominator, none of these global corporations and their platforms and services were built

for educational purposes, and their businesses do not fall under the jurisdiction of public education policy.

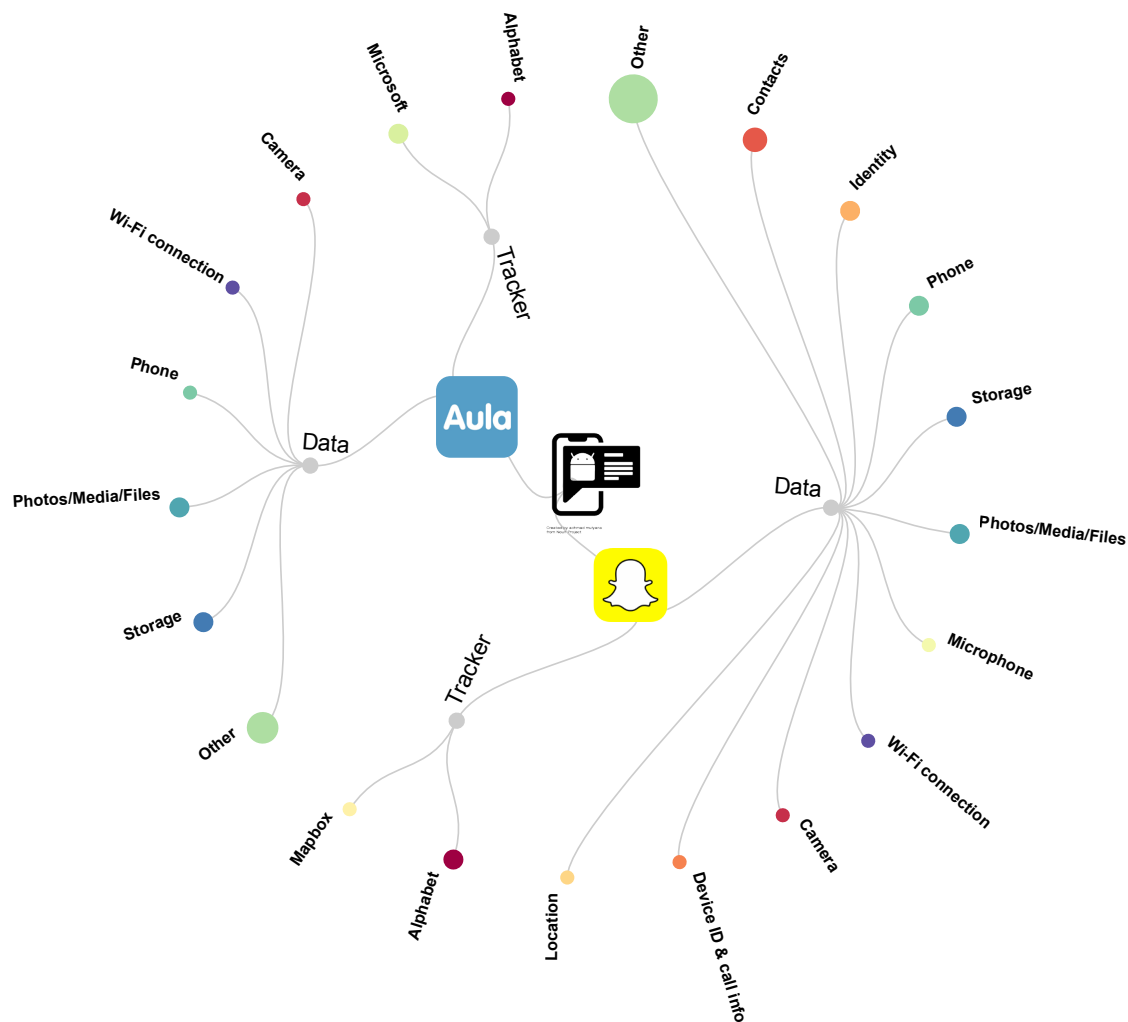
Figure 14.1b, in turn, focuses on Aisha's data flows anchored in her use of the Samsung Galaxy phone. The figure displays Aisha's device at the centre, the apps she uses (Aula and SnapChat), and, for each app, the third-party corporations tying into the specific app (e.g., Microsoft, Mapbox), as well as the kinds of access to data requested by the app (e.g., access to the phone's contacts). Comparing Figures 14.1a and 14.1b, we see that Aula requests several types of access to personal user data on Aisha's phone (through its camera or its storage of media files, such as photos and videos), which it did not on Evy's iPhone. This hints at fundamental differences between the Android operating system (running on Aisha's phone) and iOS (running on Evy's) when it comes to user privacy, in general, as well as restrictions upon app developers and third-party corporations for accessing user data (see Lai et al., 2023). In other words, Evy and Aisha are, as a consequence of the devices they carry, not equals when it comes to the kinds of data that might be harvested about them through their uses of various platforms for formal educational purposes on their personal devices (see also Kollnig, Shuba, Binns, et al., 2022; Kollnig, Shuba, Van Kleek, et al., 2022). In addition, the illustration emphasises a myriad of data points (including location, microphone, device ID, and call information) that have never been part of the otherwise highly datafied educational system (think of grading systems, scores for participation, tests, etc.). As such, these data points do not come under established schemes for handling and protecting information about students (and their teachers), but rather pertain to the terms of services formulated by the commercial corporations that ultimately handle and control them.

FIGURE 14.1A Morning routine of Evy the teacher



Comments: The above figure shows Evy's devices – an iPhone and a MacBook – and the platforms she accesses through them: Pinterest and Evernote. For the apps used on the iPhone, it shows the kinds of data harvested through the apps and for the MacBook, it shows the third-party corporations harvesting data from the website.

FIGURE 14.1B Morning routine of Aisha the student



Comments: The above figure shows Aisha's device – an Android phone – and the platforms she accesses through it: Aula and Snapchat. For each app, it shows 1) the kinds of data harvested through them (e.g., data on "Identity" through Snapchat or data on "Photos/Media/Files" through Aula), and 2) the third-party corporations beyond the app owner accessing the user data (e.g., Microsoft).

As intimated in the episode and the data flows depicted above, the availability and diffusion of platforms in the daily lives of Evy and Aisha make it difficult to sustain any conventional boundaries between the home as a private, and the school as a public (and politically regulated), structure of relationality and authority. In the next vignette, we follow Evy and Aisha into the school to highlight how the distributed economic infrastructure for digital schooling is enacted within the classroom.

11:00 – Flooded by platforms

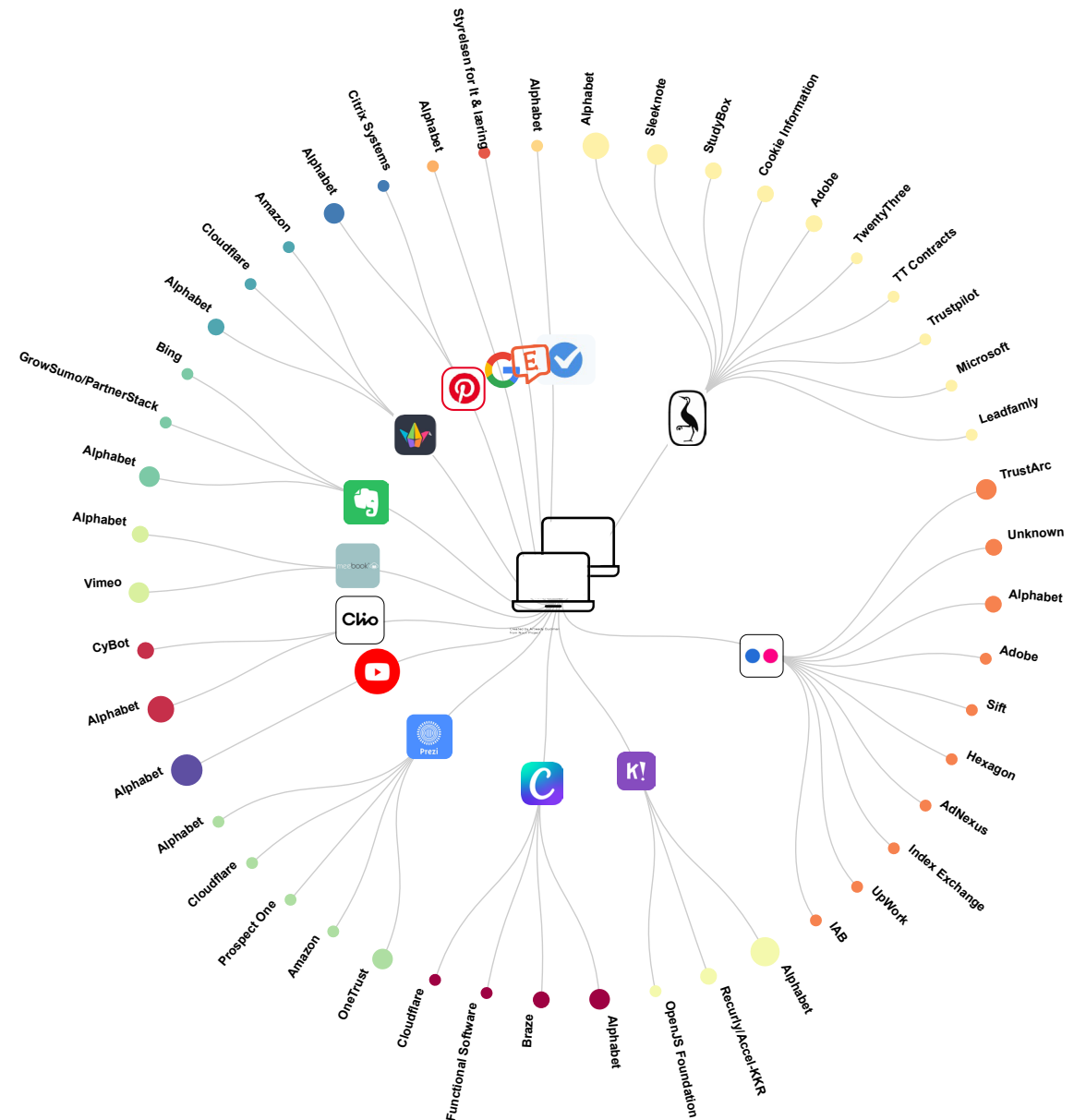
The electronic school bell rings: It's time for the next class. Aisha and two of her friends walk back to their classrooms where they have dumped their phones into a box standing on the table next to the whiteboard; all but two students in class 4A have smartphones. As the students enter the class, Evy asks how they are doing. She turns on the digital whiteboard as the remaining students find their seats. A Meebook page appears titled "Posters", showing an overview of the entire poster lesson. "Today we'll be drawing maps of your countries and adding them to your posters, okay?" Evy presents the exercise and asks Aisha and another student to come with her to pick up computers in the safe located down the hallway. They return after a couple of minutes with 17 Lenovo laptops which they distribute to the class. A couple of minutes later, they have all logged in to Google Classroom and opened Canva, a graphic design application where the students are creating their posters.

Aisha searches Google for a map of Croatia and drags it onto the desktop. After opening a separate window with the map, she begins drawing an outline of the country using the computer's mousepad. "Try using some of the different types of markers in Canva", Evy instructs and shows an example of Germany drawn with charcoal. "You can do all sorts of cool things". Almost finished with her map, Aisha asks Evy what to do next. Evy comes over to Aisha and looks at her screen. "When you're done drawing your map you can add pictures of typical Croatian food". Evy raises her head and continues, this time addressing the entire class. "Before we meet again tomorrow for our poster presentations, I also want you to go home tonight and find a music video from your country. You can use YouTube, just ask your parents to help you. I'll make sure they know about it".

Aisha and her classmates are making posters about different countries around the world, seemingly a simple task, which would once have been carried out using cardboard, markers, scissors, and glue. Today, aided by the affordances of digital technologies, there is no longer a need for sticky materials. Scenic images are just a search away on Google, music and videos shared by others around the world can be found on YouTube, while graphical tools provided by design platforms like Canva make gluing one's fingers together in the effort to create striking artworks an unnecessary nuisance of the past.

The episode stresses how a basic educational activity is flooded by commercial actors, through the platforms they offer as well as the promises of their many uses. Drawing on the ethnographic episode, Figure 14.2 collapses Evy and Aisha's data flows as they find themselves in the same physical location of the school, doing activities through the same platforms, and from dedicated school computers. Like the previous figures, it shows the student's and teacher's devices at the centre, the multitude of platforms that were involved in the episode from which the vignette above originates, and finally the many third-party corporations that harvest data from the sites, sized according to the number of trackers they have installed.

FIGURE 14.2 Evy's and Aisha's data flows inside the classroom



Comments: The figure shows the shared platforms that both Evy and Aisha access as part of the arts and crafts lesson that Evy teaches to Aisha's fourth-grade class and the third-party corporations whose third-party services are integrated into the websites in question. Each third-party is sized according to the number of services they integrate into the site.

The illustration highlights comparative differences between the platforms where, for instance, the global photo sharing database Flickr and the presentation platform Prezi collaborate with several commercial actors for their data infrastructures, whereas platforms like Meebook and Clio, developed by Danish actors, collaborate with less. Unlike Flickr and Prezi, Meebook and Clio were established for educational purposes and, moreover, their national origin means that the parent companies operate more closely under Danish and European regulatory frameworks regarding, for instance, general data protection in and outside the school system. The mixing of these various platforms in the context of just one lesson is a testament to the many options that exist (only the imagination of the teacher sets the limit), the absence of guidelines for educators navigating the forest of digital offers, as well as the lack of official tools for many of the tasks that are now carried out online as part of formal schooling.

Considering aspects of digital welfare in Danish education, the commercial imbrications shown above illuminate the challenges of combining public teacher authority with the operations of private infrastructures working through data capture and commercialisation. To be sure, there is nothing strange in Evy's suggestion toward the end of the episode that the students ask their parents for help completing a task for the following lesson: in this case, finding a music video on YouTube. What matters here is rather the extent to which a "formal" suggestion for homework anchored in a publicly employed profession ends up serving as a pathway for embedding fourth graders in the intricate web of YouTube's, and thereby its parent company Alphabet's, digital ecosystem once they return home. Moreover, longstanding efforts from the public school system to ensure equality in educational offers are tested when the students' ability to carry out homework relies on the existence and quality of personal digital devices within the home as well as the proficiency of the parents to navigate the myriad of platforms used simultaneously for homework and a wealth of other non-educational purposes (YouTube is a good example of just that).

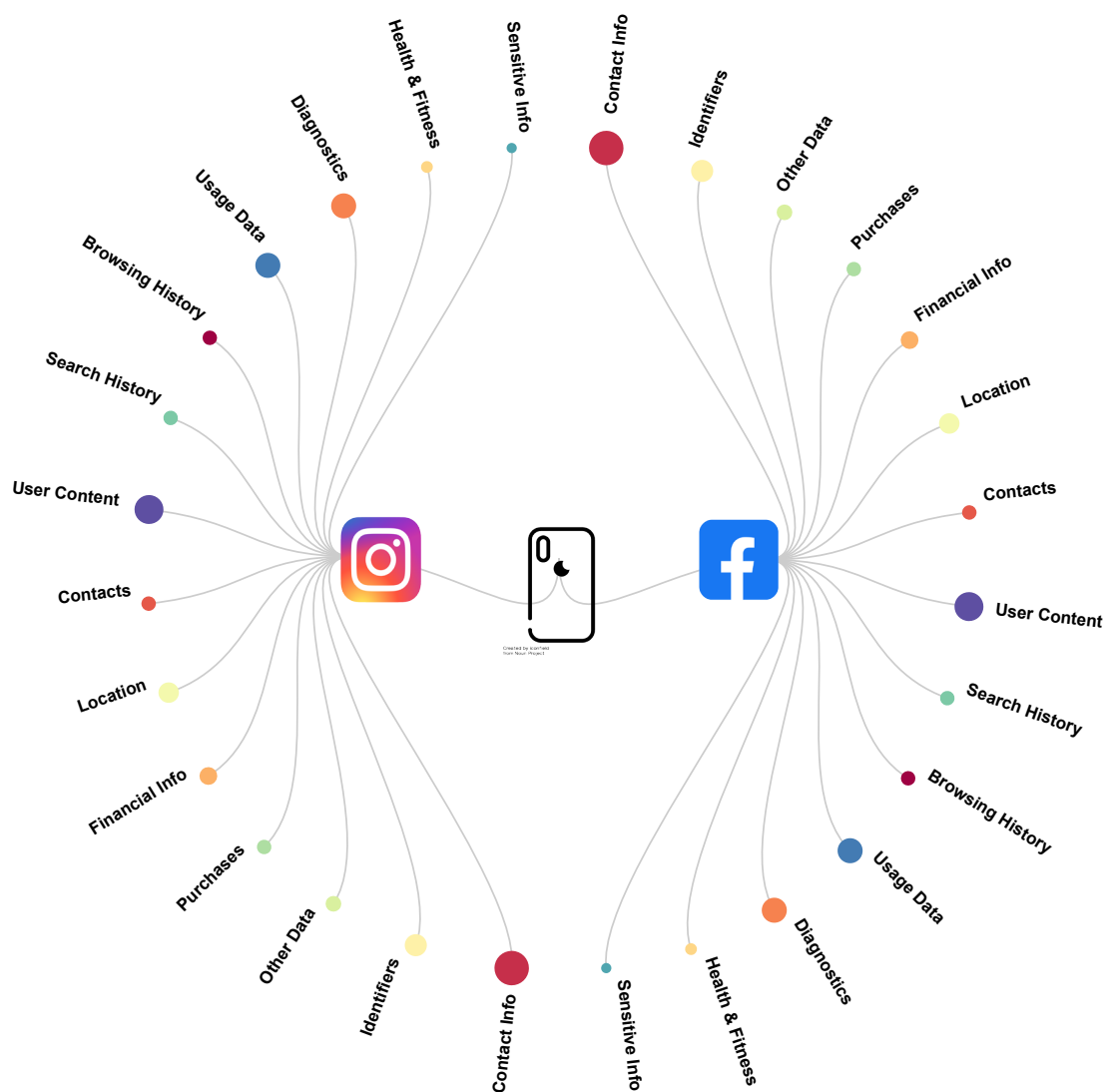
19:35 – Old power asymmetries and new inequalities

Back in her apartment, Evy is scrolling through a Facebook page for arts and crafts teachers in Denmark to find inspiration for organising tomorrow's poster presentations, when a notification appears on her screen: She has a new comment on the Instagram post of a student sculpture she uploaded last week, displaying a one-eyed papier-mâché face put together by a student in one of her classes. "When your student might as well be a professional artist", says the post, which has 130 likes. Evy glances at the comment written by an arts and crafts teacher in England: "Did they use a model or was it just based on imagination?" "Inspiration!" she replies, followed by a heart-shaped emoticon.

A couple of kilometres away, Aisha and her mother are looking for Croatian music videos on YouTube, using Aisha's Samsung Galaxy phone. "How about this one?" Aisha asks, pointing at a video titled "Croatian Traditional Music". Following Evy's instructions posted in Aula earlier that day, Aisha's mother helps her copy the link and post it in the class group. Aisha's mother asks if she has any other homework; they have a small test in English tomorrow. "Just 15 minutes on DuoLingo [an app for training English-language skills] and then you can watch Netflix, okay?" Aisha jumps back onto the couch and launches DuoLingo. "Okay", she says, "but only 15".

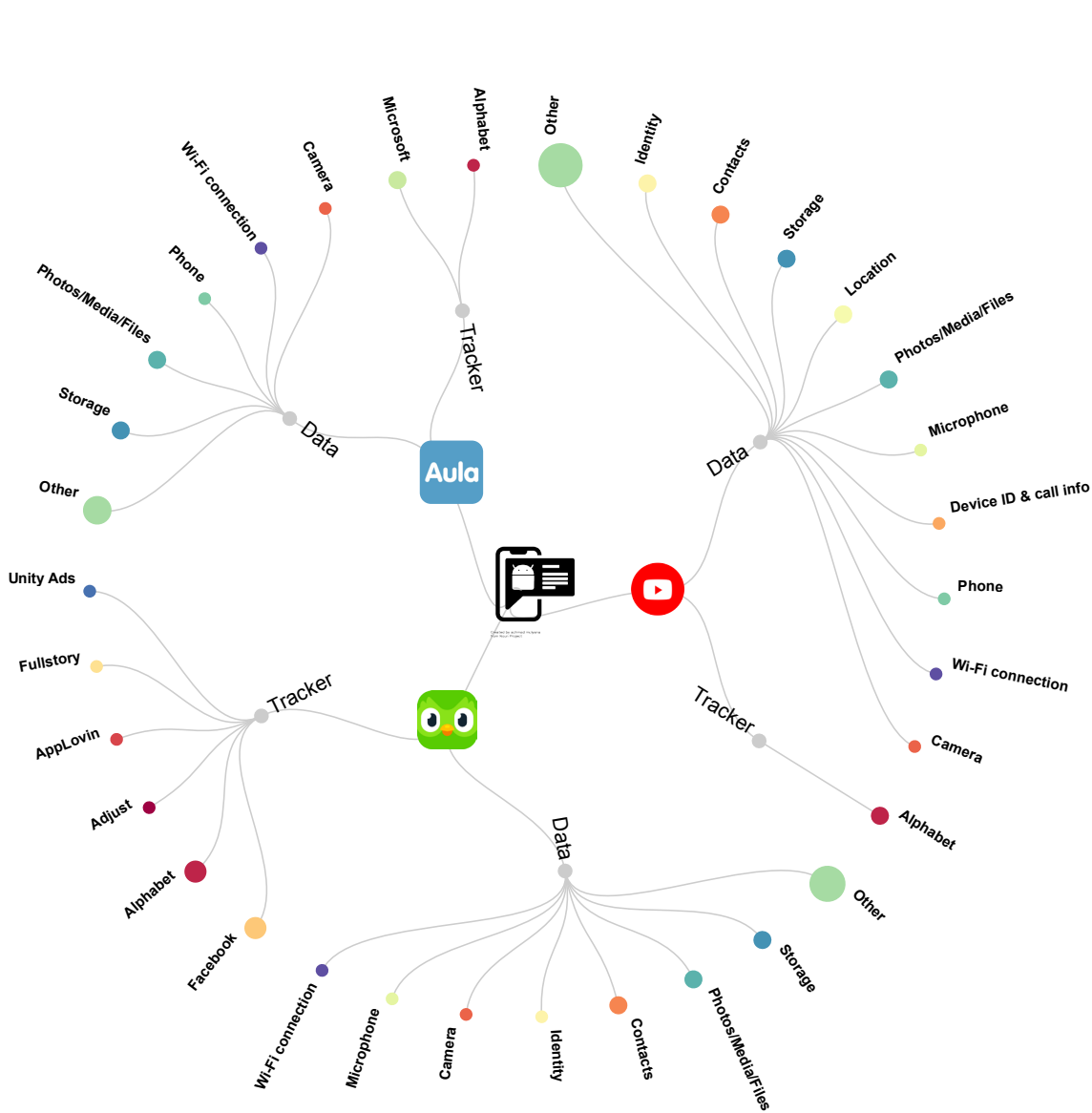
Detached from time and space, Evy and Aisha's involvement in the activities of schooling continue long after the school day officially ends, aided by the affordances of digital technologies and platforms. For some teachers, evenings are when there is room for preparing the next day's class or, as in the case of Evy, scouting inspiration and collecting recognition from peers for all the work put into creating stimulating classes (Cone, 2022). For some students, evenings are spent completing homework assigned by the teachers and browsing the Internet, chatting with friends from school, and spending time on social media platforms. The shift in space – from the context of the school back to that of the home – also often entails a shift in technologies: The educational content travels from dedicated school devices like laptops and tablets to personal ones like smartphones. These shifts are evident in Figure 14.3, which once again splits into two – one for Evy's evening and one for Aisha's, as outlined in the episode above – where the data flows of both Figure 14.3a and 14.3b begin from the personal smartphones rather than dedicated school devices. Our discussions so far have hinted at various critical issues arising at the intersection of these contextual and technological shifts and the underlying commercial data infrastructures supporting schoolwork. These shifts translate into four challenges that we wish to highlight based on the episodes and figures presented in the chapter.

FIGURE 14.3A Evy the teacher's data flow back at home



Comments: The above figure shows Evy's device at the centre, the platforms she uses, and the kinds of data they collect when returning home from school in the evening.

FIGURE 14.3B Aisha the student’s data flow back at home



Comments: The above figure shows Aisha’s device at the centre, the platforms she uses, and the kinds of data they collect as well as the third-party corporations accessing the data, when she returns home from school in the evening.

First, when students are assigned homework via platforms like Duolingo or YouTube, the teacher functions both a gatekeeper (for the platforms to reach new users in the form of students, they must first come through the teacher), as well as a politically sanctioned authority (representatives of what is expected of the students from the school). Yet, as the episodes demonstrate, teachers are rarely provided with the necessary knowledge and tools to navigate the “wild west” of commercial digital platforms, nor are they able to gatekeep – or protect – the students (and their data), just as little as the students can grasp the implications of engaging one platform or another on their personal digital devices.

Second, and relatedly, building a data profile of the users of a school computer that shifts hands all day only to return to a locked cabinet is a difficult task (unless the students log in to various systems making identification somewhat simpler). It is, however, much easier to know the user of a personal device that is already identified through the device ID card and a serial number. The kinds of user data that might be gleaned off a school computer is limited compared with the data stored on a personal mobile device that is always with the person who owns it. While the school computer might not have any commercially interesting location stamps, no personal photos, or contact lists, the personal device has all of that and more, which is accessed through, for instance, the platforms that Evy and Aisha use in the evening (see Figures 14.3a and 14.3b). In other words, the many data points visualised in the previous figures are much more critical for user privacy when preparing for classes or doing digital homework outside the physical confines of the school and its dedicated devices (if such devices are available).

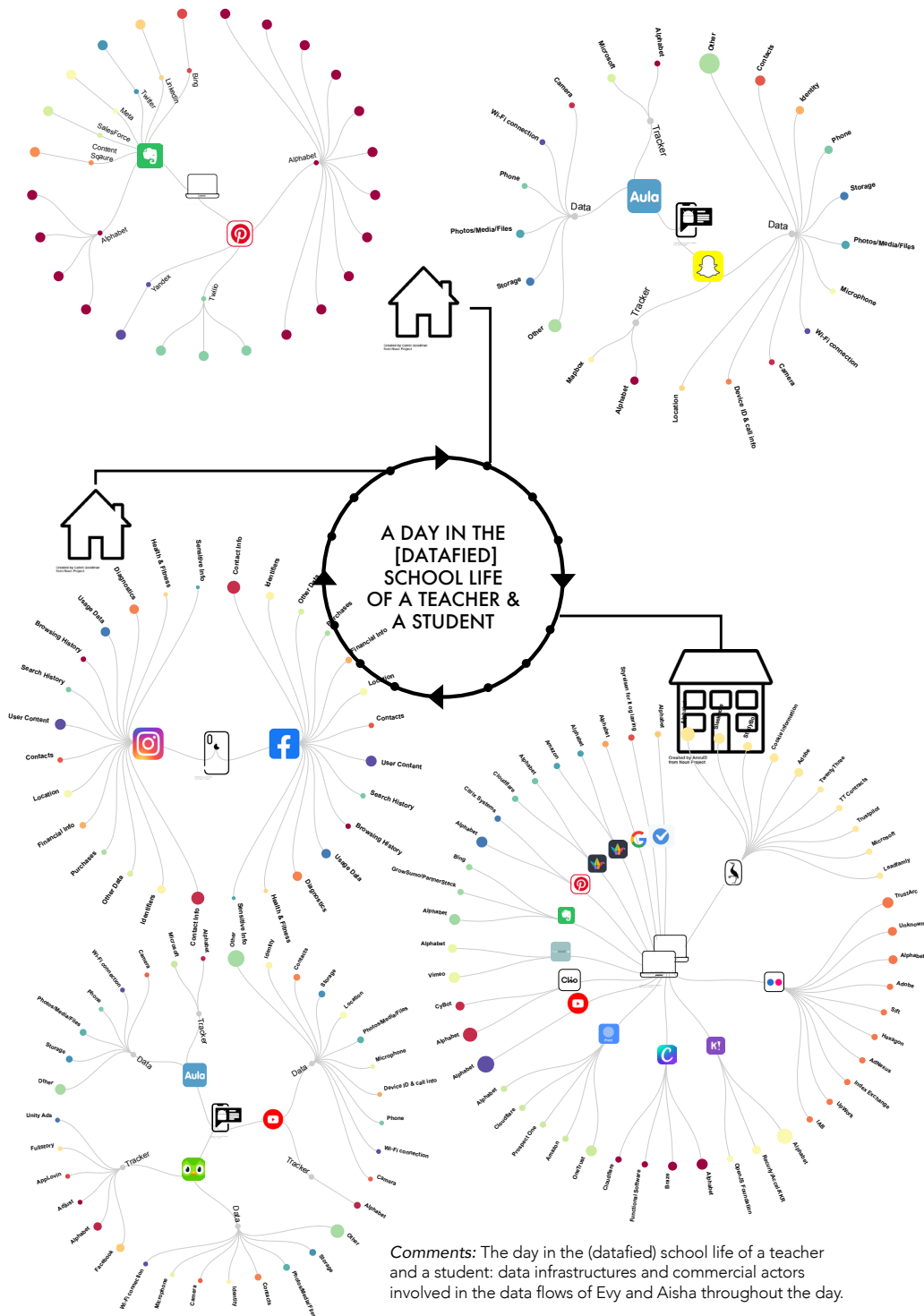
Third, as exemplified in the analysis of the Aula app across devices and operating systems, it matters what kind of device the students (re)turn to once formal lessons are over. Again, the implications in terms of data harvesting and reselling on the part of global third-party corporations trading in what is best described as “human futures” (Zuboff, 2019) are opaque and inaccessible to teachers and students alike. Yet, in Denmark and elsewhere, the differences in pricing between one and the other device are mirrored in differences between users, which in turn leads to new (data) inequalities between those with more, or less, financial means and more, or less, “leaky” devices.

Fourth, as targeted advertisement hinges on logics of profiling users and curating content, the harvested data are returned to the teachers and the students in unrecognisable and alienating formats (Andrejevic, 2011) – both inside and outside of school. As a corollary, existing social differences between targeted users are exacerbated by the serving of content and ads that the users are expected to pay attention to. As such, the commercial rationales of many digital platforms contradict established ideas surrounding the public school system as targeting social inequalities by offering equal educational opportunities.

Concluding discussion: A day in the datafied life

By engaging in a mixed-method process of “interpreting beyond the appearance of solidity” (Lefebvre, 1991: 92), our chapter demonstrates how the daily lives of teachers and students in a Danish public school have become saturated with commercial digital platforms that challenge central ideals underlying welfare state education: the protection of students from market interests (Andreassen et al., 2021). The chapter has contributed to recent discussions surrounding the (im)possibilities of disconnecting from digital platforms and services by introducing a material approach to the relationship between individuals and infrastructures, thereby also bridging the gap between political economist studies of digital infrastructures, on the one hand, and the field of digital disconnection, on the other (Kuntsman & Miyake, 2022). The day-in-the-life approach adds, moreover, a holistic, ecological, cross-platform and cross-device approach that contrasts most studies focusing on one physical context (e.g., the school), one platform (e.g., Google Workspace), or one device (e.g., desktop computers), as epitomised by the combination of data visualisations in Figure 14.4. And finally, the empirical foundations for the discussions of the chapter answer recent calls from within the field of critical data studies as well as critical educational sociology for empirical studies that “underpin and flesh out” (Kitchin & Lauriault, 2014) consistent critiques of datafication across various spheres of life – in this case, a public primary school.

FIGURE 14.4 A day in the datafied life



Our analyses in this chapter emphasise the need for 1) an increase in monitoring of when and how commercial platforms are used and legitimised in the day-to-day enactments of public primary education, and 2) regulatory initiatives or digital public infrastructure projects that can address infrastructural weaknesses and vulnerabilities, and hereby enhance public debate as well as professional responsibility. That is, the school system has historically valued high degrees of teacher autonomy and student agency (Telhaug et al., 2006), while the welfare system has focused extensively on protecting children from commercial influence and branding. From this perspective, it is paradoxical that the relative autonomy to choose and access free digital platforms has left municipalities, regions, or even, as of now, the government largely unable to monitor and regulate the extent of teacher and student data extraction by commercial entities (Adams et al., 2021). In effect, many teachers are left with the responsibility of navigating an increasingly complex ecosystem of commercially driven platforms without the regulatory foundation that previous policies pertaining to both education and children's welfare and rights might have provided.

While it is important to remain critical of the infrastructural issues highlighted throughout the chapter, the analyses also draw forth the positive aspects that come with the hyperconnected school. These include providing overburdened teachers with a pedagogical shortcut to a more efficient, productive, and streamlined school day while at the same time meeting the political expectation that they incorporate digital tools and services in the classroom, hereby allowing students to practice digital skills and reaping the creative benefits of digital platforms. While complete disconnection from digital platforms in formal educational contexts does not seem like a plausible response to the challenges discussed in this chapter, the extent of commercial datafication throughout a day in the life of a teacher and student calls for public debates surrounding what we would like the future public school to look like. It also, we argue, emphasises the need for monitoring the influx of commercial digital platforms in public schools, as well as the data practices of different platform providers. In line with historical ambitions of the public school to offer children an opportunity to build critical and democratic capacities by suspending social and economic inequalities, such monitoring could prepare the ground for regulatory initiatives aimed at organising digital public infrastructure projects sustaining the advantages of using digital technologies – for teachers and students – while also building ethically sound alternatives in the form of operating systems, digital services, and platforms.

Our analyses testify to highly complex and opaque data infrastructures intertwining into everyday school lives in ways that are difficult to grasp for researchers and policymakers – just as are they for individual teachers and students. They also emphasise that an infrastructural and political economist perspective on (dis)connection, as well as on broader questions around the

digitalisation of central welfare institutions like the public school, can help explore and explain how technical, economic, and political forces also shape past and future developments. As such, discussions of (dis)connection in the hyperconnected school should not be a question of teacher or student responsibility, critical thinking, or privilege, but rather be based on broader public monitoring of digital platforms and debates concerning the extent of datafication in crucial welfare institutions and professions. Acknowledging the impossibilities of disconnection is an important step in opening the door to discussing more democratic ways of digitalising public education.

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Endnotes

1. Denmark took fourth place on OECD's 2019 Digital Government Index (Ubaldi et al., 2020) and continuously ranks among the top countries in terms of digitalisation in education (Bundsgaard et al., 2019). In a recent survey conducted by the Danish Ministry of Education in 2021, 96 per cent of the responding teachers stated that they use digital platforms daily or more to communicate with parents, coordinate meetings, organise lesson plans, and other administrative tasks outside the classroom (The Danish Ministry of Education, 2021: 44).
2. This includes Aula, Google Workspace, Microsoft 365, and Learning Management Systems such as Meebook and MinUddannelse.