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What is the impact of social media on education and learning in schools? This very broad question has been addressed by academics from a variety of disciplines. In this chapter, we will first give an overview of the different ways in which this question has been tackled. Most scholars have studied the impact of social media as *tools*, assessing their immediate impact on learning. While some predict they may potentially revolutionize education, others see them as potential minefields. We want to introduce an approach to social media that does not just regard them as tools, but as *platforms*, driven by a complex interplay between technical architectures, business models, and mass user activity. These automated architectures, models, and activities introduce new mechanisms in social life (van Dijck & Poell, 2013). Beyond affecting student behaviour and teaching practices, they also impact the organization of schools and universities and, one might argue, (public) education as such. We will highlight two mechanisms that are increasingly relevant in online teaching environments: *datafication* and *commodification*. To illustrate our approach, we will first focus on primary education, then on higher education.

To illustrate how datafication affects education, we discuss a Californian initiative called AltSchool, a platform that is currently gaining traction in the US. AltSchool, which has been touted the 'Uber for primary education', is an interesting case because it is an initiative that is potentially scalable to other countries and is backed by major Silicon Valley investors. The platform thrives on datafication: learning processes are translated into data processes and turned into tracking systems that continuously relate individual progress to standardized performance. The technological architecture of the platform directly informs its pedagogical philosophy of personalized data tracking – a mechanism that dominates the entire ecosystem of connective media. We will identify and discuss the pros and cons of data-driven personalized educational platforms such as AltSchool in primary education.

Next, we will focus on how commodification operates as a mechanism in Massive Open Online Courses (or MOOCs) in higher education; MOOCs such as Coursera deploy the same principles of datafication and personalization as AltSchool, but their impact can be observed outside American universities, in Europe and other continents. MOOCs are promoted as an efficient and effective form of higher education – allegedly cheaper than courses and curriculums offered by brick-and-mortar universities. Zooming in on the principle of commodification, we argue that MOOCs operate business and governance models that are very similar to social media platforms. The ways in which MOOCs incorporate social media mechanisms may affect the pedagogical and economic value of (institutional) college education.

Beyond pedagogy and economics lies the question of *education as a public good*. How do online educational platforms relate to key public values sustaining school systems? These values are subject to fierce contestation, raising fundamental questions such as privacy protection and academic independence. Online education has become an intricate battleground for waging private, corporate, and public interests in an online economy where technological interoperability is expedited by larger social trends such as privatization and globalization. These disputes are likely to have a substantial impact on the definition of online education as a public good.

Social media's impact on education: Tools or platforms?

Since their emergence, the role of social platforms in all types of education has been extensively debated by academics and professionals (for an overview, see Davis et al., 2012). Disputes on the 'promises and perils' of social media and their impact on classroom learning have intensified in accordance with the growth of these media since 2004. On the 'promises' side, researchers have investigated whether social networking platforms can be turned into efficient and effective tools for knowledge enhancement and classroom discussion (Tess, 2013). The ubiquity of social media in virtually every aspect of children's and teenager's lives has led teachers to reflect on how to purposefully integrate these tools into curricular activities (Gikas & Grant, 2013; Mao, 2014). Some argue that social media use plays a key role in helping students with particular educational tasks, such as information retrieval (Hrastinski & Aghaee, 2012). On the 'perils side' of the debate, social media platforms have been identified as a constant cause of dismay to teachers, triggering disruptions in the classroom (Junco, 2012). Others conclude that the potential of social media as a means of sharing academic knowledge has not been actualized yet (Forkosh-Baruch & Hershkovitz, 2012). Both sides in this debate adopt a social media-as-tools approach: social media are considered as technical tools that may either enhance or disrupt learning experiences. So far, however, empirical evidence on the efficacy and efficiency of social media use in the classroom has been rather scarce in the academic literature.

A second approach to social media in relation to education and learning has been the 'civic engagement' approach. Large social media networks such as Facebook and Twitter have been hailed as drivers of a new, socially engaged educational experience, fostering the capacity for discussion and connection among youngsters (Friesen & Low, 2012; Vanwynsberghe & Verdegem, 2013). Twitter, particularly, has been found helpful in fostering in-class discussions and engaging students with their learning tasks (Kassens-Noor, 2012). Most discussions on how social media nurture student engagement fit the larger argument on online media and civic engagement, a discussion meticulously described by Bennett (2008) and Jenkins (2009). Bennett argues that social media are not simply 'tools' for engagement, but they are themselves part of a changing institutional and political landscape where they may embody both supportive and critical attitudes towards education. According to Bennett, researchers should examine social media networks not apart from institutional changes, but as an integral part of socio-economic and political transformations.

The approach taken in this chapter extends Bennett's ideas on civic engagement, regarding social media not as (technical) tools but as *platforms*. Online social media platforms are more than mere technical facilitators: they are simultaneously technological, economic, and socio-cultural frameworks for managing online social traffic (Gillespie, 2010). Thousands of platforms have proliferated on the Web since the turn of the millennium, forming an ecosystem of connective media through which people perform a large part of their everyday lives, including communication and educational activities (van Dijck, 2013a). All platforms are equally defined by a set of mechanisms, which we have described in more detail elsewhere (van Dijck and Poell, 2013). In the remainder of this chapter, we want to analyze how these mechanisms shape education, affecting not online learning and teaching in school environments, but the organization of primary and higher education more generally. In doing so, we will concentrate on two mechanisms in particular: datafication and commodification.

Datafication – the tendency to quantify all aspects of social interaction and turn them into code – is one of the basic mechanisms undergirding social platforms (Mayer-Schoenberger & Cukier, 2013; van Dijck, 2014). This principle is becoming more popular in

school curriculums at every stage of education, from kindergarten to university. Indeed, as Selwyn (2015: 66) argues, 'schools, colleges, universities and other educational contexts now function increasingly along "data driven" lines'. Large quantities of data are generated and collected on a daily basis, not only by and through schools, but also by (or in collaboration with) companies that are keen on gathering information from youngsters. Data sets range 'from the often ad hoc "in-house" monitoring of students and teachers to the systematic "public" collection of data at local, state and federal levels' (Selwyn, 2015: 66).

As educational assessment is increasingly quantified, student performance gets governed by numbers (Robert-Holmes, 2015). Quantitative learning analytics, grounded in large numbers of students' online behavioral data, involve data *tracking* (real-time analytics) as well as *predictive* analytics (Tempelaar, Rienties & Giesbers, 2015). For instance, data tracking can be used to register fine-grained information about the amount of time a student needs to solve a problem, to record the cognitive stages in problem solving, to measure the amount of instruction needed, and to trace student interaction (Koedinger, McLaughlin & Stamper, 2014a). Predictive analytics may result in algorithmic calculations defining an individual's chances for academic success based on average scores and a number of variables. These emerging digital policy instruments transfer the assessment of didactic and pedagogical values from teachers and classrooms to (commercial) online platforms deploying real-time and predictive analytics techniques. The general idea of data-driven platform services is to allow for modification and corrective action of learning activities; they provide the as of yet unrealized potential to radically transform learning processes and pedagogies (Maull, Godsiff & Mulligan, 2014).

The ability to monitor individuals and groups at a microlevel obviously includes competence scores and performance levels, but may also pertain to stress levels, speed variations, and heart rates. The sheer unlimited combination of data sets may cause a paradigm shift in education. Some researchers have hailed the datafication of educational processes, emphasizing how personalized data analytics informs learning design and may facilitate specific pedagogical action (Lockyer, Heathcote & Dawson, 2013). Others have pointed out how a growing emphasis on datafication through online platforms and platform services can have serious impact on the organization of education and increase managerialism and dataveillance (Selwyn, 2015). Finally, a number of researchers have pointed towards the ethical and legal challenges involved in data collection and interpretation in educational contexts, including privacy and data ownership (Siemens, 2013; Slade & Prinsloo, 2013).

Datafication as a mechanism that drives social media platforms is closely intertwined with the mechanism of *commodification*: the monetization of online social traffic through business models and governance structures. Social media platforms are propelled by a limited number of business models that are mainly based on data as connective leverage to generate economic value. Commodification in the context of educational platforms often involves the processing of learning data by large data hubs that render big data streams monetizable and potentially profitable. The center of educational governance, as Williamson (2016: 123) argues, 'is being distributed and displaced to new digitized "centres of calculation"'. Massive information transfer to 'calculation centres' and data hubs tallies with the concentration power in a few large data companies which may serve commercial rather than pedagogical interests (Lawson, Sanders & Smith, 2015).

Educational platforms cannot and should not be seen apart from the larger ecosystem of connective media through which they thrive – an ecosystem that is gradually transforming all sectors of society and that is steered by the same set of mechanisms. However, this system is not a level playing field as some platforms are more powerful than others. Facebook, Google, Apple, Amazon and Microsoft are pivotal gatekeepers in the data flows that fuel the 'platform society'. Their economic interests in educational platforms are huge and it should come as no surprise that they heavily invest in the development and distribution of online education.

In the next two sections, we will analyse *how* these two dominant mechanisms of social media platforms – datafication and commodification – increasingly penetrate the processes and institutional contexts of education. In the US in particular, datafication has been hailed as a new paradigm in primary education, and AltSchool is a case in point. Commodification is

surfacing as a structuring principle in online platforms targeting higher education across the globe, a development illustrated by Coursera. Although AltSchool and Coursera are mere examples, we think that these platforms may elucidate the larger trend of how social media mechanisms affect the transformation of the educational sector in a platform-driven society.

Datafication: AltSchool as a platform for primary education

Primary schools in the US increasingly incorporate educational software into their curricula, from math and language apps to customized online lessons. Along with educational software came data trackers and 'dashboards'; instruments that record and analyze thousands of pieces of data about each student, catering to their abilities and tastes, have become increasingly popular. Proponents of quantitative learning analytics claim they are a significant quality booster for students' learning (Ebner & Schön, 2013; Reamer et al., 2015). Real-time data about individual learning processes help instructors monitor students' progress and allow for corrective feedback. Personalized data allegedly provide unprecedented insights into how individual students learn and what kind of tutoring they need. If the data show that one student is better at solving verbal math problems than abstract equations, software developers can adapt the assignments and implement personalized variations. Aggregated data about learning behavior provide the input for individual 'adaptive learning' schemes. As some advocates argue, continuous measuring of performance levels may enhance the quality of instruction (Maull, Godsiff & Mulligan, 2014). Taking a cue from the social media world, some schools are fully embracing datafication and personalization as the core principles of their pedagogy, and are eager to team up with tech entrepreneurs to explore the datafied learning concept.

AltSchool is a Californian initiative founded in 2013 by Google's former head of personalization Max Ventilla; it has drawn much attention, if not for its educational philosophy, then certainly for the names of its financial backers, including Mark Zuckerberg's education-focused non-profit foundation and the Founder's Fund of entrepreneur and venture capitalist Peter Thiel. AltSchool envisions and enacts a one-classroom setting populated by teachers but without administrators; AltSchool offers no facilities except for an iPad or Chromebook for each child. Instructed through a weekly 'playlist', each pupil engages in individual or group activities that are tailored toward their unique capabilities. Independent projects have replaced direct group instruction. Teachers supervise the learning process; student performance is monitored through tracking systems that minutely analyze each child's tasks and results. Informed by these data, teachers keep cards of each child's progress and setbacks, and use them to make weekly personalized learning plans for each child. This means for some pupils that math gets prioritized over reading skills, and for others, the other way around (Lapowsky, 2015). Proponents hail the process of datafication as a means to make education more efficient by cutting out ineffective tasks for each child individually.

More than just a classroom, AltSchool is an experimental lab where teachers and students are minutely observed: every activity is videotaped and analyzed. A large technical staff develops customized educational software and tweaks learning analytics to optimize each part of the learning process. The tools developed by this team are remarkably similar to those deployed by social media companies: a recommendation algorithm, not unlike Netflix or Amazon, that takes into account everything a child has already learned; data analytics that eliminate the need for constant testing; and reputation mechanisms that rate the personal input of children while measuring their relative scores.

Although AltSchool is currently still in its experimental stages and has only been tested in small sections of privileged Bay Area districts, there is every intention of scaling and spreading this model once it gets beyond the testing phase. In terms of educational philosophy, AltSchool favors technology over teachers; online personalized learning takes over classroom instruction; and the primacy of predictive analytics downgrades teachers' professional judgment. In addition, individualized learning schemes are taking priority over the notion of a curriculum as the cornerstone of education. All these principles arguably undermine the conventional pedagogical model still dominant in most brick-and-mortar schools across the US. The comparison with a disruptive platform uprooting the taxi sector inevitably pops up when educators speak of 'Uber-education.'

Detractors of AltSchool have pointed out how the principle of datafication advances a pedagogical perspective also known as 'learnification.' Many data-driven, personalized education initiatives focus on *learning* rather than education, and on *processes* rather than on teachers and students. The (social) activity of learning is broken into quantifiable cognitive and pedagogical units, such as instruction, short quizzes, assignments, deliberation with other students, and tests. The learnification model is predicated on the real-time, short-term process of learning rather than its long-term outcome, which is, in most schools, to provide an education. Education, as critics argue, involves simultaneous nourishing of intellectual, social, technical, and cognitive skills. The 'learnification' of education, according to some social scientists and philosophers, sprouts from the idea that learning can be managed, monitored, controlled, and ultimately modified in each student's personal mind (Attick, 2013; Biesta, 2012; Mead, 2014).

Datafication appears to be a double-edged sword. Indeed, personalized assignments based on quantitative measurements help improve each individual's learning process and outcomes. However, personalization algorithms are based on *inference* of users' needs or interests – supporting the prediction of needs rather than solving the demand for remedial teaching. A by-product of personalized learning algorithms may be that they 'filter out what is not designated as being of interest to users and rather presents to them only what fits the system's belief of what their interests are' (Ashman et al., 2014: 824). In addition, the biggest challenge that software developers face is the rather paradoxical demand of *mass individualization*: the question is how the AltSchool approach will scale up to schools populated by thousands of students. Will it benefit not just privileged Bay Area students whose parents are able to afford the experimental school's hefty fees, but also children from underprivileged and underfunded schools?

Besides the ideological criticism concerning this learnification paradigm, researchers have raised various other concerns, such as privacy violations and selective ranking (Siemens, 2013). Students enrolled in AltSchool and similar initiatives are prone to constant monitoring, to the extent that they become (unwitting) participants in continuous lab experiments. Over the past years, online education has shown a conclusive shift toward continuous behavioral experiments (Ebben & Murphy, 2014). Using students for research experiments is nothing new. However, the continuous tracking of young children raises important ethical questions; issues of privacy and repurposing of data have raised concerns from parents and regulators alike (Ashman et al., 2014; Selwyn, 2015). Student and teacher performance are increasingly monitored through dashboards and assessments are based on behavioral tracking mechanisms and automated classroom surveys – techniques already introduced in many elementary schools throughout the United States and that have triggered serious controversy (Rich, 2015; Singer, 2015).

Datafication and personalization mechanisms such as reputational ranking or recommendation systems are informed by the techno-commercial logic of social media platforms. On most social networking sites, such as Facebook or Google+, assessments happen *instantly* and *continuously*, mostly on the basis of *perception* or *likability*. Other popular platforms, such as Uber and Airbnb, deploy user recommendations to anchor reputation and trustworthiness: customers review their drivers or hosts, who, in turn, can check their customers' online reputations (Coetzee et al., 2014). But what happens when we transfer this principle to an online learning environment? And how does it affect the

traditional (hierarchical) dynamics between teacher, students, and institution? Educating is a process very different from liking or recommending. Students do not always like what they learn; learning often requires endless practice or involves unexpected encounters with content that only much later turns out to be very valuable. In short, the instantaneity of recommendations and likability of perceptions – the need for instant gratification – may be squarely at odds with long-term pedagogical values of curriculum-based education.

Also unresolved are the ethical issues involved in the ownership of (meta)data and their accessibility, which can be quite thorny. One of the advantages claimed by online courses is that students' performance is not just assessed in terms of grades or learning outcomes, but can be evaluated in terms of learning curves and social adaptability. Datafication of the learning process – minutely monitoring the interactive and cognitive behavior of pupils – yield an abundance of data beyond mere test results. How fast do students answer a quiz question? How autonomous or collegial are they when it comes to problem solving? Behavioral data are a sort of by-product of continuous monitoring, and students are barely aware of these data being accumulated, interpreted, and repurposed (Ashman et al., 2014). In fact, dashboards may produce behavioral information that is far more interesting than a straightforward grade point average. It is already completely normal for employers to scrutinize a potential employee's postings on Facebook and LinkedIn and reject candidates on the basis of social media appearances (Swallow, 2011 van Dijck, 2013b). Therefore, it is not at all difficult to imagine that future employers might request a full performance record from kindergarten up to college to assess an employee's intellectual and social adaptability.

Commodification: Coursera and the impact of MOOCs on higher education

Many of the same mechanisms involving datafication and personalization can be identified in the platforms for higher education that we have come to call Massive Open Online Courses (MOOCs). Platforms like Coursera, Udacity, and edX started to penetrate the higher education sector in 2012. In this section, we want to focus on the mechanism of *commodification*: the transformation of objects, activities, and ideas into data streams with the intent to turn them into tradable commodities. Over the past four years, MOOCs have become popular vehicles for online learning, and they frequently promote themselves as future alternatives to or even replacements of college education. A large number of universities, both in the US and in Europe, have started to collaborate with mostly American-based MOOCS. For the purpose of this chapter, we want to zoom in on Coursera as an example of a successful platform whose business model is strikingly similar to the dominant socio-economic principles connecting all platforms on the social Web.

Coursera is a for-profit platform that started in 2012 out of Stanford, and has offered online courses to students worldwide. Initially backed by four American universities, it engages in partnerships with universities in Europe, South America and Asia. Over the past four years, Coursera has experimented with various business models and is still finetuning some of its monetizing schemes. Similar to Facebook, Google, and other major platforms, Coursera offers content that is free to end-users; students can enroll and follow videotaped lectures, engage in online exercises, and take tests. Typically, a university organizes the educational content featured in courses, while Coursera provides the online means for attracting a mass audience. User acquisition is critical to achieve network effects, as we have learned from social media platforms (Clow, 2013). Similarly, MOOCs have a vested interest in massive numbers of users in order to obtain large sets of (learning) data and student profiles. Students and young professionals are arguably the most coveted target population of data industries, and their attention is very valuable. To optimize their metrics, it is crucial for

Coursera to attract large quantities of students with free content. The more (meta)data they collect, the more they learn about users (Koedinger, McLaughlin & Stamper, 2014b).

Still in the early stages of its development, Coursera deploys a variety of value-capture strategies, one of which is the freemium model. A premium variant expands the free option by offering extra paid-for services such as so-called 'signature tracks', where students pay for certificates of completion, proctored exams, and identity verification. Proctored exams and verified certificates are gradually developed into – potentially profitable – units that can be marketed globally. Another business model is to collect and trade user data. Coursera's user policy states that it may collect 'student-generated content, such as assignments you submit to instructors, peer-graded assignments and peer grading student feedback … course data, such as student responses to in-video quizzes, standalone quizzes, exams and surveys' (Coursera Privacy, 2015). It is unclear whether Coursera is currently monetizing its wealth of student data, sharing it with third parties. Advertising in online content is another option which Coursera has not utilized yet, but which, as some point out, may be a lucrative value proposition (Kalman, 2014). Like most MOOCs, Coursera is fully absorbed in the ecosystem of connective media where Facebook and Google dominate online advertising.

Part of Coursera's revenues comes not from end-users but from universities. First, universities pay for the content offered on the site, and with an average of US$50,000 per online course, MOOCs do not come cheap. According to Bogen (2015), Coursera's contracts with universities 'promise 6–15% in revenue-sharing per course with the university and 20% of gross profits on aggregate sets of courses, paid out every quarter.' Coursera thus draws over 80% from its online course profits. Universities consorting with Coursera pay for the development of their course content as well as for instructors who process student feedback and questions – a massive effort that is not always recognized properly. In 2015, Coursera started to offer a degree MA-program in collaboration with Georgia Tech University in exchange for an unknown percentage of tuition fees. Universities, in other words, invest heavily in Coursera's business model.

How does a MOOC's value proposition differ from (and profit from) the pricing system that sustains traditional universities? Regular universities offer a 'bundled' educational experience – an experience that comes complete with lecture halls, facilities, and libraries and labor-intensive courses where instructors give feedback and for which they proctor and grade exams to result in a diploma degree (in some instances, course certificates and transfer credits). For this all-inclusive package, students pay tuition and fees; in the case of public education, taxpayers fund the institutions to make higher education more affordable to citizens. The conventional business model reflects the ideology of higher education as a curriculum-based, comprehensive experience that offers an education at a price that includes not only lectures or course content but certification, advising, tutoring, and testing (Boullier, 2012; Decker, 2014).

Coursera's value proposition runs parallel to social media platforms' revenue models. Content is free to end-users; money is made from offering premium services and from leveraging data value to interested third parties. By the same token, Coursera's model parallels the way Facebook and Google promote the 'unbundling' of content, for instance news and publishing industries: news articles and advertisements no longer come in a bundled package, but are resdistributed via Facebook's News Feed and Google's PageRank algorithms. The intricate intertwining between datafication and commodification as underpinning mechanisms illustrates how the ecosystem of connective platforms is fueled by techno-economic forces. As we saw in the example of AltSchool, the accumulation of behavioral learning data culled from participants all over the world can be sold to businesses competing for global talent. The appetite for educational data as valuable resources on the data market is enormous. Combined with other data, such as social media profiles or health and fitness data, the availability of learning data may render CVs to future employers virtually obsolete. The repurposing of student data in the US context is a large grey legal area. As Young (2015) points out, privacy law is simply outdated when it comes to platforms like AltSchool and Coursera or other MOOCs.

The widespread distribution and adoption of educational platforms promoting a dynamics based on these mechanisms will likely affect not only students' and teachers' relationship towards learning, but also towards the institutions of education. As Kalman (2014: 11–12) convincingly argues, the logic of MOOCs tends to strip down higher education to its most traditional and visible components – video lectures and examinations – some of which are offered for free to users. Partnering institutions pay for the costly infrastructure that comes with higher education. Coursera as a platform charges a percentage of course revenue – if there is any – in exchange for using its format and global distribution function, but they do not contribute anything towards the 'collective' costs of producing education. So whereas the educational content is entirely generated and paid for by universities, Coursera's added value comes from unbundling and then rebundling content, and offering this to students worldwide. The real costs of massive open online courses remain obscure, because they are largely paid for by academic partner institutions and by students in the form of private data. Not unlike Uber and Airbnb, Coursera can trade off valuable information to third parties using student data as currency. It is precisely this connective platform model that has caused the disruption of entire sectors, such as newspaper publishing and the music industry (Dellarocas & van Alstyne, 2013).

The platformization of education

The mechanisms of datafication and commodification, adapted from the ecosystem of social media platforms, may foreshadow a profound shift in the organization of education. Of course, single platforms like AltSchool or Coursera can never account for an entire institutional transformation, but they do signal a larger trend. While few people believe Altschool and Coursera pose a serious threat to brick-and-mortar educational institutions the way Uber and Airbnb have disrupted the transportation and hospitality sectors, they are likely to have a strong impact on the educational sector. Although it is impossible to predict how deeply the dynamics of 'platformization' will penetrate the traditional structures of higher education, three potential implications follow from the analysis above. First, educational platforms tend to subjugate their pedagogical principles to social media mechanisms; second, the efficacy of educational software and data tracking systems in schools and universities have so far been poorly tested but are nevertheless presented as much-needed fixes to outdated educational institutions; and third, the incorporation of online education in a global world of commercial high-tech platforms may transform the notion of education as a public good.

To start with the first potential implication: schools and didactic online systems tend to blend in with the techno-economic and socio-cultural mechanisms of social platforms, particularly the mechanisms of datafication and commodification. Social networks like Facebook and Google+ have already deeply penetrated the everyday lives of pupils and students (Tess, 2013). Inside and outside schools, youngsters are growing up immersed in the compelling social interaction these platforms offer in terms of connecting, liking, rating and following each other. Platforms like Facebook are predicated on mass individualization, allowing personalized content and many-to-many communication at the same time. Besides, various platforms developed by Google have a significant presence in students' lives, offering free services such as Gmail, Scholar, Books, and LibraryLink to students, teachers, and universities. For funding-deprived institutions, these propositions are increasingly hard to resist, and the result is that corporate platforms such as Google, Facebook, LinkedIn, and Microsoft are able to position themselves strategically, at the gateways of educational infrastructures such as libraries, administrative and communication systems. Free cloud services offer students the expediency and convenience of online tools that they can access

for 'free' (Center on Law and Information Policy, 2013). Advantages notwithstanding, it is increasingly difficult for students to 'opt out' of an educational environment that is inundated with connective tools if they feel uncomfortable about trading privacy for access and dataveillance for convenience.

Second, many online educational tools are currently celebrated as much-needed fixes of a crumbling institution that has been, to a large extent, underfunded. However, few of the (expensive) online solutions have been properly tested; their short-term gains in learning progress may be valued intuitively over long-term pedagogies. Indeed, online learning tools undoubtedly add value to the arsenals of teachers and researchers (Gikas & Grant, 2013; Rennie & Morrison, 2013). Online tools, if carefully mixed with proven pedagogical methods in blended learning environments, may enhance the learning process not only for already advantaged students, but also for those who are less gifted and need more training. Pedagogical instruments and funding contexts are interdependent variables. Education has always been and will always be a labor-intensive, local, and costly affair, but costs and benefits are not a zero-sum game. The compelling rhetoric used by Coursera's and AltSchool's promoters often makes them appear as 'technological solutionism' to the problem of disadvantaged students all over the world (Morozov, 2013). However, online educational platforms are more than a story of technology; they are part of the socio-economic conditions in which education is embedded in a town, state, or nation (Stohl, 2014).

Finally, we need to reflect on how the incorporation of learning tools in a global world of commercial high-tech platforms may transform the notion of (public) education. The educational sector is equally prone to disruptive innovation as the hospitality and transportation industries, but education is fundamentally different from hotels or cars in that it is also a *public good*. For instance, when it comes to accreditation, standardized credits, and valorized diplomas, education is still largely governed through national systems, which are regulated and validated by government institutions and subject to democratic control. Particularly in Europe, education is still largely a public sector, while in the US, private schools and universities are taking up a proportionally larger share. The pressure to open up educational standards and regulation to global commercial high-tech companies is an important strategy pursued by education platforms such as AltSchool and Coursera and their owners. Using these platforms as examples may help us understand how education is increasingly defined as a technological challenge developed by tech companies and decreasingly as a service carried out by dedicated teachers and funded by taxes (Kolowich, 2013; Meister, 2013).

At a time when schools, universities, and students are facing serious challenges in terms of funding, a proposition that seemingly reduces the cost of teaching, attracts large enrollments, and offers free courses to students seems irresistible. So it should come as no surprise that the 'scalable' and 'free' logic of online learning modules is finding inroads into many (private as well as public) school systems. As we have learned above, AltSchool is a private school financially backed by Google, attracting a high-end class of pupils in Silicon Valley. In September 2015, Facebook's Mark Zuckerberg announced he would start to fund the Summit Public Schools in San Francisco – an initiative that develops software to help individual children learn at their own pace. Just like AltSchool, Facebook's new platform-based initiative promises to help create tailored lessons and projects, and administer individualized quizzes that special software can grade and track. Developing educational software is a crucial strategy to integrate the underpinning mechanisms of social platforms into the everyday lives of young children and their institutional environments.

Facebook and Google are also both heavily investing in developing and financially supporting MOOCs, such as Coursera, Udacity, and edX. Although they often invest in educational platforms indirectly, through nonprofit initiatives, it is clear that the intricate interwovenness between educational platforms and major connective platforms lies in their interlocking dynamics. In sum, the battle for domination in the world of online education is as much about technological and economic mechanisms as it is about pedagogy, effective learning strategies, and quality teaching (Beetham & Sharpe, 2013). Even if online platforms will never replace schools or universities, they will likely have a substantial impact on how

education becomes redefined as a public good. By regarding social media as *platforms* rather than just tools, we wanted to draw attention to the power of its underpinning dynamics. Online platforms do not only affect basic processes of learning and teaching, but also impact the ways in which education is organized in a society that is increasingly data-driven and platform-based.

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