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Abracadabra: How Technology-Enhanced Education Personalizes Learning

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The New Liquid Education

We live in a liquid world, where the conventional dimensions of space and time have blurred, and where the impact of technology has inexorably transformed our behavior and our vision of the world.¹ This liquid modernity was announced by Polish philosopher Zygmunt Bauman,² who explained that the way we conceptualize time has been transformed from linear to pointillist. Bauman criticized the impatience that characterizes contemporary generations—they prefer juice to peeling an orange—and also questioned the view that education is a product and not a process or path.

¹S. Riis, *Philosophy of Technology: Oxford Bibliographies Online Research Guide* (Oxford Bibliographies Online Research Guides) (Oxford: Oxford University Press, 2011); A. Ede, *Technology and Society. A World History* (Cambridge, UK: Cambridge University Press, 2019), Ch. 11.

²Z. Bauman, *Liquid Life* (Cambridge, UK: Polity Press, 2005); and Z. Bauman, *On Education: Conversations with Ricardo Mazzeo* (Cambridge, UK: Polity Press, 2012).

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In this context, work, education and social relations have also acquired a liquid nature. The pandemic that began in March 2020 has speeded up this phenomenon irreversibly.³ Forced by lockdown in much of the world, many companies and universities moved their activities from the physical to the virtual environment. At first, many institutions were slow to react to the pandemic,⁴ but in the following months most universities and business schools moved their programs to online or videoconference formats, implementing educational changes at unprecedented speeds.⁵

In this sense, the generalization of access to digital platforms in all types of organizations has promoted teleworking,⁶ while Learning Management Systems (LMS) and multiple applications facilitate teaching in hybrid formats, allowing students and teachers to interact both face-to-face and remotely.⁷ The digital environment also enables diachronic interaction, so that students can participate in forums or do exercises and simulations at their convenience, stretching the educational momentum beyond synchronous class time.

This concept of liquid education extends beyond the conventional didactic framework, the face-to-face class with the teacher. Moreover, it extends learning in a multifaceted way, expanding the sources of knowledge or training beyond teachers to include the role played by students, professional colleagues, or peers on social networks.⁸

³ F. Diep, “The Pandemic May Have Permanently Altered Campuses. Here’s How. Trends Accelerated by Covid-19 May Make More Sense Than Ever in the Future, Experts Say”, *Chronicle of Higher Education*, March 15, 2021. <https://www.chronicle.com/article/the-pandemic-may-have-permanently-altered-campus-heres-how>; S. Gallagher and J. Palmer, “The Pandemic Pushed Universities Online: The Change Was Long Overdue”, *Harvard Business Review*, September 29, 2020.

⁴ M. Korn, D. Belking and J. Chung, “Coronavirus Pushes Colleges to the Breaking Point, Forcing ‘Hard Choices’ About Education. Forecast Declines in Enrollment and Revenue Triggers Spending Cuts and Salary Freezes”, *The Wall Street Journal*, April 30, 2020.

⁵ V. Govindarajan and A. Srivastava, “What the Shift to Virtual Learning Could Mean for the Future of Higher Ed”, *Harvard Business Review*, March 31, 2020.

⁶ The Financial Times opened a new section on teleworking: <https://www.ft.com/stream/aeabd6cf-28bb-40e1-9e73-feb05eef090a>; J.M. Barrero, N. Bloom and S.J. Davis, “Why Working from Home Will Stick”, *Financial Times*, January 21, 2021. https://static1.squarespace.com/static/5cfd6cb8ac68600012f8920/t/600ba00a00210533f9f0d31c2/1611374608159/WFH_Will_Stick+January+21+2020.pdf.

⁷ B. McMurtrie and B. Supiano, “Teaching: Making Hybrid Learning Teaching for You”, *The Chronicle of Higher Education*, July 30, 2020. <https://www.chronicle.com/newsletter/teaching/2020-07-30>; E. Dorn, F. Panier, N. Probst, and J. Sarakatsannis, “Back to School: A Framework for Remote and Hybrid Learning Amid COVID-19”, *McKinsey*, article August 31, 2020. <https://www.mckinsey.com/industries/public-and-social-sector/our-insights/back-to-school-a-framework-for-remote-and-hybrid-learning-amid-covid-19>.

⁸ Social networks as platforms were a basic component of operations for MOOCs and other previous initiatives like *The Personal MBA*, launched in the 2000s. Vid. S. Iñiguez de Onzoño, *The Learning Curve. How Business Schools Are Re-Inventing Education* (London: Palgrave MacMillan, 2011), p. 62.

In reality, technology has been disrupting education for two decades. Clayton Christensen, the father of disruption, explained that this phenomenon does not occur quickly, as happens, for example, with the so-called breakout technologies, which have an immediate impact on the consumption of a product or service,⁹ and instead it takes place slowly, over time, first affecting certain activities in the educational value chain, resolving essential learning processes more efficiently or less expensively, and affecting the least-differentiated or worst-positioned universities.

The Stages of Technological Disruption in Higher Education

As said, disruption in the field of business schools and executive education, accelerated by the pandemic, has been taking place over the past two decades, and can be classified into three distinct phases.

The first phase of “e-learning” began with the appearance of the big education retailers (e.g. Apollo, Laureate or Corinthian), to which various business schools reacted by creating consortiums and developing content platforms (the best known being UNext, whose partners included the universities of Columbia, Stanford and Chicago).¹⁰ Companies entering e-learning by combining face-to-face and online training are investing huge resources in the development of technological platforms and expect rapid growth in non-degree executive education with these formats. During this phase, it was believed that the competitive advantage was conferred by the platform, so consortia of business schools were created around large technological projects. In addition, there was also a boom in corporate universities created by the companies themselves.¹¹ Bachelor’s and Master’s degrees in business administration are consolidating their position as the most sought-after in the

⁹ C. Christensen, *The Innovator’s Dilemma: When New Technologies Cause Great Firms to Fail* (Cambridge, MA: Harvard University Press, 2016); and C. Christensen and H.E. Eyring, *The Innovative University. Changing the DNA of Higher Education from the Inside Out* (New York, NY: Jossey Bass, 2011).

¹⁰ S. Iñiguez de Onzoño, op. cit., Ch. 9.2: “The Dream of Icarus: UNext”.

¹¹ Networks of corporate universities have been set up across continents with the aim of sharing expertise, identifying new tendencies, and developing joint knowledge. The best known is Corporate University Exchange, an association headquartered in the US and with members around the world, along with the corporate division of EFMD, the European Foundation for Management Development, which has developed its own system of accreditation for CUs, known as CLIP, the Corporate Learning Improvement Process, which has already recognized more than 25 institutions, all of them European. See J. Boone, “Corporate Universities: Boardroom to mortarboard”, *Financial Times*, November 10, 2006. <https://www.ft.com/content/54b9700e-70c6-11db-8e0b-0000779e2340>.

market,¹² which, far from generating competition between new entrants and established business schools, is driving the appearance and development of new educational centers, especially in emerging countries.¹³

During this first stage of e-learning, business schools found that the development of Learning Management System (LMS) platforms for online education is not necessarily an activity in which they have expertise or competitive advantages. In fact, it is difficult to capitalize on the investment required to develop such platforms, unless they are used by large numbers of students and institutions. That said, universities are often reluctant to use platforms developed by competing institutions, especially if they have to pay for them. In fact, most of the educational platforms or LMSs in use at the moment do not belong to traditional education institutions.

The second phase began with the creation of the big MOOC providers. Udemy was created in 2010, Udacity and Coursera in 2011 and edX in 2012.¹⁴ These content platforms produced surprisingly high expectations. The courses were expected to eventually replace degree programs, drastically reduce the cost of education, be recognized by employers and offer universal access to higher education.¹⁵ The key competitive advantage of MOOC platforms was not only the technology that supported the design, marketing and delivery, but also the ability to create a large library of content that attracted traffic and generated a stable consumer base. The passage of time has shown the conclusive impact of these platforms, especially for complementing formal education with self-learning programs, as well as for operating the phenomenon known as flipping the class. However, the expectations that were raised at their launch have not been fulfilled. Neither have they enjoyed universal access, given that MOOC consumers are mostly graduates from developed countries, nor have they replaced formal training, nor do they guarantee access to the labor market.

¹² As reflected in GMAC annual reports: “Demand for MBA and Business Master’s Programs. Insights and Candidates Decision Making”, April 2019. <https://www.gmac.com/-/media/files/gmac/research/admissions-and-application-trends/demand-for-mba-and-business-masters-programsinsights-on-candidate-decision-making-summary-reportmbac.pdf>.

¹³ On the one hand, online programs provide opportunities to internationalize operations for all business schools: J. Moules, “Digital Platforms Give Business Schools Global Reach”, *Financial Times*, March 21, 2021. On the other hand, the number of new business schools, as well as those entering the international rankings and achieving global accreditation has increased, as reported by AACSB. <https://www.aacsb.edu/newsroom/2021/2/confirming-global-quality-and-distinction-in-business-education>.

¹⁴ S. Porter, To MOOC or Not to MOOC. *How Can Online Learning Help to Build the Future of Higher Education* (Waltham, MA: Chandos, Elsevier, 2015).

¹⁵ D. Bradshaw, “What Moocs Mean for Executive Education,” *Financial Times*, May 11, 2014; S. Iñiguez de Onzoño, *Cosmopolitan Managers. Executive Education that Works* (London: Palgrave Macmillan, 2017), Ch. 4.6: “Taking MOOCs seriously”.

The third phase, liquid education and hybrid formats, is beginning precisely now. In this last stage, all the lessons learned in the previous stages are being applied, and it is the educational institutions themselves—universities and business schools—which, on their own initiative or driven by market realities, are leading the change. The key to developing competitive advantages at this stage is no longer technology, which has become a commodity, nor content, which is similarly accessible to all universities, but the experience. Faced with the classic question, also posed by the media, as to which is king, platform or content, the answer is that experience trumps both.¹⁶ The advantage lies in how business schools involve their professors in the new hybrid formats, use the latest educational applications, integrate innovative solutions tailored to each student, promote alternative ways to achieve degrees—like micro credentials and stackable courses—and turn the educational experience into something differential.

Micro credentials are highly intensive online courses that provide a set of skills that are worth certifying in their own right. With these certificates it's possible to offer scalable access to a top learning academic experience online, and in addition those that have been the top performers of the program could be offered access to a face-to-face experience on campus. These courses could also serve as the primary admissions criteria for the face-to-face experience on campus. In addition, the hidden beneficiaries of this formula are the online-only micro credentials students, as they could have the rubber stamp credit of the leading university offering the program in an accessible and flexible form.¹⁷

The New Liquid Environment Boosts the Personalization of Education

Technology, in parallel with developments in cognitive psychology and the educational sciences, has produced a formidable paradigm shift in the learning process and in the mission of educators. Traditionally, the goal of education has been to transfer fundamental, relatively standardized knowledge and to prepare students for joining the professional world. That said, the future of education is increasingly seen as an opportunity to develop and strengthen the individual qualities of the learner. The Copernican shift in education brought about by technology means moving from standardization

¹⁶ Ibid., Chs. 4.3.

¹⁷ S. Sarma and L. Yoquinto, *Grasp, The Science Transforming How We Learn* (London: Robinson, Little Brown, 2020).

to personalization. Thanks to technology, education will no longer consist of acquiring the knowledge and skills to perform a job, but will also allow us to enhance students' personality, focus on their strengths and regulate efforts to achieve individual learning objectives, measuring the results and deciding which educational tools are the most appropriate.

Furthermore, technology can emphasize the humanization of education and managerial development. We sometimes think of technology as an obstacle to personalization, proximity, sociability or humanity, but this is a fallacy rooted in the age-old belief among many people that technology is a threat to humanity: the destruction of jobs by automation and, ultimately, that machines will eventually control the world. But integrating technology and teaching can help humanize the learning process as never before. In addition to adapting to personal circumstances, it establishes closer ties between teachers and students, as well as between students themselves, or in the case of in-company training, a greater sense of belonging to the organization.

It also helps teachers with repetitive tasks such as assessing academic performance, conveying basic information and answering frequently asked questions. With all this, technology can free up teachers' time to allow them to focus on more value-added activities for students.

Flexible, adaptable, intensive, intuitive and even entertaining; these are the hallmarks of hybrid formats, which combine online learning with face-to-face classes. The advantage of e-learning is that it is more flexible and focused, as it adapts to the learner's circumstances, and allows for more interactivity among participants. In short, hybrid formats in both higher education and corporate training are here to stay. That said, there are still some analysts out there who underestimate the importance of the impact of hybrid formats, because they associate them with massive online self-study training, or because they believe that nothing can ever replace face-to-face teaching.¹⁸ At this point it is important to underline that only high-quality blended programs work, whereby online modules are taught by the same teachers who participate in the face-to-face sessions and limited to small groups of highly motivated students.

There is also a widespread belief that senior management is averse to internal online training. This is true, to a large extent, but we must ask ourselves whether this is a generational problem and whether the next batch of CEOs—who will be more accustomed to the virtual environment and communication via mobile platforms—will be more receptive to these new

¹⁸ P. Fain, "Takedown of Online Education", Inside Higher Education, January 16, 2019. <https://www.insidehighered.com/digital-learning/article/2019/01/16/online-learning-fails-deliver-finds-report-aimed-discouraging>.

methodologies.¹⁹ We need only bring to mind the board meetings of a century ago, in rooms with vast desks, lots of marble, mahogany and leather, and compare them with today's, often carried out via digital platforms, video-conferencing and other technologies that allow directors to communicate with each other, anytime.

It is worth noting that 80% of teachers with no experience of virtual education say that it is less effective than its face-to-face counterpart, while most educators with experience in this area say that the results are just as good, if not better.²⁰ We should also add that many academics mistakenly think that they will literally be made redundant. These prejudices also extend to other professionals, especially senior managers who have been traditionally educated and tend to associate quality education with face-to-face teaching. However, the forced hybrid formats run at most business schools over lockdowns have changed views among teachers significantly, for the positive.²¹

Whatever the arguments, there has been a rapid increase in the number of educational institutions offering blended courses, combining quality online training with traditional classroom instruction. For example, *Grade Level: Tracking Online Education in the United States* shows that 70.8% of academic leaders believe that online education is a critical part of their long-term strategies, up from 48.8% in 2002.²² At the same time, 77% think that online training products deliver equal or better results than traditional training. Only 28% admit that their staff of educators accept the value and legitimacy of virtual training.

Another corporate training survey, this time conducted by Roland Berger, estimated that 77% of U.S. companies used e-learning to develop their professional programs, while in Europe more than 3000 companies used these methods. The same survey estimated that 90% of companies would use digital platforms in the coming years.²³ Thus, it is clear that hybrid formats are going to play an increasingly important role in executive training for

¹⁹ See Chapters 22 and 23 of this same book.

²⁰ L. Redpath, "Confronting the Bias against On-Line Learning in Management Education." *Academy of Management Learning & Education*, Vol. 11, No. 1, 2012, pp. 125–140.

²¹ D. Lederman, "Faculty Confidence in Online Learning Grows", *Inside Higher Education*, October 6, 2020. <https://www.insidehighered.com/digital-learning/article/2020/10/06/covid-era-experience-strengthens-faculty-belief-value-online>.

²² I.E. Allen and J. Seaman, "Grade Level: Tracking Online Education in the United States," February 2015. <https://eric.ed.gov/?id=ED572778>.

²³ Roland Berger, "Corporate Learning Goes Digital: How Companies Can Benefit from Online Education," May 2014. <https://www.google.com/search?client=safari&rls=en&q=Roland+Berger,+%E2%80%9CCorporate+Learning+Goes+Digital:+How+Companies+Can+Benefit+from+Online+Education,+%E2%80%9D&ie=UTF-8&oe=UTF-8>.

those participants who cannot attend face-to-face sessions. The question is not, therefore, whether these formats are the future or whether face-to-face training is more effective, but rather, what is the optimal or blended mode for a given learning situation. Obviously, striking the balance between virtual and face-to-face training will depend on the objectives of the program, the profile of the participants, the content to be taught, the skills and competencies to be developed, and even the costs, infrastructure and capacity of trainers and educators to deliver their teachings online.

What Makes Hybrid Formats Different?

With the expected return to normality after the pandemic, several experts, including those interviewed in this book, believe that some of the initiatives developed over the last decade and widely implemented during the last year, are here to stay. In our experience, the majority of students in full time programs prefer value face-to-face interaction over remote interaction via digital media. However, convenience, the growing demands of sustainability in any social activity, including education, but above all the advantages they offer, will most likely make hybrid formats and liquid education the preferred configuration for most business schools and executive education centers.

Which parts of this approach should be retained and improved? I would suggest the following:

- *Learning analytics*: this allows for personalized monitoring of students' individual performance and, based on the experience and models developed from big data, to design better educational experiences to achieve learning objectives, guide the performance of the teacher or tutor, reduce academic failure and better integrate all the components of a program.²⁴
- *Delivery*: in the past, real-time classroom in presence was the basic—and almost exclusive—teaching format. Technology-enhanced forms of learning and new applications permit the development of a huge variety of new formats. For example, hybrid classes with remote and face-to-face attendees, overcoming the barriers imposed by distance, international mobility or other circumstances. Also, asynchronous sessions, which can, for example, take place over several days, such as forums, interactive team or individual exercises carried out online and supervised by the teacher,

²⁴ C. Hall, J.R. Cristina, J.R. Mattox and P. Parskey. *Learning Analytics. Using Talent Data to Improve Business Outcomes* (London: Kogan Page, 2011).

simulations, self-learning content, tests, educational games and a wide plethora already in development.

- *Multimedia learning materials*: smart books and smart learning materials will allow students to learn at own pace, emphasizing or clarifying areas of greater difficulty, or advancing more quickly and expanding complementary areas, using examples and cases related to personal preferences, without relaxing the demands of learning. They will promote the acquisition of knowledge, but also the development of a decisive innovation such as curiosity, as well as critical faculties and other basic skills for personal development.
- *Assessment methods and proctoring systems*: in contrast to traditional exams, which are basically about memory skills, new approaches assess learning capabilities based on a wide range of factors, helping teachers to evaluate their students in a creative and constructive way, as well as to provide vital feedback. They also allow for assessment to be carried out safely and reliably at a distance, guaranteeing the identity and continuity of the student.
- *From teacher to educational team*: the role of the teacher is still central in the new hybrid formats, but it is only possible through collaboration with other teams that provide technical support, student coordination, content preparation and design the sessions. Although the new hybrid formats foster a closer, deeper and improved student–teacher experience, support teams are more necessary than in a traditional face-to-face environment in order to deliver and scale classes.
- *Peer interaction and feedback*: the new hybrid formats are characteristically immersive and interactive, promoting relationships and exchanges between participants in a program. Digitally based social mechanisms and applications allow for rapid and simultaneous communication, which, if well managed, can integrate class members, strengthen group and institutional identity, resolve difficulties and unify messages. In addition, the feedback provided by students, who can sometimes exercise influence over their peers, can be enormously useful for learning, confirming strengths or identifying areas for improvement.
- *Applied projects, internships and exchanges*: the potential delocalization of students' hybrid formats offer can facilitate the combination of internships or international stays with attendance on courses taught at the business school, both in synchronous and particularly asynchronous formats. The new formats also encourage the participation of guest lecturers or corporate representatives from anywhere in the world, without the need for travel. On the other hand, the use of devices, software and other augmented

reality developments makes it possible to travel to remote locations without moving: for example, to virtually visit the Airbus factory, or to attend a board meeting in the same virtual room with participants from different continents.

Learning to Survive in the Artificial Intelligence Age

Artificial Intelligence is the ability of a computer to perform tasks that are usually performed by humans with no need of human discernment. So why should it be so important what we learn when a machine already knows everything that we need to know? As you can imagine, we don't aim to have a dystopic situation in which machines are able to take control over how humans should live, and for that not to happen, it is essential to establish the limits that artificial intelligence has in contrast to human intelligence.

Machines and humans' intelligences have something in common, cognition, that is the process of thought from which we are able to create our knowledge and understanding from the world. The result of cognition is what many AI systems deliver through their algorithmic minds. To differentiate artificial from human intelligence, we now need to understand how humans can look beyond the knowledge and understanding of the world, by developing knowledge of themselves and of their own cognition. Metacognition (big subject of discussion since Aristotle) is composed of the basic assumptions that lie behind the way we know and think, the conceptual framework that helps understanding what knowledge is.²⁵

Having this differentiation in mind, we now should aim to understand what things we should take into account, so we don't make the mistake of allowing the limited intelligence of machines disrupt human control, and for this, education plays a key role. Obviously, having technological skills will be key for our coexistence with AI, although it's even more important not only to learn what technology can do for us, but also what it can't, and will never will. One of the most unique human capacities (beyond metacognition) is actually the one that machines will never be able to replicate, although it's also one of the hardest to teach. I'm referring to creativity and how we can learn to be creative in a world of AI.²⁶

²⁵ R. Luckin, *Machine Learning and Human Intelligence: The Future of Education for the 21st Century* (London: UCL Institute of Education Press, 2018).

²⁶ J.E. Aoun, *Robot—Proof: Higher Education in the Age of Artificial Intelligence* (Cambridge, MA: MIT Press, 2017).

Creativity happens when we are knowledgeable of the matter that we are facing. Generating that knowledge happens through education. For example, at IE University we believe that in order to enhance our creativity in the world of AI we should master certain skills and reinforce certain attitudes:

1. **Tech and data skills:** if we aim to control AI we should at least understand and speak the language of technology. Although we intuitively navigate with no problem through different websites and apps, we don't necessarily understand what is behind those apps. As coding is the language of technology, we should at least be literate of this language.
In addition to technology, in the digital age we have realized data is the new gold. Although what is really gold is our ability to find a meaning of the tons of information pouring to our devices. This is why big data is so important to survive in a world of AI, to be able to read the digital record when it's necessary and to look to another place when it's dispensable (fake news).
2. **Diversity:** this human attitude will be essential in a world dominated by AI as we will enhance our understanding of other cultures and perspectives (including the ones of the machines if we are fluent in tech) having a broader understanding of the world, enriching our minds and broadening our thinking. Education is the key to connecting people around the world in multiple ways.
3. **Entrepreneurial mindset:** in a world where everything is changing so fast, governments, corporations and individuals will increasingly struggle to adapt. Therefore, we must convey an entrepreneurial spirit to our students so they can have the flexibility that allows them to adjust in a creative manner. Having an entrepreneurial spirit will be essential to survive in an ever-changing world. In addition, in a world dominated by AI we need to enable the existence of talented and innovative leaders that peoples' lives.
4. **Humanities:** as in *The Odyssey* of Homer, every journey starts with an individual. If we can truly understand what makes us who we are—our passions, talents and aspirations—then we can create greater meaning in a world dominated by AI. It is only through the study and critique of literature, history, art and philosophy that individuals and societies will be able to navigate the complex questions raised by technological, societal and environmental change.

The Role of the Teacher Is Pivotal

In this context of increasing integration between technology and teaching, the role of teachers becomes more decisive than before, as they move from a unidirectional approach to orchestrating the entire learning process and even the platform. Attracting professors to this new environment will not be easy, in part because the boards of most business schools require high quorums to approve major changes in the educational curriculum. This collegial approach, which is deeply rooted in academia, could hinder a transformation process that requires a rapid response to the changes taking place or slow down the adaptation of the role of academics to the new needs of education. This gives a certain advantage to executive education centers and consulting firms with business-oriented outlook and decision-making systems.

The other convention that could delay the adoption of new teaching methods and the integration of technology in education is tenure, the life-long nature of some teaching positions in universities, regardless of performance or an academic's commitment to innovation. Only those with a clear academic vocation and a firm commitment to teaching will be motivated to effect change. At times, institutional resistance from faculty senates, along with the collegial governance prevalent in traditional universities, are driving other entities to attempt to bring change through the creation of independent businesses, as happened at one time with Duke CE, although it has since returned to being part of the university, or by hiring faculty who are outside the system, as has happened at Cornell University's New York campus. One of the factors that most delayed the adoption of hybrid formats at the beginning of the pandemic, for example, was the reluctance of faculty to either teach their classes online or return to campus.²⁷

On the other hand, it must be recognized that teaching in hybrid formats is potentially more stressful for teachers. It is no longer enough to teach a class from the podium; teachers have to manage a platform, interact with students in person and/or remotely, control the visual support mechanisms—cameras—and sound, and perhaps a digital whiteboard, in addition to being logically entertaining to keep their audience engaged. However, sometimes this effort is truncated by connectivity and network failures and even student apathy, factors that may be addressed in advance.

²⁷ M.D. Miller, "A Year of Remote Teaching: The Good, the Bad and the Next Steps", *Chronicle of Higher Education*, March 17, 2021. <https://www.chronicle.com/article/a-year-of-remote-teaching-the-good-the-bad-and-the-next-steps>.

In order to implement hybrid formats, the following initiatives may be helpful:

- Create financial and other incentives to encourage teachers to incorporate new educational methodologies. As a general rule, hybrid formats require more preparation than face-to-face sessions, especially at the beginning. This can be compensated for by making one blended session equivalent to two or more traditional sessions.
- Preparation and training in the use of asynchronous methods such as forums or digital content supervised by the teacher, which are necessary to become familiar with the technology and the new approach to teaching. This is where technology companies can play a fundamental role, as they already invest in training. This would be in their own interest, since they will gain an important ally in the process.
- Encourage new teaching methods. Face-to-face and virtual sessions can become interactive experiences that can transcend traditional educational formats. This process will elicit better evaluations from participants and enhance the reputation of teachers, which in turn will lead to better salaries.
- Improve the role of academics as teachers. In general, teaching has been undervalued in recent years in favor of research. Instead, these two important aspects should go hand in hand. With this in mind, it would be worthwhile to review the incentive system in universities and to recognize and value the increase in teaching, especially in the new virtual context. This is something that could be addressed from the outset, for example, during doctoral programs studied by the academics of the future with the aim of raising awareness and providing them with new skills they will need to be good teachers.
- Combining technology with teaching continues to create new approaches to enhancing the educational experience. Much research has been conducted on the benefits and drawbacks of hybrid formats and more is needed if we are to better understand the transition from classroom to integrating technology.

Conclusion: Education Must Remain a Journey

There has been speculation as to whether in the future it will be possible to install a chip in the brain that would allow us to instantly acquire knowledge on the scale of the Encyclopaedia Britannica. This may still be some time

away, if it ever happens at all, although reality always trumps fiction. Nevertheless, there are two drawbacks to the approach. The first was highlighted recently when Chris Anderson, editor in chief of Wired magazine, argued that Big Data, will make obsolete the traditional method used by scientists of hypothesis, model, test.²⁸ Luciano Floridi, an Oxford academic, countered with a reference to Plato, who explained that knowledge is more than the mere accumulation of information or data. Floridi explained that data does not speak for itself and needs what he calls smart questioners.²⁹ Even if we had that chip installed in our brains with the entire Encyclopedia Britannica, and we could answer the question as to who Plato was, we would still need the Humanities and education to explain why he remains so important to the world of ideas.

At the same time, the idea that technology can replace essential parts of learning such as careful reading, the association of ideas or understanding complex issues, overlooks the fact that the most enjoyable part of education is the journey, not the destination. As one of the central works of literature, Homer's *Odyssey*, teaches us, the meaning of education becomes clear as we travel through life, which both teaches and changes us.³⁰ Liquid education will facilitate the permanent change which, as Heraclitus explained,³¹ we all experience on a daily basis.

²⁸ C. Anderson, "The End of Theory: The Data Deluge Makes the Scientific Method Obsolete" *Wired*, June 23, 2008. <https://www.wired.com/2008/06/pb-theory/>.

²⁹ L. Floridi, *The Fourth Revolution: How the Infosphere Is Reshaping Human Reality* (Oxford: Oxford University Press, 2014), 129–130.

³⁰ Homer, *The Odyssey* (London: Penguin, 2003).

³¹ D.W., Graham, "Heraclitus", *The Stanford Encyclopedia of Philosophy* (Fall 2019 Edition), Edward N. Zalta (ed.). <https://plato.stanford.edu/cgi-bin/encyclopedia/archinfo.cgi?entry=heraclitus&archive=fall2019>.