

Innovation in higher education: an urgent need for genuine ambition

There are two components to innovation in higher education: teaching practices and taught content. Even though the training sector is not usually perceived as being particularly innovative, the opposite is actually true: teaching practices have diversified a lot, and as professors and students have become more international, that diversity has improved. Adult training has long been a rich source of innovation in education. Lastly, research is a wonderful vector for innovation in terms of content, because the interweaving between teaching and research calls many things into question.

Recently, as in other sectors, this innovation has moved forward in leaps and bounds, driven by the arrival of new generations of students – digital natives in particular, who have a special relationship with digital and information – and vast changes in the skills and knowledge requirements from executives and young graduates joining the world of work. The ability to acquire new knowledge is actually becoming more valuable than knowledge itself. Digital tools have also stimulated innovation, although using them has led to the emergence of learning approaches that differ from before. As is often the case with innovation, a “test and learn” approach is particularly well suited to training. As EdTech has skyrocketed, new players in the sector have arrived on the scene, and many partnerships have been forged with academic institutions, which has encouraged open innovation.

A book about training and entrepreneurship would be incomplete if it didn't address the issue of innovation. All too often innovation is confused with entrepreneurship. This is especially true in companies, business schools and universities, where many chairs combine the two dimensions. There are several reasons for this assimilation. Many iconic start-ups, such as Uber and BlaBlaCar have been very innovative, even revolutionising their sectors. When companies seek to stimulate innovation themselves, they strive to foster an internal culture of entrepreneurship, so that approach becomes a state of mind rather than the actual start of a new business. That's why higher education professionals who seek to stimulate innovation in their students often also resort to methods that have been tried and tested by start-ups and entrepreneurs. However, if we think in more general terms, it should be remembered that most innovations come from established companies. Conversely, many business creations are not based on major innovations (Kotler *et al.*, 2019). The question of innovation and its link with start-ups therefore arises in the training sector as it does in others:

- 1. Can established institutions be vectors for innovation?** The answer is straightforward: just like L'Oréal or Google – established and extremely innovative companies – some training institutions can be key drivers. In the world of management schools, a great example would be the Spanish Instituto de Empresa and its Wow Room, which has circular screens on all sides, equipped with tools to identify the expressions of the students taking remote-learning courses, so professors can interact with their students because they can perceive their emotions. They can see if the learners are enthusiastic or puzzled during sessions. Another example is at the Massachusetts Institute of Technology (MIT) and the masterclass offered by its Media Lab, which gives students the responsibility of designing their own courses. Finally there is NEOMA and its immersive virtual reality sessions, which have received a series of international awards, in particular from renowned accreditation bodies such as Association to Advance Collegiate Schools of Business (AACSB) and Association of Masters of Business Administration (AMBA).
- 2. Should we rely on start-ups to innovate?** This intrinsic capacity for innovation does not detract from the usefulness of joining forces with

start-ups to stimulate innovation. Stanford has chosen to join forces with a start-up called Coursera to develop and distribute its online courses, as has Duke, the University of Pennsylvania and École Polytechnique. Looking at the example of NEOMA: the school is revolutionising its understanding of the career paths that lead to certain professions, with the help of the start-up HumanRoads which draws on big data from the web. There are many innovative start-ups in the field of education and educational technologies. So it can be extremely beneficial for an established school or university to associate with these organisations through open innovation.

To analyse how and to what extent the training sector (in the broadest sense of the word) is innovating, this chapter will tackle two questions:

1. Why is innovation in training paradoxical? Learning is seldom associated with innovation in people's minds, and yet it is on the front line in terms of contact with new generations.
2. How does innovation now affect many areas of business? The aim will be to show how essential it is to focus clearly on innovation in a constantly shifting sector.

Innovation in higher education covers two components: teaching practices and taught content. We will address both simultaneously. The two subjects are indeed very closely intertwined, because new teaching practices favour content innovations – and vice versa. In this chapter we'll be looking at content in the field of management.

1. The paradox of innovation in higher education

Higher education is a paradoxical sector when it comes to innovation. Although it concerns the younger generations, and therefore by definition appears avant-garde, training is nevertheless historically associated with a low degree of perceived innovation. Experts point out that classrooms today look more or less exactly the same as they did at the end of the 19th century, except that the blackboard has often been replaced by a whiteboard or an interactive screen.

1.1 The sector is more innovative in learning than may be apparent

However, higher education is more innovative than people think:

- The status of faculty and their teaching practices have changed a lot in recent years. While faculty is still seen as the bearers of knowledge, they now play more of a supporting role in learning. Students clearly have access to a lot of information and data outside of the classroom – in books and on the internet. Beyond the case study method, which was widely developed in the 1970s and 1980s, management schools have diversified how they educate, now integrating business simulations, serious games with virtual scenarios, cooperation between management, engineering and design schools to develop innovative projects, hackathons, flipped classes whereby students present a topic and “teach” in front of their peers and the professor, and so on.
- Business schools have changed a lot recently as well: from institutions that used to focus on one prestigious programme (MBA in the US, “grande école” programme in France), they have now become multi-faceted and developed several specific and specialised courses (MSc, MiM, specialised bachelors). In addition, they are aimed at a much more international audience – and that applies to both students and professors. International professors now make up 65% of the faculty at NEOMA, which means that culturally diverse pedagogical practices can be integrated into its programmes, because teaching traditions differ from country to country: South Korea, China, Germany, France, and so on. This diversification in the faculty profile has had a huge benefit on how students learn. Initially based mainly on local and American traditions, it now draws inspiration from many different countries.

And that’s the paradox of business schools that evolve at high speed to meet the requirements of globalisation and international accreditation bodies – making France the country with the largest number of business schools ranked in Europe’s top 100 according to the *Financial Times*, ahead of the United Kingdom and all the other European countries – even though they are generally perceived to have a low level of innovation. In addition to competitive and international pressure, innovation is stimulated by two drivers: continuing education and research.

1.2 Continuing education as a vector for innovation in education

Historically, continuing education has been a fertile ground for innovation, for several reasons. First of all, clients – whether they are companies or executives – are always on the lookout for content at the cutting edge of their practices, some even avant-garde, to help them innovate and change how they work. Secondly, these clients are often accustomed to the learning methods that are used in the business schools they attended as students. So they are looking for different mechanisms and pushing training providers to think outside the box and offer new approaches. The fact that they don't offer a specific diploma also provides much more leeway to innovate quickly, without the constraints of official recognition coupled with three or four years of study. Lastly, the formats of continuing education programmes – in small groups and with plenty of interaction – allow more freedom than the usual weekly courses intended for students, especially within the framework of “bachelor” or “grande école” programmes.

So executive education is often used to try out learning ideas for educational institutions, because new approaches can be tested there, and later be deployed on a larger scale to students. The first e-learning courses, the first design thinking workshops, or summer schools or bootcampus, were mostly first created in continuing education before being offered as degree programmes. New players in education technologies such as LinkedIn and Coopacademy know this well, and they are choosing to enter the market through continuing education.

1.3 Research as an innovation driver

Another driver for innovation is research. What distinguishes a top higher education institution from a basic distributor of knowledge is the importance placed on knowledge creation. Research in management can be used to question how companies operate by examining their performance beyond their habits and fads. Higher education is based on an interaction between research and teaching, and the two feed off each other. All teaching researchers know that it is extremely rewarding to share the results of research work with students. It allows them to question the content that is taught and make improvements, while encouraging the researcher to learn how to explain their research work and what that might mean for them as managers. Meanwhile, students benefit from new knowledge and learn how to adopt innovative perspectives.

In addition, encouraging students to carry out their own research work in the form of end-of-study dissertations, draft articles or professional theses, even when they don't plan on going into research, helps them improve their ability to think critically and steps up their analytical skills and propensity for innovation by forcing them to think outside the box and for themselves. In some countries, Germany for example, this approach and the valuation of training through research are such that it is common for future executives to prepare for a doctorate diploma before joining a company as an employee. In China, DBAs (Doctorate in Business Administration) are extremely popular. And when, after the 2008 financial crisis, business schools came under fire for helping to disseminate the models of finance that were blamed for the sub-prime crisis and its effect on the global economy, specialists called for more teaching through research to foster innovation in higher management education (Good *et al.*, 2010).

2. Accelerating evolution

The changes above have been happening for a long time, ever since business schools were created. More significant changes occurred when dedicated faculty were developed throughout the business schools of the world from the 1970s, then when they became much more international from the 1990s, and then when national and international accreditation systems emerged and were diffused from the 2000s. However, in recent years we have seen innovation in higher education really taking off. In this respect, education is undergoing a transformation similar to what many other sectors are experiencing. There is a complete overhaul in practices, economic models and competitive environment due to the development of digital technology and the ongoing industrial revolution.

2.1 The three current driving forces of innovation in higher education

Several influences are at work to promote innovation in the area.

- **The first major development is that students attending universities and schools are always at the forefront of society.** Generation Z, the 18-year-olds who are now going into higher education, was born in 2002, four years after Google was created (1998). These young people

were two years old and could not even read when Facebook appeared (2004). They were five years old when the first iPhone was launched (2007). Suffice to say that Generation Z learnt to click and scan screens before they knew how to read. In addition, they consider that the best sources of information – on any issue – are the web and Wikipedia, even ahead of reference books... and their teachers. Schools and universities are often asked whether they use blended learning, which involves combining e-learning and face-to-face classes: of course they do, because their students pull out their smartphones or laptops even before they start looking at their study notes. This generation has developed a **new relationship with information**. So professors, who for a long time – along with their many other roles – were transmitters of knowledge, have seen that part of their profession completely transform. Teaching is no longer about finding information, but rather helping learners to sort and organise an abundance of information. Learners need to know how to transform it into knowledge and make it a lever for decision-making, even when they struggle to determine whether or not it is reliable. The role of the teacher is therefore changing profoundly in this new relationship with data and knowledge.

- **Second major development: young people learn differently.** The new generations find it very difficult to sit around listening to a professor for several hours. Lectures now need to be brief and include interaction. Young people are often criticised for their lack of concentration. It is true that attention spans are becoming shorter (Patino, 2019). However, these new generations have insatiable curiosity, an ability to learn for themselves, a strong openness to the world, and an undeniable critical mind. In short, young people today are different, just as each generation before them was different from the previous one. And these changes require an urgent response in terms of teaching methods: a succession of short sequences with distinct learning times; more group work; peer learning; inductive learning based on looking for information online before working on how to decipher it and shed light on it methodologically and conceptually. Given the huge amount of information that is available, theory and conceptual frameworks are even more important than before, but need to be taught in new ways.
- **Third major development: the occupations students will undertake and the skills they will need are also changing enormously.** Some studies claim that 85% of the jobs that people will be doing in ten years

do not yet exist,¹ or less radically, point out that the skills required in companies are changing fast in the age of artificial intelligence and big data. In this environment of constant flux, the ability to adapt and develop agility will be what makes or breaks the course of a professional career. As London Business School Professor Lynda Gratton points out, at a time when some of the tasks will be performed by machines (artificial intelligence for cognitive tasks, robots for manual tasks), soft skills will become more and more important (Gratton, 2018). As such, the role of higher education is no longer to train experts in a field or a profession that might soon be obsolete. Rather, it is about preparing them to do jobs that don't yet exist, and therefore to develop their ability to adapt to changes in the future. **The ability to acquire new knowledge is actually becoming more valuable than the knowledge itself.** The role of higher education is now more to teach students how to work with very different groups of people, build skills based on creativity, group work, manage the complexity and abundance of data, be comfortable in a multidisciplinary environment, and carry out tasks and make decisions that machines will be unable to take on. The issues around sustainable development are a good example. Making relevant decisions in this area means taking into account eminently technical dimensions from various disciplines and requires managers to work with experts from different fields. More generally, it is now about training learners to acquire skills rather than prepare them for their first job, so that they become more agile, more creative and go on learning throughout their professional lives. This is of course also true in the area of continuing education, where demand from companies is increasingly focused on soft skills, because knowledge transmission can now often be done online.

These three factors come together to stimulate powerful innovation and accelerate change within the management of higher education (as well as other disciplines, for that matter), both in the content that is taught and the teaching methods that are used. For the first factor, each institution makes its own choices. However, in a school like NEOMA, the emphasis

1. Report "The Next Era of Human | Machine Partnerships", produced by Dell Technologies and the IFTF (Institut pour le futur), July 2017, 28 p., https://www.iftf.org/fileadmin/user_upload/downloads/th/SR1940_IFTFforDellTechnologies_Human-Machine_070717_reader---high-res.pdf

is on soft skills, the ability to develop projects, as well as on environmental issues, corporate social responsibility, entrepreneurial mindset, digital transformation, links with the “humanities”, and ethics. For the second factor, changes are more general and shared.

2.2 Digital innovation in teaching methods

In addition to the three factors that we have just mentioned (new relationship with information and knowledge, new ways of learning, new skills sought by companies), innovation in education is also encouraged by the new possibilities that are becoming available as a result of the wider digital revolution. That means e-learning, of course, but also the way in which digital is changing how people learn, particularly remotely and at different times. Other tools promote other teaching methods, including:

- **Peer-to-peer assessment learning.** This is used in some Massive Open Online Courses (MOOCs) for example, where learners evaluate the work done by their peers, so the process is stimulated by the analysis and correction of other people’s work.
- **Gamification in learning.** This is widely used in institutions such as école 42, where courses are designed as a series of tests and levels just like in a video game. At each stage the learner is given a challenge and he or she must work alone to find out what they need to do to solve it. Learners move forward at their own pace and in their own time.
- **Remote group work.** Students from different countries and universities can work together, which improves their ability to evolve in a multicultural and/or multidisciplinary environment.
- **Shared note-taking.** This is done in class, as a collaborative project on the same document shared by several students (UniShared system).
- **Personalised learning.** Approaches to learning based on individual progress, such as the start-up Frello which teaches French to foreigners.

There are endless possibilities, and there is often a mix of digital and face-to-face options. Beyond technical capacities, the real issue is the way in which learners – students or managers – use and react to the new options that are being offered to them. It is becoming clear that people are responding to and using innovation differently from how we imagined they would. Here are some examples:

- **MOOCs.** Results in this field are way below expectations. It was hoped that access to these tools would be available all around the world, that knowledge would be brought to populations who wouldn't otherwise be able to receive higher education. Yet only 5 to 10% of MOOC users actually complete their learning programme. And it appears that those who do get through it all are often the most educated, which calls into question the positive aims of this tool, which was to bring knowledge to those who had been left behind by existing education systems. Conversely, more and more universities, especially in the United States, now use MOOCs to offer their students refresher courses in weaker subjects or after failing exams.
- **E-learning.** Spurred on by the possibilities offered by this tool – and by its lower cost – some schools have replaced many courses with online modules. Young students – those who have just left high school and are starting out in higher education – often struggle to work by themselves on e-learning modules, because they have neither the autonomy nor the willpower they need. The system is more effective when it targets more mature and more specialised students.
- **Blended learning.** After investing hugely into digitising continuing education modules, some companies decided to use facilitators to share learner experiences of e-learning content and providing opportunities for face-to-face discussion. It has transpired that beyond technology, discussions, exchanges and questioning sessions are essential for learning in a variety of contexts, whether they happen online through Zoom or other tools, or offline.

Just like anything associated with digital technology, technical capacities need to be combined with effective usage. Only by testing the tools can they be improved and optimised for better learning, by means of experimentation and test and learn. So it is wise to test a system before deploying it on a large scale, as is traditionally the case in innovation (Le Nagard-Assayag *et al.*, 2015). For instance, with regards to immersive virtual reality, NEOMA teams have set up tests to measure the impact of these new virtual immersion devices and compare them with more traditional formats like paper and video (see box below).

Case study: NEOMA tests the impact of immersive virtual reality (IVR) on learning

(by Alain Goudey and Alexandre Allion)

Over the last few years, NEOMA has developed educational systems that use virtual reality to immerse learners into the life of a company. All they need to do is wear a helmet like the ones used for video games. In order to carry out scientific analysis on the impact of this tool compared to other more conventional materials (text, slides and video), the teams at the school ran a test. They submitted four groups of students to case studies with similar content but on different media, and then had them fill out an evaluation questionnaire. Here are the main results of this experiment:

- The IVR method had a significant positive impact on the learners' perception of understanding the content, the positive emotions felt during the learning process ("liked to learn this way", fun, enthusiasm), the perceived usefulness and the interest of the course ("interesting" and "useful").
- It is the second best method in terms of work completion (8 questions out of 10 were answered, just slightly less than the text group – which obtained a score of 8.9): the students felt very comfortable answering questions after using IVR.
- IVR was judged by the students as being the least boring learning method, while the most boring method was found to be... slides (certainly the most commonly used)!
- No significant differences were observed between the test groups in terms of performance on the knowledge test (memorisation and transfer of concepts). This result is perhaps due to the short period of exposure to the concepts (only 7 minutes).

In conclusion, the study shows the benefit of the "virtual reality" tool. It increases student engagement, motivation and enjoyment of being in class and learning. It helps to improve the perceived usefulness and benefit of learning, probably because it allows students to learn while doing, while experiencing the case in question (as authentically as possible) directly in the classroom.

2.3 EdTech and open innovation in education

Over the last ten years, the possibilities offered by technology to change learning methods have given rise to the emergence of a new sector: EdTech (contraction of "educational technologies"). This sector is booming all over the world, especially among start-ups. There were 411 EdTech start-ups in France in the autumn of 2019 and France is the second European country in terms of its ecosystem, after the United Kingdom. Globally, more than 10 billion dollars was raised between 2013 and 2017.

This enthusiasm for EdTech has led some people to declare that traditional educational institutions will soon be dead, due to an “Uberization” of training, where anyone can create training modules without having a strong brand or institutional recognition. Some anticipate that companies like LinkedIn or Google will play a key role in the education market.

The situation is not necessarily so cut and dried. Indeed, “tutorials” and other online tools are increasingly used for training in software or on technical subjects. In continuing education, new learners have an important role, for example in tailor-made programmes for companies where players such as Coorpacademy develop “SPOC” (Small Private Online Courses), to train the employees of a given company. However, when it comes to student education at the undergraduate or Master’s level, the sector is still hugely impacted by official recognition. In most countries, degrees must be recognised by the Ministry of Higher Education, and the quality of academic institutions and programmes can be assessed by international accreditations such as the European Foundation for Management Development (EFMD) and Association to Advance Collegiate Schools of Business (AACSB). As a consequence, many EdTech players have chosen to enter the market by joining forces with established institutions to be able to offer diplomas or certificates, and have access to continuing education tools. For example, First Finance and HEC Paris have joined forces to offer certified online training on various financial topics, while ESSEC has decided to partner with Coursera to offer programmes on areas such as negotiation and hospitality management. The same institutional player can also have several partners. ESSEC has also partnered with Pearson (a specialist publisher in higher education and digital learning, which has also published the book you are reading) to develop online training programmes on topics such as big data and artificial intelligence.

In reality, the dynamism of EdTech encourages open innovation and partnerships between established institutions and innovative start-ups, based on a process that is comparable to what is happening in many sectors, where large companies are implementing open innovation practices to foster an entrepreneurial mindset and stimulate internal innovation (Chesbrough, 2003; Manceau *et al.*, 2011; King and Lakhani, 2013). In this sense, education and training are not exceptions and recognised institutions – refusing to become the Kodaks of tomorrow – seek to strengthen their ability to innovate through partnerships and collaborations with start-ups.

Key ideas

Innovation is the ability to question commonly accepted ideas and established practices. It's a move away from "we've always done it like that", and a step towards finding new solutions. It's about questioning habits and certainties and coming up with new practices. Innovation is a constant in training and education, and applies to both course content and teaching practices. It is now moving forward in leaps and bounds, pushing schools and universities to renew and diversify their practices, bringing in new players and leading to new partnerships with a focus on open innovation. It is likely that this acceleration will continue in the years to come with the new possibilities that are opening up through big data and artificial intelligence, which will make education more personalised and monitored. In terms of content, the significant transformations of all industries lead to changes in economic models and how companies work and operate. These transformations are also changing the content of management education and its objectives: it is no longer about preparing students for specific jobs but about developing skills. In this regard, the enthusiasm for courses on entrepreneurship, which is widely discussed in this book, reflects how training and education have changed and is now aimed at developing the entrepreneurial mindset and the capacity for innovation among students and learners. Higher education is likely to go on evolving and innovating massively in the years to come, a phenomenon which echoes the changing expectations of companies on how their employees and future recruits are to be trained. Genuine ambition is required in this area, in line with the profound social and economic developments of our time.