Chapter 3 - Translearning: unfolding educational institutions to scaffold lifelong networked learning

Ismael Peña-López

INTRODUCTION: TOOLS AND THEIR TRANSFORMING ROLE

When we speak about which tools to use in online learning it is easy to end up using the tool just because it is there and can be used or everybody is using it. Although we tell ourselves that tools are simply a means to an end – in this case, learning – what happens time and time again is that we use tools as aims themselves.

This even happens in cases in which we give ourselves categories, genuine ontologies, to assign each tool to a drawer that we will reach for only when we clearly understand its instrumental role. If we want to foster the transition from traditional learning to an enhanced model where ICTs have their role, ICTs should not be the driver of change, but the reasons for that change should.

In this chapter we will centre our reflections on the limitations of traditional learning and how technology can be handy in overcoming them. We will focus on how to make a smooth journey to enabling network learning, to scaffolding lifelong learning, to use educational technology to empower sovereign learners. We will do it by disassembling, dissecting and cracking open the institutions that, until now, have continued to lead both teaching (successfully, to be sure) as well as the learning taking place within these institutions.
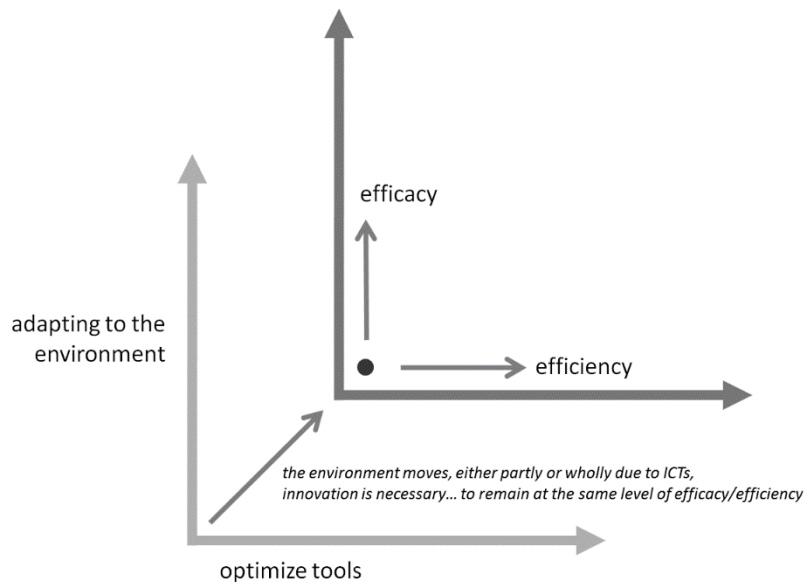
We want to therefore put into focus not only the tools but also the educational institutions that are experiencing disruption, which is in part derived from certain strategies and tools. In analysing the shake-ups taking place, the present chapter will look at ten selected educational institutions (understood in the broadest sense) to see how certain strategies and tools are playing out.

Our analysis – and the array of tools of our choice – will be based at all times on four crucial points on which we think that this shake-up, the transformation of institutions, is particularly relevant.

Efficacy and Efficiency

Information and communication technologies (ICTs), as the name indicates, are specifically applied in knowledge-intensive settings – in other words, where learning takes place. In these settings, they have an impact on efficacy (reaching the greatest number of objectives) and efficiency (obtaining objectives with a lesser amount of resources). In the following sections we will systematically state that a fundamental reason for using ICTs – along with transforming educational institutions – is to reach more learning objectives using a smaller investment of resources. At the same time, not using ICTs,

while not a bad thing in itself, makes us inefficient and ineffective. And despite the fact that we continue to do things well, the world has moved along, leaving us out of step (Figure 3.1).

efficacy

adapting to the
environment

efficiency

the environment moves, either partly or wholly due to ICTs,
innovation is necessary… to remain at the same level of efficacy/efficiency
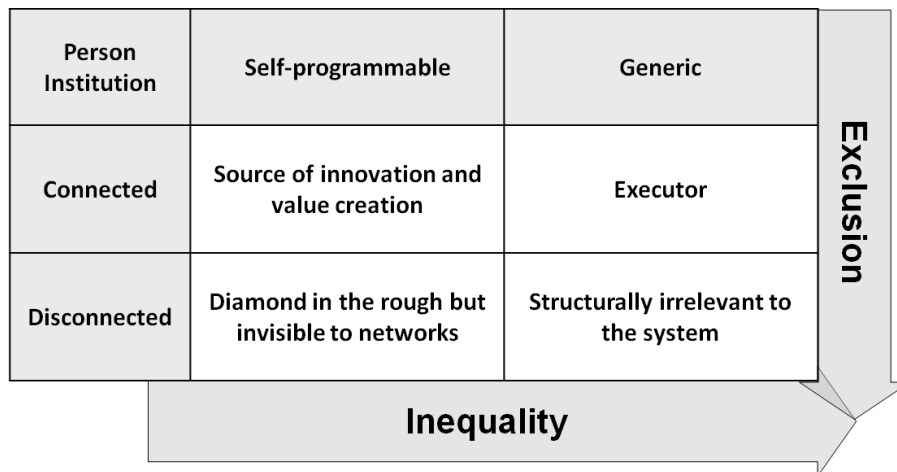
optimize tools

Source: Author.

Figure 3.1 Changes in efficiency and efficacy produced by the emergence of ICTs

The Online Connection and the Capacity to Self-Programme

Castells (2000, 2004) described new drivers of exclusion and inequality in the Knowledge Society. Being connected (not to the Internet, but to a knowledge network), in addition to being able to adapt to one's surroundings (through learning and applying new knowledge), makes us valuable points of interchange, otherwise we become totally irrelevant Figure 3.2.

People or institutions that only learn once in a lifetime and are unable to reshape their skills are labelled as generic; on the contrary, being able to learn to learn, to adapt to the continuous changes of the environment, makes people or institutions self-programmable. When crossing these attitudes to belonging to one's social network we find four types of stages that can lead to social inclusion and equality or, on the contrary, to exclusion and inequality. Generic people/institutions that are not connected to their social tissue become 'irrelevant to the system' as they will not get jobs, they will be social outcasts: some low-education immigrants or homeless people belong to this category. Executors include all people and institutions that do repetitive tasks and that are very likely to be replaced by automation or just disappear. Many of the issues that the 'collaborative economy' is bringing today are directly affecting this segment, from music and book outlets to (quasi-)monopolies like energy distribution, innovation departments, taxis, or touristic housing. Pioneers that act on their

own (selfprogrammable but socially disconnected) are at an unstable position: either they connect to their peers to add value to society with their renewed skills and knowledge or they are very likely to cease learning (self-programming) and become structurally irrelevant to the system. This is the choice of many start-ups or visionary geniuses: join forces with others or perish. In education, this can be transposed to what type of citizenry do we form a part of? Or, better still, what type of educational institutions do we have in place? Do they add value or are they irrelevant? The application of ICTs based on whether they turn an institution into an online institution capable of relearning will be an important point to discuss.
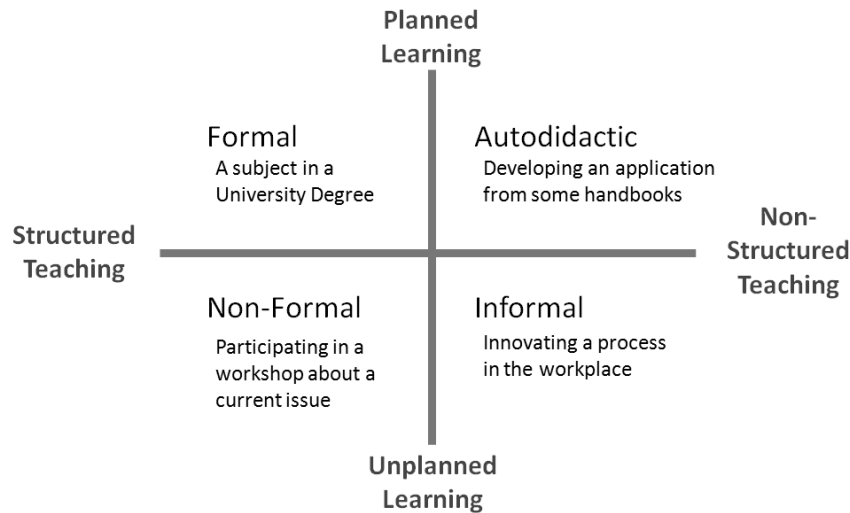
Person Institution	Self-programmable	Generic	
Connected	Source of innovation and value creation	Executor	**Exclusion**
Disconnected	Diamond in the rough but invisible to networks	Structurally irrelevant to the system	
Inequality			

Source: Author, based on Castells (2000, 2004).

Figure 3.2 Drivers of exclusion and inequality in a knowledge society

The Progressive End of the Clear Definitions of Formal, Informal and Non-Formal Spaces of Yesteryear has Begun

If we could accept the impact of ICTs on educational settings it would, without a doubt, welcome an endless number of opportunities and spaces for informal learning (for example, what happens at the workplace, at libraries, at youth civic associations). Furthermore, as these new spaces continue to hybridize with those of the formal education system, these same definitions, the formal, non-formal and informal, become less valid. We will also therefore centre the analysis of strategies and tools on this hybridization, which is the cause and consequence of educative institutions' increasing transformation Figure 3.3.

Planned Learning

Formal
A subject in a
University Degree

Autodidactic
Developing an application
from some handbooks

Structured Teaching

Non-Structured Teaching

Non-Formal
Participating in a
workshop about a
current issue

Informal
Innovating a process
in the workplace

Unplanned Learning

Source: Originally in Peña-López (2013b).

Figure 3.3 Educational settings based on structure and planning

Heutagogy

Defined as self-determined learning (Hase and Kenyon, 2000; Blaschke, 2012), aims to go beyond andragogy, conceived as self-directed learning, and places great emphasis on learning throughout the life based on learning to learn. Certainly, if one adheres to these last two catchphrases, institutions should develop these capacities in the educational setting so that students may be self-reliant when these educational institutions are not available to help. Again, in this context, ICTs as well as 'learning and knowledge technologies' (Vivancos, 2008) take on a highly transformative role that goes far beyond mere instrumental use.

UNFOLDING EDUCATIONAL INSTITUTIONS

So, this is our categorization, our ontology to present, analyse and evaluate the resources available to us to learn online. We will see that these resources are quite varied. They include not only the inevitable ICTs, but also all resources these ICTs allow us to access. In the following sections we will examine, dissect and question several educative institutions: schools; classrooms; textbooks; libraries; syllabi; schedules; teachers; evaluations; certifications; and curricula. In doing so, we will define the resources – whether technological, human, organizational or other – that allow to us do that which we have called *networked learning*.

The School

The educational system has as its focal point learning centres: schools, high-schools, universities and so on. The main characteristic of these centres, with the exception of some, is a double dependence in terms of space and time. That is to say, one must be physically present at the centre and one must be there at a specific scheduled moment. Undoubtedly, the first condition of networked learning is to

be part of a network. To this end, it necessary to break down the barriers that physicality implies, the two most fundamental being space and time.

Virtual campuses and their variants, among them virtual learning environments (VLEs) and learning management systems (LMS), allow us to step beyond educational centres, not to break away from them, but rather to open them to the outside in terms of both space (accessing resources from anywhere) and time (access resources at all hours). Baumgartner (2004, 2005) and Peña-López (2007) describe different tools to better adapt technology to the necessities and methods of learning. Thus, we see a range from the eminently institutional LMS to other tools of the so-called Web 2.0, which may carry out the same functions of overcoming space and time. Such tools include blogs and wiki platforms.

Blended learning, or partially on-site learning, has traditionally been viewed as a methodology supported by virtual settings to enhance face-toface learning. Certainly, this is still very much in practice and can perfectly continue to be practiced in this way. However, we invite the reader to reflect on something that without a doubt will impact far beyond the use of virtual spaces as a bolster for physical presence. Thanks to virtual campuses and their like, it is possible to leave behind the restrictions that come with being physically present

● Opening up space and

● Opening up time.

In addition to providing unprecedented opportunities to students who live far from educational centres, online learning also includes a range of opportunities for the centres themselves, just like Liz Marr from the Open University explains in her chapter (Chapter 1) on how to move from distance education to online learning. In addition to opportunities that are internal (a-synchronous and ubiquitous relationships among students, teachers and the centre; total accessibility to learning resources; self-management; horizontal communication, etc.), limitless opportunities are created externally: when there is no longer a need for simultaneity in terms of time and space – the main impediments to coordination – many more actors and resources can be involved in what therefore becomes an open educational centre or a centre of open learning.

The Classroom

Although many physical barriers can be broken, the obstacles that are most difficult to overcome are conceptual. Such obstacles arise when we build concepts such as cohort, group or class. These groupings, as artificial as they are useful, are helpful when certain or all resources are limited. The limitation of space necessarily limits who can belong to the group and who cannot. The same occurs with time as well as many other material resources that, being finite or scarce, are difficult to obtain if not expensive in terms of other resources.

When referring to the educational centre, school or university above we targeted the restrictions of time and space. The virtualization of the educational centre as well as some of its resources that we now upload in digital format to online platforms does not only remove restrictions, but also the necessity of restricting access to spaces and resources. When faced with this unlimited access to resources does it still make sense to form groups like those created to organize students or trainees into classes or rooms?

These groups most likely continue to make sense (for example, large amounts of students make marking assignments difficult to handle), although we should probably consider their permeability. We have tools that allow us to maintain some cohesion or group identity while at the same time remaining open to wider communities (Levine et al., 2012). As it will be seen, we can set up specific ways (for example, tags or hashtags) that can easily be shared while providing a way to identify the community that promoted them. An open and direct participation of an online facilitator also contributes to this sense of community even in the open arena of social networking sites.

Microblogging tools – Twitter, for example – have a great number of educational functions (de Haro, 2011), including, notably, the possibility to open informal learning spaces and spaces centred on processes (Ebner et al., 2010; Peña-López and Cerrillo i Martínez, 2012). Furthermore, what is very interesting is that they bring out conversations started in the classroom and maintain them externally. Although such an exercise may seem at first to be bordering on frivolity (for example, an academic conversation translated into brief exchanges of 140 characters outside a formal setting), an especially interesting thing happens, in fact, when the formal setting is renounced: on exiting the classroom, the doors are opened to new actors and, along with them, new learning resources. Thus, when students begin to tweet openly about a given subject, the classroom goes from being a closed space, with a strictly academic approach and tone, to an open space with a great number of registers and the aggregation of wholly shared resources, including the concurrence of third parties and their personal networks into the conversation.

The same occurs with another tool that is worth exploring: the xMOOC, as opposed to the cMOOC (Stacey, 2014), which we will look at later (for a differentiation see Yousef et al., 2014). For the purposes of this section, which is to review and consider the validity of the classroom as a learning space that is 'protected' from the outside, both xMOOCs and microblogs allow us to do the following:

● Promote the creation of community in a simple, almost tacit form, with the presence of various profiles that are potentially different from those that make up the outside community. That is: the goal of an xMOOC is not explicitly creating a community. But the daily practices and contributions (interpersonal and group communications, sharing of resources, etc.) end up creating ties between the participants that can be assimilated to a real and explicit community.

● Enable proactivity, taking into account the absolutely level playing field of the new spaces that both microblogging and xMOOC create outside the hierarchy of the classroom. In other words, on an xMOOC and in a gift economy in general, 'you are what you contribute with'. Participation is highly encouraged as a means to keep up with the pace of the courses and, indeed, as a learning methodology, highly based in constructivism and connectivism.

● Allow the entry of information from 'the outside' through new actors or even through autonomy granted to students when hierarchy is reduced or removed.

● Allow information from 'the inside' to go out, in other words, allow creation that happens in the classroom to be accessible to third parties who may distribute it, comment on it, evaluate it and thus contribute to the improvement of learning.

● Blur barriers with informal learning, which can be especially important when combined with the creation of a community of learning or practice.

The Textbook

Let us stop for a moment at the point or points in which we spoke of new information, that information from 'the inside' is let out and, above all, information from 'the outside' is let in. Conceived at different stages (D'Antoni, 2008; D'Antoni and Savage, 2009), open educational resources (OERs) are defined by UNESCO[1] as 'any type of educational materials that are in the public domain or introduced with an open license. The nature of these open materials means that anyone can legally and freely copy, use, adapt and re-share them. OERs range from textbooks to curricula, syllabi, lecture notes, assignments, tests, projects, audio, video and animation'.

Generally, one tends to think of OERs as educational resources (formal or somewhat formal in form, although it may seem redundant) that have been made available freely to the public. In this sense, Alvin Birdi's experience at the University of Bristol (Chapter 6) is a great and wonderful example. However, it is also interesting to consider resources that were originally not aimed at education (or teaching or research) but are ultimately being used for these aims either tacitly or quite explicitly and deliberately. The case of Wikipedia is without a doubt the most paradigmatic, but in fact there are numerous examples.

This does not make any material an educational resource. Or does it? It is not the material, but the use that it provides – with specific aims, within a learning path – that grants it the virtue of being 'educational'. It is the great malleability of any resource what brings into question the hegemonic role of the textbook.

Although this role could have been questioned years ago – the list of educational resources is as extensive as can be, ranging from museums to educational farms, not to mention a thousand examples of oral tradition from first-person witnesses of historical events – it is the digitization of content and its transmission, also by digital means, that implies a leap forward in terms of relevance. The immediate availability of an enormous amount of resources that can be used as the key of education or learning, most often without cost, and are reusable and ubiquitous is what now directly questions not only the necessity but also the mere convenience of adhering to a sole object – the textbook – as a reference. It is, in addition to being expensive, static in the mid-term and low-ranging in terms of voice.

On the other hand, we want to call attention to a crucial factor related not only to the question of the dynamism of contents but also its voice: the fact that OERs can be created – not only (re)used. This apparent truism holds a great truth: not OERs, but the creation itself of OERs is without a doubt the great value behind these resources. In this sense, tools such as wiki platforms or online collaborative documents are extraordinary forms of learning (Pifarré et al., 2010; Huang and Nakazawa, 2010) that are, however, automatically annulled by the appearance of the textbook. The experiences at LSE showcased in Peter Bryant's chapter (Chapter 2) are in this same train of thought.

Working with OERs as well as wiki-type tools and collaborative work allow the following:

● They promote the update of content, especially in areas or disciplines that change rapidly. Let us think, for example, of the re-categorization of Pluto as a minor planet or the advances in particle physics so close to demonstrating the existence of the Higgs boson.

● They boost creativity through the creation of learning resources. At present, we hardly need to mention the consensus on the importance of the synthesis, abstraction and presentation skills necessary to explain what has been learned.

● The permeability, wide availability and low cost of OERs provide fundamental support to collaborative work, which is understood to be the sharing of necessary resources to meet objectives, whether collectively or individually. It usually does not happen in the case of textbooks, where the material is identical for all. OERs, on the other hand, sooner or later will be more plural due to the different learning strategies of each individual.

● Moving beyond collaborative work may occur when one adds the replicability and traceability of the changes, among other aspects, of OERs. If they are used with tools such as wiki platforms or online documents, these excellent resources will deepen competencies, including teamwork: there is nothing better than the development of new content, non-existent as it is, through teamwork to strengthen any number of competencies that, again, the textbook removes through its very construction.

The Library

We tend to think about the library as a well. Like a well we go to for water – or, in the case of the library, information – because we know that it is stored there. The well, or the library, is in a certain place and has someone in charge to maintain the volumes and carry out filtering to guarantee quality. Ultimately, the library has two advantages that are extremely useful: the very existence of a deposit of knowledge and the criteria to create and to maintain this deposit.

The reasons for the creation and care of a library are closely linked to the difficulty of separating the content from the container, a redundancy that is hardly trivial. Indeed, it is difficult to tell whether a library is storing works or just big piles of paper: content and container cannot be torn apart. When books are finite and expensive to produce, gathering them together at a single place is effective and efficient. It is also effective and efficient to place someone physically in this place to take care of the library.

The Internet has ended up with both limitations: now it is not necessary to accumulate paper, nor must someone be physically close to that paper to peer into the works penned in it. On the contrary, digital libraries are now the order of the day and their management is increasingly more common and decentralized. Other libraries are, however, possible. For centuries the great libraries have tracked small private libraries to prevent their contents from being lost or broken up, so that that they could be accessible to everyone. Bibliographic managers – software for the management of library resources, designed for this purpose or adapted by users to perform this function – allow small bibliographic inventories to be converted into a myriad of small individual libraries that become accessible from any place, at any hour, by whomever wishes to use them.

But this does not only include the so-called bibliographic managers. Today, practically any repository of content may serve as a multimedia library in a certain field, specialization, discipline, subject, person, organization and so forth. These repositories, particularly those which store materials that are 'hardly finished', such as presentations (Peña-López and Cerrillo i Martínez, 2011), allow for sharing and socializing what before had been a thoroughly private exchange only, thus creating a collection that is generated ad hoc, decentralized and distributed based on the output of all who contribute, in addition to the users.

Tools for the sharing of presentations/slides (and small documents in general, like infographics) are very useful for the following:

● They improve the capacity of synthesis, bearing in mind the effort required to condense into a few words and images that which in other formats would require us to provide long explanations.

● They foster the capacity of analysis in the reader, who must complete the converse exercise of the author: reveal and expand the condensed ideas, relate to them and look for examples of them.

● They improve the quality of a work by exposing it to that which it is based on once published as a free resource.

● They establish open debates between authors and readers, which can take place on the platforms where materials are found, or these materials may be transferred (for example, embedded) to other platforms where a community already meets.

The Syllabus

While knowledge is dynamic, a library remains fixed in time. Even in the case of collections that are under construction, often they are conceived as something we set out to do at one particular moment and will stop updating in the future. Syllabi are the tip of the iceberg that makes up the library. Another idea fixed in time, the objective of syllabi is to release a fistful of concepts or ideas from a more extensive collection. Like libraries, a syllabus is conceived as static and if linked with an evaluation test or certification, even more so, to the point of being unchangeable. Again, the reasons for this lack of dynamism are found in the difficulty of updating content: in a world of paper, updating implies access to new editions, with higher costs; in a world of face-to-face interaction, updating means contacting and attracting more specialists and, again, increased costs.

It is worth stopping for a moment to emphasize the difference between the syllabus and the textbook – although, with time, we have started to confuse one with the other. A syllabus entails what we are going to cover in our itinerary of learning, whereas the textbook is limited to being a way of covering it. But a syllabus is static only because of convenience, based on restricted resources, time and space. What becomes of the things left out of the syllabus? Where are the adjacent concepts? The nuances? What becomes of the context?

Tools such as social bookmarking, microblogs and online collaborative documents allow for the participation of other actors – something that happened to some degree with different approaches to the textbook – and these actors bring with them other sources (Junco et al., 2010; Junco et al., 2012) that not only complement how we follow an educational itinerary, but also come to alter it, complete it, clarify it, extend it and narrow it down in relation to other limits of knowledge. What's more, they allow this participation of actors and knowledge to cross with other types of temporary organization that differ from the strict sequencing of pre-programmed learning involved in a closed syllabus.

It is important to point out, as we did when discussing the classroom, that what is interesting is not the tool itself, but what it brings into play. In other words, what one might imagine to be a disruption of the syllabus is not the use that an educational facilitator makes of, for example, the social bookmarkers, but rather it is the use of it that leads to making whole of what is to be learned together. This is because in the participation of several actors updating content in a commonly accessible place – not a common space – it allows for the following:

● Having an active role in the management of information and in the total subversion to a third party determining the syllabus and relegating an absolutely passive role in the management of this information to the facilitator and the learner.

● Fostering a feeling of closeness or presence among the community of learners. This sense of proximity is especially valuable in virtual communities, but also those in which, being face-to-face, a good part of the work takes place outside the educational centre. Thus, a connected community, bringing resources to each other, contributes to creating supportive environments that can be confused, advantageously, with the closeness or presence of face-to-face situations.

● Developing immediacy and the state of the art and making it possible to adapt or add to the repertory that which happens in our geographic and temporal surroundings with minimum cost and effort.

● Capitalizing on the mobility of the learner and promoting ubiquitous learning, which allows one to participate wherever one is, whenever one wishes, affecting not only formal and instrumental aspects of learning, but also the determination of objectives and the educational itinerary itself.

The Schedule

If we are able to surpass the constrictions of centres, classrooms, libraries, textbooks and syllabi, it should be equally easy to surpass the limitations imposed by the factor of time. We have already referred to this matter when discussing the school – or the educational centres in general – in terms of how digital tools and online learning allow us to free ourselves of physical limitations.

Virtual forums are, without a doubt, the first tool that comes to the mind. They are the direct descendants of newsgroups or Usenet groups and bulletin board systems (BBS), which have allowed asynchronous access to information for decades. Learning resources are another example, incorporating not only a way to share but also a way to discuss information. However, there are at least two other ways of subverting the usual dynamics of learning by removing the boundaries imposed by time.

The first is the flipped classroom, also the inverted lecture. As its name indicates, it consists of turning the teacher-led class upside down: the transfer of the basic content (the lecture) happens at home thanks to OERs (mainly open-source videos, in addition to others), while the resolution of assignments (with the associated activities) takes place in the classroom. Thus, the teacher is present when he is needed most, dealing with questions when the theory is applied instead of during the presentation, when questions rarely arise. Although it undoubtedly involves subversion – in the sense that roles are exchanged and tasks turned upside down – this option continues to maintain structure and scheduling, the two main characteristics of formal education.

On the other hand, tools such as microblogging as well as other reporting tools that allow the recovery, collection and creation of reports with parts that are extracted from social networking platforms allow not only the bypass of time, but something much more important: they make it irrelevant. These tools are built on two basic aspects:

● First, they move the workload of learning from content to competencies. They do this by obligating the learner to not only actively manage his or her information, but also to manage his or her educational network, which helps to make the learner become aware that learning can happen at the

most unexpected moments. Therefore, it is necessary to have the network – and the tools – ready for it.

● Second, they generate a bridge between formal education and non-formal and informal education. Without a doubt, this is a qualitative change: recognizing that education can move between different platforms and registers and that online educational tools help us to weave a fabric that does not distinguish between formalities or depths, but instead manages simultaneously both the parts and the whole.

The Teacher

In our spirit of inquisitiveness toward the educative institutions, always in order to transcend, unfold, extend and complement, we have crossed space, time and material structures. Often all of these aspects converge in the instructor or teacher who, like an orchestra conductor, marks time and emphasis, leading the way to certain areas and ultimately recomposing what before had been separate pieces or lines.

In the previous sections we introduce the question of whether to allow new actors to participate in the educational itinerary. Tools such as virtual learning spaces, microblogging, MOOCs of all types and so on invite actors who may participate in the institutional – and institutionalized – role of educator that we pre-assign to someone. The inclusion of new actors, as the openness of the actual actors is not without tensions, as Bonnie Stewart explains in her chapter (Chapter 7). However, we may even go a few steps further and allow the participation of new actors to be not only complementary, but also subversive. What is more subversive than a student playing the role of a teacher? Nevertheless, it is not enough to play the role: it must be credible and, above all, sufficiently legitimate to be both credible and recognized, in the most explicit manner possible.

Social media presentations/slides or video platforms provide us with a first approximation of this phenomenon. Here, when the learner shares resources freely, on the one hand it increases the material available to other learners. But on the other hand, precisely for that same reason, it leads to a dual role of student and instructor simultaneously. Applying metrics to analyse the use of these OERs allows us to quantify what could be left out in a domain of pure speculation or intuition.

Practically any social media presentation or video platform – or any other platform in general – will provide the number of times a particular resource has been watched or shared. When a resource has been accessed by many more users than those in the closed list of people in a classroom or those enrolled in a subject area or course, a total subversion occurs: not only has one person asked a question to their classmates but that person has become a reference (if only temporarily) for a subject to the general public. This person has become a de facto teacher.

This occurs even more explicitly and intensely in communities of practice, communities of learning, intranets, vertical social networks and social network groups, not to mention cMOOCs, undoubtedly the figurehead in all processes of reflection and implementation of learning dynamics based on the sharing of knowledge between parties. They are merely reconfigurable networks, starting with a platform meant for generic uses, that can end up rethinking – and reusing – itself as a system of educational management (Meishar-Tal et al., 2012). Along the way, however, they not only end up rethinking themselves, but also imprinting transformations onto the environment they adjust to. For example, the educational environment, learning and the teacher.

This transformation is not trivial. From the most basic tools of education 2.0 (Peña-López et al., 2006) to the most complex cMOOC (Hollands and Tirthali, 2014) and Personal Learning Environments, all aim to interchange learning and teaching within the scope of an inseparable pair that complement each other perfectly (Peña-López, 2013a). What does this subversion give us?

● It incorporates new actors, this time not only in quantitative but also qualitative terms, in the sense that they play several roles that interchange and coincide.

● It allows us to work with free access, with resources and actors who conform to the 'real world', without fiction, filters or firewalls. This open work accords with other initiatives oriented to the simulation of real environments or real case studies, which have been shown to be very beneficial in certain scopes.

● Presenting to others, which sharpens key competencies such as analysis, synthesis, abstraction, projection, empathy, a sense of the shared and collaborative construction. Competencies that will be more than necessary in the very immediate future – it has not already happened in many areas.

Evaluation

In the previous sections we have for the most part provided information and a background to the process of learning. We have done it by questioning the educational institutions that generally participate in this process, particularly the physical actors, such as teachers. Surowiecki (2004), Benkler (2006) and Zook et al. (2010), among many others, show us other forms of actor participation, mostly in decentralized form, or at times individually, though always through a system of highly decentralized collaboration. These authors show us not only how information may be shared outside of a hierarchy or organization but also how the work can be carried out within an architecture of network connections and, within collaborative work, the evaluation of it.

Many social networks already allow for the peer evaluation of different aspects of our daily life. Open evaluation already exists in vertical or theme-based social networks, where one can rate services (restaurants, accommodation, tourist sites and so on) in certain areas. This type of evaluation is already becoming somewhat more serious – while also becoming technically better addressed – through peer evaluation, not of services but of persons themselves. In this way, professional social networks or communities of practice often offer the possibility of evaluating the competency of a person as well as assigning competencies that had not been initially envisaged or matched to their personal profile but are valued by the community.

Peer evaluations are manifested best within connectivist MOOCs, known as cMOOCs. A polybrid made up of courses, communities of practice and learning community, many cMOOCs already allow peer evaluation, whether it be through the act of evaluating or by offering evaluation tools to be used freely within the entire community. Although these tools or platforms are usually complex in some of their aspects, just as evaluation is, it is also true that open evaluation by peers may be carried out with the simplest tools, such as microblogging. However, they still require specific preparation, strong leadership and a certain change in mindset (Chen and Chen, 2012).

Nevertheless, once the first hurdles of aptitude and attitude are overcome, we think that evaluation can be fully opened up and transformed with online educational tools, including the professional or vertical social networks, cMOOCs and microblogging previously described. We think that in addition to the subversive action of opening up evaluation to peers, this practice may also involve the following:

● Incorporating strategies to monitor surroundings, which would undoubtedly contribute to the management of the learning process, beginning with self-testing and an increased awareness of the state of the question, as well as determining learning objectives and the syllabus to follow in order to achieve them.

● Configuring one's personal learning environment based on a combination of awareness, strategies and tools.

● Fostering critical learning by situating the student on the other side of the mirror, allowing them to reflect on the fundamental points of learning, thus designing activities to reach learning landmarks with dedicated objectives.

Certification

Often the final product of evaluation – although not always and not solely – certification, is an instrument that produces an approximation of the knowledge and competencies of a person in a way that is easy, structured and succinct. In addition, as a general rule, certification often acts as a gateway in which this knowledge and these competencies lead to the possibility of taking on a responsibility, a job or a higher level of study in a formal institution. Electronic certification, such as that which enables tax returns to be filed, has existed for many years, but only recently has it expanded into other areas in ways that are, again, more decentralized, distributed further and within a greater network. A first approach to certification by accumulation of credits are found – like the restaurants, accommodation and tourist sites previously mentioned – in communities related to commercial goods or services. This certification by accumulation consists of bringing together, after some deliberation, the individual evaluations of the members of the community to grant a distinction (a certification) for the goods, service or organization under evaluation.

Badges are symbols that by means of evaluation mechanisms and digital certification allow, like traditional educational certificates, knowledge or skills to be identified in a person. Unlike paper certifications, however, they are based on the mechanism of digital certification by accumulation, as described above. These insignia are the perfect addition for accreditation obtained from scenarios of open learning (Domínguez Figaredo and Gil Jaurena 2011), which have been expanded upon throughout the present overview of the different educative institutions. We do not think it is necessary to enter into the dynamics or strengths of this change in certification. We believe that they have already been covered in other sections and certification is simply proof of what has been described, more so than a tool in its own right.

The Curriculum

What we have said about certification can also be said of a curriculum. It is merely a still photo of a dynamic process – the learning process. Just as it occurs in certification, curricula attest to a moment in time in the learning itinerary. But, like all still photos, rarely is the truth reflected in it. If we add curricula to this argument it would be, naturally, to see how to convert that still photo into either a dynamic sequence or another still photo that guides us to another area or follows an itinerary from one point to another, producing a map.

By recovering the concept of heutagogy (self-determined learning, an evolution of self-directed learning as explained by Hase and Kenyon, 2000; Blaschke, 2012), we can see how the entire analysis

made up to this point ends up leading, inevitably, to this heutagogy, this selfdetermined learning where what is important is not only the process itself and its control, but also the objectives and results achieved. In this sense, rethinking curricula obeys neither issues of institutional policy – academic curricula are normally established – nor business policy, to which we adapt our personal curricula: this is quite clear. The option here to rethink curricula in fact proposes that it be opened up to deprive it of that aura of red lines that cannot be crossed, which focus on the beginning of time for always.

Here we question curricula and its definition, its deployment, its measurement and its evaluation in the same way we have questioned and dissected the textbook, the library or the syllabi, to mention only three educative institutions strongly bound to what we have to learn or everything we know about that which we must learn. Although there are many approaches to the phenomenon of personal learning environments (PLE) (Castañeda and Adell, 2013), we believe we can define them as 'the set of conscious strategies to use technological tools to access knowledge found in objects and people and in doing so obtain certain educational goals' (Peña-López 2013b: 94), but we cannot refrain ourselves from comparing it with curricula and ask ourselves to what extent PLEs, which are dynamic, may end up replacing the semi-static curricula.

In many aspects PLEs seem like a simultaneous evolution and a resolution of both the many tools that shape it and previous constructs such as e-Portfolios. Tur and Urbina (2012) suggest, quite appealingly, that e-Portfolios be based on PLEs, in a luckily similar approach to that which we ourselves outlined when referring to translearning (Peña-López, 2013b) (Figure 3.4).
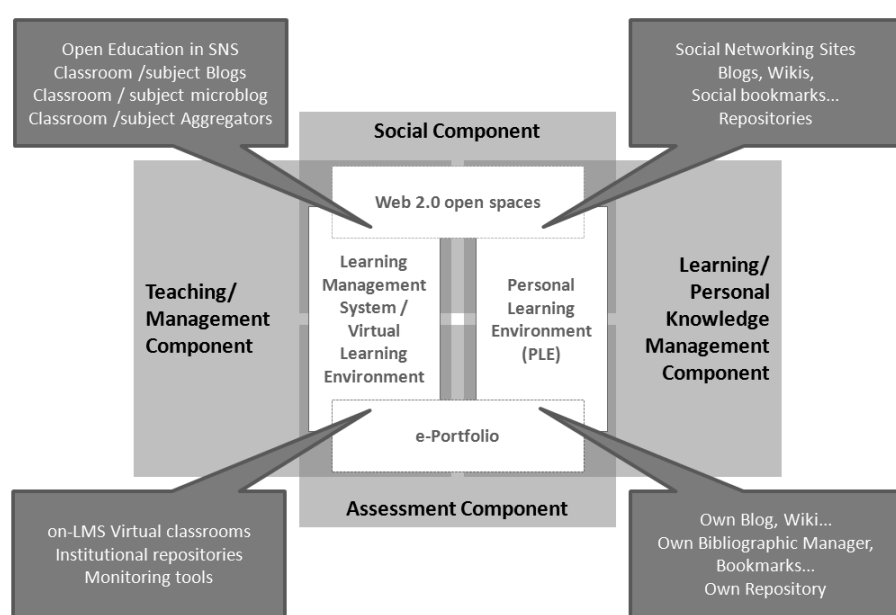
Source: Adapted from Peña-López (2013b: 135).

Figure 3.4 Regular modifiers in transeducation: closing the circle of the ICT in education M4629-ZORN_9781788970150_t.indd 73 06/09/2018 09:56 74 Higher Education in the Digital Age

AN ECOLOGY OF LEARNING TASKS

We began this chapter by proposing to the reader that one should not make an arbitrary list of tools in online learning. Instead, we propose putting the focus on educational institutions and how these tools allow them to be questioned, transforming them and complementing them with new practices and points of view. What ultimately interested us, as we have already discussed, were not mere instruments, which are always obsolete and replaceable by others, but rather a new world of learning that brings with itself the application of the principles inherent to these tools. In this new relationship between people and their learning, we believe that institutions will no longer play a central role. This affirmation is by no means new, but without a doubt its validity is urgently weakened with each passing day.

Today we are witness to profound changes in human relationships. We are witnessing how collective decisions and actions have turned away from settings that are more directed and planned, requiring large investments before starting due to restrictions related to physical access to resources. Instead they move toward other decentralized or distributed environments, with the individual's initiative playing a greater role, as well as progressive evolution as a modus operandi as opposed to comprehensive planning.

We want to define open social innovation as 'creative destruction that aims to construct new processes that may be appropriated by the whole of civil society' (Peña-López, 2014). In this new paradigm, educational institutions no longer have the sole objective of transmitting content or skills, but rather aim for meta-learning, the reflection and appropriation of the very process of learning and the heutagogy that allows it to replicate and perfect this process, which is only possible with total self-determination. Based on a perspective of open social innovation, educational institutions have three main foci:

● Provide the context within which learning takes place. Although the student is increasingly independent when deciding what or how, gaining perspective is still mainly in the hands of the professional educator. Only a collective vision allows us, through its construct, to approach the context beyond the singularity of each person.

● Identify spaces in which exchange, collaboration and cooperative work can take place. It suggests that we transcend institutions to find new ones or create them, without of course having to discard those already in existence, thus demonstrating that they are still valid and relevant.

● Promote interaction so that these spaces, in these contexts, can be oriented towards learning. Although institutions must not continue to direct learning and learners should instead take over this leadership role, they do continue to have an increasingly important role in terms of provision and guidance.

At a more pedagogical level, these three foci can be rewritten as follows:

● Providing the necessary tools to draw a correct diagnosis one's learning stage in relation to others and, particularly, in relation to one's self, by looking both to the past and ahead to the future.

● Identify learning goals, which in fact correspond to new spaces to occupy in relation to how we have defined the future. These goals can easily be transposed into learning spaces and communities of practice and learning, allowing one to build a personalized learning environment.

● Promote the design of learning paths as a nexus between diagnosis and learning goals. Incorporate the necessary resources into this design to catalyse interaction and bring together the results it produces, closing the circle of the teaching-learning process.

AN EXAMPLE TO RULE THEM ALL AND THE PROS AND CONS OF UNFOLDING INSTITUTIONS

At this point some readers may think that everything holds up on paper and that reality is much more elusive to transformations. What follows is a real example with the implementation of (almost) all of the aforementioned interventions. In some cases some minor modifications have been made for the sake of clarity or coherence. But, in general terms, this is a real-life example. The subject where we will place all these interventions is called Technological keys to e-Government (initially Technical foundations of e-Government), the first subject taught on the two-year Masters programme in Electronic Administration and Government of the Open University of Catalonia (Barcelona, Spain). The composition of the students is approximately one-third lawyers, one-third computer engineers and one-third public administrators. All of them usually know their own field better than anyone else (especially their teacher, an economist) and know little about the rest. As a 101 subject on technology, the concepts are quite simple and are very well explained in the subject handbook (written by their teacher, which is why he knows the handbook is so good).

But a couple of dozen concepts make little sense without a real-life substratum on which to see them in practice. And here is why seeing not one or two but as many cases as possible becomes very important: the more real cases, the better. Their teacher, good as he is, cannot possibly know all cases. He could choose some of them, and choose them for the students, which would but eliminate the real-life part of the cases and leave them useless. Finding the cases is as important as getting to know them. Last but not least concepts and real cases come within a context. A context made up of specific actors, specific trends in the field, actions by actors according to the trends, the socio-economic environment of each geographic place, and so on.

So, summing up, we have to teach some basic concepts to students that might know some of them at the expert level, put them in a relationship with reality and put reality in the context of the discipline and other disciplines that shape that reality and context. A reality and context that are so rapidly changing that their teacher, good as he might be, cannot by any human capacity be knowledgeable about all of them. We planned the assignments:

● The first one was about mapping one's own Personal Learning Environment (PLE) and especially participating actively on Twitter (microblogging), Slideshare (shared documents, especially slides) and Delicious (social bookmarking). Blogging was also an option. The assignment was to be carried out throughout the whole semester.

● The second one involved: (1) writing an essay (a case study) on the technological barriers for the adoption of e-Government in a specific case; (2) summarizing in half a dozen slides, sharing it openly online (Slideshare) and embedding the presentation in the classroom's forum; and (3) debating in the forum about everyone's cases.

● The third one was writing a collective (with three-four people) critique on a law or regulation recently approved, on a collaborative document creation platform (wiki, Google Documents). Each team only writes part of the critique (a given set of articles), so that the whole classroom covers the whole law or regulation. As the final document comes together, a debate closes the assignment. Let us very briefly go back to the ten institutions that we aimed at unfolding and see whether and how we achieved our goals.

The School

The virtual classroom ended up with the idea of school. Or, at least, the idea of a school where you have to be in the same place and the same time as your peers – and teachers – to 'attend' the 'lecture'. Virtual forums and other a-synchronous tools enable 'attending' whenever and wherever you want.

The literature has discussed plenty about the pros and cons of virtual campuses. While the pros are quite obvious (no limits of time or space/ geography) some cons are worth mentioning. The dedication of the teacher has to be dealt with: that the virtual campus is always on does not mean that the teacher is. Thus, an agreement with the student has to be reached, for example the teacher will answer any questions within 24 or 48 hours. A sense of presence is also welcome: if there are no questions or doubts, then the teacher should 'manifest' herself in the classroom: encouraging words; alerts for deadlines; commenting on some information; and so forth.

The Classroom

The classroom, understood as a cohort, was surpassed by using Twitter and other open spaces. People from outside the classroom could (indirectly) contribute to the debate and sharing of resources around technology and e-Government. More importantly, students would find the spaces where these professionals would 'meet', the kind of things they discuss, the kind of outlets they usually get information from, the names of the organizations that they work for. Not only is this a cohort-less or un-closed idea of a classroom, but one deeply rooted in everyday life and 'real-life reality'.

The Textbook

Contributions on Twitter, Delicious or the debates changed the idea of the textbook. The textbook shifted from the mandatory handbook to an optional always-there vade mecum to be used as a reference, not a starting point. The textbook thus becomes a live mesh of materials in constant evolution. And, quite important, not by the addition of open educational resources (OER) but with the addition of OER and many other inputs that are common currency in real-life.

There is a problem with this approach: overwhelming the student, especially that student with less time or resources. The role of the teacher here, as a content curator, becomes crucial. Summarizing what has been appearing inside or outside the classroom, sorting it, making sense of it is of dire importance so that an opportunity to open cognitive gates does not turn into crushing infoxication (or intoxication by excess of information).

The Library

The proliferation of found materials is completed with the outputs of the students' assignments, especially study cases. After some semesters, study cases are counted by the hundred. If they are correctly labelled and categorized they become a 'library' of cases maybe unique in the world, even if they are in slide format. The same happens with the debates, where many questions are put, most of them ending up in heated (in the best sense) debates that lead to conclusions non-existent in the handbook or the library.

The most interesting idea here, though, is that the library is built by oneself. The main barrier, besides being overwhelming, is quality. The active role of the teacher to validate content is paramount. And validating for quality means not only that what is being said is true, but that it is relevant: when a

'library' can grow infinitely, it becomes more important to teach how to build it rather than how to store or access it.

The Syllabus

In the same train of thought about building libraries comes how to build syllabuses. The syllabus in e-Government is not useless, but it demands not being very attached to it: the world changes way too fast for a syllabus that may be some years (or even some months) old. Not being attached to a syllabus is difficult both for the teacher – who carefully planned it – and for the student – who expects to be evaluated according to the syllabus.

That is why the sooner the textbook, the library and the syllabus are placed on the shelf of 'tools' and not 'things to learn by heart', the better. Rewarding (that is, marking) the discovery of new content, ideas, trends, people is also an important thing to state at the beginning of the subject.

When things run smoothly, the teacher can abandon her role of finding new stuff – always costly in terms of time – and move to inquiring about things, opening issues, stating doubts or problems, posing questions. Closed content provides closed answers; open questions bring open answers . . . and open content.

The Schedule

Now that it has been left clear that content – and even the working framework of the subject – can come from anywhere, it is time to expose oneself to things that can come anytime. The third assignment is in this direction: reality will provide new problems anytime. A new law, a new regulation, a new technology. Leaving open one assignment (students knew they had to analyse a law but would not know which one until literally days before the beginning of the assignment) is a way to simulate this uncertainty. They will – they will have to – get used to monitoring the relevant actors and their movements to advance what can happen in the nearer future. This is the idea when we speak about unfolding the schedule: be ready and build a strategy for being ready. The work around on networking sites aims at strengthening this strategy or making it more visible.

The Teacher

One of the toughest parts of unfolding institutions is unfolding or transcending oneself. Moving aside and let things unroll is more difficult to do than to say. I was lucky to have no alternative but to do it: the profile of my students and the profile of the subject forced me to. At the beginning it is uncomfortable, then it is rewarding: being able to learn as your students learn instead of trying to fill them with your own knowledge is rewarding. But it does require a radical change of strategy.

The best way to change this strategy is to make it your own: that is, what you intend for your students you should apply to yourself. Becoming part of 'real life' is a must if one intends to have one's students being part of a community of practice or a community of learning or an industrial sector or a dialogue between practitioners and professionals. Again, this is not that usual in academia, the ivory tower. And this is probably one of the reasons why new learning approaches are creating so much tension in higher education institutions.

Evaluation

For unfolding evaluation some different sources were used: comments to one student's work from other classmates during the debate, the acceptance (likes, RT) of some information shared on social networking sites (Twitter, Delicious, Slideshare), one student's comments to their classmates (that is, as a sender, not a receiver of comments) and, of course, the usual view of the teacher. Opening evaluation, even if a tiny amount, it not as important for the external feedback that the student gets, but because it changes their attitude: knowing that your work will be publicly exposed (among classmates, out in the global open) is a game changer. But this is how real life works: in the open.

On the cons side rules have to be perfectly clear. Arbitrariness has to be explicitly avoided and the amount of marking that students are 'gambling in unusual ways' has also to be limited. Not everyone lives well with exposure, so carefully monitoring the evolution of students in terms of attitude and behaviour is as important as doing it in terms of (good) performance.

Certification

Certification falls a little bit outside of our example. We did not issue badges or the like. On a more inner-side point of view, though, some tacit certification took place. When we introduced our example we said that our students were experts in their own fields and aimed, with our Masters, at being expert in the adjacent topics of their field of expertise, always in the framework of e-government. Our aim to have our students be active and their learning be open, challenging, demanding and critical contributed to identifying who knew what among one's classmates. The same happened with those students that were more active in social networking sites and were 'rewarded' with more visits to their slides or with more endorsements for their contributions to the community.

This is by no means a substitute for an official grade or certification. But once students notice these things happening, it does trigger in them the need – and the sense of usefulness – of doing it more, and better. Of course, one has to make students aware of the real meaning of these rewards: they are informal, they help them to identify trends, patterns, clusters. They are not goals, but beams or beacons that point to the real actors, institutions, topics they have to be knowledgeable about and be a part of.

The Curriculum

In summary, what we tried in our example was not to teach our already savvy students, but to help them enter in the arena where real things happen. Some of them already belonged to that world, so we pointed at some tools and people that may be useful for them to strengthen their ties with this world; for others alien to this reality, we help them to map for themselves this uncharted territory. And we tried to do it in real-time, with real tools, with real cases, chosen by themselves so that they could get used to doing it for when the teacher, the university is not there to help. Opening gates is hardly considered building a curriculum today. Some speak about competences. But we tried a leap forward, beyond content, beyond competences and into the real thing.

CONCLUSIONS

Replicating – or even scaling up – this experience should be done as it was done in the first place: Piece by piece, following a modular approach that adds pieces as they are needed. At the micro level, it requires digital skills (both at the teacher and students level) and freedom or autonomy of those who are to implement the different initiatives. At the meso level, besides leaving freedom to the former ones, support and coordination are quite welcome: support in some tasks (usually technical ones) common to most proposals (for example, access to external resources, some coding); coordination to benefit from economies of scale and avoid burnout of pioneers. At the macro level usually non-interference suffices: these initiatives usually work well organized bottom-up. Non-interference can be complemented with recognition or, even best, with mainstreaming: Acknowledging that something went well should be the first step to acknowledging that something is good and would, thus, deserve being enjoyed by everyone.

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