A Vision About Lifelong Learning and Its Barriers (preprint)

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Abstract: Over 25 years ago some researchers claimed for moving towards innovative learning models, more personalized and where the students would have a more active role, deciding what to learn, when to learn and how to learn. Nowadays, there is a need of a flexible, efficient, universal and lifelong education. Lifelong learning is fully integrated into our society and, from the student point of view, it is very different than regular learning. Some of the reasons are the maturity of students, domains of interest very broad, learning occurs at different depths, topics to study may be related both to work, family and leisure and students have little availability due to their necessity to conciliate home, work, leisure and learning. Lifelong learning requires personalized models that adapt to students' needs and constraints, but lifelong learners continue suffering from models neither adapted to their necessities nor the society needs. This paper states on the actual situation of lifelong learning, analyses some of the relevant literature and discusses the challenges to conceptualize, from a transdisciplinary point of view, innovative e-learning models that promote self-determination of students.

Keywords: lifelong learning, heutagogy, self-determined learning, eLearning.

1 Introduction

We constantly need to learn in our everyday activities: for travelling, for using new software programs, for keeping updated, for curiosity, etc. In the professional context, lifelong learning is a need, all professionals should be lifelong learners (Ashton & Newman, 2006) and should use different kind of environments (Aoki, 2020), such as formal, informal and non-formal learning environments (Manuti, Pastore, Scardigno, Giancaspro, & Morciano, 2015). Hence, Lifelong learning (LLL) is fully integrated into our society.

According to this needs, lifelong learning has some specific characteristics to take into account (Gouthro & A., n.d.). Some of them may be due to the time and availability constraints of people, such as schedule constraints, time periods of unavailability, the impossibility of having a full dedication, or the lack of constant dedication. Others come from the complexity of the current world or the myriad of preferences of people, that impose a more multidisciplinary learning, mixing leisure and professional aspects as well as aspects related to daily activities. Others are due to the uniqueness of each person; both referring to the current knowledge, skills and competences everyone has and to the different necessities of skills and knowledge of everyone. Therefore, the more suitable environment for lifelong learning is one where adults are able to choose what to learn, how to learn, when to learn, in what order and at what pace, what is known as heutagogy (or self-determined learning) (Lisa Marie Blaschke, 2012).

Over 25 years ago some researchers claimed for moving towards innovative learning models, more personalized and where the students would have a more active role and would decide what to learn, when to learn and how to learn (Candy, 1991). The Commission of the European Communities (Comisión Europea, 1995) also pointed out the need of an education flexible, efficient, accessible and lifelong, reaffirming the necessity and importance of this change. Nowadays we are still far from that scenario (L.M. Blaschke, 2017; Conesa et al., 2020).

Changes should be done not just in the way students learn, but also in *what* they learn and *when* they learn. Choosing what content to learn requires new ways for enrolling and choosing courses, different to the enrollment to a given subject or a group of subjects related to a given topic, which are the typical structures of masters and subjects offered by educational organizations. Learning whenever learners prefer requires having flexible schedules, allowing each student to decide when to begin the course, when to finish the course and at what pace the student will work. Implementing these

changes requires educational organizations to evolve, mostly in their business and organizational models. Therefore, the change of paradigm does not just affect pedagogy, but the whole learning experience, that is, all the facets related with learning activities and their actors/resources: the necessity of new materials, of new technological tools, of persons with new roles, of new business models, of new motivational policies, etc.

This work aims at providing a discussion about which are the adult needs in the context of LLL, how these needs can be addressed, from what perspectives and what is the related research. The paper also provides insights about a model under development at the Universitat Oberta de Catalunya (Open University of Catalonia). It designs, implements and evaluate new tools, both methodological and technological, to move forward to a more suitable lifelong learning environment.

The rest of this paper is organized in six sections. Section 2 presents a motivational case that collects some of the more common needs and constraints of lifelong learners. It follows section 3 to explain the terms lifelong learning, lifewide learning, andragogy, heutagogy and a literature review of the models and approaches promoting lifelong learning. Section 4 draws the main needs of lifelong learners and point out the current gap between their needs and the current educational offer. Section 5 argues some thoughts about the different aspects to consider when adopt lifelong learning models and briefly presents the different characteristics a model of lifelong learning should have. Finally, Section 6 reports the main conclusions and provides on-going and future directions of research.

2 A Motivational Case Study

In general, there is a gap between students' needs and the main response of higher education organizations to lifelong learners. Due to the bias we may have for the continued use of the traditional educational model, it may be difficult to imagine how new lifelong learning environments should be and how they may differ from current ones. In order to facilitate such an imaginative exercise, we provide a case study that shows some of the constraints an adult face when learning and presents a possible lifelong learning environment that helps the learner in her learning process, by adapting seamlessly to her constrains and needs.

We consider a 35-year-old woman, Maria, who works as an architect in a construction company and is mother of a 5-year-old daughter. She enjoys learning new things related to her hobbies as travelling and health. She is also interested in education of young children. She would like study something related to her interests, but she had neither the willingness nor the time to enroll in a long-term program. Although there are monthly short-term programs, dedicated to specific topics, they require so a continuous time to study, that this woman with her son and her current work, cannot guarantee this dedication. In this context, Maria discovers a new lifelong education service that offers courses, that are very focused and has short duration, ranging from some hours to one week. She decides to sign up.

Just after her subscription, she receives an email from Elena, her personal mentor, that introduces herself, explains how courses works. The personal mentor also asks about her availability, hobbies, interests, goals and learning expectations in order to oriented her. According Maria's availability the personal mentor posits which courses are available and how to search and navigate through them. Every course has a schedule, but its purpose is only guiding how to work the course. Students can begin courses whenever they need and also they can spend as much time as necessary finish them. Courses provides the knowledge required to address proposed challenges, they present examples and facilitate an assessment activity that requires skills and the use of the learned knowledge to address the proposed challenge. There are complex interrelations between courses to respond to larger and complex challenges. These are grouped to represent different abstraction levels and reflect the difficulty of the proposed challenge and the skills needed to address it. The platform where the courses are done offers an interactive and navigable visualization through graphical representation of courses, their relationships and aggregations.

Maria tests the system and thirty minutes later of her first contact, she is already aware of the structure of the courses, of the main courses related to her interests and she also understand the most convenient order of courses to address her learning.

By using communication tools that Maria usually uses (e-mail, phone and messaging applications), she quickly know the courses she should face and in their order. Firstly, she choices a course about the impact of sugar-sweetened beverages in health. The course is composed of five smaller courses, one introduces to the digestive system, others are focused on carbohydrates, or glucose need and how many each person need, and finally there are two more about how identify soda drinks and Evidence based-studies on soda drinks. Since she already knows about the digestive system and carbohydrates, she decides to enroll in the glucose course "Do I Need glucose? How much?". After the enrollment, she receives immediately a personalized message from her teacher on this course, where briefly introduces the topics: benefits of the glucose, the risks of its excessive consumption, a guideline for the course and a link to the course materials. Although there is no time limitation to finish the course, it has a planned dedication of one week. Maria enjoyed the course for two weeks before finishing it.

During the attendance of her first course, she is worried because the company where she works will implement an ERP. Maria does not what an ERP is and what problems may have its implementation. Besides she has heard negative opinions about these systems from friends She wonders if there are some available courses on ERP. She decides to contact her mentor to ask whether the LLL service offers courses about this topic. In few hours, she receives

information about these courses. There are courses with one year duration, but she decides to just take a short introductory course, that take only a couple of days, titled "What is an information system for organizations?". She is now aware about the potential advantages of ERP, but also about the potential problems their implementation may have. Hence, she ask for another course about what can be done to increase the chances of success of the ERP implementation. After navigating through the visualization of courses, she finds a course that seems interesting. It belongs to a compound course in project management, titled "What should be done to guarantee success in the implementation of an ERP?". Although there are some preliminary courses, she ignores them to take with urgency and high interest what she considers a relevant course. In few hours she learnt which critical success factors should be taken to implement an ERP. Maria shares with her teacher what worried her, and he provides to her some success and failure cases of ERP implementation. After studying these cases, she talks with her boss about the critical features and potential risks around the future ERP implementation and ways to mitigate them. Thanks to her recent acquired knowledge, she will become a coordinator member of the implementation project team because her boss considers that she will be able to deal with such responsibility. He appreciates her ability to learn what she needs, when she needs.

Some weeks later, Maria returns to her study about sugar-sweetened drinks, interrupted due to the ERP courses. She restarted where she stopped, because the virtual learning environment provides her a visual reminder of what she had done, what she had read, the interactions she had with her teacher and the activities she performed. Such information helps her to resume the learning in few hours. Since that day, Maria promote the lifelong learning service, because it is useful for both her work and her life.

3 Literature Review

Lifelong learning has become relevant to keep up updated into work environments (Kettle, 2013), but also in daily life (Tuckett, 2017). Some research also points out its potential to improve the society (Carr, A., Balasubramanian, K., Atieno, R., Onyango, 2018; Louw, 2014). Hence, lifelong learning is both in the agenda of the developed countries and also in that of international organizations such as United Nations and EU. On the other hand, the application of new technology into the education field and eLearning may be game changers to break the barriers between education and work (Ashton, J. & Elliott, 2007) and give solutions for the different lifelong learning needs. Mainly because of its ability to deal with ubiquity, personalization, communication and automatization (Laal, 2011).

Lifelong learning may be considered by taking into account four pillars: 1) educational features, including teachers role and learners' degree of autonomy; 2) business model components sustainable for a long time; 3) psychological models (including evaluation and motivation); and 4) technological platforms that give support to lifelong learning and also to informational behavior and knowledge sharing.

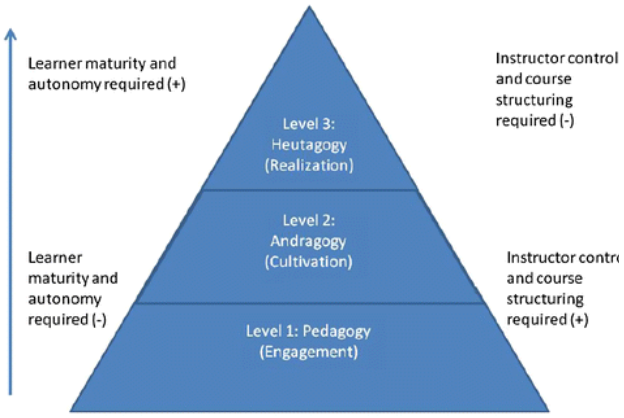

Figure 1. Blaschke framework reflecting the lifelong learning process, from (Lisa Marie Blaschke, 2012).

Related to educational models, many authors claim that lifelong learning should be addressed from an heutagogical perspective. That means that the learner is the major agent in their own learning, to be self-determined learning. Heutagogy can be viewed as an evolution of pedagogy and andragogy. In this evolution the learner moves from a structured, less autonomous educational environment (pedagogy) to a self-directed learning where the learner has self-responsibility in learning, defining objectives, and identifying its needs (andragogy). And finally, from the heutagogy perspective, in this evolution the learner moves from the pedagogy context to an environment of higher autonomy with little or no structure (L.M. Blaschke, 2017; Lisa Marie Blaschke, 2012). Heutagogy occurs due to the maturity, awareness and autonomy of lifelong learners (Carr, A., Balasubramanian, K., Atieno, R., Onyango, 2018; Kettle, 2013). Blaschke has proposed a framework, in the form of a pyramid, to reflect such perspective (Lisa Marie Blaschke, 2012), depicted in figure 1. Pedagogy may be seen as the theory of teaching. At this level the teacher is the responsible of the learning process, choosing what to learn, in what order and how. In some sense, we can say that students are "educated" and have few decisions to take about their learning. Second level is andragogy, characterized by more self-responsibility and self-control of students. In this level, students are more aware of how they learn and what are their main necessities. They are the responsible to identify their needs and to plan how these needs will be addressed. The voice of learners is considered, but the role of the teachers is still very relevant, taking great responsibility in the learning process. Andragogy is also known as self-directed learning. Finally, third level is heutagogy. It requires students that have progressed in maturity and autonomy, who are ready to take a step further and conduct a self-determined learning, that is, choosing what to learn, when, how and at what pace. Some authors define heutagogy as the learning with the absence of educators (Kettle, 2013). Others state that heutagogy does still need educators, but with a different role, more focused in guiding students during the learning process and in

promoting their curiosity by the provision of any resource related to the students' interest (Conesa et al., 2020). Another difference among pedagogy, andragogy and heutagogy is the type of their learning outputs. The two first levels are useful to get knowledge and skills, but heutagogy is more focused to learn capabilities, understanding a capability as the ability to use skills and knowledge efficiently to deal with different problems, even problems very unrelated to the ones seen during learning. That requires changes in the learning methodology that require considering a double loop (Hase & Kenyon, 2000), a process in which learners should reconsider how to adapt the skills and knowledge acquired and in what way they can improve their daily activities. In addition, the MOOC model is not the solution since it presents some failures related to lifelong learning (Yousef, Chatti, & Schroeder, 2014).

From the point of view of business models, universities and other educational organizations are equally sensitive - like other companies in the service sector - to changes in demand from their customers. The constant and progressive implementation of a formative model based on lifelong learning has meant a deep change in the conceptualization of job training. In this sense at the beginning of the 21st century, the European Commission (European Commission, 2001) published the Memorandum on lifelong learning with the aim of provoking a debate to establish a global strategy to transform lifelong learning into an individual and institutional reality. The priorities for action include 1) to guarantee universal and continued access to learning in order to obtain and update the necessary qualifications in the knowledge society; 2) to encourage innovation in teaching and learning to develop effective methods and contexts for lifelong learning; and 3) to bring learning closer to homes by using digital technologies, so that learning opportunities are close to users. The fulfilment of all these objectives implies a transformation in the way in which universities organize their training portfolio and force them to evolve in educational methodologies and tools to be more sustainable and scalable. Unfortunately, there are few studies related to business models behind education, and more specific behind the lifelong learning (Pastowski, 2004). Most scientific articles focus the analysis on the new pedagogical methodologies that universities adopt to respond to the new educational requirements of society (Emerson, L.C. i Berge, 2018; Ibrahim, Jamaludin; Dahlan, 2016). Behind the new pedagogical methodologies there must be new models of organization and business. In this sense, that is a field to be more explored.

Different contexts for lifelong learning should be considered from a psychological perspective. It requires also identifying the experiences of learners and knowing what leads people to keep the adherence to a learning model: how to motivate them and how to assess their progress. So that, a model should include topics such as assessment, motivation, attitudes and behavior in order to empower people/learners to enroll in lifelong learning. This model should guarantee a high level of adherence, because low levels of adherence are associated with reduced intervention efficacy (Wantland, Portillo, Holzemer, Slaughter, & McGhee, 2004). This topic of adherence is relevant for the self-commitment and student's adherence to the technology that support lifelong learning.

Finally, the pillar of technology should be considered because it helps to cover the necessity of providing a self-determined learning for lifelong learning, united to informational behavior and knowledge sharing. There are different models of information seeking behavior such as Dervin, Elis and Wilson that consider different topics from the point of view of person, work, affective needs, or emotions that influence informational behavior (Platero & Ortoll, 2016; T.D. Wilson, 1999; Wilson, 2006, 2016). The model of information seeking behavior from Wilson is a consolidated model that consider the stages and context of information search, since need's identification, search, and exchange (Wilson, 2006, 2016). It has evolved to also include the context of technology. There are works that show social media as a useful tool to share knowledge and support lifelong learning in workplace or in daily life (Lisa Marie Blaschke & Hase, 2019). On the other hand technology, with millions of digital learning resources, thousands of organizations teaching online, information systems able to provide personalized learning and a huge amount of social/collaboration tools that could be used, should support a personalized learning in which learners take a more active role, deciding what to learn, when to learn and how to learn (Aoki, 2020; Candy, 1991; Ouadoud, Chkouri, Nejjari, & El Kadiri, 2016). However, we fail in offering e-learning platforms to support this flexible learning way (Elisabeta & Alexandru, 2019; Graf & List, 2005) and, therefore, lifelong learners continue suffering from a similar model, more ubiquitous and efficient thanks to the use of technology, but still not adapted to their needs and/or preferences. In this sense, ways to integrate different modules oriented to the different needs and topics pointed out above are fields to be more researched.

4 The Gap Between Students' Needs and Academical Offer

There are some experiences in which learning has been adapted to lifelong learners' necessities, but they are mostly punctual and isolated (Carr, A., Balasubramanian, K., Atieno, R., Onyango, 2018; Harrison, J., Vanbaelen, 2016; Liang, K., Caton, K., Hill, 2015; Osborne, M., Borkowska, 2017). In (Carr, A., Balasubramanian, K., Atieno, R., Onyango, 2018), for example, authors analyze an experience focused to deal with the fourth sustainable development goal (4SDG) from the WHO (Kates, Parris, & Leiserowitz, 2005), that ensures inclusive and equitable quality education and promotes lifelong learning opportunities for all ("Goal 4. Ensure Inclusive and Equitable Quality Education and Promote Lifelong Learning Opportunities for All," 2018) in Kenia. This experience used an heutagogical approach to promote agricultural education, where students were not just knowledge receptors, but also knowledge generators, promotors and communicators. The provided education was

Students' reality		Constrains of the educational offer
Do not have fully dedication	≠	Full dedication during a long period is required (semester)
May have some schedule preferences	≠	Schedule is planned by the university
May have periods of unavailability	≠	Schedule is fixed (does not allow disconnection)
Does have personal needs of competencies / knowledge	≠	Offers a generic program created for a given community (standard student)
Does have multidisciplinary necessities	≠	Most programs are within a discipline
Has very extensive expertise in different aspects, maybe not broad	≈	Take into account students' expertise to recognize subjects
Is used to subscription and other business models of pay per use	≠	Traditional business model, focused to cover university costs and resources used under conventional offers

Table 1: Main mismatches between academic offer and students needs.

focused to address three different dimensions: human, financial and society. Some communities of interest have been blossomed from the experience, providing a rich and natural environment to learn, but also to share the learnt lessons about agriculture that farmers, who were the lifelong learners, have learn during their life. Lessons that may be difficult to be learnt from academics. In (Liang, K., Caton, K., Hill, 2015) the relationship between travelling and learning is analyzed. The research presents travelling as a very suitable platform for lifelong learning, since through travelling we do not only acquire knowledge, but also competences and soft skills (stereotype removals, cultural changes, motivation, etc.). In (Harrison, J., Vanbaelen, 2016) lifelong learning approaches are used in order to deal with poverty, social inclusion and long-term unemployment. In the particular case of Singapore, (Sung & Johnny, 2017) studies lifelong learning proposals and point out the need to improve lifelong learning implementation. Finally, (Osborne, M., Borkowska, 2017) analyses different lifelong learning approaches in the contexts of Europe and Asia. It results that European approaches are more focused to individuals, promoting their employability, meanwhile, in the Asiatic countries, there is a lot of focus in the education that promotes community and collective ethos.

In general, the main response of higher education organizations to lifelong learning needs of people are academic offers very similar to conventional formal education, but with more practical or work-related contents. These offers tend to have form of long courses, scheduled like underdegree courses (by semesters with similar calendars), with none (or few) flexibility in the assessment activities and with constraints on when the courses can be started, how they can be taken and at what pace they should be studied. Some of the offers are composed by several courses and allow few (or none) electives, such as a master. A master has a curriculum designed for a given standard student, a student that, in the real world, it is very difficult to find, and even more in the case of lifelong adult learners.

It seems clear that students' needs do not fit with the characteristics of the offer that higher education institutions are providing. Table 1 shows some of the mismatches between the academic offer and the students' needs, which will be discussed in more detail below.

Adult students do not have fully dedication because they should conciliate their family, work, leisure and learning activities. In addition, they have responsibilities at home and at work that may get them unavailable for a given period of time: an urgent project at work or a baby issue in the family, for example. Regular academic calendar may be very unsuitable for them, since courses length are long (several months) and constant dedication is expected. In addition, assessment activities from courses are scheduled and allow few (or none) flexibility; it is not rare the case of students who fail a course because they had to travel for a couple of weeks and are unable to deliver an assessment activity on time. Therefore, short courses with a lot of flexibility to deal with the potential unavailability of students is advisory for lifelong learning.

Apart from schedule preferences within courses, we should consider also when the courses start. Schedule preferences of students are shaped by their responsibilities. Some may work in shifts of one week and have one week free, for example, others may have availability just at summer; Then, why academic institutions do not allow them to take the courses whenever they want? Current schedules (mostly aligned with fixed semesters) are, obviously, not the best solution for most people, but very convenient to academic organizations.

Each learner is different, since past experiences shape our knowledge and abilities to the current state. The differences among learners are more noticeable in adults. In addition, lifelong learners do not focus in the learning of just one topic, but many of them, related to the different facets in their life: work, leisure, travelling, family and others. These characteristics make difficult the creation of academical offers that are suitable for large communities of students. It seems more suitable to create very small courses, focused to cover a given piece of knowledge or a skill. In that approach, it is easier to find out interested learners and the courses can be grouped to create compound courses that deal with a given topic in more detail. Under such structure students would be able to choose the curriculum they want, avoiding unnecessary courses, taking into account their interests and facilitating to take the courses in the order that better suits their needs.

Since lifelong learning is not one-shot activity but a long-distance race, the current business model (payment for enrolment) may not be the most adequate. New business

models should be considered, models that charges students for the use they do, affordable, scalable and, with the final goals of making academic organizations sustainable and making lifelong learning a right for everyone. Payment by subscription seems to be an alternative but applying the same recipe for everyone is unreasonable. Some students will make a more intensive use of learning than others, other students will need little interaction with teachers meanwhile others will need more frequent and specialized interactions, due to the specialization, the topic or even the background of the student. In addition, some accreditation may be relevant for students when the learning is somehow related with their workplace tasks. Due to these, and other, situations business model should be flexible and should allow personalization for each student.

The changes on the business model should consider not only students but also learning institutions. The dynamism of a student-centered system, as proposed, means to have high variability in the number (and dedication) of the teachers needed for each topic from day to day. Hence, organizations should be able to manage the variant need of teachers in almost-real time and provide smart systems to facilitate such scalability.

5 Towards an Educational Model for Lifelong Learning

In order to provide a solution to the mismatch presented in the previous section, we are working in a long-term project to provide, implement and test a model that facilitates lifelong learning in a distance learning environment. The model should be created taking into account the scientific evidence and lessons learnt during the last decades. In this section we provide the main thoughts distilled during our project, commenting the main characteristics an educational model for lifelong learning should have.

The problem cannot be solved just providing a new pedagogical model, there are models for andragogy and heutagogy already, but rarely applied in real world. We humbly believe that the solution should be more multidisciplinary, a solution that provide the tools (both methodological, theoretical and technological) to deploy an environment where lifelong learning is conducted easily and conveniently. Such proposal should take into account pedagogy (to promote learning), but also organizational studies (to propose suitable ways to structure lifelong learning educational organizations), business models (to make the proposal sustainable and scalable), user experience (to adapt the model to the students' needs and limitations), persuasive and habits theories (to study how we can motivate students in the new paradigm), informational (to study ways of organizing academical offers in small pieces that can be aggregated in other pieces of higher level recursively) and technological (to study how technology, eLearning tools, analytics and artificial intelligence can be used to personalize learning and automate the system as much as possible).

The basic characteristics of the proposed model are:

- Educational resources must be digital, very modular and with small granularity. Since learning may occur everywhere and whenever, they should be designed to be available from any kind of device (smartphones, computers and even personal assistants).
- Learning units (the subjects or courses in the current model) should be modular, with a very small granularity (of a few hours or less) and very interrelated. The interrelations between the different units will allow to define units of greater granularity and complexity, but also to identify prerequisites, related subjects and possible paths that the students can take. These interrelations will have to be shown graphically and interactively so that the student can navigate and understand what there is, and how it is related. Even though all learning units are unique, their challenges and contained topics may be shared. Heutagogy seeks competence, and competence is got from repetition. Therefore, it should be relevant to provide different units that deal with the same problem. It will allow students to face a given problem different times, from different perspectives and learn to apply its solution in different situations, promoting them its integration in their daily activities.
- Knowledge covered should be as broad as possible. As aforesaid, lifelong learners may be interested in very different topics. A system that provides lifelong learning should provide wide knowledge coverage to respond to the needs of knowledge of students in different topics.
- Students' experience must be integral (taking into account aspects of user experience, pedagogy and psychology), flexible (allowing to begin the courses whenever the student wants), dynamical, (allowing to suspend any activity whenever necessary and resume it later), personalized (with support of analytical tools and technology that allows personalization), and accompanied, with mentoring figures that accompanies students throughout their educational experience and that promote empowerment, involvement, good habits and attitude. In addition, the creation of durable practice communities should be promoted, due to the importance they have in learning at different levels (motivational, knowledge adquisition and professional application). These communities should allow students to act as teachers sometimes. Adult learners, due to their background or experiences, may be experts in some topics. They may be a good asset in the learning of other students, not only for their knowledge, but for their proximity. Their willingness to help others in their learning should be promoted and rewarded.
- Sustainability must be guaranteed through a fair business model adaptable for each student according to their needs and use. Scalability should be provided by a suitable organizational model that provides dynamism and permits to adapt quickly to students' needs.

- A virtual learning environment should provide interaction between educators and students, knowledge management functionalities to make learning units explicit, accessible and usable and provide smart technologies to support its users in all the trivial tasks. Such system should be a hub that centralizes all the relevant tasks but that promotes the use of the communication channels the students are used to work with (twitter, WordPress, Youtube, etc.). Since the learning should be student-centered, the learning environment and resources should be as close to students as possible. Obviously, privacy, ethical and pedagogical aspects should be considered.
- Accreditation systems that state the acquisition of competences, knowledge and capabilities should be provided, using badges (Gibson, Ostashewski, Flintoff, Grant, & Knight, 2015) or similar systems.

6 Conclusions and Future Work

From the perspective of students, lifelong learning requires high flexibility, personalization and a fair and affordable cost. From the perspective of educational organizations, it requires a flexible organization to adapt to students changing dynamics and to provide scalability and a wide variety of disciplines to offer, since in lifelong and lifewide learning student may want to learn from any topic. Nowadays higher education institutions have a great deal of learning materials, courses and learning experience about many disciplines, being able to support learning in many relevant topics and at different depth level. Hence, they are in an advantageous position to become lifelong learning providers. However, their lifelong learning proposals are based in the regular education they provide and therefore impose many artificial barriers to lifelong learners, such as deadlines, mandatory subjects, inflexibility, long courses or time and topic-restricted programs.

In lifelong learning, students should be able to choose what they want to learn, how, when, in what order and at what pace. To allow this kind of empowered students, new educational models should be created in order to adapt the learning experience to the lifelong learning students' needs. We believe that these models should be holistic and focus also on non-educational aspects, which should include, at least, an organizational model that determines what are the roles of the different users in the new model and how to manage them to provide scalability; an economical model that provides fair prices and adapted to the real use of the learners; a user-centered model that facilitate, enrich and beautify the interaction of the learners during their learning experience; a psychological model that motivate students to learn and to keep learning; and a technological model that facilitates the integration of all these needs in a system easy to use, that personalize the students' experience and use analytics thoroughly.

The paper seeks to evidence the current lack of student-centric support to lifelong learning learners and to arise discussion about current lifelong learning programs offered by higher education institutions, whether they really adapt to students' needs and to promote constructive thoughts. To do so, the paper presents a motivational case of a real student and her needs to show some necessities difficult to cover by actual educational programs, presents a detailed analysis of the literature of lifelong learning, heutagogy, self-determined learning and current experiences, provides some thoughts about needs of lifelong learners and some misalignments that current academic programs have with these needs and states a set of characteristics that an holistic lifelong learning model should provide to give full support to lifelong learners' needs. Readers may think that the mismatches or the characteristics presented may be naïve and common sense. Maybe, but even so, we humbly believe that they should be discussed since they existed for many years and there is not foresee of any improvement.

As further work we plan to develop and implement a lifelong learning model that adapts to students' needs and covers all the desired characteristics stated in the paper.

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