

HIGHER EDUCATION INSTITUTIONS TO PROMOTE A LIFELONG LEARNING STRATEGY

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Abstract

Students and graduates are today demanded to be equipped with two fundamental attitudes. The first is being active learners enrolled in all different activities related to Active Learning [1] that have place at academic space. The second is being continuously updating their own formation.

But continuously updating and learning is not just a student attitude. Nowadays competence needs are not static and change throughout life, so continuous professional training is needed being lifelong learning the key [2]. We believe people need help in the lifelong learning process from the higher education institutions which are very capable to manage an effective, trustworthy and accurate strategy for lifelong learning.

We must ensure that our education and training systems are able to provide students with new competences and skills for living standards in Europe nowadays: "The aim is for everyone to have the key set of competences needed for personal development, social inclusion, active citizenship and employment. These competences, apart from specific for each field of study, include more transversal skills such as digital competence, entrepreneurship competence, critical thinking, problem solving and learning to learn" [3].

All citizens have the right to high-quality and inclusive education, training and lifelong learning. Higher education institutions should support this right with high quality level and accurate contents. Therefore, students should not only be self-updated or just make an online course from time to time; they must be firmly and continuously connected with the field of study kernel that supports the academic and scientific advances in the mentioned field. We think this support can only be provided by high education institutions. Higher education institutions should manage this process since they have the knowledge, the infrastructure and, more important, they have the ideal human resources to accomplish the process: teachers.

In this work we propose a framework in which the universities are more involved in lifelong learning process of graduates. Nowadays we have the technology needed to easily develop online platforms that could implement this new theory. It would be also interesting adding knowledge from the business and industrial sector so expert from different fields can collaborate in a social network. We propose as a first experiment the development of a collaborative social content filter.

Students and graduates have access to a massive and overwhelming amount of information with no quality or classification filter that makes it unhelpful. Besides, the digital nature of most of this information makes many people without computer self-efficacy [4] unable to take advantage of it.

Our proposal will make possible that all this content will be planned and supervised by instructors and experts collaboratively in a network environment to ensure its quality and educational purpose. Students and graduates will also actively participate in their learning process interacting with the proposed system.

Keywords: lifelong learning, collaborative learning, social network, knowledge society

1 INTRODUCTION

Over the last decades we have seen a globalized dynamic based on knowledge, research and innovation driving expertise in continuous and fast evolution. Changes in a field are even faster where the influence of new information and communication technologies is strong.

We live in a global system increasingly driven by knowledge. This knowledge society [5] demands students and graduates to be equipped with two fundamental attitudes. The first is being active learners enrolled in all different activities related to Active Learning [1] that have place at academic

space. The second is being continuously updating their own formation after they finish their university studies.

But continuously updating and learning is not just an individual attitude. Nowadays competence needs are not static and change throughout life, so continuous professional training is needed being lifelong learning the key [2]. We believe people need help in the lifelong learning process from the higher education institutions which are very capable to manage an effective, trustworthy and accurate strategy for lifelong learning.

We must ensure that our education and training systems are able to provide people with new competences and skills for current living standards in Europe: "The aim is for everyone to have the key set of competences needed for personal development, social inclusion, active citizenship and employment. These competences, apart from specific for each field of study, include more transversal skills such as digital competence, entrepreneurship competence, critical thinking, problem solving and learning to learn" [3].

All citizens have the right to high-quality and inclusive education, training and lifelong learning. Higher education institutions should support this right with high quality level and accurate contents. Therefore, students should not only be self-updated or just make an online course from time to time; they must be firmly and continuously connected to the core field of study that supports the academic and scientific advances in the mentioned field. We think this support can only be provided by high education institutions. Higher education institutions should manage this process since they have the knowledge, the infrastructure and, more important, they have the ideal human resources to accomplish the process: expert teachers.

We work on the assumptions of the changing role of higher education in society. But knowledge production, a true engine of regions and economy in general, is not only produced within an autonomous academic community [6]. If we want to point out the application of that knowledge promoting national prosperity, we must drive knowledge production towards a model involving industry and other social actors like individual or collective entrepreneurs as well as other actors like government on the thesis of "Triple Helix systems" [7].

That advance in innovation theory and practice in our universities also leads to economic development in a knowledge society in our regions and beyond national borders due to business and technology internationalization [7].

In this work we propose a framework in which the universities are more involved in lifelong learning process of graduates. Nowadays we have the technology needed to easily develop an innovation system defined according to systems theory as a set of components, relationships and functions [8] using the perspective of how institutional arrangements could facilitate interactions among economic actors [9] in the sense of a 'national innovation system' [10] including innovation actors like: firms, universities, research institutions, financial institutions, government regulatory bodies, individual innovators (regional, national or international) and so on for capturing important innovation dynamics present in today knowledge society.

During the last 5 years our research team have developed a cooperative learning experience using a platform that encourages collaboration between students from our university and professionals from the industry, teachers and people in general interested in the topic ([11], [12], [13]). We designed our platform for a community of computer science developers but it can be used in any engineering area: electrical, electronic, industrial, mechanics engineering, etc., or even in very different areas.

Resulting from this previous experience our first step in getting this new innovation system is to build a new collaborative social content filter through an online platform where students, graduated, instructors and experts from the industry can collaboratively filter internet content. The resulting filtered content will be recommended a and good quality material useful for people wanting continuous formation in the expertise of the field for a lifelong learning experience after they have finished their studies.

Students and graduates have access to a massive and overwhelming amount of information with no quality or classification filter that makes it unhelpful. Besides, the digital nature of most of this information makes many people without computer self-efficacy [4] unable to take advantage of it.

Our proposal will make possible that all this content will be planned and supervised by instructors and experts collaboratively in a network environment to ensure its quality and educational purpose.

Students and graduates will also actively participate in their learning process interacting with the proposed system. We think this platform would be a good experiment for forward research.

2 METHODOLOGY

Today there exists a huge and endless amount of resources that claim to be interesting for people learning in a field of expertise. Online platforms offering courses (Coursera, edX, Udemy, etc.) accessible and at any language and price, even free. Audiovisual content from YouTube and others, podcasting platforms, blogs and other hypertext sources, even Wikipedia. New tools claiming to be helpful in many purposes and problem solving in many fields, etc.

At this point the big quantity and diversity of contents is more a problem than an advantage and learners are lost in this jungle where, in addition, the purpose of the sources is not always clear and sometimes we have to fight against even fake and rubbish content or very poor quality in the best cases.

Universities have the perfect resource to solve this problem: instructors. They can easily turn the mentioned problem caused by the amount of resources from different sources in a real advantage and in an enriched source of good quality and planned material for learning to people wanting to enroll in activities related to Active Learning and being continuously updating their own formation. They can do it easily because they have the preparation, the knowledge and the vocation.

As part of the university, we must not leave graduated lifelong learning in somebody else's hands. Not in online social networks hands. Social networks are a good and necessary source of information but not an efficient lifelong educational resource.

Unlike similar information coming directly from universities or specialized publications, resources available on the Internet are not regulated for quality or accuracy. It is very important for people to get an evaluation of the resource or information. Anyone can publish anything on the web and it is difficult to even determine authorship or if the author is speaking honestly or just expressing his or her opinion.

We think that only universities and instructors in particular can evaluate content of Internet resources accurately and only then share the assessed content to the community.

2.1 Online platform for educational content filtering

There are thousands of apparently useful resources over the Internet. The problem is that many of them are useless and even bad quality or inappropriate for educational purposes. We promote a more active role of higher education institutions so in our system an instructor from the university or a coordinated group of instructors will filter the resources in Internet in collaboration with professionals from the industry, individual entrepreneurs and other lifelong active learners who want to participate in the distribution channel.

The innovation system we propose will offer to subscribers a list of resources helpful to the subscriber's lifelong learning activities. The resources will be diffused over a distribution channel of subscribers.

This platform has two fundamental ideas: ease of use and usefulness for learning. Without both characteristics is very difficult to engage people to another online platform amongst the many available today.

To get both, ease of use and usefulness, we have developed an online service over the web offering channels where users (instructors, experts, students and graduated) can collaborate in filtering the content and then easily broadcasting contents over the distribution channel. The dynamic inside every channel is always directed by the instructor or group of instructors preserving the quality of the channel in high standards.

2.2 Visualization of filtered content

Reminiscing on a classic icon from evaluating and commenting bibliographic resources, the classic bibliography cards (bibcards), we have visually represented every filtered content to distribute as a bibcard. Learners can manage the bibcards similarly to these lined carton boards writing and

commenting learning resource. We think this would be a good initial concept to work with because of its simplicity and easiness to understand and manage.

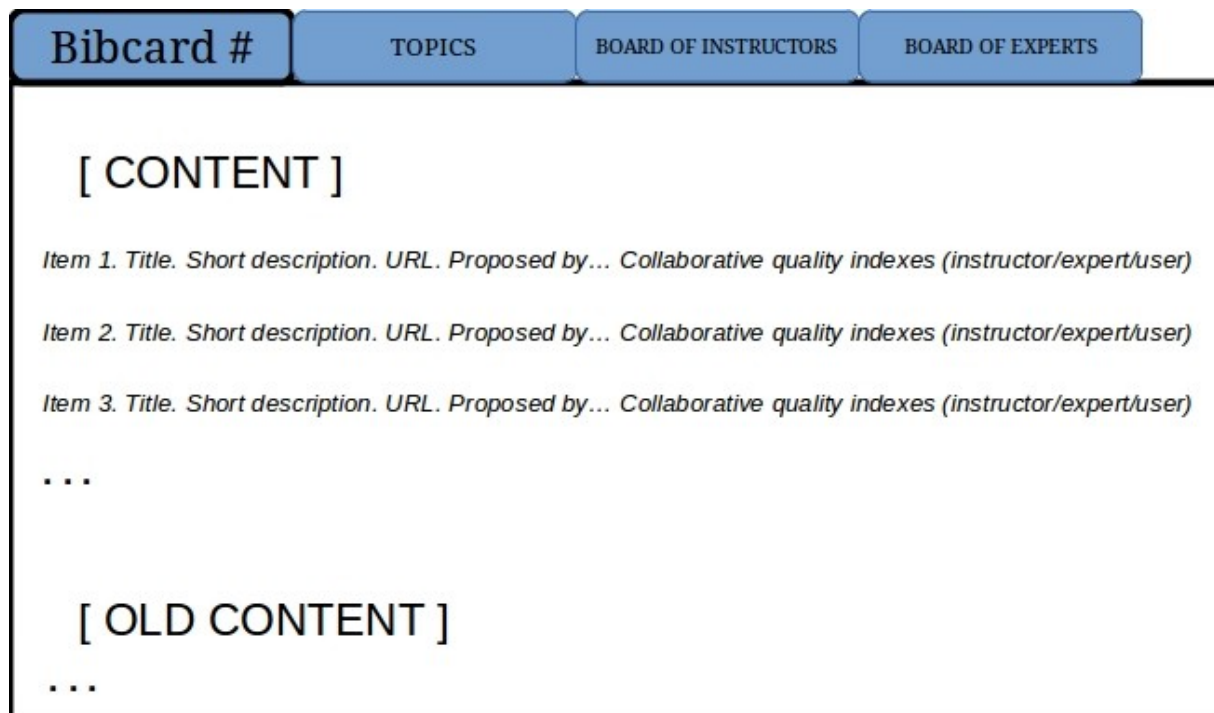


Figure 1. Bibcard basic design with a list of filtered content

Every channel has only one bibcard. Every card, as shown in the basic design in Figure 1, has a tag with the information of the board of instructors who coordinate the content, a tag for the board of experts who collaborate in filtering the content, a tag with the topic and general description, and finally the tag with the filtered content for the learner to follow in order to update his active learning discipline.

The content section is an ordered list of internet resources which have been filtered and scored by instructors, experts and learners. Every item in the numbered list has a position number, title, short description, URL, identification of the user (instructor, expert or learner) who proposed the item, and the score each item gets from instructors, expert and users respectively. The score simulates a collaborative quality index expressing the opinion each group of users has about the item quality or usefulness (showed value is the mean). Old content is going down the list with the time but instructor can change this order under his own criterion.

Learners can request anytime the platform server an updated bibcard version and just follow the links to the filtered resources in the list. Learners can also write his own notes in a similar designed note card and store them in the platform for reviews. The learner can also fulfill an evaluation card so the instructor can monitor the learning process. In this evaluation card the learner can also suggest new content for the instructor take into account for next versions of the bibcard.

The system can be seen as a repository for three types of cards: bibcards, note cards and evaluation cards.

2.3 Database

The system has been developed as web services any client can connect to. Services offer authenticated and monitored access to a database of cards (bibcards, note cards and evaluation cards) with three different roles: instructor, expert and learner. An instructor is the only administrator of the channel and he or she can add new members for the board of instructors and for the board of experts.

The first prototype version of the system has been coded in Python programming language using Flask as the web server development framework and SQLAlchemy as the Python SQL toolkit and Object Relational Mapper for our database.

3 RESULTS

This first version of the system is at the moment available through a set of scripts that connect to the system and operates every function. We are currently working in a desktop client to run both on pc desktops and smartphone and in a web application so we have different options for accessing the system.

We have already tested the system web services and we are preparing everything to get it ready for the next course starting in this October 2019. Instructors in our team will open channels for the students and will organize the collaboration of experts and graduated in order to get fully active the first channels.

During the course we will monitor this first experiment and will analyse evalcards and comments from the users in order to improve future versions of the system.

4 CONCLUSIONS

We have developed a real application for driving lifelong learner's activities with a filtered list of useful content to continue his formation. We are promoting tools like this in our universities because it's simplicity and potentially good results.

It is a first step in order to give higher education institutions more important role and more control over the lifelong learning process of a community of people requesting our knowledge society.

The future innovation system starting with this first step is what we call Lifelong Learning Paths (LLP). An easy to use platform for creating learning paths with a good user experience. Paths designed and managed by the university for people to continue learning after finishing their studies.

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