Participatory processes and institutional debate activities as key complementary aspects for embedding sustainability in higher education

F. Esteban, D. Ferrer-Balas, M. Barceló
Technical University of Catalonia.
Email for correspondence: didac.ferrer@upc.edu

Abstract

Introducing sustainable development into educational programs of universities tend to be approached under two complementary strategies: “top-down” and “bottom-up”. Top-down strategies promote the adaptation of the institutional framework to the new challenges that sustainable development generates into technical expertise areas. Bottom-up strategies focus on institutional activities oriented to convincing or supporting lecturers in integrating sustainable development in their different courses and projects. However, these actions are not enough for the actual challenge if sustainable development is seen as a transformative social learning process in which the role of academia regarding sustainable development “is not on integration but rather one of innovation and systemic change within our institutions that will allow for more transformative learning to take place”. Thus, there are other strategies “in-between” that complement these to approaches, because they help to accelerate the institutional culture shift and therefore facilitate the concrete changes needed. The aim of this paper is to describe the UPC experience on the development of two complementary aspects developed under its UPC Sustainable 2015 institutional strategy: participatory processes and institutional debate activities.

Introduction

Today, a growing number of technical universities support the integration of sustainability in higher education and include it as a strategic goal for increasing quality of education and relevance to society. In general, much focus is being done today under two complementary strategies: “top-down” and “bottom-up” [1].

Top-down strategies promote the adaptation of the institutional framework to the new challenges that sustainable development generates into technical expertise areas. In general, they respond to typical strategic programs or plans, the implementation of environmental systems, which need clear goals, responsibilities, indicators, control mechanisms, etc. Indeed, they are rooted in a mechanistic or classical management approach.

Complementary, bottom-up strategies have emerged in the last years, and focus on institutional activities oriented to convincing or supporting lecturers in integrating sustainable development in their different courses and projects. In some European universities, the second approach, called as the individual interaction method, "has become central in the strategy for embedding of ESD, not only for ensuring the integration of SD in teaching but also to change the academic culture towards SD so that it is better suited to address SD in all activities" [2].

The difference between the two approaches is that they respond to different conceptions of the organisation. Using Capra's words [3], "we are dealing here with a crucial difference between a living system and a machine. A machine can be controlled; a living system, according to the systemic understanding of life, can only be disturbed. In other words, organizations cannot be
controlled through direct interventions, but they can be influenced by giving impulses rather than instructions”. The individual approach is one way to give these impulses, but there are other forms of stimulating change. Following this reasoning, one can see that collective activities such as the network activation through participatory processes or debates are an alternative to be considered. The focus of this paper is to describe and analyse the outcomes of such efforts.

At the Technical University of Catalonia, we have experienced successive waves of activity in the overall goal of embedding SD in Higher Education. Until 2005, the different institutional plans and programs have developed mainly a strategic planning approach, which are described elsewhere [4-5]. Within the current UPC Sustainable 2015 plan, accent is growingly put on a less mechanistic perspective. The plan itself was designed through a participatory process. For instance, some experiences have recently introduced the perspective of individual interaction. Also, efforts are being devoted on participatory processes and institutional debate activities as a way to stimulate change without directing it in a top-down manner. This paper aims to analyse the institutional learning processes that have occurred in the period 2006-2008 after some of these activities.

Theoretical framework: organisational learning and living organizations

One of the dimensions of embedding SD learning in higher education institutions is to recognize that it deals with a deep cultural or paradigmatic change. As written by Sterling “the logic of this is that learning within paradigm does not change the paradigm, whereas learning that facilitates a fundamental recognition of paradigm and enables paradigmatic reconstruction is by definition transformative” [6]. In order to promote a change in organisational culture, one of the important framework characteristics is the organisational learning capacity. This is something that, according to Senge’s [7] only happens in ‘learning organisations’, which he defines as those “where people continually expand their capacity to create the results they truly desire, where collective aspiration is set free, and where people are continually learning to see the whole together”.

So, a key question is: Is it learning possible at the organisation scale, or it is only an individual phenomenon? According to Nonaka and Takeuchi [8] “in a strict sense, knowledge is created only by individuals…Organizational knowledge creation, therefore, should be understood as a process that ‘organizationally’ amplifies the knowledge created by individuals and crystallizes it as a part of the knowledge network of the organization”. As Capra explains, at the core of this discussion we find the distinction between explicit and tacit knowledge: “Whereas explicit knowledge can be communicated and documented through language, tacit knowledge is acquired through experience and often remains intangible (...) Thus, while knowledge creation is an individual process, its amplification and expansion are social processes that take place between individuals”.

Therefore, a systems approach should make us realise we would learn much more from seeing organisations as living systems. These systems are self-generating networks of communications. This means that a human organization will be a living system only if it is organized as a network or contains smaller networks within its boundaries.” Here, it is worth to underline the concept of Wenger’s “communities of practice” [9], for these self-generating social networks, referring to the common context of meaning rather to the pattern of organization which the meaning is generated. This author defines a community of practice as characterised by three features: mutual engagement of its members; a joint enterprise; and, over time, a shared repertoire of routines, tacit rules of conduct and knowledge. In the words of Capra, “the aliveness of an organization –its flexibility, creative potential and learning capability- resides in its informal communities of practice”. It is also important to distinguish among the formal structures, which are depicted in the organization’s official documents (charts, bylaws, manuals, budgets, etc.), from the informal ones, which are “fluid and fluctuating networks of communications. These communications include non-verbal forms of mutual engagement in a joint enterprise through which skills are exchanged and shared tacit knowledge is generated.”
Capra concludes that “bringing life into human organizations by empowering their communities of practice not only increases their flexibility, creativity and learning potential, but also enhances the dignity and humanity of the organization’s individuals, as they connect with those qualities in themselves”.

**Methodology / description of the processes**

**Participatory processes**

The Sustainable UPC 2015 Plan wants to promote the continuous assessment of its activities. According to this aim, once a year the UPC organises a participatory forum where the whole university community and some local stakeholders are able to give their opinion about how the institutional plan is going on (assessment) and how it should be reoriented in the future (action lines).

The Second Sustainable UPC 2015 Forum took place between November 2007 and February 2008. It was organised through two main phases:

**First phase**

Debate about the five key challenges that The Sustainable UPC 2015 Plan prioritizes: Construction, energy and climate change; Integrated water management; Socially Responsible Technology, Land use planning, mobility and logistics; Material cycles, eco-design and waste management.

Before the 1-day workshop (4th December, 2007), one online survey was launched. The participants were asked to answer different questions in order to assess the relevance of the five key challenges that the UPC Plan prioritizes and the relationship with their professional activities. The survey also aimed to know the time horizon in which those professional activities are located.

After analysing the 106 answers, all of them with an intermediate level of knowledge about the Sustainable UPC 2015 Plan and 70 from UPC staff, we can emphasise that:

- Although everyone underlined the significance of the five key challenges that UPC prioritizes, the Socially Responsible Technology one was mentioned as the most relevant.

- As can be seen in Fig.1, most of the participants think that the time horizon of their professional activities is over 2010 (short term). But it's surprising to ascertain what they also think about improvements needed to overcome barriers and articulate jointly the pathway to sustainability: structural and systemic changes based on long term strategies.


During the 1-day workshop\textsuperscript{3} -4th December, 2007-, different group activities were organised in order to promote the debate about the most relevant environmental and social problems regarding the five key challenges that UPC has decided to prioritize through its institutional plan. Reaching the consensus about the prospect and about the action lines that UPC should launch immediately was the main aim of the session.

A wide variety of new proposals was discussed: reflections about social and environmental impacts of technology and about deontological ethics, science shops and transdisciplinarity practices oriented to the third sector, increasing the visibility of the research projects that are consistent with the SRT principles, etc.

\textit{Second phase}

Debate about the priority action lines that The Sustainable UPC 2015 Plan has defined at any of the four university key areas of activity: Research, Education and training, Internal management, Engagement and social interaction.

Both the previous online survey\textsuperscript{4} and the group activities during the 1-day workshop\textsuperscript{5} -22nd January, 2008-, focussed on how those action lines are going on (assessment of their progress through the 80 participants perception, including revision of priorities) and which new ones should be launched at any of the four university areas of activity.

After analysing the answers of the survey and the really interesting 80 participants' contributions during the 1-day workshop, many of the proposals discussed have been included as new short and long term priority actions within the four university areas of activity: setting up a social needs observatory in connection with UPC research groups, promoting projects where UPC schools and departments act as starring role, extending pilot programs –UPCO2, EMAS- to all UPC campuses, improving specific programs for waste prevention, making students participation easier in order to promote them as social change agents, promoting new education for sustainability research projects, etc.

\textsuperscript{3} http://sites.upc.edu/~w-cpma/2nforum/inici.html (in catalan only)
\textsuperscript{4} http://www.upc.edu/sostenible2015/pla-upc-sostenible-2015/Memoria08/conclusions/copy_of_inici-1 (in catalan only)
\textsuperscript{5} http://sites.upc.edu/~w-cpma/2nforum/inici.html (in catalan only)
Institutional debate activities (workshops, conferences, etc.)

Between January and July 2007, two institutional activities were carried out under the umbrella “UPC Sustainable 2015”: a workshop and a conference.

Workshop

In April 2007, a 1-day workshop on EDS6 in technical studies was organized where around 70 academics came. The discussion at this workshop was conducted in 5 parallel sessions that aimed to work on the interaction between 5 main knowledge areas for UPC and SD. These engineering areas were: Industrial, ICT, Biotechnologies, Architecture and Civil. International experiences such as T.U. Delft’s were shown.

The main aim was to stimulate the debate about the competences of our future university graduates and how to integrate sustainable development issues in bachelor and master programs regarding the challenges we are facing nowadays. As most of the UPC schools boards attended the workshop and participated directly in the discussions, our internal assessment of the activity was pretty positive.

UPC Sustainable Conference

In July 2007, a 2-days internal conference, the First Sustainable UPC Conference, was organized. The aim was to create a real collaboration framework among all those that are working in the integration of SD in their courses, while lobbying and institutionalizing this issue within UPC’s activities regarding the design of new Bachelor programmes. 64 papers were presented and more than 100 people attended.

In this conference, two draft documents were presented and discussed: “UPC’s Declaration of Sustainability” and “Strategy for the introduction of SD in bachelors”. One year later, these two documents have been sanctioned by the UPC board.

The Declaration aimed to be the conceptual reference in order to clarify what SD is and represents for UPC, and has political and pedagogical objectives. On the other hand, the second document should be a sustainability guideline for the schools and faculties that have to design their own degrees.

Discussion

This reflexion’s starting point arises from the concept of Wenger’s “communities of practice” – already discussed at the introduction of this paper-. In the example that we are analysing, we define them as the community –global network of smaller networks- of UPC individuals who are motivated and interested in sustainability issues. Although it’s really difficult to find out exactly how many individuals belong to this “informal community”, we establish a rough amount between 250 and 350 within an institution with more than 40,000 people (including students).

We will underline three characteristics of the informal communities of practice and, for any of them, as a result of both types of initiatives (participatory processes and institutional debate activities), we will present for discussion mainly their institutional global impacts.

Mutual engagement of their members

According to Wenger, Mutual engagement is dependent on “being included in what matters” [9]. Both participatory processes and institutional debate activities contribute to reinforce the mutual

---

6 http://sites.upc.edu/~w-cpma/jornadesDebatDHS/ (in catalan only)
7 http://sites.upc.edu/~w-cpma/congres/ (in catalan only)
engagement of the informal network participants as they feel members of significant and useful social processes –what matters-. Organising such kind of activities let them realise that “they are not alone” and that, beyond The Sustainable UPC 2015 Plan, there’s an important community of motivated individuals whose desires include making this Plan true as soon as possible. They also realise that the way to achieve this statement is long enough, reinforcing again their mutual engagement.

However, there exist significant barriers that we have to face when organising these types of activities. A common one refers to individuals who don’t feel comfortable when discussing these issues: they feel unconfident about the way they research, the way they teach or the way they think and behave, so it’s easier for them to react aggressively against other people’s opinions than analysing the insights on their own behaviour. They can’t neither understand nor accept this institution informal way of working. Although they attempt to participate actively, they don’t feel members of the informal community of practice.

If we take into account the relevance of lecturers in educational processes, and under the perspective of stimulating them, it’s obvious that activities like the First Sustainable UPC Conference⁸ are essentials: having the chance to share and discuss with your colleagues what they do and what they think is an excellent way to begin asking yourself about the way you do and the way you think. We are not used to dealing with internal processes of sharing information and methodologies. But we have to get used to.

A not so obvious aspect is related to its impact at institutional level. Following the same example, the First Sustainable UPC Conference gave the chance to publicly debate a draft document about the inclusion of sustainability in future degree programs. First of all, it could seem just as one more proposal. But, in perspective, the First Sustainable UPC Conference was the perfect activity at the perfect moment to collect the fruits of all the work carried out during the previous years in order to include environmental and sustainability aspects in the curricula: the document was discussed and it was stated, publicly and in front of some members of the UPC board, that it was absolutely priority to go forward according to the issues the document pointed at. During the closing session of the conference, the Vice-chancellor of University Politics promised to take it into account. Somehow, it can be considered that the group of informal witnesses of this statement gave strength to his commitment as they were able to watch over the achievement of this task. Some months later, the UPC board sanctioned the regulatory frame for the future degree programs (in the frame of Bologna process) including sustainability as a compulsory transversal competence. Even although it is not a linear process, the support received during the conference was a significant element (necessary but not sufficient).

Thus, it can be stated that this kind of activities contribute to the creation and consolidation of internal political spaces that, in the long term, turn to be a key factor to drive the institution towards sustainability.

Joint enterprise

According to Wenger joint enterprise is “defined by the participants in the very process of pursuing it” [9]. If we label the desirable "cultural change" associated to sustainability as joint enterprise for our informal community of practice, we notice that both types of initiatives contribute positively.

What it is odd becomes normal when it is taken into practice. Just like people do not change their attitudes overnight, the university do not easily change its habits opposite to sustainability. The daily practice of "different actions" and its public visibility contribute to its "normalization" and, in consequence, to its insertion into the institutional culture (change in the predominant culture).

⁸ http://sites.upc.edu/~w-cpma/congres/ (in catalan only)
Besides, like a virus, this way of doing spreads quickly and new acts appear with the same logic. Some examples can be a support program to teachers and schools based on the generation of stable nuclei of knowledge and complicities into each one of the UPC schools (program STEP 2015), debate activities decentralised coming from the interest of schools, co organization of round tables and practice workshops with students, etc.

In this way, "different actions" based on its impact in the long term, with a less mechanistic style and more complex, start to belong to the UPC core as decision makers must deal in their day-to-day business with these new issues they are not used to. The objectives stated in The Sustainable UPC 2015 Plan, joint enterprise for our informal community of practice, become believable and, in consequence, attainable.

Shared repertoire – shared tacit knowledge

A shared repertoire is defined as the “resources for negotiating meaning” [9]. Participatory processes allow to compare the vision –perception- of the participants about the main problems to deal within any field with the reality of the lecturers who are devoted to it. This comparison allows to generate a "tacit knowledge" which is basic if we want to assess the impact over the institution of this kind of activities. At the same time, the process helps us to "speak" the same language, agree about the contents and clarify the meanings. In general, in any public act of these characteristics there have been some contributions which have claimed to light up what we talk about when we speak about sustainable development.

To show this perceptive divergence among different groups within the same organization, we can describe two illustrative examples. On the one hand, the participants to the Second Sustainable UPC 2015 Forum (a motivated and expert community), are the opinion that the main barriers to integrate sustainable development in the academic programmes are inherent to present scientific logic and technology -mechanized, disciplinary, efficiencist, etc.-. When lecturers are interviewed individually, in their day-to-day reality, they identify the main barrier to accomplish this integration as "external" -lack of resources and incentives, deficiency of institutional will, and so on-.

On the other hand, the valuation of those present in the Forum regarding progress in the Engagement and Social Interaction challenge is very high -they are involved and they have an insight perspective-, which is an opposed opinion to those of the experts and other external agents who think that this is precisely one of the challenges in which the UPC has to concentrate its efforts in. Another example is the use of the concept "Sustainable Human Development" (SHD) as a description which unifies the members of a community of practice. Previous to that, different social networks -cooperation and development, sustainable development, social commitment, etc…- used different nomenclatures. Nowadays, there isn't a strict definition but it seems that the SHD frame is accepted as a common reference frame.

Thereby, it is important to create open spaces to share a dialogue and thought, to be able to outcrop the need of a language, a code or an interpretation, which allows to add new steps to a firm foundation.

Conclusions

This paper has shown that the strategy and institutional actions that are being implemented at UPC in order to integrate sustainability are increasingly including new forms of stimulating change by means of more collective and participatory activities. After 10 years of mainly developing and implementing strategic plans on environment and sustainability, it has been recognized that other forms of managing change are also needed. These respond more to the “living organisation” [3] or “learning organisation” [7] approaches in organisational theory.
This change started recently, mainly through introducing a participatory focus in the design of the UPC Sustainable2015 strategy during 2005-2006. Various activities of this type, such as institutional debates or participatory evaluations have been carried out since then. Although the too recent implementation of such approaches, the situation described seems to support their positive effect, and although it is not possible to compare to other scenarios, it is the impression of the authors that some changes would have not occurred if there had not been carried out.

Also, the intuitive assessment is that the cultural change promoted through these approaches is stronger that the one created by top-down or strategic planning methods. However, it is not possible to measure it, and even the definition of the results to be obtained is not clear, as it is more process-oriented than result-oriented.

The concept of “Communities of practice” has been used to analyse and describe the processes and thus to initiate the self-reflection research about these activities. It seems to provide a useful approach for the discussion on the change management processes, in a compatible lens to the theoretical framework used. Some of the main conclusions are the following:

- **Mutual engagement** has occurred both at the individual and institutional level
- One of the outcomes of the effort has been to normalise progressively the participatory approach; thus, the *joint enterprise* of “Sustainable 2015” takes place in an informal community that progressively accepts and supports these approaches as legitimate.
- Much effort has been devoted to improve the shared *tacit knowledge* which is needed in order to build on next steps. Evidences exist that the divergence in opinions and languages is still important regarding sustainability, even among those considered as “committed”, so that more dialogue and participatory spaces are needed. In any case, a solely top-down approach would strongly fail due to that in a so free environment such as University.

Finally, we conclude that creating the culture of collective and participatory decision making is necessary (but not sufficient) as an approach for embedding Sustainability in the University. In any case, it seems to open irreversible cultural changes that are compatible with the principles of Sustainable Development.

**References**


