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The Development of Basic Competencies for Sustainability in Higher Education: An Educational Model

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Existing paradigms, which are deeply rooted in our educational systems, are fomenting unsustainable development. For this reason, it is necessary to opt for a style of education that allows university students to be aware of the need to live in a different way and be aware of our absolute dependency on our natural environment. This goal requires fundamental changes in the curriculum, as well as a broader vision of the role that educational institutions must play. One of the objectives of education in this new century must be to help achieve sustainable social and environmental human development. In this sense, higher education plays a very important role in the field of education for sustainability and the university must take on this challenge with great determination. This work presents a model for formation that furthers the development of basic competencies for sustainability, which must be incorporated into the curriculum of all higher educational studies.

Keywords: higher education, sustainability, basic competencies, environmental competencies, university

Introduction

The XXI century poses a great challenge for mankind: the search for sustainability. This concept goes beyond the consideration of the environment on a global scale, since it also integrates such aspects as fairness and social justice. The degradation of all ecosystems, the loss in biodiversity, the depletion and destruction of natural resources, numerous instances of pollution, or the extreme poverty of millions of human beings all originate from how people think. Therefore, this should be first and foremost a problem of education, and linked to the content and process of formal education and higher education. Recognizing this requirement, in turn, an understanding of the problem of education itself, not only of the problems that exist in education (Ull, 2011).

Existing paradigms, deeply rooted in our higher education systems, are helping to further unsustainable development (Tilbury, 2011). That is the reason why it is necessary to opt for a type of education that allows the university to instill in us the need to live in a different way, recognizing our absolute dependence on the natural environment. This requires fundamental changes in the curriculum, as well as a broader view of the role played by educational institutions. All university students have to be trained in skills regarding sustainability, if we are to have professionals who know how to deal with problems regarding unsustainability. They will have to contend with this type of dilemma in the future, so that their decisions do not contribute to further increasing unsustainability.

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In academic circles dealing with sustainability, a broad debate is being encouraged to determine the basic skills that university graduates should have been acquired by the end of their formation (Wiek, Withycombe, Redman, & Banas, 2011). Despite some criticism (Hyland, 2003), there is a certain consensus in educational literature on the importance of clarifying key skills and learning outcomes when it comes to the design of academic programs (Burke, 1989; Spady, 1994; Bowden & Marton, 1998; Voorhees, 2001; Baartman, Bastiaens, Kirschner, & van der Vleuten, 2007). According to Wiek (2012), these skills are an explicit framework for developing distinct and recognizable profiles in a field of training that also represent an explicit frame of reference for the development of programs and academic courses; the assessment of progress in learning, and efficient teaching methods; and finally the elaboration of a suitable training profile for students to help them carry out their professional activity in the future and resolve problems, act as agents of change and adequately manage transition processes (Orr, 2002; Rowe, 2007; Loorbach & Rotmans, 2006; McArthur & Sachs, 2009; Willard et al., 2010).

This paper presents a training model that enables the development of core competencies for sustainability which should be incorporated into the curriculum of all plans of study.

A New Assignment of Functions for Higher Education: Now Is the Time for Sustainability

Higher education is called upon to exercise leadership in the achievement of sustainable development, in a context where many educational institutions are currently helping to trigger the crisis of sustainability on a global scale.

During the first half of the United Nations Decade of Education for Sustainable Development (2005-2014), various approaches have been applied in order to make sustainable development, a transversal axis within the field of higher education. In most cases, these have been more or less systematic attempts to integrate sustainability into teaching and learning (Barth, Rieckmann, & Sanusi, 2011).

From a broader perspective, integrated action towards institutional sustainability would have to consider actions in different contexts in participation, management, training, and research[1]. Their effective integration in higher education institutions depends on a series of factors that belong to three different areas (Aznar & Ull, 2009):

(1) The macroscopic level. It refers to initiatives at international, national, regional, and local levels. This field involves political and administrative issues; fundamental factors are institutional support and the development of educational policies aimed at promoting education for sustainable development, which involves basic guidelines and a support structure of personnel and materials (coordinators, resources, tools, etc.) and supporting the design and development of plans for institutional sustainability;

(2) The microscopic level. It is based on actions developed in the center or faculty aimed at designing new university degrees and determining the skills that must be developed, including those for sustainability. This level refers fundamentally to the institution as an instigator, and center policy;

(3) The strategic level. With respect to teaching, refers to the involvement of teaching staff in the design and application of actions related to the integration of sustainability into curriculum profiles. A key issue in this regard is the training of faculty members to include sustainability criteria in their respective disciplines (Aznar,

[1] This is exactly how it is expressed in the Commitment for Sustainability Practices in Institutions of Higher Education on the occasion of the United Nations Conference on Sustainable Development. Consult in this regard the initiative of Higher Education for Sustainability in Río + 20: http://www.uncsd2012.org/index.php?page=view&nr=341&type=12&menu=35.

Martinez-Agut, Palacios, Piñero, & Ull, 2011).

University centers have to integrate sustainable development in the context of both education and research. As regards the former, education for sustainable development is not only another item to add to an overloaded curriculum, but also a path that leads to a different perspective about the curriculum itself, pedagogy, organizational change regarding policy, and especially, ethics (Barth & Timm, 2011).

Clearly, much of the learning, concepts, and techniques used to form students in their different degrees are related to sustainability. For some time, different universities have used different procedures aimed at their own sustainability: the creation of degrees in environmental science or environmental engineering, offering doctoral programs in these fields, etc.. In other cases, it has been a question of incorporating an environmental variable in training cycles and lines of both basic and applied research that are not directly concerned with sustainable development, but are related to it in some way. On the other hand, in cases where the plans of study had no connection with this paradigm, the students involved have in some way been able to get access to some basic formation in sustainability by taking some specific course on this subject. However, if the idea is to generalize all areas of knowledge to achieve the objectives in formation referred to in the introductory section, important changes would have to be made in the curriculum (Orr, 2010; Ull, Martínez-Agut, Aznar, & Piñero, 2010), and also there would have to be a broader participation in the role played by university education institutions.

The integration of sustainability in higher education can be considered as an innovation that requires some reorientation in both learning and teaching as well as the reformulation of traditional issues and of conventional approaches which are proposed for adoption in this text (Barth, Michelsen, & Sanusi, 2011), since there is evidence that suggests that the area of higher education does not really understand the true nature of the challenge that humanity is facing (Cotton & Winter, 2010; Abdul-Wahab, Abdulraheem, & Hutchinson, 2003; Ferreira & Tilbury, 2012; Cortese, 2003; Thomas, 2004; Moore, 2005; Nomura & Abe, 2011; Park, 2008; Verbitskaya, Nosova, & Rodina, 2002). Curricular sustainability includes revising categories through which we interpret society, science, technology, economy, territory, education, etc. and reorienting them towards sustainability (Barth & Godemann, 2007). It is necessary to change the focus through which we study reality to resolve the social and environmental problems that we have generated. According to Barrón, Navarrete, & Ferrer-Balas (2010), curricular sustainability involves not only including environmental content in the syllabus of different subjects, but also another broader series of changes in the conception and design of the educational process, keeping in mind certain aspects like those specified as follows[2]:

(1) Replacing the static and fragmented view of reality with a complex and dynamic vision capable of overcoming the tradition of breaking down reality into unconnected parts, while opening up the university more to the collaboration of societies and social organizations to resolve socio-environmental problems;

(2) Enhancing disciplinary flexibility and permeability to encourage systematic and relational thinking through the incorporation of interdisciplinary work projects from different areas and subjects;

(3) Improved functionality and contextuality in teaching, incorporating the study and treatment of local and global issues, and strengthening partnerships with local entities;

(4) Promoting coherence between theoretical discourse and action, between the theoretical and the practical, the programming of practice sessions coherent with theoretical proposals, and trying to make the management of the center be also coherent with the process of sustainable development itself;

[2] Adaptation of the methodological proposal for orientation on sustainability in higher education studies in on the ACES Network (Curricular Ambientalización de los Estudios Superiores). ACES Network: Red ACES.

(5) Adoption of a constructivist epistemology and a holistic education that explicitly recognize the diversity in students, cognitive styles, cultures, situations, etc., accepting the role of individuals and groups as active subjects in the history and construction of their own knowledge; and promoting as an integral formation of educators in their intellectual, psychomotor, affective, social, and moral aspects.

Higher education is then finally a key instrument for reaching sustainable development, which means that the university should form professionals capable of using their skills and knowledge, not only in a scientific context, but also to provide an answer for social and environmental needs. The professionals that the university forms will have to (Ull, Martínez Agut, Aznar, & Piñero, 2010):

(1) understand the contribution of their work in different professional, cultural, political, and social contexts and their influence in promoting a greater awareness of the considerations of sustainable development;

(2) work in multidisciplinary teams, to find solutions for the demands made by socio-environmental problems, including proposals for professional alternatives to contribute to sustained development;

(3) apply a holistic and systematic approach for solving professional problems;

(4) actively participate in the discussion, definition, and evaluation of policies and actions, both in the public and private domains, to contribute to redirecting society towards more sustainable development;

(5) apply professional knowledge according to ethical principles of conduct and ethical values related to sustainability;

(6) understand the contribution of their work in different professional, cultural, political, and social contexts and their influence in promoting a greater awareness of sustainable development.

Basic Competencies for Promoting Sustainability in University Education

Social changes, the development of new technologies that lead to the availability of a rapid and growing information flow, cultural diversity, globalization trends occurring in today's society and the need to cope with constantly increasing complexity and uncertainty all present new challenges that require the acquisition of skills for their management (Aznar & Ull, 2009).

In general, the term "competency" is determining a qualitative change in the way we understand human learning: The development of skills makes possible an expansion and deepening of the very concept of learning, since meditating on it acquires a whole new systematic and holistic dimension; it implies, ultimately, a new concept in comprehensive professional training.

In the field of university education, sustained development could be considered as a reference point in the process of selecting key competencies (Rieckmann, 2007). Nonetheless, educational literature deals with competencies in general and with competencies referring to sustainability matters in particular, and its terminology becomes very ambiguous, since "competencies" are associated with skills, capacities, qualification, and other terms (Baartman, Bastiaens, Kirschner, & van der Vleuten, 2007). In the last few years, various articles and reports have managed to make some progress in the conceptualization of the key competencies related to sustainability (Byrne, 2000; de Haan, 2006; Barth, Godemann, Rieckmann, & Stoltenberg, 2007; Sipos, Battisti, & Grimm, 2008; Segalas, Ferrer-Balas, Svanstrom, Lundqvist, & Mulder, 2009; Willard et al., 2010). However, the identification of what constitutes competencies in the area of sustainability is still but in its infancy. A review of the literature on sustainability in education, carried out by Wiek, Withycombe, and Redman (2011), reveals a certain convergence in key competencies in sustainability research and the resolution of problems, but also concludes that specific key competencies that are essential for the design of programmes

and education are not sufficiently justified and developed (Wiek, Withycombe, Redman, & Banas, 2011). By the same token, there are still very few cases where curriculum change has been successfully integrated on a large scale (de la Harpe & Thomas, 2009), a fact which is due in great part to the lack of research on the evaluation of competencies in the field of higher education.

This article defines competency as a set of knowledge, skills, and attitudes that are functionally related, and that allow tasks and problem-solving to be executed satisfactorily (Spady, 1994; Baartman, Bastiaens, Kirschner, & van der Vleuten, 2007). Applied to sustainability-related skills, competency represents a complex and integrated set of knowledge, skills, abilities, attitudes, and values that people bring into play in different contexts (society, education, labor, and family) to address situations involving environmental issues, as well as to act upon and transform reality according to sustainability criteria (Dale & Newman, 2005; Geli, Junyent, & Sánchez, 2004; Rowe, 2007; Barth, Rieckmann, & Sanusi, 2011). It is the art of knowledge, knowing what to do and how to evaluate, which requires working with content related to the environment (nature and socioeconomic and cultural aspects), which enables professionals to give sustainable responses to problems or situations that they have to face.

What competencies in sustainability must university graduates possess to meet current and future demands of society? Determining what these demands are can help to assess the degree of preparation achieved by graduates to meet the challenges of sustainability and the promotion of sustainable development, as an objective of systems of education (Cortés et al., 2010). Different approaches have been proposed to undertake the selection of key competencies for sustainability (Rieckmann, 2011): shaping competences (de Haan, 2006), sustainability literacy (Parkin, Johnson, Buckland, & White, 2004), sustainability skills (Hopkins & McKeown, 2002; Stibbe, 2009), professional competences for sustainable development (Martens, Roorda, & Cörvers, 2010), Organisation for Economic Co-operation and Development definition and selection of competencies of key competencies (Rychen & Salganik, 2001; 2003), and core competencies (Wiek, 2010).

A proposal for education about sustainability must incorporate the promotion of three basic types of competencies: cognitive, methodological, and attitudinal. They are considered to be basic competencies for three main reasons: (1) for the way in which they serve as a point of reference to achieve the final objectives set for university education; (2) because their acquisition is transversal, as they are facilitated from different academic areas and at different moments of evolution; and (3) for how they require the learning of new contents (conceptual, procedural, and attitudinal) through the implementation of various active methodologies to be applied in different contexts.

The training model for basic competencies in sustainability that is described in continuation presents a set of competencies that are integrated conceptually and inter-related. This model has been obtained, on the one hand, from the results of surveys completed by university teachers to establish minimum contents based on a previous definition of the objectives of sustainability in formation, and the specification of the core competencies that have to be developed[3]; and on the other hand, through a study of related research in different contexts (Junyent, Geli, & Arbat, 2003; Rychen & Salganik, 2003; Barth, Godemann, Rieckmann, & Stoltenberg, 2007). The model is organized around three categories (Aznar, 2006):

Cognitive competencies (knowledge) include critical understanding of global, national, and local

[3] This model is found in the results of the research work "Curricular Environmentalism in the University of Valencia" financed through public concourse, directed by Pilar Aznar with the collaboration of Mª Ángeles Ull and which concluded in 2007. See Aznar M. P. (2006).

socio-environmental issues. The subjects that make up each university degrees can lead to developing competencies in their courses by using, in a specific context, the underlying concepts in socio-environmental issues, and the analysis of causes and effects as well as their incidence in the sustainability of development.

Critical understanding of the socio-environmental issue requires:

(1) The ability to perceive what is global through local action (trans-cultural comprehension);

(2) The ability to reflect objectively on the models of individual behavior and cultural patterns existing in society;

(3) The use in context of underlying environmental concepts in environmental issues;

(4) The ability to detect cause/effect relationships in environmental issues; knowledge about the historical origins of current environmental concerns;

(5) The ability to integrate various environmental dimensions (social, cultural, economic, political, aesthetic, physical, and biological) when making professional decisions;

(6) The ability to apply actions related to the environment transversely through decisions taken in professional circles;

(7) The ability to analyze differing theories about development and its link to models of real development;

(8) The ability to critically analyze the information and data broadcast by the media about environmental issues;

(9) The ability to distinguish between different forms of social and political organization and their influence on the resolution of environmental problems;

(10) Knowledge about international, national, and local initiatives to protect and improve the natural and social environment.

Methodological competencies (skills) include acquisition of skills, strategies, techniques, and procedures for decision-making and taking actions related to sustainability. Various teaching guides would have to contemplate contents and activities students should learn to be able: to elaborate and apply indicators for problems related to environmentally sustainable human development; to design action plans that include educational actions to promote sustainability values, the creation or modification of attitudes that develop them and the permanent up-dating of behaviors that apply them; to interact in interdisciplinary fashion to resolve environmental problems related to the professional-academic setting; to participate in managing the environment of the local community as well as knowing how to transversely apply actions resulting from professional decisions affecting nature and the social environment.

This section will consider the following basic skills:

(1) The ability to take environmentally-related ethical decisions and to rationalize and justify possible solutions;

(2) The ability to design action plans to improve any process-product relationship from an environmental point of view;

(3) The ability to interact in an interdisciplinary way when resolving environmental issues that are related to the academic and professional worlds;

(4) The ability to develop and apply indicators for environmental problems;

(5) The ability to carry out/collaborate in conducting environmental audits.

Attitudinal competencies (knowing how to act and evaluate) implicit in the very definition of sustainable development are the moral conception and ethical attitudes which encourage new behaviors and values

coherent with sustainability; they imply the evolution of a new type of ethic that encompasses different spheres of human interaction in society, with institutions and with the whole group of biotic and abiotic systems (Jonás, 1995). All these interactions lead to a new three-dimensional ethic: (1) One which places first and foremost individual rights affects relations between human beings (the first generation of rights); (2) One where the values defining social rights are what affect relationships between human beings (second generation of rights); and (3) One which emphasizes environmental values, peace, and the development of peoples (the third generation of rights) involves the relationships between human beings, all other living things and even inanimate objects.

This change in perspective affecting the ethical framework would imply that, through the syllabuses for different subjects, actions could be contemplated to develop the ability to relate values/behaviors through knowledge about the beliefs, values, and attitudes that underlie the relationship between people and their environment; the ability to recognize the ethical models that drive decision-making related to sustainable development; the ability to recognize one's own beliefs, values, and attitudes toward issues related to sustainability; the ability for empathy, compassion, and solidarity within and between generations (Espunya & Juandó, 2011); the capacity to take a stand on environmental and ethical dilemmas and justify possible solutions; the capacity for self-motivation in favor of behavior coherent with values of sustainability; the ability to develop personal ethics with respect to sustainability; the ability to foresee the consequences of decisions to be taken (forward-thinking); and the ability to develop a sense of responsibility with respect to the consequences of one's own actions.

In this section, the competencies that should be incorporated are:

(1) Knowledge about the beliefs, values, and attitudes that underlie the relationships between people and their environment (capacity to relate values—behaviors);

(2) The ability to recognize the models of environmental ethics that drive decision-making and the implementation of measures related to the environment;

(3) Building a personal environmental ethic based on sensitivity towards the natural and socio-cultural environment;

(4) The ability to recognize one's own beliefs, values, and attitudes with respect to environmental issues;

(5) The acquisition of a sense of accountability for the consequences of one's own decisions and actions.

The change in approach involving new considerations based on sustainability requires a modification of traditional axiological models that have been based on relationships between humans and their social and natural environment where the repercussions of human actions on the environment are not considered ethically significant. Hence, the inclusion of core competencies contributed to sustainability cannot merely refer to cognitive and methodological aspects while ignoring ethical considerations.

Incorporating sustainability in course profiles is a strategy that tends to facilitate the achievement of those educational objectives referring to the promotion of basic skills for sustainability in university graduates. This is possible due to the reformulation of subject contents, which must be worked on through disciplinary dialogue and from the consideration of specific criteria based on ethics, equity, multiculturalism, etc., to guide the progress of the whole process fomenting sustainable development. In this sense, some research has been published which fixes criteria frameworks as proposals to guide the development of core skills in all degrees (Geli, Junyent, & Sánchez, 2004; Barth, Godemann, Rieckmann, & Stoltenberg, 2007). Conducting a synthetic analysis of the different proposals has led us to introduce the following basic criteria (Aznar & Ull, 2009):

(1) Interdisciplinary criterion. University teaching has to be oriented towards interdisciplinary ends; the faculty consists of professors and researchers from different academic areas who provide diverse academic and cultural approaches to facilitate the development of interdisciplinary dialogue from the logic of their various disciplines;

(2) Criteria mainstreaming. The content aimed at developing competencies for sustainability must be integrated in different academic areas in the different subjects included in the degree and must pass through the different levels of university management;

(3) Criterion of university and society, academia and workplace. University degrees have to meet the challenges raised by existing institutions in the area, like that of preparing competent professionals to live up to the demands of their work responsibilities when dealing with sustainability;

(4) Criterion of complexity. Today's changing and complex reality demands an ability to deal with complex situations, to act after reflection and make coherent and fair decisions through the principles of complex thinking[4] (dialectical, contradiction, order/disorder, recursive, and homogramatic);

(5) Criterion of scientific and ethical development. This involves the ability to take on responsibilities that contribute new knowledge, strategies, and attitudes to the culture of sustainability in the field of higher education;

(6) Criterion of policy guidance in educational formation. Since the learning processes are based on the achievement of competences, the achievement of key competencies for sustainability requires a regulatory framework to justify the selection of skills to be developed;

(7) Criterion of socially oriented learning. Learning for sustainable development must be linked to real-life situations;

(8) Global criterion for actions to be taken. The contents in curriculum profiles under elaboration must be based on global referents when dealing with local and contextual issues;

(9) Criterion of integrating formal and informal learning experiences. The university is an environment that offers opportunities for informal learning: through the generation of debates and dialogue, the promotion of voluntary activities, the development of tacit styles of learning through the internalization of values, attitudes, behaviors, skills, etc., during daily life in the university community.

Conclusions

Fortunately, there is evidence of more and more companies who are taking both social/environmental ethics into consideration, as well as the technical training of university students, as essential elements in the recruiting of graduates. Achieving a sustainable future requires that individuals adopt different values, attitudes, skills, habits, and behaviors that are often learned and grounded at an early age. Unfortunately, current educational efforts are not sufficient to achieve enough of a transformation in these areas.

One of the aims of education in this new century must be to contribute to environmentally and socially sustainable human development. In this sense, higher education plays a very important role in the field of education for sustainability, and the university must take up this challenge with determination.

Education for sustainability is an ongoing process of cultural production, aimed at training professionals committed to attaining the best possible relationship between society and the environment for the survival of

[4] Reference to complex thought necessarily implies consulting the concepts of Edgar Morín (Morin & Pakman, 1995).

both, taking into account the principles set out in ethical models coherent with environmentally and socially sustainable development, such as justice, solidarity, equity, or the respect for both biological and cultural diversity.

Universities must take the lead in the development of new forms of interdisciplinary and transdisciplinary education that is ethically oriented for proposing solutions for problems related to sustainable development. Through the formation of students, research, the promoting of critical consciousness, etc., they take on unprecedented responsibility in the history of higher education for the dissemination of knowledge, values, attitudes, and behaviors aligned with sustainable human development, which is meant to inspire decisions made by graduates in the exercise of their respective professional activities.

In essence, the curriculum must enable students to be aware of the values that should guide their future professional career activity and their collaboration in tackling global challenges. Through curricular profiles, the aim is to achieve overall formation for the student, not from fragmenting the curriculum into disjointed sections, but through the implementation of environmental criteria and contents from all the areas that comprise it and at all levels of education. In this sense, it is necessary to establish a framework to facilitate the involvement of the whole university community in the launching of an institutional process that contributes to sustainable development on a world-wide scale. The specification of key competencies for sustainability, and their incorporation in a set of general or basic competencies, is a requirement for the elaboration of new university studies curricula. All students in this area should be formed in their fields of specialization in accord with criteria and values related to sustainable development. Thus, they will have to acquire a centered understanding of what sustainability is, so that in the future they can take this perspective into consideration and incorporate it into their professional activities. To achieve this, certain objectives should be met. Among them, some that could be highlighted are:

(1) The strengthening of environmental competencies in professionals trained and educated in the university. That is why the work methodology considered relevant is the introduction of sustainability based on formation that is oriented toward learning competencies, which is understood as the set of complex and integrated procedures, knowledge, attitudes, and values that individuals bring into play in different contexts in which they interact to resolve environmental issues through sustainability criteria. In this sense, education with respect to sustainability should include basic skills training in these areas:

(a) Cognitive: The cognitive competencies related to knowledge and linked to a critical understanding of global and local environmental issues;

(b) Methodological: The methodological skills related to know-how, the acquisition of skills, strategies, techniques, and procedures for decision-making and action-taking related to the environment and sustainable development;

(c) Attitude: attitudinal skills related to know-how and evaluating, where the development of sustainability attitudes and values are essential.

(2) Promoting incentives in teaching and research that contribute to the transformation of relationships between society and the environment, and promote the prevention and resolution of issues that lead to unsustainability;

(3) Improving interaction between the social demand for sustainability experts in any field and the formation of university students;

(4) The development of flexible curriculum models that facilitate a holistic perspective of sustainable

environmental and social human development;

(5) The strengthening of the role of universities and the demonstration of their ability to teach those values, behaviours and life styles necessary to achieve sustainability.

In this new approach, with respect to the mission of the university institution, there has to be a revamping of those old values that have led to the global crisis on this planet, and actions have to be based on an ethical consideration that makes evolution possible, leaving behind a culture and lifestyles that have been proved unsustainable while moving forward to other alternatives that make the quality of life compatible with sustainable development.

The university is not only a place for formation. It is also a place where new educational proposals can be experimented with, and a platform for spreading changes in perceptions, attitudes, and behaviors towards new more sustainable lifestyles. In short, it is necessary to design and implement a new educational model to inculcate university students with the need we all have, on facing this planetary emergency, to learn to live differently, and recognize our crucial dependence on the natural processes that maintain the functioning of the biosphere.

Sustainable development requires a change in the mind sets that structure our thought and provide a basis for our decisions and actions. It is a way of making a reflection about how we organize our lives and our work, even our educational system, in order not to destroy our most valuable resource, the planet earth, and address growing concerns about the future viability of life on it. Definitively, sustainable development is much more than recycling bottles or donating funds. It is all about thinking and working in a completely different way.

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