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THE SUSTAINABLE DEVELOPMENT IN ROMANIAN HIGHER EDUCATION

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ABSTRACT:

This paper aims to realize a diagnosis of the Romanian Universities from the sustainability point of view. A study has been carried out in order to identify the current situation, as seen by some management officials from several Romanian universities, and another research was conducted on students' perception and awareness level regarding sustainability. The study aims to find out the extent to which the concept of sustainable development (sustainability) is known and implemented in Romanian higher education. The main obstacles in implementing the concept are identified and some major changes that are needed for the transformation of Romanian education in terms of its sustainability are proposed. The paper also presents a global model of the systemic approach of the university's sustainable development.

Keywords: sustainable development (sustainability), Romanian higher education, university management, student perceptions.

1. Introduction

Earth’s exploitation is threatening its very existence. Structural problems like depletion of resources, clean water, poverty and malnutrition are threatening the safety and stability of modern society. (Taoussanidis, 2010) The concept of sustainable development refers to economic growth that can meet the welfare needs of our societies, on short, medium and especially long term. It is assumed that development must meet the needs of the present without compromising the ability and resources to future generations. Today, almost everything is carried out under the banner of sustainable development: education must become sustainable; industry and agriculture develop sustainably, research must support sustainable development; water resources (or other resources) must be used sustainably, and yet, is this concept really understood, in its whole complexity and depth?

The concept of sustainable development as defined by the report of the UN Commission on Environment and Development (1987), says that there should be a mutual dependence between the three main ways to achieve this goal: education, scientific research, political action. It was clearly stated in the report of the World Commission on Environment and Development (1987), convened under the aegis of the UN and headed by former Norwegian Prime Minister, Mrs. Gro Harlem Brundtland. Commission's conclusion is that sustainable development and environmental protection
can be compatible if the world could achieve a proper reform in economic theory and practice.

The commission defines sustainable development as "development that meets the needs of the present generation without compromising the chances of future generations to meet their own needs and aspirations." (United Nations General Assembly, 1987) Sustainable development aims to achieve three types of approaches to solving the three categories of objectives: economic, social, environmental. (Fig. 1)

![Figure 1. Sustainable society](image)

Education is the most effective means available to a society to meet the challenges of the future, sustainable development being one of the interesting and necessary challenges. (UNESCO, 1997) Progress increasingly depends on more than research ability, innovation, and adaptation to new generations. Access to education is a sine qua non requirement of youth participation in socio-economic and cultural life at all levels of society.

Obviously, education does not entirely resolve contemporary issues but should be part of the effort to create new relationships between society members and to generate an increased respect for the needs of environmental protection.

The United Nations declared the period: 2005-2014 The decade of education for sustainable development, arguing that education for a sustainable society "enables people to acquire knowledge, values and skills to participate in decisions ... that will improve lives currently, without destroying the planet in the future" (Grecu, 2011).

Education is not confined to academic instruction, i.e. its formal aspects. It includes non-formal and informal sides, without neglecting the role of family and local community. The vast community of educators is a very important human resource but is not used for the needs of sustainable development and whose contribution can be valuable in all local communities.

What if higher education was to take the lead, as it did in the race for space or in the fight against cancer, to prepare students and provide information and knowledge to develop a just and sustainable society?

2. Other Approaches of Sustainability Education:

Education is one of the key mechanisms through which we become human beings that act and interact on the basis of a common culture and one of the key ‘producers’ of culture and the way we see reality. It is, at the same time, and because of that a vital condition for realizing sustainable development.

In an essay entitled "The Role of Higher Education in Achieving a Sustainable Society", Tony Cortese said that "... [higher education] has the unique freedom to develop new ideas to analyze society and to engage in bold experimentation and to help create new knowledge"(Cortese, 1995, p.5). Universities in particular are designed to
develop students to their so-called dynamic qualities allowing them to analyze, build and operate with a high degree of autonomy and self-determination, if not in their personal lives, at least in working life. At the same time, universities should develop for their students, skills that will allow them to handle uncertain situations, and vaguely defined, with norms, values, interests and conflicting, or at least divergent situations of reality.

Despite the questions we have regarding "sustainability" as an organizational structure of higher education, we see a great educational potential that can and should be valued by higher education institutions (Fig. 2).

Figure 2. Impact of universities in sustainable development (by Cornell University - http://www.sustainablecampus.cornell.edu/climate/)

The focus is on engineering, more than on the natural and physical sciences or on social science, because the activities that implement scientific advance are generally rooted in engineering. Engineers were once able to initiate engineering projects, able to transform real need into design and finally material form. However, “the full scope of the social responsibility of engineers has been seriously curtailed, and hence impaired, by the socially, intellectually and culturally subordinate role of engineers in modern society” (Taoussanidis, 2010).

Sustainable development engineering education is about giving engineers an understanding of the issues involved as well as about raising their awareness of how to work and act sustainably. The resulting concept is that “the engineer should be a first-rate technical expert who acts as a social agent, rather than just a technician” with a “broad understanding of the social and philosophical context in which he will work”. (Allenby et al, 2009)

3. Diagnosis of the current situation in Romanian universities

3.1. University Management

In order to answer to the nowadays society needs and to create the conditions for “a relevant and responsive educational system to the specific needs of the economy”, the Romanian Executive Unit for Financing Higher Education and Scientific University Research (UEFISCSU) initiated the project “Improving University Management”, its goal is being to promote updated knowledge, modern techniques and actual management instruments for the higher education institutions across Romania. (http://www.management-universitar.ro/)

The module "resource management and sustainability"- within this project, developed and supported by members of the Centre of Competence in University
Management - Sibiu, coordinated by "Lucian Blaga" University of Sibiu, aims to be a useful tool for the Romanian universities in their transitions to become strong and sustainable universities. Its content defines the concept of sustainability and shows how a university should evolve to become sustainable (Deneș, Radu, 2009).

In training sessions held in the module, which were attended by officials with managerial competences from several Romanian universities, in addition to the plenary presentation of the concepts and issues specific to this module, participants were asked to take part in some group exercises for analyzing their university, based on structured questionnaires. The analysis of the current situation of Romanian universities in terms of sustainability and identification of necessary changes were the main objectives of the research made in these exercises (Oprean et al, 2011).

To guide participants, the team has developed questionnaires with open questions, whose interpretation will be presented below.

3.1.1. Understanding of the concept

When asked: "Is the concept of sustainable development well known and understood?" most participants (45%) answered that the concept is partially understood. The subjects have different understandings and interpretations of the concept according to their knowledge and experience (Fig. 3).

Respondents have argued that awareness started from environmental aspects of sustainable development. At this point, there are increasing attempts to include the concepts of sustainable development and sustainability in institutional management. In terms of including these concepts into institutional management, we find that the concepts are not understood, and students and teachers do not properly understand the role that they have in their development. Perhaps the senior management of universities is aware of this concept, but it is little known to other members of the university. This fact blame the insufficient transparency or lack of communication between the different structures of universities. In curriculum development, or applications projects, the concept has been associated with the idea of medium and long term results, not just short. Other participants said it is a fairly new concept, and they are just beginning to familiarize themselves with it.

3.1.2. Implementing sustainable development principles

As seen in Figure 4, in most cases sustainability is only partly included in the vision, mission and strategic objectives of universities. Respondents argue that sustainability is included in the vision, mission and objectives only in a declarative way in many universities in Romania or even if it is present in the vision ("piecemeal, not
unitary”), it is not stated in the documents regarding the university policy. They also say that in situations in which sustainability is included in the vision and mission of the university, even if not materialized in specific forms of sustainability, it can’t be found in the university's strategic objectives and it doesn’t have allocated resources. Only 11% of respondents said that sustainability is part of the vision of university management and is included in the mission statement and objectives.

![Figure 4. Sustainability in the vision, mission, goals?](image)

When asked about the extent to which sustainability is included in strategic plans, operational plans and budgets of their universities, 45% of the participants in the training sessions said they do not allocate special resources for sustainable development, while 22% say that the strategic plan and operational plan contain elements of sustainable development, but in the budget there are no resources assigned distinctively to sustainable development, but funds are allocated for the accreditation of study programs in the field, from the university's own budgetary and financial sources. (Fig. 5)

![Figure 5. Sustainability in the Budget and Strategic and Operational plans](image)

Figure 6 presents the inclusion of sustainability into the curriculum and research. It is noted that 31% of those surveyed responded that their universities teach subjects which address (mention) the concept of sustainable development and in 18% of cases there are programs of study (in the field of chemistry, economics, public administration, environmental engineering) providing subjects related to sustainable development. Only 12% said that their universities have even master programs dedicated to sustainability. 17% of participants said that their universities have research contracts for sustainable
development, while 22% said that departments or research centers on sustainable development already exist or are under development.

**Figure 6. Integration of sustainability into the curriculum, research**

Regarding the construction and procurement policies, the majority of respondents (47%) said they did not have enough information, or refused to answer this question. In 29% of cases, university campuses have buildings with thermal insulation and 12% have alternative energy installations. Another 12% said that sustainability is a factor to be taken into account when purchasing or building something in the university but have not said anything concrete. (Fig. 7)

**Figure 7. Sustainability in construction and procurement policies**

Sustainability is present in the lives of students in different forms. 31% of the respondents said that students are involved in selective waste collection and recycling, 23% said that their universities run education projects, organizing programs and workshops that include promotion and education in the spirit of sustainable development. Research circles and research topics related to sustainability are other ways in which students come into contact with that concept. It is also specified that student organizations are beginning to have "timid concerns" towards sustainable development, or engage in voluntary actions to clean up various green spaces. 9% of participants said their universities did not do anything to integrate sustainability in student life. (Fig. 8)
The relationship of the university with the community is poorly described by respondents. Most say that their universities have partnerships with local communities and try to attract European funding to projects aimed at community issues. It is pointed out that, unfortunately, the local community doesn’t have an understanding regarding the need to implement the idea of sustainable development in the collective mentality and daily actions.

3.2. Students’ efforts and perceptions regarding sustainability

More and more people are aware of sustainable development. Education for sustainable development is a concern for the world where university can make a contribution. Students who are the majority in a university, their knowledge, awareness and actions will play an important role to promote sustainable development. To emphasize students' perception on the concept of sustainable development, at the Engineering Faculty from "Lucian Blaga" University of Sibiu, a research was conducted on this issue, as a result of the increased concerns of the university on the topic sustainability in higher education. The purpose of this research was to make a comparison between freshmen (students in the first year of studies) and seniors (students in the last year of studies) on the knowledge and awareness about sustainable development. This comparison, will explore if students’ knowledge and awareness influences their actions.

3.2.1. Methodology:

The method of data collection is based on applying a questionnaire to the students of the Engineering Faculty of Sibiu. The target group is made up of freshmen and senior students with a sample of 86 students from the first year and 70 fourth year students. The students who completed the questionnaires were chosen randomly. Between 5 and 10 students out of each specialization were asked to take part in the research. Data collection was carried out directly by the operators in the faculty.

In this study, the questionnaire is the main method to collect data. As an approach of data collection, questionnaire is a flexible and popular tool to gather first hand source. The questionnaire was adapted after a questionnaire developed at University of Gavle, Sweden (Cortese, 1995). Questions were developed to meet the objectives, had a clear structure and topic. In preparing the questionnaire there were used both open and closed questions.

3.2.2 Results

According to the information gathered during this research we concluded that very little is studied in college about sustainable development. We observed a difference
between first year students and fourth year students, when asked if they were told about sustainable development or if they studied this concept in any discipline (see fig 9. and Fig 10.)

![Figure 9 Did any teacher mention anything about sustainable development?](image1)

![Figure 10 Did you study about the concept of sustainable development in any discipline?](image2)

Also, there is the small number of university students who were involved in projects to protect the resources (Figure 11). And of those who were involved, 20 students were studying Environmental Engineering, the other 13 are enrolled in different specializations. It is interesting to observe that all the students enrolled at Environmental Engineering were involved into projects to protect the resources. The reasons for not participating into these projects (as seen in figure 13) were: “I didn't have the chance”; “I wasn’t asked”; “I wasn't interested in this topic”.

![Figure 11 Were you ever involved into projects for protecting the resources?](image3)

![Figure 12 Specialization of students involved in projects for protecting the resources](image4)
I and IV year students say college awareness on sustainable development is poor (fig. 14) and that the easiest method of information is an optional course in the faculty for those interested or involvement in practical activities (Figure 15).

Activities and habits of students, related to sustainability and protecting the resources are presented in figure 16. The questionnaire contains a set of statements that aim to reflect student's daily activities and efforts regarding sustainable development. They were given options to describe the frequency of these activities in their daily routine (1 is never, 2 is seldom and 3 is often). As seen in figure 16, the students were asked if they sort their waste, save water when showering, save energy and reuse shopping bags.
3.2.3 Interpretation

Human beings are already aware of how serious are the problems that they cause to the Planet, and know the sustainability of human life has been threatened. Since then, sustainable development awareness increased and more widely public concern has gradually spread across the world. It is believed that education will be an effective and comprehensive approach to spread the knowledge and awareness about sustainable development to the public.

Education is the most effective means available to society to challenge the future. Progress depends increasingly on research capacity, innovation, and the ability to adapt to new generations. Education for sustainability is an emerging area of understanding that we must all commit ourselves to, to allow browsing to a sustainable future. This new form of education aims to be transformative, to engage both teachers and students in the process of becoming active participants and decision makers in their journey towards sustainability. To facilitate this process, teachers learn new skills, including ways of collaboration, negotiation and building partnerships with those works.

In order to promote sustainable development, university tries to improve students’ knowledge and awareness through curricula, relevant policies, programs, and training etc. It is hoped that the knowledge and awareness will affect students’ action on supporting sustainable development.

Besides considering sustainability to be important, students consider that it’s necessary that the following measures should be taken:

- Application of general principles of sustainability at the individual level,
- Integration of sustainability into the policies of organizations,
- Enforcement of judgments of Talloires Convention in all universities.

To explain the distribution of scores, there was intended to compare demographic variables: year of study, the average of the grades from all years of study, residence, gender and average monthly income per family member. These relations have been pursued for the discovery of trends in the chosen sample, showing both explanations of observed phenomena and points of departure for further more detailed studies.

The main difference between the students from different years of studies is noted in the perception of effort for environmental protection, therefore the everyday behavior, which is higher for seniors, compared with freshmen. This difference may be explained...
by changing the curriculum from theoretical and abstract level, towards a level of synthesis and integration, or the students becoming more mature. Another explanation can be the fact that the seniors are more aware of the concept (see figures 9 and 10).

There is a steady upward trend of the approach and the commitment to sustainability, proportionally with the increasing averages of grades for the years of study. Therefore the scores of students with high average marks were significantly higher than of students with very low grades. Gender and residence, urban or rural, does not explain any difference in distributions and sample averages.

It is noted that low-income students are concerned about social issues and high-income students are concerned about economic issues. Also it is noted that the higher the income is, the more concerned towards sustainability, and especially environmental issues, the students are. This can be explained by the fact that the effort to support sustainable activities is often more expensive.

4. The main obstacle to implementing sustainable development

The officials with managerial competences from several Romanian universities, who took part at the training module described above (see point 3.1) were also asked to identify which are the main obstacles to implementing sustainable development in higher education (Fig. 17).

![Figure 17. Obstacles to implementing sustainability](image)

Lack of financial resources was cited by most of the participants, as the main obstacle to implementing sustainability. No communication or ineffective communication between the organization’s structures, which leads to lack of coverage of understanding the importance of sustainable development issues for the future of humanity, is another problem, identified by 19% of participants. Backward mentality of the people, and inertia or resistance to change appear as major causes with 15% share each, according to people participating in these group activities. Lack of a favorable organizational culture is viewed by 12% of respondents as an obstacle to the implementation of sustainability, being associated with lack of tact in change, meaning that change is ordered.

5. The main changes required

Asking them to identify the main changes needed to transform their universities into sustainable universities, the participants identified the following:

- Defining a new vision, mission, strategy and objectives of the university;
• Introduce the concept of sustainable development in as many programs of study;
• Seminars organized by the university to local communities (public awareness), obviously it means a better cooperation between universities and municipalities / county councils (it is an issue that concerns us all);
• Increased transparency of information within the university;
• The emergence of a department to develop the concept of sustainable development of the university;
• Allocation of specific resources for sustainable development - specific budget and trained personnel;
• Changing the organizational culture - the values and mentality of citizens;
• Taking the best practices, adapting them to their own situation and dissemination in the community;
• Treating the subject as a priority in all curricular subjects;

6. The model of systemic approach

Organizations of university type can be considered the most complex type of organizations as far as both organizational structure and available resources are concerned.

A complete analysis of the process of sustainable development need to be conducted in a systemic manner which integrates all the factors influencing the processes, as well as the activities of the organization.

A global model of the systemic approach of sustainable development in an organization of university type is presented in figure 18.

Figure 18. The model of systemic approach of sustainable development
7. Conclusions

The educational system in any country, developed or developing, must be conducted to transform society into a fair one, in which both students and institutions to reflect on how they live and work today. The system must also support the population or the students in making "informed choices" and creating ways to work for a sustainable future, in this changing and challenging world.

Universities need to develop programs of study, curricula, pedagogical approaches and extra-curricular activities and academic and campus life so as to cause students to develop values, knowledge, skills and thought to contribute to the sustainable development of the entire society. Sustainability must become an integral part of planning, activities, facilities design, procurement, investment, and student life and all these efforts must be closely related to the curriculum. Student life is the content, the context and the binder for such learning.

We need to re-invent education in such a way that it will contribute to a new culture that is in line with the principles of sustainable development such as, a respect for indigenous peoples and their culture, a knowledge of the state of the natural environment, an understanding of global dynamics, and the protection of routes of transmission of culture, knowledge and skills to future generations. The strategies of sustainable development in organization of university type can only be attained in the context of the model of systemic approach.

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9. References


