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Откъс от „Action Research in Higher Education Fostering Transition toward a Sustainable Economy: Trainings in Ecopreneurship at Three Bulgarian Universities"
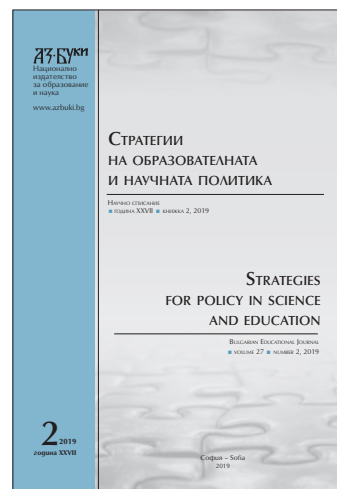
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1. Introduction

Bulgarian society has been in a transition towards democracy and market economy for the last 27 years. Since 2007, Bulgaria is a full-fledged member of the European Union (EU). Having a full set of established democratic institutions and free market economy, it is still one of the poorest countries in Europe, though it made significant progress, as recent studies have asserted (World Bank 2016). Nevertheless, it faces tremendous challenges, as its demographic situation is especially disturbing. World Bank experts conclude that 'Bulgaria is undergoing both a rapid demographic transition and a significant structural shift in its economy.' (Ibid., 5) The European Commission (EC 2014) identifies the long-term aging, migration, and inactivity as main risks for Bulgaria's employment and growth. Besides the ongoing 'brain drain' of young professionals, Bulgaria has the second-highest rate in the EU of youth not in employment, education, or training, the so-called NEET. (World Bank 2016)

Apparently, the Bulgarian case is indeed interesting to be studied. One of the central failures over the last years consisted in not being able to sustain and transform the national innovation system, which has been gradually built around the state-owned industries in the past. The rapid loss of their international market shares and access to financing coupled with the nontransparent process of privatization and market liberalization had as a result almost a complete retreat from applied science research and following brain drain of highly qualified professionals abroad. The triple helix between state, universities and businesses were distorted and broadly deinstitutionalized.

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Заглавието е на редакцията

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Put in that difficult and challenging situation; the Bulgarian HE is struggling to achieve international competitiveness and to close the gap at least to the European average. There is only one Bulgarian university – the University of Sofia, figuring in the top 700 + worldwide according to QS World University Ranking 2016 (http://www.topuniversities.com/) and no single Bulgarian university within the top 500 in the so-called Shanghai Ranking 2016 (ARWU – Academic Ranking of World Universities) (http://www.shanghairanking.com).

Obviously, the HE in Bulgaria needs fundamental reforms and strategic vision to bring it to a new path of development. The current demographic crisis could be such a window of opportunity to bring innovations and sustainable development at the core of its societal mission.

2. General research questions

Our starting point is the general question: How is possible to foster sustainable innovations and ecopreneurship within the HE in Bulgaria? And, in particular, how could we involve different stakeholders (faculty members from various academic areas/ environments, university administration, students and local sustainable entrepreneurs) into the educational process through introducing and transferring this new field of experience and knowledge? We came up with the assumption that, similar to the idea of the Multi-Level-Perspective (MLP) approach (Rip & Kemp 1998), we have to first focus on niche development and on the creating of free spaces for experimentation and *mutual learning* of the involved stakeholders.

We want not only to open up the 'black box' of the 'social-technical regime' of Bulgarian HE, with its specific 'path-dependencies', its existing institutionalized processes of knowledge transfer, decision-making, infrastructures, relationships and networks with businesses and public authorities, and of course everyday practices and academic values and principles. Based on the analysis and experiences at three Bulgarian universities, we also want to propose concrete actions for improving their specific situation. A window of opportunity for such experiment is the perceived need for the university communities to update their approach to attracting students and designing their courses of study adequately to the current economic, social and demographic situation.

We pursue this goal in applying the so-called Participative Action Research (PAR) and introducing backward designed 3-month trainings in ecopreneurship for students in these universities (one in a small town with a traditional economics HE, one in a mid-sized town with a technical background, and one in a big city with a university specialized in food technologies).

3. Background of the project

The project "Training for Ecopreneurship at Three Bulgarian Universities" has been implemented (2015 – 2016) with the financial support of the *German Federal Environmental Foundation* (Deutsche Bundesstiftung Umwelt) in the framework of the international cooperation for projects of an innovative character and with an exemplary model for the target country. The *Institute for the Study of Societies and Knowledge at the Bulgarian Academy of Sciences* (ISSK – BAS) is supported in the project by its German partner, the *Institute for Energy and Environmental Research* (Institut für Energie- und Umweltforschung, IFEU, Heidelberg). Beneficiaries and associate partners in Bulgaria are the *University of Ruse*, the *Academy of Economics, Svishtov*, the *University of Food Technologies, Plovdiv*, and the *Technology Centre, Sofia* – an organization for technology transfer and advocacy of German businesses in Bulgaria.

The specific project objectives are to introduce educational modules for so-called ecopreneurship (sustainable entrepreneurship) at three Bulgarian universities, to establish at least two consultancy centers (in South: Plovdiv or Sofia and in North Bulgaria: Ruse or Svishtov), and to register at least six start-ups of young scholars.

4. Theoretical considerations

4.1. Ecopreneurship as a process and an educational module

In our understanding, sustainable entrepreneurship, or ecopreneurship, is a process of establishing innovative, environmentally oriented businesses that recognize, create and utilize the market opportunities of eco-innovation (Schaltegger & Petersen, 2001). Such actions, inspired by environmental values, beliefs, and attitudes, meet the needs and increase the quality of life of the (future) societies. We also distinguish the term ecopreneur of what *it is not*, as there are four other basic positions concerning sustainability (characterized according to their degree of environmental orientation of a company's core business or of the market impact of their businesses – both lower than of the 'ecopreneur'): environmental administrators, environmental managers, 'alternative activists', and 'bioneers' (Schaltegger, 2002: 45). Ecopreneurs may be seen in a Schumpeterian sense as 'creative destroyers,' who truly abolish inherited production patterns and consumption practices, and thus break paths.

From this perspective, we should find a connection between this desirable economic behavior and the university institution, seen in the light of the 'second modernity' and the concept of lifelong learning (Boyadjieva, 2006). It is also necessary not only to integrate entrepreneurial practice but also to include sustainability as a normative concept (Gerlach, 2003).

In the meantime, there is an on-going extensive academic discussion about the practical ways to introduce ecopreneurship modules into the curriculum of HE (Zampetakis, Thrassyvoulos & Moustakis, 2006). Sustainable entrepreneurship education should also address the needs and interests of the students (Zampetakis, Thrassyvoulos & Moustakis, 2006: 136), incorporating their perception and assessing their competence level regarding both concepts – entrepreneurship and sustainability. One way of doing this, introduced by Lans et al. (2014), is similar to our understanding of operationalizing the interdisciplinary content through the applied competencies needed for future practice. Moreover, in a specially organized workshop, we would let the stakeholders themselves identify and prioritize the set of competencies they consider necessary in the current context.

Another general consideration is that we not only target behavioral change (behavior could be changed simply through market, bureaucratic or other types of incentives alone) but, through the educational process, we aim at changing long-term attitudes and values as well. We assume that adapting one's belief systems (values, attitudes and behavior) is a complex process, which is close connected with the ability and the willingness for constant learning and improvement. From the perspective of social psychology, we anticipated that a person's actions and behavior are highly correlated with his/her attitudes and beliefs, the compliance with the subjective norms and the perceived behavioral control (an individual's perceived ease or difficulty of performing the particular behavior) (Petkova, 2003).

We aim to invoke positive attitudes, communicate sound subjective norms, and enhance self-efficacy perception through the development of specific competence needed to achieve the desired outcomes. We see competencies as a means to reach the goals set by one's belief system. Thus, further below, we explain why we choose to employ competencies as our operative concept.

If we only talk about knowledge, the notion of *knowledge* itself might remain something amounting to the possession of a set of data or information. Such an understanding of the concept seems far too narrow. In educational sciences and practice, we refer to knowledge as a state of understanding and an individual construct (Delibaltova, 2004: 91); to taxonomies as a systematised hierarchy of educational objectives which we view as 'knowledge gradients'; and to transferring or reconstructing knowledge into process-suiting educational contents. Beyond knowledge itself, we distinguish learners' cognitive abilities and valuable experience, as well as their future skills for steering in various life or professional situations, variable patterns for extracting the knowledge of long-term memory, their motivation for applying the knowledge they have acquired, and the choices a true person of knowledge is able to make. One would call such person *competent*, or having *competence* (and our instrument to view that would be the *competencies* or a *competency model*). Therefore, as we see it, the transfer of knowledge does not necessarily lead to development.

We assume also that learning is not limited in time or to a single institution. It is not only an eight-to-five duty of another subsystem. Education is for life. We understand it as a permanent development and inquiry. The attitude to learning is a constitution for change and renewal. In contrast, any training in a particular educational program or course has a narrow time window, limited resources, and is very dependent on the context. When designing the course, we bear in mind two things: on the one hand, we connect and stimulate the immanent attitude to learning and discovering; on the other hand, we construct the process of a technologically planned transformation from A-condition to B-condition, which we call a realization of learning objectives, or goals of the training.

Furthermore, we see transition and innovation (for sustainable development) also as a state of mind, not merely a subject of expertise. This, again, comprises readiness to change, to learn, to innovate, but (in this case) not at the individual level but as a community (passing this attitude on to the future generations). It is the attitude to create, to challenge, and constantly learn; it compels one to be conscious of the society and the environment, of the whole. The competencies, therefore, as an instrument in the curriculum are a knowledge-based manifestation of certain values. The development of such competencies is a subject of a purposefully designed educational process, whether formal, non-formal or at work, and a 'deliberate conversion of socially significant values into individual mental realities' (Andreev, 2015: 59). Therefore, we have tried to design the educational process around competency-based goals, deeper experience-based understanding of main concepts, practically oriented tasks, real-world relevant learning events, and products that are significant to the learner and yet standard, in a climate of teamwork, creativity and mutual learning.

4.2. Educational design

4.2.1. System approach

Whether educational or other, design is above all the creating of objects, processes or systems. This means that, even when reduced to simple engineering solutions of formalized problems, it is an act of creativity. Moreover, this creation addresses the user of the designed 'product'. It attempts to address the problems and needs of its 'user' in a satisfactory manner. Educational design, instructional design, pedagogical design, training design, or course design are used synonymously. By definition, they all mean designing or programming a *process*, not a separate or distinct static object. Constructing it as specific activities (training, learning, assessment and other events) and artifacts of the teaching-learning unity is not reducible to answering a simple question such as 'what do we do in class?', nor does it suggest one-way transference of 'instructions' to the minds of learners. It is a scientifically based mutual coordination of didactical elements leading to complex, appropriate, satisfactory and effective solutions to the process. When it comes to designing an educational or any other type of process, it is also subject to dynamic co-designing by those who implement it as they meet the complex contexts, ridden with not clearly foreseeable elements, including objective or subjective parameters; cultural, scientific and regulatory contingencies; unique infrastructure, communication schemes, various resources gained through practical and applied experience; and most of all, including living people of different generations and in different interrelationships. (Varbanova, 2013: 10) Consequently, the act of creative design relies on a certain amount of imagination and intuition.

Composing all the elements (= system components) in the designed construct is also called *Instructional Systems Design* as an inquiry of planning and creating various situations which constantly support, lead, stimulate, provoke, widen and improve toward perfection in order to achieve more effective, purposeful, systematic, socially and personally meaningful learning. (Dimova, 2013: 15-16) These system components are the actual didactical realities of the educational process; they are; in random order: learning objectives, learning activities (as central events of interaction), the integrity of these activities, and their compliance with the desired outcomes (goals and constraints) and with the authenticity of learning tasks and contents; analysis of the students (their characteristics, needs, attitudes, entry level); analysis of the environment and the infrastructure; management of roles and relationships; assessment and evaluation (criteria, principles, indicators, and tools); forecasting improvements and updates (mechanisms for reflection, feedback, and redesign), etc. Viewed as an open social system of various levels, the process of education is subjected to a system approach, characterized as *organized complexities* (Banathy, 2010: 95). And since there is no single-approach model for designing instruction, we refer to system-approach models. (Banathy, 2010: 21)

Пълния текст четете в „Стратегии на образователната и научната политика“, кн. 2.

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