

Action Research in Higher Education through Backward Designing of Ecopreneurship Trainings

Anna Varbanova, Martin J. Ivanov

Abstract: *The article discusses the model of application of Action Research methodology in the context of the applied project “Training for Ecopreneurship at Three Bulgarian Universities” (2015-2016). The project is conducted by the Institute for the Study of Societies and Knowledge at the Bulgarian Academy of Sciences in cooperation with the Institute for Energy and Environmental Research, Heidelberg, with the financial support of the German Federal Environmental Foundation, DBU. Beneficiaries and associate partners in Bulgaria are the University of Ruse, the Academy of Economics, Svishtov, the University of Food Technologies, Plovdiv, and Technology Centre, Sofia – organization for technology transfer and advocacy of German businesses in Bulgaria. The project’s main objective is to introduce educational modules for so-called ecopreneurship (sustainable entrepreneurship) in these three universities.*

Our approach is closer to the so-called Participative Action Research, trying to involve different stakeholders in the different stages of the project. Thus, we want not only to reflect the process, but to induce ‘social change’ with the active participation of the actors.

At the core of our intervention is the educational design and implementation of innovative ecopreneurship training for students, based on a competency model (or a model of linked competencies that would lead to building accomplishments) co-developed by the students and previously engaged experts. These competencies are sought, applied, and developed in the learning process through the so-called Backward Design Approach, comprising five phases, each with a different focus: 1) group cohesion development, initial assessment and joint goal-

setting; 2) phase of enhancing a deeper understanding of basic concepts through experience, and raising essential no-single-answer questions; 3) immersion in the actual field, active learning of the content based on researching authentic problems; 4) learning by doing a desired type of real-world project/learning product; and 5) students' showcase in which they present themselves through these projects, which serve as a record for their learning achievement.

Keywords: action research, ecopreneurship, innovation, higher education, curriculum development, backward design, competence/competencies

1. Introduction

Since the 1970s, Action Research (AR), as a research strategy, has been a topic of general debate in connection with the role of the social sciences and their ability to solve contemporary societal challenges (Bergold & Thomas, 2012). Beyond the traditional 'subject-object' dichotomy (Molhov et al., 2004), AR is a new strategy, in which the researcher takes part in the scientific inquiry as an 'active participant' directly engaged with social changes (Kirov et al., 2013). There are different approaches and variants in its application, such as participatory action research, intervention research, engaged research, etc. (Ibid.: 69). In addition, it is applied in different scientific fields, ranging from sociology through psychology to pedagogy, management and economics. It indisputably has an innovative character, which provides opportunities for variety and fosters the 'sociological imagination'.

In Bulgaria, however, AR, though known, is a rarely applied strategy (Molhov et al., 2004, Kirov et al., 2013). Perhaps the reason for this is, on the one hand, its methodological diversity and relative complexity; on the other, the unwillingness among stakeholders to cooperate and finally apply the research findings. It seems there is a kind of Catch-22 situation – social

scientists do not use AR because it is unknown among stakeholders, who do not prefer to take part in AR, because they do not know what it is about.

This leads to the legitimate question, raised by colleagues from the Institute of the Study of Societies and Knowledge when discussing the project's objectives and its implementation: why do we need to use AR in this applied project? Since it is not a fixed requirement for the project proposal, and is not explicitly requested by the funding institution, could the project not be done in a more traditional way?

Yes, of course it could, but the objective of the project is to propose and test a 'model of planned (social) changes' through innovative educational design for ecopreneurship training within the university institutional settings, that would provide the possibility for the stakeholders to be 'reflecting participant(s) in the game' (Molhov, 2004: 137).

Thus, the general objective of this article is, in the light of these research questions, to present the proposed research model¹, and its logic, for discussion within the scientific community.

2. General research question(s)

How to involve different stakeholders (university lecturers, students, university administration and green businesses) in the process of developing strategies to improve university educational outcomes in general, and particularly to increase the competence level of university staff to teach, and students to learn and transfer new fields of knowledge and experience, following the example of sustainable entrepreneurship?

Sustainable entrepreneurship, or ecopreneurship, is defined as a process of establishing innovative, environmentally oriented businesses that recognize, create and utilize the market opportunities of eco-innovation (Schaltegger & Petersen, 2001). Ecopreneurs may be seen in a

¹This article was written during the implementation of the ecopreneurship trainings at the three universities (during the summer term of 2016, for the first four out of six groups of average 16 participants each) and prior to their completion and our analysis of the results.

Schumpeterian sense as ‘creative destroyers’, who literally abolish inherited production patterns and consumption practices.

From this perspective, we should find a connection between this desirable economic behaviour 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 entrepreneurship modules into the curriculum of higher education (Zampetakis et al., 2006). Sustainable entrepreneurship education should also address the needs and interests of the students (Ibid.: 136), incorporating their perception and assessing their competence level regarding both concepts—entrepreneurship and sustainability.

One way of doing this is introduced by Lans et al. (2014). They focus on integrating the needed competences in two disciplines – entrepreneurship and sustainable development. The authors identify five core competence sets (opportunity competence, social competence, business competence, industry-specific competence and entrepreneurial self-efficacy) for the first discipline and seven other for the discipline of sustainability (system thinking, diversity and interdisciplinarity, foresighted thinking, normative competence, action competence, interpersonal competence and strategic management). This is similar to the approach we have chosen; moreover, we would let the stakeholders themselves identify and prioritize the set of competencies they consider necessary in the current context in a specially organized workshop, which would also include the participation of experts in didactics. Below, we will explain this step in our approach.

To summarize, we propose a change in the way of teaching, learning and transferring new fields of experience, which require transdisciplinary and interdisciplinary spheres of

knowledge and applied competencies. Thus, on the basis of a competency model that is built and prioritized through expert assessment, we develop a concept and design of ecopreneurship training, which we implement as an intervention (experiment) in the institutional setting of higher education in Bulgaria (at three universities). Along the way, we conduct AR to reflect the results and propose, together with the involved stakeholders (university staff, students, local ecopreneurs, etc.), a multi-stakeholder and multi-innovative process of practical social change.

3. Background of the project

We begin with a presentation of some important background information about the project's objectives and activities, as proposed to the funding organization.

The project is 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 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 project objective is to introduce educational modules for so-called ecopreneurship (sustainable entrepreneurship) at three Bulgarian universities:

1. In a small town in north Bulgaria, a university that has traditions in economics education (Svishtov Academy of Economics is founded in 1936);
2. In a mid-sized town and university centre in northeast Bulgaria, the University of Ruse was first established as the Institute for Agricultural Technology in the 1950s;

3. In Plovdiv, the second largest city in Bulgaria, and the economic centre of south Bulgaria, the University of Food Technology, likewise founded in the 1950s².

The educational modules are innovative in their interdisciplinary content and their methodological (educational) approach; they aim to develop competences and attitudes towards innovative behaviour, sustainability and entrepreneurship through ‘creative destruction’ (Schumpeter 1912). Efforts will be made for knowledge and skills to be acquired in a dynamic educational environment through the involvement of stakeholders within and outside the university institution, and by applying authentic learning materials and resources, the two forming a two-component learning environment (the university as a close environment, and the entrepreneurship field as a more distant, rich in content, environment). The educational and research objectives of universities will be approached experimentally, whereby disciplinary boundaries and learning outcomes are defined in terms of their performance in ‘real life’. Thus, the topic of entrepreneurship, which is a relatively new and unstable field of (academic) knowledge, and entrepreneurial experience, will be studied and approached in their specific dimensions related to developing socio-technical networks, a normative framework, know-how, financial flows, but also resistances and tensions of various origins.

We conduct AR in order to reflect, and induce, ‘social change’, which is carried out by the involved stakeholders themselves. First, we will present the concept of AR, our understanding of it, and its application in the concrete situation.

²Initially the University of Plovdiv “Paisii Hilendarski” was identified and invited as one of the project’s associate partners, but due to the lack of reliable communication with its administration, the University of Food Technologies was chosen in its place.

4. The Concept of AR

Action research was initially applied by Kurt Lewin (Lewin 1944) to present the interdependence of research, training, and action in producing social change. He described it as ‘a comparative research on the conditions and effects of various forms of social action and research leading to social action’ (Lewin 1948: 202-3), which uses ‘a spiral of steps, each of which is composed of a circle of planning, action, and fact-finding about the result of the action’ (Ibid.: 206)

As mentioned above, there are many variations of the initial term used by Lewin. Some authors differentiate AR from Participatory Action Research (PAR), depending on the degree of involvement of the ‘observed’ as co-researchers (Bergold & Thomas 2012), and set certain preconditions for practical implementation, such as for instance the need for so-called ‘safe space’ – a communicative space that researchers must provide for the generally ‘marginalized groups, whose views are sought, and whose voices are rarely heard’ (Ibid.: 7). In addition, there are some more practical considerations, such as the need for material support and remuneration for the co-researchers, etc., and more general considerations, such as democratic culture of dialogue.

Cohen et al. (2000) emphasize AR as a research strategy specially relevant for curriculum developers and teachers in their specific contexts and with respect to various considerations – locational, ideological, historical, managerial, social, etc. ‘Furthermore it accords power to those who are operating in those contexts, for they are both the engines of research and of practice. In that sense, the claim is made that action research is strongly empowering and emancipatory in that it gives practitioners a “voice”’ (Ibid.: 31).

In our understanding and approach, we tend to be closer to the view that is more related to the PAR concept, as we would involve in collaboration the project participants, especially the young university lecturers; we try to develop the research in a way suited to their needs and

their willingness for active participation. We apply it in a more constructive way, although we try to differentiate between its commonly used phases (diagnostic, intervention, analysis and recommendations, action plan, and follow-up evaluation).

Diagnostic phase

In the first phase of our study, we use secondary research to capture the initial problem settings. Afterwards, during the first quarter of the project (by June 2015), an expert workshop was organized, that included representatives from different universities, businesses and environmental organizations as well as the active participation of the German partners from IFEU, Heidelberg. The workshop was focused on elaborating a working definition of ecopreneurship and developing a competency model of a future Bulgarian ecopreneur.

As part of a workshop (training for facilitators/trainers, February 2016), we conducted a self-evaluation of seven adult-instructor competencies (or the overall competence level) of the nine lecturers from the three universities and discussed their role in the project as trainers but also as co-researchers. Also, a group discussion was held, on the role, principles and values of the Bulgarian university today, and its institutional settings.

As a next step, we will organize focus groups (envisaged to be held by the end of July 2016) and conduct in-depth interviews with the involved stakeholders to capture their interests and interpretations of our initial assumptions.

Intervention phase

In the third project phase (January-June 2016), the new model of training for ecopreneurship will be introduced. Over a period of 10 weeks, up to 60 students will be trained, divided in four groups (two teams trained in parallel in Svishtov, one in Plovdiv, and two in a row/same

team in Ruse). After the first stage, a reconsideration and redesign of the training course will be made for the next one or two groups (probably in Ruse and Plovdiv).

Trainers will assess students, and students will evaluate their trainers' competencies using a form similar to a student grade-book. Also, the trainers will evaluate themselves. We will also conduct interviews with involved entrepreneurs, focus groups, etc.

Analysis and recommendations

As part of the project activities, the stakeholder's conference (planned to be held in November 2016) will present the project results, primarily those from the trainings. The conference will also be used to disseminate the preliminary results from the analysis and some recommendations. In the same phase, we will reflect on our qualitative pre-findings and extrapolate and compare them with quantitative data from our secondary research, e.g., the results of the *Bulgarian University Ranking System*, supported by the Ministry of Education and Science and maintained by a consortium of three organizations (Open Society Institute-Sofia, MBMD Social Research Agency, and Sirma Group Holding (<http://rsvu.mon.bg/rsvu3/?locale=en>)), providing this is relevant to the needs and expectations of our co-researchers.

According to our understanding, AR is applied foremost to enable the stakeholders to reflect and internalize the new 'roles' we proposed to them during the intervention phase, and on the basis of this new experience, to decide what to change or apply in real-life practice. Our role is to support the stakeholders during this process and try to identify common goals and formulate different strategies for achieving those goals, which is part of the next step.

Action plan

Given that, in the AR perspective, active change is as important as research activities, we will organize a workshop (planned for the autumn of 2016) with the involved stakeholders to elaborate an action plan incorporating the experiences, strategic views and needs of the university lecturers, who are seen as a main driving force for bringing about concrete and practical changes in the current university practice.

Follow-up

The follow-up process should also be taken into consideration when applying AR. Thus, we are planning to evaluate to what extent the proposed and discussed action plan is put into practice. Again, this could be done by conducting a workshop or targeted semi-structured interviews with the involved parties (planned to be conducted towards the end of 2016).

5. Deepening students' understanding of the concept of Ecopreneurship

Although it has various connotations in the field education, *understanding* is clearly defined by Grant Wiggins and Jay McTighe as *multifaceted* term in their *backward design approach* of curriculum and unit planning, known as *Understanding by Design*TM. Designing backwards has been previously discussed by Tyler (1948), Gagne (1977), Mager (1988), Spady (1994), and Anderson-Krathwohl (2001). (Wiggins-McTighe 2011: 6-7)

The use of the term *understanding* is valid to us in our approach to designing the course in Ecopreneurship. When discussing later on the didactical aspects of deepening learners' understanding, we deal with a specific way of extraction of the content (=our understanding of ecopreneurship), which is not the way we begin with. We rather "start with what students are expected to be able to do with content" (Ibid.: 7).

The learning goals in Wiggins-McTighe approach are set in different types: established goals or standards, transferable long-term and beyond-education results, meaning (=self-constructed understanding and *essential* no-simple-right-answer open-ended *questions*) and acquisition

(=knowledge and skills). (Ibid.: 13-22)Therefore, our understanding of ecopreneurship prefers particularly to the level of *meaning* in setting the desired results and has a substantial value for developing of the curriculum. As content, it serves as a way to achieve the goals of meaning-making.

As we already pointed out in the beginning of the article, our understanding of ecopreneurship is based on the relationship and interdependence between innovations, sustainability and entrepreneurship. From our point of view, the ecopreneur is an innovation promoter (not merely an inventor) situated high on the scale of creativity and innovative potential, and a manager or supervisor high on the business-skill scale.

Ecopreneurship is a relatively new business practice, which has been intensely changing as a result of recent technological developments. Hence, it can be viewed only as an interdisciplinary field and approached by applying a competency model that is related to the level and expectations of the trainee, but is also in accordance with expert evaluation. This aspect will be discussed further on.

As regards our approach to, and operationalization of, the broad concept of ecopreneurship, and its transference to concrete learning practice and experience, the essential feature is, on the one hand, our focusing on the entrepreneurial endeavour, seen as ‘creative destruction’ in a multi-innovative process, and on the other, the formation of core values in respect of the concept of sustainability. Thus, we effectuate ‘implanting of innovation’ (Schumpeter 1912) between the logic of the market on the one hand and the technologically possible on the other; we do so on a horizontal axis through continuous competence upgrading, and on a vertical axis, with reference to the tensions and mutual dependencies between society and the environment, transferable through learning processes as a set of core values or belief systems (Sabatier Jenkins-Smith 1993)

Huber (1995) sees this brought within a strategic framework of three possible and not mutually exclusive, ways or approaches: the sufficiency, the efficiency, and the consistency strategies for sustainable development (Ibid.: 123 ff.).

The general goal of the sufficiency strategy is to limit economic growth, in view of the scarcity of natural resources (Sachs 1999), by primarily bringing about changes of consumption patterns and life styles through social innovations (Gerlach 2003).

The efficiency strategy aims to increase resource productivity. The current products and processes are improved through so-called incremental innovations, thereby ensuring sustainable growth (Huber 1995).

The consistency strategy focuses on the quality of material flows, which are compatible with 'natural metabolism' (Ibid.: 138 ff.). Huber (1995) concludes that the aim of innovating is to substitute the current product and processes with environmentally compatible ones by applying radical technological solutions.

Thus in terms of the degree of novelty that a strategy requires and its object of innovation (product, process or consumption/social), various sets of competencies and values are needed, and different ecopreneurial profiles can be defined. In this respect, Schaltegger (2002) proposes the following differentiation of categories of sustainable entrepreneurs in terms of their business goals and degree of mass market penetration (Ibid.: 48). In businesses whose main goal is environmental performance, depending on the extent of their market shares, Schaltegger (Ibid.: 49) identifies the so-called alternative actors (alternative scene), bioneers (eco-niche) and ecopreneurs (mass market). The environmental managers, whatever their market shares, are profiled as working in businesses that pursue environmental goals as supplementary to their core goals. For organizations that have environmental protection as a low-priority trustee duty, Schaltegger (Ibid.: 49) suggests the profile of an environmental administrator. Gerlach (2003) extends this to a promoter model that includes innovation

process and whose barriers are essential for achieving sustainability. She proposes defining four key actors with reference to their role in the organization and between organizations. The technological promoter, or expert promoter, fosters the innovation process through special knowledge and skills. The power promoter does the same through his/her specific efforts to convince, encourage and motivate other stakeholders involved in the innovation process. Situated between these two kinds of promoters in the specific organization is the process promoter, who is responsible for communication and coordination. On the inter-organizational level, the relational promoter has similar tasks as the process promoter. Of course, this differentiation is rather analytical, but helpful for understanding the multi-dimensional process that must be put into practice to implement the sustainability strategies. The implications for our project lie in the practical transformation to learning goals, contents and tasks, which will contribute to building future ecopreneurial attitudes and actions dealing with potential personal or environmental value conflicts. We would not be able to put the puzzle together without recapitulating this ‘theory’ by involving the stakeholders at the various stages of project implementation and by constantly ensuring that their feedback corresponds to the ‘big picture’. One way of doing this is to formulate essential questions that could serve as a guideline for curriculum development. But let us first target the field where the action should take place.

6. The university environment as an intervention field

The *Bulgarian University Ranking System* is an example of the efforts made to bring greater comparability, and hence better quality, to the higher education public service; the System has

been criticized for its methodology (Boyadjieva 2012) and basic assumptions³, but still it's a starting point for better understanding of the field.

Boyadjieva(2012) summarizes the issue in the abstract of her article. '...Bulgarian higher education is in need of elaboration of strategic vision and new normative framework. It also needs changes, such as: establishment of a new governance model and a new model of financing of higher education; strengthening the relationship between teaching and research; development of the capacity of higher education institutions for innovative and strategic thinking; diversifying the system of higher education; development of strategic partnerships between higher education institutions and between them and non-academic partners.'(Ibid.: 88)

With regard to the employer's point of view, the latest World Bank report on the Bulgarian labour market outcomes indicates that the lack of technical skills, reported by 60% of Bulgarian employers as a cause of difficulty in filling job vacancies, is almost twice as high here as the global average; lack of soft skills is almost three times less important (~20%), but still twice as high as the European average (Manpower 2011 cited in: World Bank 2016).

A survey of the Global Entrepreneurship Monitor shows that Bulgaria is in last place in Europe with respect to the share of entrepreneurs in the working population (Dnevnik, 2016, http://www.dnevnik.bg/tehnologii/2016/02/15/2704738_bulgariia_ima_nai-malko_predpriemachi_v_evropa/, accessed 22.04.2016)

On the basis of this sketchy information, we may suggest that, in our three cases, we should develop the intervention experiment, which could bring about improvement in the competence level (knowledge, skills and attitudes) of students in the field of ecopreneurship, as well as of academic instructors, and thus strengthen their strategic and innovative thinking

³ At a panel discussion in the scientific conference *Plovdiv as a Booming Economic Centre and 2019 European Capital of Culture: The Role of Universities*, held on November 19, 2015 at the University of Plovdiv and organized by the Department of Applied and Institutional Sociology.

and promote a better connection between teaching and research through the involvement of non-academic partners (such as green businesses, NGOs, local authorities, etc.).

But we would like, in this project, to see and experience the university as an institution that, in a broader perspective, not only provides knowledge, skills and competencies, but changes attitudes and transfers values. Hence, we again direct our attention to previous research on the Bulgarian case. In her study, Boyadjieva (1998) presents empirical data showing the main principles and values that guide the university institution are: 1) academic freedom; 2) academic autonomy; 3) personal achievements, measured by universalistic criteria; 4) scientific rationality, and 5) academic fellowship. In our study, we should be aware of these points and bring them into the discussion with the stakeholders, in order to implement and strengthen these principles in their 'lifeworld'.

7. The educational design concept

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 a formalized problem), it is an act of creativity. Moreover, this creation faces the user of the 'product', its audience. Consequently, the act of creative design relies on a certain amount of imagination and intuition. It addresses the problems and needs of its 'user' and aims at the satisfaction and 'ergonomy' of those needs. (Varbanova 2013:10)

The effectiveness of a design is judged mainly by the degree to which it solves tasks and the purposes for which it is designed. What we mean by educational, pedagogical design, training design, or course design, is, by definition, instructional design. Therefore, designing or programming is a process, not a separate or distinct static object. Constructing it for specific activities (training, learning, assessment and other events) and artefacts of training 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 system components leading to complex, appropriate, satisfactory and effective solutions to the process; this is known as *system approach* or *system design*. Their very arrangement in a broader organization suggests composing in dynamics. This type of design is unique as educational practice includes both objective and subjective parameters, cultural, scientific and regulatory contingencies, infrastructure, communications, and other resources gained through practical and applied experience; it includes living people of different generations and in different relationships. All these elements revolve around the central *how-to* question.

Design should reduce the entropy of the system. The approach is often oriented towards some element (benchmark) or other of the system; the educational result is the final 'product' design – as a function of all other system resources and the work of the designer. Thus the implementation of the training could be executed by different persons.

The elements, or system components, include: educational activities (as central events of interaction), the integrity of these activities, and their compliance with the desired outcomes (identified objectives and constraints), as well as with the authenticity of learning tasks and contents; analysis of the students (their characteristics, attitudes, entry level) and the environment, management roles and relationships, the criteria, principles, indicators and evaluation tools, mechanisms for reflection, feedback, redesign (forecasting improvements and updates). These elements have been given here in a random order. (Ibid.:11)

Viewing training, and education in general, as complex systems, one must seek a scientific basis for the design of such constructs. The methodology of system design is one of the main scientific areas underlying each project activity in the formalization of problems and tasks and the development of methods and apparatus for decision-making.

In our case, the designing process provides us with access to the system and with the opportunity to apply creative solutions to high-level reconstruction, adding content and

enhancing functionality. This intervention goes further. Designing alone does not change the system's integrity, its structural elements or the persistent connections between elements. In the case of designing ecopreneurship training, changes take place in the relationships between elements of the system. This refers to changes of roles. The intervention goes beyond (curriculum) *designing* and to the level of *modeling* (and remodeling) of the system at institutional level.

8. Squaring the circle: Ecopreneurship training for students

The American psychologist David McClelland was the first to popularize the term *competence*; he used it to replace, or expand, the term skills, which he found too narrow to describe differences between the level of performance of the labour force (McClelland 1973). A variety of definitions of competence were made subsequently, but we base our competency model on the understanding that competence is a set of possessed knowledge, skills and attitudes used to differentiate between core/generic, specific/technical and managerial competencies, as formulated by the Bulgarian National Centre for Competence Assessment (www.mycompetence.bg).

By means of the proposed innovative educational technology (at the core of the intervention phase of AR), we will elaborate a competency model to understand the specificity of adult learning in the concrete environment, relevant to ecopreneurship issues, and to involving the stakeholders (university lecturers, students, and practitioners) in the learning process. This practice-oriented (project-based) learning is based on the acquisition of new social roles by the involved actors. The university lecturers will be facilitators and mediators during the course; the students will actively explore the different topics through real-life experiences, and the business representatives will be mentors, who support and give access to a field of new learning experiences. Below, we will describe and explain our educational technology and discuss some of our basic considerations.

Our learning ‘mega-goal’ is the competency model built by a team of experts (during a workshop held at the end of June 2015) whom we gathered from diverse interdisciplinary areas. We conceptualize these competencies as transferable to other fields and universal, but we also seek to apply their subject-specific performance (or the displaying of such competence which is relevant) to the field of entrepreneurship for sustainable development. Thus, we redefine them as learning objectives.

As a next step in the curriculum design, we reformulate the mega-goals into transferable competencies and desired results, where the subject specific performance of such goals serves as evidence. The evidence itself must lead to the assessment design and the specification of the tasks in the learning plan. Assuming that the students are interested in the topic and yet not competent as to its content, we give them the opportunity to participate in setting the objectives and, as a group, to identify the desired outcomes. The educators could stimulate their identifying the desired competence (as well as weaknesses) by using their self-evaluation of their strengths as personal resources.

As a result of this curriculum design approach, we will have, on the one hand, a 3D model built of boxes containing the actual competence manifestation in the field of entrepreneurship at the levels of knowledge, skills and attitudes. These attitudes are bridged to the values forming the core competencies, where the managerial competencies are visible and on which the specific competencies are built.

Having our Triple Bottom Line⁴ upgraded with the ‘technologies’ to a figure of four crossed circles, we see the vertical line between ‘society’ and ‘environment’ marking *values* as learning objectives, and the horizontal line between ‘market’ and ‘technologies’ marking the *competencies* as learning objectives. On the other hand, the project envisages

⁴There must be a unity of goals and means across company level, community level and global level.

training shared among the participants, and applying their common goals and learning objectives to the particular group and university.

The students will become involved in the course design and a significant part of the responsibility for independent, shared, and peer, learning will be transferred to the learners. The students' making their own model would be relevant to a joint agreement on mutual openness to the project teamwork. Thus, our approach deals with two competency models – one built according to interconnectedness and degree of importance, and constructed by the expert team, and one related to desired competences to be developed, and constructed by the students themselves.

As regards content, in the educational process, as well as in the design of the learning events, we follow the experts' model, but as regards planning the process, we follow the model of the students' group. A unique picture results within each group and each course, due to the unique combinations of unique personalities, including the mentors/trainers, and all the references in styles of teaching, learning, communication, etc. At this point, the micro-designs relevant to the meaningful educational products, or to students' real-life performance, or to the practical evidence of their learning achievements, are tailored to the uniqueness of the group, and the assignments are to be significant for each participant.

The content will be extracted (=deconstructed and reconstructed) and turned into educational content (=curriculum), becoming a means for achieving the learning objectives. This approach seems quite reliable for our case, mainly because we are teaching people to create and use 'creative destruction' in a future that we cannot possibly predict: we should neither provide them only with knowledge of the historical value of such processes (of creative destruction), entrepreneurs and phenomena, nor train them for some irrelevant and unknown situation in their future time, problems or context. Therefore, one should value and scaffold the process of their personal interpretation and *meaning-making* of the key concepts of innovation,

sustainability and entrepreneurship, building upon their initial understanding and attitude at the start of the course. Students should generally be treated as self-directing adult learners. The Backward Design approach (Wiggins-McTighe 2011) has inspired this course to first define the desired results, then describe the authentic evidence of the sought-for results, and finally plan the learning events. Formative assessment takes place as the events of competence development and the events related to performance and assessment merge; by contrast, in the traditional didactic model, skills are exercised patchily within the course, checked and evaluated afterwards, and there is no subsequent demonstration of a competence in the 'real world'.

There are various models for instructional design and various approaches to developing a curriculum. For example, Susan Toohey's classification of approaches to designing a course (cited by Peytcheva-Forsyth in *Designing Courses for Higher Education*, 2000) refers to the traditional content-based approach, the system approach, based on performance, the cognitive approach, the social-critical approach, the approach based on the experience and needs of the individual. There are many narrow aspects relevant to entrepreneurship training, but a closer look reveals that no single approach is completely satisfactory. Therefore, an innovative educational technology within the current project proposes a combined approach, which will be examined in this AR.

The training is designed to include five phases, each with a different focus: 1) group cohesion development, initial assessment and joint goal-setting – relevant to the andragogical approach; 2) a phase for deepening the understanding of basic concepts through experience, raising essential no-single-answer questions – related to the cognitive and social-critical approaches; 3) immersion in the actual field, active learning of the content through research on authentic problems – related to the constructivist approach; 4) learning by doing a desired type of project (analytical/research, practical/start-up concept, or complex/portfolio) – system- and

performance-based; 5) actual product performances – targeting the academic scene, labour market or the real business environment – open events.

During the course, the design of the sessions will gradually move from more structured to non-structured (or self-structured) ones, and the assessments will evolve from widely defined to detailed, specifically designed, personalized, standardized and methodologically supported.

9. Conclusion

The main objective of this article was to present and discuss the concept of AR and our attempt to introduce AR as an approach to reflecting and inducing ‘social change’ through the active involvement of the stakeholders. In our case, we are dealing with three Bulgarian universities, which we approach through an innovative course design and learning approach in the field of ecopreneurship. Central to this process is the co-determination and co-creation of the learning content and learning objectives. After an expert workshop with the participation of representatives of the universities working in different academic disciplines, of the German partner IFEU, of practitioners from different fields (environment, green business, consultancies), and didactic experts, a competency model has been developed for this concrete ecopreneurship training. As a next step in the training, we involve the students in co-designing the competency model as well and a competency-based model of joint learning goals. In the educational process, as well as in the design of the learning events, as regards content, we follow the experts’ model, but as regards planning the process, we follow the model of the students’ group.

As stated, the intervention phase goes beyond *designing* the curriculum alone and includes the act of *modeling* (and remodeling) the system at institutional level in the context of transdisciplinary and interdisciplinary discourse. As we apply different social roles to the involved stakeholders (students, university lecturers, local ecopreneurs), we will reflect and discuss with them the possible changes and the experiences gained in the specific institutional

setting and newly founded, and/or further developed, networks within the concrete business environment. Thus, we would like not only to train a hundred students in ecopreneurship and collect data, but also to contribute in a practical manner to re-establishing the „triple helix” university – industry – public sector, which lies at the core of every innovation ecosystem. In terms of measurement, we use qualitative methodology but will try to include secondary quantitative data, for instance, from the *Bulgarian University Ranking System*, etc., in order to apply internationally recognized criteria. Our philosophy is that changes may occur and be objectified quantitatively, but they start at a qualitative level, in the way we rethink doing things.

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Biographical note: **Anna Varbanova** is a former professional dancer and dance teacher. She received her B.A. in Public Health and Medical Care (Physiotherapy) from *Ruse University* and her M.A. in Theory and Management of Education (Non-formal Education) from *Sofia University*. She holds a VQT in Business and Finance from the *College of North West London*, and in Training from the *National Sports Academy*. Anna is an M.A. graduate in Theology (Ecclesiastical Social Work), and is currently working on her Ph.D. dissertation in Pedagogy (Curriculum Development) at *Sofia University "St. Kliment Ohridski"*.

Contact: anna.varbanova@gmail.com

Biographical note: **Martin J. Ivanov** was born in 1974 in Ruse. He graduated in Political science at *Johann Wolfgang von Goethe University* in Frankfurt am Main. Since 2007, he has worked in the field of non-formal education at the International Elias Canetti Society, Ruse. Since 2011, he is chairman of the *Federation of Social Associations in Bulgaria*. In 2013, he obtained his PhD in sociology at the Institute for the Study of Societies and Knowledge, BAS, for his dissertation on Green energy developments in Bulgaria. His interests are in the field of energy industry, environmental technologies and innovations, entrepreneurship, education, and the social policy of the Church.

Contact: martin.j.ivanov@gmail.com