

COPERNICUS Alliance Conference

Education for Sustainability: Building Capacity in Higher Education

Book of Abstracts - Friday 3rd October 2014

The abstracts in this book follow the structure of the three parallel sessions and the order in which contributions will be presented at the conference. In addition, abstracts of poster contributions are included:

1. **Teaching the teachers (Green Lecture Hall – Room no. 2)**
2. **Innovation in Higher Education (Great Hall – room no. 3)**
3. **Regional and institutional case studies (Emperor's Hall – room no. 4)**
4. **Poster presentations**

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Teaching the teachers (Green Lecture Hall – Room no. 2)

4

13.30-13.45

Education for Sustainable Development in Initial Teacher Education: From Compliance to Commitment - Sowing the Seeds of Change

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Despite increasing awareness of the importance of sustainability and national and international policies suggesting education is the key, there has been limited progress so far in the UK education system. Although there are areas of good practice, there is little evidence of the higher orders of learning and change required for the transformative approach necessary for a sustainable future.

As part of an initial teacher education team for teachers in the Further Education & Skills Sector, we have embedded Education for Sustainable Development (ESD) in our PGCE/Cert Ed programmes, which we provide in partnership with 5 Further Education Colleges in the South West of England. Using co-operative inquiry, a democratic and participative form of action research (Heron and Reason, 2001), we were able to develop critical knowledge and understanding of sustainability in order to support our colleagues and trainee teachers in introducing it to their students.

This presentation will report on research carried out to investigate the influence of this professional and curriculum development. The way in which the students and initial teacher educators are conceptualising ESD is explored, as well as the way in which the introduction to ESD has influenced their professional and personal lives. Their responses are analysed in relation to Sterling's (2011) levels of learning and change to consider the levels achieved by the students and tutors and the implications of this on future curriculum development.

Sterling, S. 2011. 'Transformative Learning and Sustainability: sketching the conceptual ground.' Learning and Teaching in Higher Education, Issue 5, www2.glos.ac.uk/offload/tli/lets/lathe/issue5/Lathe_5_S%20Sterling.pdf (accessed 24.4.13)

13.45-14.00

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About transformational learning for a training model based on Education for Sustainable Development

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The purpose of our work is to obtain a training model able to guide junior high and high school teachers of experimental sciences in the design of educational activities grounded in Education for Sustainable Development (ESD). This work is framed in the paradigms of educational research theoretical and practical and also about a reflexive and realistic praxis.

Our work is based in a research – action process which is qualitative and quantitative to analyze the data. We are thinking in an inclusive, democratic, multicultural and holistic education.

We are working in collaboration with experts who are currently trainers. They come from both Spanish and international universities. In addition we are diagnosing the main knowledge in ESD that students who are being trained to be junior high and high school teachers in the experimental sciences area have.

The main goal of this research is to make a contribution to help answer the identified need to train in a way that not only the large amount of environmental knowledge be transmitted but also to modify the cosmovision of students such that they would be motivated to changed their attitudes and the way they act in life in order to provoke an impact in the whole society.

To achieve this goal we are deepening about different ways to achieve a transformational learning for sustainable development. We are asking and looking information about methodologies and strategies that could contribute efficiently. Finally we are also asking current trainers about the impact of “The Rio Treaty” as the frame for sustainable development have in their work as university professors.

14.00-14.15

ESD and GE in Higher Education: Skill Sets and Competencies Needed

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GE and ESD relate to just about everything, so if you think 'this is nothing to do with you and your subject area', we invite you to suspend judgement and read further.

(Sterling, 2012)

Global education (GE) and education for sustainable development (ESD) must prepare students to cope, manage and shape the social, economic and ecological conditions characterised by change, uncertainty, risk and complexity of present and future world. There are three categories of rationale for addressing GE and ESD in higher education (HE): wider context and employment; policy and mandate; education and quality. Orienting higher education (HE) toward the global and sustainability future is a huge challenge for the entire academic community. GE and ESD are flourishing at universities where embedded it in the curriculum as a part of the university culture, seen GE and ESD in relation to other agendas such as employability, internationalisation and enterprise and linking sustainable and global initiatives with the wider community. What kind of GE and ESD competencies are our students need to live and work in present global world? Synthesis of competence models (Norwegian qualifications framework, The German identification of 'Gestaltungskompetenz'encies, The University of Melbourne's model) gives us the list of twelve key competencies: 1. High level of disciplinary and interdisciplinary knowledge. 2. Able to think holistically. 3. Able to think critically. 4. Able to solve problems. 5. Able to innovate. 6. Able to clarify the values. 7. Can promote innovation, creativity and change. 8. Can access information and assess their qualities. 9. Can conduct action research. 10. Demonstrates initiative, engagement, drive for change and entrepreneurial spirit. 11. Can work flexibly and adapt. 12. Exhibits intellectual curiosity and motivation for lifelong learning.

14.15-14.30

Promoting Agents of Change: Towards Holistic and Integrated Interpretations of ESD in University Teacher Education

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This paper explores possibilities for university educators to make helpful connections between ESD and related forms of education which can support the process of ESD transition in teacher education in universities in the Czech Republic (CR). It will address outcomes from a baseline analysis conducted across five universities in CR within a three year project, Teachers: Agents of Change (TACH). This suggests that teaching in relation to ESD can be fragmented and marginalise social justice issues, so that students do not fully contextualise and connect thinking between issues or develop a sense of personal engagement - "I in the world".

The TACH project is seeking to address this fragmentation by promoting university educator's understanding of ESD in relation to other forms of education (Global Education, Development Education), as a framing paradigm which connects environmental, social, economic, political and cultural themes. This mirrors current initiatives in CR within Civil Society Organisations (CSOs) active in Global Education and ESD which show that a process of joint reflection on overlapping themes can act both as a form of mutual enrichment and a response to shifts in conceptualisation, such as Global Citizenship Education proposed for the post 2015 Development agenda. The project also draws on evolving discourse and attempts to reconcile ESD with other forms of education in the UK (Bourn 2008).

With reference to questionnaire responses which follow up the baseline analysis, the paper will reflect on the process and impact of collaboration between CSOs and university educators in CR and the UK on emerging understanding of ESD in relation to other forms of education, identifying possibilities for more holistic and integrated interpretations which can helpfully connect and contextualise student's thinking and promote their sense of engagement in the world.

Bourn, D 2008 Global Perspectives and Education for Sustainable Development for Lifelong Learning, NIACE

Key words:

Fragmentation, Engagement, Global Education, Development Education, Civil Society Organisations, Global Citizenship Education

14.30-14.45

Ethics Education as a way to the nature-centeredness and Harmony of Man and the Earth.

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We conceptualise and verify of integrative educational project - Ecoethical educational program for teachers of ethics education in undergraduate teacher training at the Department of Applied Ethics UPJŠ in Kosice (Slovakia). This way is synergistic educational project which articulate the elements of Ecological knowledge, The Ecological Ethics, Principles of sustainability and Ethics of care as construction substrates of Environmental education. This project will ensure for future teaching experience necessary competencies for the implementation of environmental education in classrooms (caring community with ecological attitudes) as well as the required equipment for the role of environmental education coordinator in school (primary or secondary).

14.45-15.00

Global challenges – an interdisciplinary and compulsory course in teacher education, Malmö University, Sweden

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Malmö University (MU) is a relatively young university, only 15 years old. In 2014 a new strategic platform, Strategy 2020, was launched. MU believes that the future needs HEIs that contribute to the development of a sustainable community by creating new methods of working in collaboration with others. MU shall stimulate life-long learning and skills for action in an ever changing society. Our aim is education and research for a sustainable society. Our educational programmes are based on students actively seeking out and developing knowledge, with the purpose of achieving expertise that is in demand locally as well as globally.

One example regarding our strategy is the interdisciplinary course, Global challenges in a subject context, 9 credits, a compulsory course for teacher students training for upper and upper secondary school (SS and USS). The course content is focusing on citizenship, intercultural issues, sustainable development and learning. Besides lectures, literature seminars and workshops, the students focus on two tasks; a short article on a learning resource suitable for education in SS or USS, and a minor research project. The articles, with practicing pedagogues as stakeholders, are published in a web magazine after approval.

The second task is an interdisciplinary group work on pedagogues approach to the perspectives of citizenship, intercultural issues and/or sustainable development in the Swedish school system. The findings have to be discussed in connection to the Swedish syllabus of SS or USS. The results are presented as a paper or a poster at a student driven conference with invited participants, e.g. practicing teachers, school leaders, teacher students and university lecturers.

15.00-15.30

Assuring the quality of achievement standards and their valid assessment in Australian Higher Education (Fellowship)

Emeritus Professor Geoff Scott, University of Western Sydney
2014 National Senior Teaching Fellowship, Office for Learning and Teaching

This Senior Fellowship aims to build the capacity of Australian higher education institutions to ensure that the quality of their graduates keeps pace with the rapidly changing needs of the 21st century. To this end, particular focus will be given to developing the change-leadership capability of Associate Deans and Directors (Learning and Teaching) and Programme Directors and Heads. A strengthened proficiency to identify, validate and nurture relevant and desirable graduate capabilities, through strategies like utilisation of multiple reference points, will see institutions able to both assure the fitness for purpose of assessment and its fitness of purpose.

The Senior Fellowship programme will commence with a user-tested design process at the University of Western Sydney, which will then be benchmarked worldwide for refinement and enhancement. The capacity of Australian institutions will then be built through a series of state and territory workshops, culminating in a national conference on the collective learning that has resulted from the fellowship programme.

Innovation in Higher Education (Great Hall – room no. 3)

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13.30-13.45

SustainaBul: a method to gain attention for sustainability in higher education

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Since 2012, the SustainaBul ranking is published in the Netherlands. The word SustainaBul is a contraction of sustainability and bul, of which the last is Dutch for diploma. As Education for Sustainable Development is not only in education, but also in the environment where a student receives his education, the SustainaBul ranks universities on sustainability and transparency regarding sustainability within four themes: education, research, operations and integral approach. The aim of the SustainaBul is primarily to put sustainability on the agenda. Next to the ranking, knowledge exchange is a focus point, and multiple events per year are organised to accelerate the learning process of institutions.

The SustainaBul is carried out by Studenten voor Morgen* (in English: Students for Tomorrow), the national student network for a sustainable future. Because of the student initiative, the ranking is received with great sympathy and enthusiasm. Looking back on the past editions, the SustainaBul looks back on three important achievements: first, the topic of sustainability is now more frequently on the board agenda of education institutions. Second, the SustainaBul brought together individuals within institutions, who now work together on sustainability topics. Third, the sector as a whole has moved forward because of one national framework where sustainability progress is measured. This improvement would not have happened this fast otherwise.

An interesting concept, enhanced by the SustainaBul, is the Green Office. A physical place within a university where student-driven initiatives thrive and where students and staff brainstorm and work together on a more sustainable university. At the moment, there are three Green Offices in the Netherlands, but seven more universities are currently working on starting one. The acceptance of student-drive initiatives shows is enhanced by the SustainaBul, which has created a new way forward with a positive vibe.

*The Network Morgen is partner of the program National program Learning for Sustainable Development/ DuurzaamDoor. The Dutch focal point for the Decade on Education for sustainable development.

13.45-14.00

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Designing active and responsive sustainable development curricula for the online environment

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There has been a proliferation of academic sustainable design and development degree programs developed globally over the recent years. The focus of these programs ranges widely from theory to technical design capacity and spans across geography and culture. As the field of sustainable development has evolved to become more complex, the need for students to engage in applied experiences and immersive learning environments is ever more important. Often, the most qualified students and future practitioners are not able to participate in a traditional higher education degree program because of where they are physically located or are currently employed. Online education and distance degree programs have become an alternative for these students and present an opportunity for institutions to increase diversity and global reach. The challenge with online learning has long been the lack of student engagement and inability to participate in active, real-time learning experiences. The focus of this paper explores the current state of online sustainable design education and how the development of innovative distance degree programs can reach and engage a global audience. Higher education has often lagged behind in developing current and accessible curricula which responds directly to critical issues and provides required skill development. The online environment allows for nimble content delivery and instructors and students can participate without geographic concern. Designing online learning which utilizes emerging technology to create interactive discussion forums and hybrid programs which include short duration, experiential intensive study is highlighted.

14.00-14.15

Food for Thought: An Interdisciplinary Approach

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The paper examines how a large UK Higher Education institution with an aspiration to produce 'sustainability-literate graduates' (Lacy et al 2010; Sky 2011; Scott et al 2012) has adopted a unique approach to facilitating sustainability literacy amongst students and staff. The institution has used food - a critical global challenge of relevance to all disciplines - as a unifying theme to engage students and staff members with sustainability. The process of introducing Education for Sustainability is challenging, for some disciplines more than others, and the institution has attempted to address this through its Higher Education Green Academy project. The paper will focus on the Sustainability in Practice Certificate which was introduced as part of the project.

The certificate, which is based on a problem-based learning model and completely online, consists of several activities and a final video assessment piece. The optional certificate is open to all staff and students, providing an inclusive opportunity to contribute towards the critical global challenge of food production and consumption and related issues while simultaneously acquiring 'future-proof skills' (Drayson et al 2012). Participants are encouraged to reflect, sometimes collaboratively, on their personal and disciplinary perspectives of sustainability as well as the perspectives of other disciplines and how these systematically connect. This constitutes a new approach to teaching and learning in line with the recommendation of contemporary scholars who advocate adopting an interdisciplinary perspective to Education for Sustainability (Scott et al 2012). The certificate, involving the input of numerous academics from various disciplines, has paved the way for further interdisciplinary collaborations. It has also provided unique opportunities for students to be co-creators of the curriculum. In the spirit of recycling, the students' work from the certificate is developed into teaching materials, facilitating the sustainability literacy of a wide cohort of students beyond the immediate participants.

14.15-14.30

14

Eco-centered participation assessment spiral – an indicators' framework for participatory approaches in Higher Education for Sustainability

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Higher Education for Sustainable Development (HESD) has developed broadly during the UN Decade for ESD (2005-2014), but assessment reviews on the decade show a lack of processes that focus on profound change and transformative learning. Current sustainability assessment practices are scarce of process indicators that intend to capture the quality of the engagement processes in terms of levels and meaningfulness of participation, empowerment and the extent to which transformative learning is facilitated in the process. This ongoing research has developed an indicators' framework for participatory approaches directed towards sustainability implementation in higher education institutions, called the 'eco-centered participation assessment spiral', and aims to present a preliminary set of indicators for further discussion. Based on qualitative results from semi-structured interviews and focus groups, as well as an exhaustive literature review on HESD, learning theories and sustainability assessment, the framework followed the principles of system-thinking, including non-materialistic values and biophilic approaches. It thereby intended to allow embracing a renewed emotional affinity to nature and new perspectives on holism as well as on transformative change towards sustainability. The investigation so far suggests that universities are challenged to reflect about educational objectives and strategic goals in their sustainability implementation processes, if they aim to educate the academic community beyond eco-efficiency and recycling. With this framework, the research wishes to inspire designing and assessing participatory approaches and to develop innovative knowledge for tackling obstacles in the transition to sustainable universities, supporting the often proclaimed, but yet existing, paradigm change.

14.30-14.45

Sustainable Development in France: specificities, shortcomings and ideas for more effective diffusion

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conditions for engagement of communities, more prompt to grasp opportunities for improving their well-being than the complex concept of SD

In France, sustainable development (SD) is more often approached through technical considerations, for instance those relying on the various footprint methodologies. These obviously miss several of the values of SD, like solidarity or equity, which seem to receive, in general, less attention. Furthermore, SD is the front banner of organizations focusing on environment protection or preservation, reducing thus SD to only one pillar and not promoting a global vision. Rather than following the often used sectorial approach (sustainable housing, sustainable urban planning, sustainable waste management, etc.), we have developed a framework which uses health and well-being as a prism through which SD can be explored. Indeed, the determinants of health belong to all three pillars and, although we do not pretend it summarizes all aspects of SD, it allows to put human health on the forefront, as indicated in the first principle of Action 21, proposed in the 92 Rio conference. One of its main advantages is that health is both a goal and a condition for engagement of communities, more prompt to grasp opportunities for improving their well-being than the complex concept of SD.

14.45-15.00

Ranking of Sustainable Universities

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University rankings are very popular and important for students, staff, governments and companies. Unfortunately, most of them are based on research results, only. Few of them take teaching into account. Only one of them is considering environmental results. But none of the rankings is taking into account all the three pillars of the Sustainable Development (SD).

Therefore, a multidimensional ranking of universities was developed in order to evaluate their sustainability performance. The model enables a comparison of universities regarding research (expenditure, highly cited researchers, etc.), teaching (graduation rate, foreign students' share, etc.) and environmental performances (environmental commitments, sustainability or environmentally oriented programs, etc.). The purpose of the model is to provide a simplified information about the quality of universities regarding sustainable development issues. Weights of indicators were determined using an analytical hierarchical process (AHP). Results have shown that the most important indicators are research oriented ones, followed by teaching and environmental ones, but the weights can be changed. Based on the model, 20 top universities from world ranking tables (ARWU, and THES), published in 2013/14 were evaluated. The same methodology was used for ranking universities in some European regions and for some states. The results enable universities to detect their strengths, weaknesses, opportunities and threats in comparison with the world's best institutions.

We are suggesting that Copernicus Alliance supports the project and UNESCO funds its development to become a global ranking system with all the 3 pillars of SD covering the World, Europe and its regions as well as state universities.

15.00-15.15

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Sustainable Business Practices: Transformative Learning and ESD - a case study for the UE4SD project

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Set within a Business School, this research examines the making of a lens of sustainability, evidencing this through student-generated reflective reports of perspective shift. The 'awakening' and shift in critical awareness is viewed through the perspective of transformative learning drawing particularly on Mezirow's Transformative Learning Theory and the psychology of James Hillman and Edward Edinger. Using educational themes of Mezirow, Freire and Eisler, this research looks at the role of conferences as assessment in order to co-create a place for sharing transformative learning as an integral part of a final-year undergraduate-level course on Knowledge, Globalisation & Development.

The changing role of the student journeying through this course towards critical self-directed learning practice is considered through the holistic pedagogy and assessment used in this course. The incidence of around 80% of perspective shift identified through rhizomic narrative analysis (sample size: 180 (approx.) over 4 years) suggests that this is an effective means of enabling transformative learning within trans-disciplinary education. Individual narratives illustrate key aspects of sustainability, connectivity, diversity, globalisation, CSR and complexity. A key aspect of this relates to educator development aligned with UN ECE competency frameworks for ESD and initiatives being developed within the COPERNICUS Alliance, the UE4SD project and UN PRME. The research offers practical suggestions towards developing innovative pedagogies which lead to very high levels of staff and student engagement and satisfaction.

Enabling the wider participation throughout HEIs, community and employers, such forms of assessment aim to make a difference at individual, local and global levels through raising awareness and increasing levels of participation. This research offers an original contribution to the practice of innovative assessment within Business and Education for Sustainable Development with the expectation that such practice can be implemented between universities by the use of sustainable technology in teaching and assessment. Keywords – Knowledge, Globalisation, Development, Leadership, Sustainability, Education for Sustainable Development, Portfolio Assessment, UNDESD, COPERNICUS Alliance, UE4SD, UNGC, PRME

15.15-15.30

Exploration of Sustainability and University Social Responsibility into the university curriculum

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The aim of the study was to explore the principles and practice of Sustainability (S) and University Social Responsibility (USR) in the degree courses at the International University of Catalonia (UIC). In order to explore the principles of S and USR and their implementation in the UIC, an empirical study was carried out, using a mainly qualitative approach, although a mixed methodology was employed for data collection. Indicators related to S and USR found in undergraduate students' final dissertations (quantitative) were measured using FilemakerPro, and this was combined with in-depth semi-structured interviews conducted with people in different academic positions (qualitative), which were analysed by the use of Atlas.ti. Through this twofold study, various visions, difficulties and challenges were identified around the concepts of S and USR, which allowed us to describe and portray a specific starting position in relation to these two concepts in our University. Based on this exploration of reality, it will be necessary to promote an interdisciplinary dialogue and mechanisms to encourage the genuine and effective integration of S and USR into the university curriculum.

Regional and institutional case studies (Emperor's Hall – room no. 4)

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13.30-13.45

Broadening Perspectives: Challenging Practice

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This paper explores the impact of a long term staff development programme in EfS at a UK University. Now at the end of its third year, the 'Futures Initiative' seeks to promote sustainability perspectives in academic life by helping staff initiate small scale curriculum enrichment projects. A linked programme of seminars, conferences and residential conferences provides opportunities for colleagues to disseminate practice and develop their ideas. The analysis of 'Futures Initiative' activities suggests that 'hot spots' have developed where staff are working together on common themes. The energy that this is generating is helping to drive wider cultural change. We argue that where colleagues have similar interests, a commitment to shared values and the opportunity to be innovative, their ideas are likely flourish. By facilitating the development of small communities of practice (Wenger 1998) and validating colleagues' enthusiasm, the 'Future Initiative' has derived a strength which goes far beyond the resources that have been directly committed to it. Furthermore, the fact that the 'Initiative' has been underpinned by clearly articulated values has been fundamental to its success as an 'ethical response' to sustainability issues (Andreotti 2006) taps into current concerns across a wide range of disciplines. We offer this approach not so much as a model to be copied but as an example of effective change leadership which negotiates the complex process which characterise higher education (Scott et al.2014). An awareness of barriers and inhibitors is an essential part of developing deeper understandings.

Andreotti (2006) 'Soft Versus Critical Global Citizenship Education', Policy and Practice: A development education review 3 40-51

Scott, G. Tibury, D. Sharp, L. and Deane, E. (2014) 'Turnaround Leadership for Sustainability in Higher Education', Sydney: Office for Learning and Teaching

Wenger E. (1998). 'Communities of practice: learning, meaning, and identity', Cambridge, Cambridge University Press

13.45-14.00

20

Institutional clarity or embedded diverse sustainability education?

Overcoming fear: language and the embedding of sustainability

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This paper focuses upon the way in which institutional approaches to ESD affect the prospects for embedding ESD within programmes of study. It argues that a non prescriptive approach reduces staff fears of being expected to 'teach values' or knowledge. It explores the Bristol 'open' approach which works from an open textured map to support diverse staff approaches; and looks in particular at the importance of language to this. But it asks the question – this may produce more embedded action – but what is sacrificed in terms of coherence or visibility – as far as students and stakeholders are concerned? Is there a risk of students encountering more sustainability education but not realising it?

The paper will use Bristol's experience as a case study to look at the tensions between clear whole institution approaches and embedded diverse sustainability education.

14.00-14.15

The role of higher education institutions in instilling a sustainability mind-set in graduates

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Higher education institutions have an important role to play in instilling in graduates a sustainability mindset, providing them through their education with knowledge, skills, competences, attitudes and values that will enable them to fully integrate sustainability concerns both in their professional work and in their private lives.

This important role has not gone unnoticed and a number of declarations on education for sustainability have been written and signed by universities throughout the world. One important declaration is the COPERNICUS Charta which was written in 1993. Aalborg University (AAU), Denmark, which is well known for its problem based approach to teaching and learning, was one of the first institutions to sign the declaration in 1994.

In 2012 the Faculty of Engineering and Science, AAU, initiated a research project with the overall aim of investigating to which extent the Faculty had followed the Copernicus guidelines of integrating sustainability into the curricula taught. The project was carried out in two phases and at two levels, with Phase 1 focusing on the managerial level while Phase 2 focused on the teaching level. This presentation will report on the project methodology and the results of project, emphasizing the results at the teaching level. The main message of the presentation is that even though problem based learning, with its emphasis on real life problems, may be an ideally suited approach to education for sustainability, it also presents some challenges. One example is the tendency to create 'hidden pockets' of sustainability that are not easily revealed had the project simply focused on a content analysis of formal curricula.

14.15-14.30

Higher education for sustainable development in Bulgaria - chances for context-sensitive approaches

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Sustainable development (SD) has been increasingly popular topic in the public realm of Bulgaria for the recent two decades. Higher education has responded and made a visible progress in adding the SD topic in the course contents in many professional fields. Yet, it is still lagging in acknowledging the importance of the concept as an integrating basis for interdisciplinary approaches to education. The reasons for the lagging stem from numerous peculiarities of the societal context, among which: (a) the overall difficulties experiences by the public sector in the country, (b) the conservativeness of the existing university administrative structures, and (c) the lack of adequate educational capacity of the teaching staff involved in the process. The presentation is based on the author' personal experience in the field of planning education and presents a bottom-up initiative for establishing inter-faculty contacts and collaboration of teachers from different faculties. It discusses the effectiveness of the efforts made in mapping the SD awareness of students, overcoming identified administrative barriers to integrated teaching approaches, and organizing mutual support for enhancing teaching capacity. The possible synergic effect of bottom-up and top-down initiatives is discussed and the importance of partnerships with a variety of social actors is stressed upon.

14.30-14.45

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The Mediterranean Universities Response to the UN Decade on ESD

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In the Mediterranean region which apart from inherent problems, recent sociopolitical upheavals challenged governance structures and development models, the need for quality academic practice, motivated university educators with appropriate competences and institutions supporting sustainability principles, is more than ever evident. The universities in the region responded to the UN Decade of Education for Sustainable Development (DESD) priorities targeting the policy gaps and the whole institute approach. Addressing the policy needs, the Mediterranean Strategy on ESD (MSESD) was endorsed in May 2014, being compatible with the DESD and the UNECE ESD Strategy. MSESD encourages countries to incorporate ESD into all subjects and educational systems. Since 2008 the Network of Mediterranean Universities on SD with emphasis on ESD (NeMUSuD) is bringing together a critical mass of universities in promoting ESD and the whole institute approach. The UNESCO Chair and Network on Sustainable Development Management and Education in the Mediterranean (2011) was established in the University of Athens to facilitate coordination of ESD activities in the region.

Within this framework the Mediterranean universities were involved in the following courses of action “transferring”, inter alia, the experience gained in Europe (UNECE Strategy) and worldwide (DESD) to the southern part of the region:

(i) Formulation of the MSESD.

(ii) Elaboration of National ESD policies i.e. The Charter of Greek Universities for SD and the Moroccan ESD framework.

(iii) Capacity building Courses for university professors on ESD.

The latter activities were mainly supported by the EC H2020 Capacity Building/Mediterranean Environment Programme.

(iv) Summer Schools for University Postgraduates on ESD issues.

The article presents these activities (background, objectives, outputs, future perspectives) that enhanced North-South cooperation on ESD, a prerequisite for sustainable future.

14.45-15.00

ESD competences explored in activities of the Czech educational centres and analysed in relation to their active role in (regional) sustainable development

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Education for sustainable development in the Czech context is still in the initial stage of development, often being not distinguished from the environmental education which has relatively long tradition in this country. Environmental education centres often closely cooperate with universities and shape their (environmentally, sustainability) oriented programs to a great extent. Authors analyse activities of selected environmental education centres (competence template used for analysis) in relation to their role in region (actor analysis method applied to show their position). Scale of competences from environmentally grounded to more sustainability oriented has been developed and activities are being situated on this scale. Thus, a descriptive picture of the state of environmental education/ESD has been received and trajectory of continuous development in this field is being proposed on this basis. Recommendations for further steps in development of the ESD competences are offered in a conclusion.

15.00-15.15

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RCE Graz-Styria – Regional Centre of Expertise on Education for Sustainable Development

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As a result of the United Nations Conference on Environment and Development 2002 in Johannesburg the United Nations entitled the decade from 2005 to 2014 as the world decade for "Education for Sustainable Development" (ESD). Within the UN decade on ESD also the initiative of the Regional Centres of Expertise was started. RCEs aspire to achieve the goals of the UN Decade by translating its global objectives into the context of the local communities in which they operate. The centres aim to establish co-operations among local and regional actors as well as to foster and make use of the international exchange within the RCE network, following the motto "think global, act local". The RCEs have different focus areas and structures in order to support the regional necessities for a sustainable development with respect to educational activities as good as possible.

The RCE Graz-Styria was acknowledged as one of the first 20 RCEs in the international network in 2007. The centre started as a „spin-off“ of the Department of Geography and Regional Science at University of Graz and finally was integrated into the Faculty of Environmental, Regional and Educational Sciences in 2009. Since its foundation the RCE Graz-Styria continuously developed its competences and sharpened its areas of interest. As a consequence of this ongoing learning process the RCE Graz-Styria bundled its activities focusing on "Education for Sustainable Development" and "Sustainability Strategies & Sustainability Transitions". The centre has access to a network of scientific and societal partners. Through its transdisciplinary approach of research and education for sustainability processes the RCE Graz-Styria addresses pressing challenges by integrating sustainability into all levels of society. It contributes to the further development of sustainability research and education through a scientific discourse. Hence, "sustainable" results are generated for society and science. The following mission statement summarizes these goals and activities by the RCE Graz-Styria: "We promote sustainable development by research, training and mutual knowledge creation between science and society."

The presentation at the Copernicus Alliance Conference gives an overview of the general understanding of a RCE in the context of the UN decade "Education for Sustainable Development" with a focus on being a transdisciplinary centre at a university. Furthermore the development of the RCE Graz-Styria since its beginning in 2007 including an overview of current projects, focus points and future challenges is described.

15.15-15.30

Greening of Higher Education in Serbia

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Nowadays, Serbia is not at a satisfactory level of sustainability due to the well-known events that occurred within the past two decades. According to the European Commission, environmental protection is an area in which Serbia will have to give its maximum effort to fully meet European standards and the requirements of sustainable development in the future. Poor water quality in some parts of the country, undeveloped systems for waste collection and recycling, illegal dumps, industrial pollution, are some of the environmental problems affecting the Republic of Serbia. These findings encouraged the authors of the paper to focus on the environmental problems as a dimension of education for sustainable development in Serbian higher education.

Regulatory frameworks of higher education and education for sustainable development in the Republic of Serbia are presented in the first part of the paper. The second part deals with observations on current staff development within professional education centres, where their abilities to work in the field of the environmental protection are discussed. In the third part, an analysis of an autonomous and integrative approach to the environmental safety education is done, and the need and importance of greening higher education curriculum, as the new paradigm in the educational system, is emphasized.

In this regard, an analysis of present ecological ideas and content in the syllabus of English language, which is one of the most common courses at Serbian faculties and which is the particularly important in response to the challenges of globalization, knowledge flow, international scientific research and mobility, is performed.

Finally, as part of the authors' concluding remarks, improvements related to the period before the reform of higher education and adoption of a national strategy for sustainable development, are presented. Also, their basic weaknesses and difficulties are described. New directions of education for environmental protection in higher education, as well as the importance of training higher education lecturers in this area, are shown.

Key words: education, sustainable development, environmental protection, autonomous approach, integrative approach, greening

Poster presentations (Lunch Room)

12.30-13.30 (Lunchtime)

15.30-16.00 (Coffee break time)

Competence Raising Through Teaching of ESD Environmental Key Topics Implementing “Project Technology”

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Developing new approaches for environmental education and upbringing in professional education sector is considered to be the most important issue of the current reality in the condition of ecological crisis. The main tasks of the environmental education are to raise awareness of learners about the issues related to environmental protection and engage participants in problem solving process.

The higher education sector of Armenia is in the process of making reforms. The latter is aimed at changing the purpose of education content i.e. the concept of competence is added to knowledge, abilities, skills and values. The Council of Europe defines competence as an ability and willingness of an individual to learn throughout the whole lifespan. The competence requires the knowledge source to:

- promote the formation and development of research, communication and collaborative skills of learners
- lead learners to public benefit activity

The package of reforms also requires a new introduction of global environmental issues in higher education system. Therefore, it is necessary to apply new educational technologies which will enable to present constantly changing environmental issues at local, regional and global levels using the components of education content.

Using the “project technology” will promote knowledge gaining of the learners and will form specific abilities and skills to be guided in different situations and organize research works. The “project technology” is a multilevel system of associated phases which includes four main phases: preparation, planning, organizational-research works, presentation of results.

The UNESCO Chair on “Education for Sustainable Development” in cooperation with the National Institute of Education of the MES RA in the framework of scientific theme N SCS “13-5C374 funded by the State Committee of Science of RA is carrying out trainings for lecturers and students from pedagogical institutes on raising competence in ESD key environmental topics.

An introduction to sustainable natural resource management for mathematicians

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The author will present some essential notions of natural resource management in the context of the mathematics curriculum at the Licence level. Examples will be provided that will allow the students to grasp these notions building on their mathematical knowledge.

More precisely, the notions of irreversibility, threshold, potential, adaptability, natural cycle, sustainable yield will be introduced from a mathematical modelling perspective.

Analogies will then be drawn with natural phenomena and the relevance of the mathematical approach will be discussed in this context.

Participatory action research in Higher Education to reorient teacher education towards sustainability

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The participatory action research has proved its efficiency in reorienting students frames of reference towards sustainability through experiential, reflexive learning on sustainability issues and proved itself as a precondition for developing sustainable relationships with the world, thereby preparing teachers for the implementation of sustainability oriented teaching practices. Engagement of students in the educational action research may have implications for the high quality teacher education for sustainability: it will involve students in experience based, reflective and discursive inquiry as a multi - vocal venture. By beginning from the experience of students and reflecting on issues of mutual concern, students identify new ways of seeing the world and acting within it, PAR allows practicing open – mindedness, as well as enriches one's perspective through discursive participation and learning in mutually supportive environment.

Key words: participative action research, transformative experience, teachers' frames of reference.