3. konferenca z mednarodno udeležbo
Konferenca VIVUS – s področja kmetijstva, naravovarstva, hortikulture in floristike ter živilstva in prehrane
»Prenos inovacij, znanja in izkušenj v vsakdanjo rabo«
14. in 15. november 2014, Biotehniški center Naklo, Strahinj 99, Naklo, Slovenija

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K trajnostni univerzi - Primer Fakultete za organizacijske vede

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Izvleček

Čeprav je bilo do sedaj glavna pozornost izobraževanja na področju trajnostnega razvoja usmerjena na osnovne in srednje oziroma poklicne šole, se je v zadnjem desetletju povečalo tudi število visokošolskih ustanov, ki v svoj program vključujejo načela trajnostnega razvoja in odgovornega odnosa do okolja. Vsekakor je na tem področju še veliko možnosti za izboljšave, ki izhajajo iz razkoraka med načeli trajnostnega razvoja in njihovo dejansko vključitvijo v študijske programe in ostale segmente delovanja institucije. Fakulteta za organizacijske vede Univerze v Mariboru je z umestitvijo okoljskih in trajnostnih vsebin v študijski proces ena izmed prvih visokošolskih organizacij v Sloveniji, ki skuša sistematično spodbujati študente k trajnostnemu in družbeno odgovornemu vedenju. V ta namen fakulteta izvaja vrsto dejavnosti, katerih namen je omogočiti aktivno vključevanje študentov v aktivnosti, ki sovpadajo z okoljskim in družbenim vidikom trajnostnega razvoja. V pričujočem prispevku so prikazane nekatere aktivnosti fakultete s področja trajnostnega razvoja, vključujoč tudi vključevanje v različne mednarodne projekte s področja trajnostnega razvoja in varstva okolja. Nadalje so v prispevku obravnavane tudi razne aktivnosti, ki prikazujejo vpetost fakultete v lokalno skupnost. V sklepnem delu prispevka so podana tudi priporočila in smernice za druge visokošolske ustanove.

Ključne besede: Trajnostni razvoj, Okoljsko izobraževanje, Univerza, Eko-šole

Towards a Sustainable University: The Case Study of the Faculty of Organizational Sciences

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Abstract

Even though the focus which concerns the sustainable actions has been so far predominantly integrated within primary and secondary schools, the number of higher education institutions which incorporated sustainable principles in their curriculum and/or operation during the last decade, has

increased. Nevertheless, there are still many challenges that arise from the gap between sustainable thinking which is embedded in several operations of the educational institution and its curriculum. With its environmental and sustainable oriented courses in the curriculum, the Faculty of Organizational Sciences (FOV) at University of Maribor has been one of the first higher educational institutions in Slovenia which aims to promote sustainable thinking among students. Based on the theoretical foundations, the FOV expanded the sustainability-oriented activities in terms of active engagement in several international projects dealing with environmental and sustainable topics. Further on, FOV also promotes sustainability by encouraging their students to actively participate in the sustainable and environmentally friendly actions and projects. Therefore, the paper presents and discusses some key activities of the faculty in the field of sustainability. In addition, several activities for students as well as for local residents are discussed in this paper. The paper concludes with recommendations for further actions and directions for other higher educational institutions are given.

Key words: Sustainable development, Environmental education, University, Eco-Schools

1 Introduction

Individuals, organizations, and governments are increasingly becoming aware of the necessity of sustainability in living, organizing, performing, and managing work (Siedel et al., 2010). Although business schools and management education institutions were traditionally focused on standard elements of corporate governance (Rao, Patil and Gupte, 2013), sustainability and environmental issues have forced the educational institutions to change their objectives and incorporate sustainable practices not only in educational aspects but also in their own processes. As presented by Lozano (2011), universities tend to focus on the economic and environmental dimensions in their sustainability reports.

There are many researches (Jones, Selby and Sterling, 2010; Cotton and Winter, 2010, Wals and Blewitt, 2010) and case studies (Brumeister et al., 2013; Chalkley et al., 2010; Varnava, Lowther and Payne, 2010) including diverse aspects of education on sustainability and environmental awareness in educational institutions. As presented by Kadji-Beltran et al. (2013), principals play an important role in directing the school towards a sustainable development.

As proposed by Lozano et al. (2013), universities should become sustainability leaders and change drivers and therefore university management and staff must be empowered to implement new paradigms and ensure that sustainable development is the "Golden Thread" throughout the university system. By setting a positive example, the University of Maribor strives to create an innovative environment and an effective organisation contributing to balanced, sustainable and socially responsible development of the University, the city of Maribor and the entire country through discovery and transfer of new knowledge (Glavič et al., 2012). In compliance with the goals of University of Maribor, to become sustainable and socially responsible university, Faculty of Organizational Sciences (FOV) is aiming to become recognized with its environmental incentives and sustainable practices. The paper presents the initiatives and possibilities to extend the sustainable practices in educational process, administrative activities and other activities performed by the employees and students in FOV.

1.1 Sustainable University of Maribor and Faculty of Organizational Sciences

The University of Maribor comprises various faculties with more than 23,000 students and staff members, with faculties placed in different geographical locations. Faculty of Organizational Sciences (FOV) is one of the dislocated units, located in Kranj, capital of Gorenjska region, in the north-west

part of Slovenia (in contrast to Maribor, located in Štajerska region, in the north-east part of Slovenia). In its educational process, FOV covers the theory and practice of organizing business and work systems, information systems, human resource and educational systems. FOV currently has over 1,300 students and staff members who study and work at the same location, using a minimum of 190 personal computers (portable devices not included). The building has over 5,000 m2 and has to be heated or cooled during different seasons. Some data about the consumption in 2013 are given in Table 1, where the consumption of electricity includes the electricity used by computers and servers, lightning, cooling, hot water in summer season and other electrical appliances connected via sockets.

Table 1: Consumption of water and electricity at FOV in 2013.

Year	Heating and hot water (winter)	Cold water	Electricity
2013	282.2 MW	2440 m3	298.640 kWh

Based on the presented data, the possibilities for improvements in the area of water and energy consumption at FOV are immense. Considering that higher education institution has to be in line with business, governmental and EU initiatives, FOV has a prominent opportunity to improve its environmentally friendly activities and sustainable practices.

2 Materials and methods

During the last few years, FOV was in a process of renovation of educational programmes and successfully implemented several topics on sustainability into its educational process. The courses related to environmental and sustainability issues introduced in the study programmes of 2011/2012 are presented in Table 2:

Degree	Program	Course title
Professional higher education	Information Systems, Human Resources and Educational Systems, Business and Working Systems	Management of technological systems
	Information Systems, Human Resources and Educational Systems, Business and Working Systems	Engineering of environmental protection
Academic higher education	Business and Working Systems	Technological systems
	Business and Working Systems	Management of environmental protection
Master's	Human Resources and Educational Systems, Business and Working Systems	Ecological management

Table 2: Environmental and sustainability related courses in FOV.

In addition to the changes of study curriculum, FOV has been involved in several national and international projects covering environmental issues. Table 3 gives the list of sustainable oriented projects in which FOV was involved.

Table 3: Projects related to sustainable practices and environmental issues.

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Project name	Туре	Time period
Economics of ecological farms in Slovenia	National	1 st January 2011 – 30 th September 2013
ZEROTRADE: A Public Private Governance Model for a Zero Carbon Trade Sector	International	1 st January 2011 – 31 st December 2012
CO-EFFICIENT: Collaborative Framework for Energy Efficient SME Systems	International	1 st January 2013 – 30 th June 2015
CentraLab: Central European Living Lab for Territorial Innovation	International	1 st may 2011 – 30 th April 2014
GeographicalInformationProcessingfortheEnvironmentalPollution-related Securitywithin UrbanScale Environments	International	1 st march 2011 – 30 th September 2014

Being recognized as one of the regional promoters of environmental education, FOV was invited to participate in a campaign "Attention to the environment(!)" (Vuk et al., 2013). The campaign attempts to raise the environmental awareness of secondary school students, FOV has a role of analysing the data gathered from the questionnaires and to follow the changes in awareness of secondary school students.

FOV identified many opportunities to cooperate in environmental activities as well as many opportunities to improve its own energy efficiency, water consumption, waste separation and other activities related to environmental issues. Based on the presented activities related to sustainable practices, an initiative to join the international network of sustainable educational institutions, Eco-Schools was raised.

The international programme of the Foundation of Environmental Education (FEE), Eco-Schools aims to empower students to be the change our sustainable world needs (Eco-Schools, 2014). The institution keen to incorporate principles of Eco-Schools, has to follow a seven step change process with prevailing involvement of the students. Evidences of successful improvements in learning, attitude, behaviour of students and the local community eventually lead to a school being awarded "The Green Flag".

The seven steps to sustainability are (Eco-Schools, 2014):

- 1. Eco-Schools Committee, which has to involve students as well as employees and ensure that the process activities leading to sustainability are properly performed.
- 2. Environmental Review carried out with the aim to review or asses the environmental impact of the school.
- 3. Action plan, based on the findings of environmental review, the action plan aims to define all the activities school will perform with detailed information about timeframe and metrics to evaluate the proposed activities.
- 4. Monitoring and Evaluation are basically identified in the action plan and serve as performance indicators for the activities defined.
- 5. Curriculum Work links the activities of the Eco-Schools to the curriculum to ensure a high level of integration.
- 6. Informing and Involving is aiming at raising general awareness of environmental activities, throughout the school and the wider community.
- 7. Eco-Code is a mission statement, demonstrating the school's commitment to improving its environmental performance.

After one year of implementing the Programme and reaching a high level of performance in complying with these seven elements, among other mandatory criteria, Schools are then awarded the Green Flag (Eco-Schools, 2014).

3 Results

The decision to better understand and consider environmental, economic, social and ethical dimensions of sustainable development, led FOV into definition the short term guidelines for the next five years. In compliance with the key components of sustainable development, FOV defines the following aims:

- Yearly efficiency audit of the sustainable development system and the evaluation of efficiency improvement,
- External verification of the efficiency and successfulness of the sustainable development system,
- Involvement in UI GreenMetric World Universities Ranking
- Organization and realization of sustainable development related events
- Preparation of 10 case studies related to sustainable development issues
- Waste reduction
- Increasing the level of recycling
- Lowering the greenhouse gasses emissions.

The key goals for the school year 2013/14 were more detailed:

- Introduction of the system for separate waste collection (separate waste containers, informing key stakeholders on separate waste collection)
- Increasing the energy efficiency (light sensors, definition of a protocol for energy consumption devices)
- Setting up the Eco point at FOV
- Participating in the UI GreenMetric World Universities Ranking via University of Maribor

Based on the proposed annual goals, FOV identified four basic projects, provided by Eco-Schools, which were the most appropriate for the high school level (most of the activities proposed by Eco-Schools aim at preschool, primary and secondary school students):

- The Eco-committee presented the activities of sustainable and eco-friendly FOV at the Altermed fair in Celje (10th annual fair on healthy lifestyle, alternative and herbal medicine, healthy nutrition, natural cosmetics and eco-friendly dwelling).
- A first year student participated in the Young reporters for the Environment initiative with his exhibition on photography "Ice defeated mankind", presented in Figure 1.
- One of the main activities in the project Computers and Energy Efficiency was the involvement in the procedure of green public procurement, followed by a tender to identify the best energy efficiency slogan and a survey on energy consumption.
- Waste reduction week included several different activities: a) exhibition on waste recycling, b) lecture about the quality of tap water and the impact of illegal dumps on groundwater, c) opening of Eco-point, d) attaching waste type labels on bins, e) SloPak stand info point on waste recycling, f) Round table about waste reduction, and g) promotion of further activities of Eco-school committee (cleaning action, waste paper collection).



Figure 1: The "Ice defeated mankind" photo exhibition (Šinkar, 2014).

In addition to the presented four main projects, several sustainable oriented activities, presented in Figure 2, were proposed by the students of FOV:

- Health week
- Relax Yoga
- Joint Step (workshop with persons after acquired brain injury)
- Water day
- Students for animals
- Collection of waste paper for the "Association for Animal Protection"
- Clean FOV cleaning action
- International AIDS day
- New year's gifts for children



Figure 2: Some of student's initiatives for sustainable actions (ŠO FOV, 2014).

In general, the sustainable activities performed by FOV in 2013/14 can be divided into several topics: waste, water, energy, health and wellbeing, awareness campaigns and other types of activities, as presented in Table 4.

Торіс	Activity	Comments
Waste	Labelling waste bins inside the building.	80% labelled bins.
	Locking the litter bins.	74% locked litter bins.
	Waste paper collections	1 action performed
	Opening of ECO point FOV.	1 eco point.
	Waste reduction week.	1 week of waste reduction intensive actions.
Water	Pictograms by the washbasins.	80% labelled washbasins.
	The quality of tap water.	1 lecture of an expert.
	Installation of water consumption measurer.	2 installed and water consumption monitored.
Energy	Electric appliances are consistently	Software solution for powering off computers
	powered off.	installed on all classroom computers.
	Light sensors in toiletries.	2 installed
	Young reporters.	1 photo exhibition.
	Excursion to Eco-hotel Bohinj.	1 excursion.
Health and	Altermed fair.	1 day presentation of FOV activities.
well being		
	Health week	1 week of healthy lifestyle for students.

Table 4: Sustainable activities at FOV in 2013/14.

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	Relax – Yoga	Relaxation workshop
Awareness	Conference of Organizational Science	1 session on Environmental management.
campaigns	development	
	Water day.	Promotion of quality tap water.
	Students for animals.	Helping homeless animals with collecting animal food.
	Waste paper for animals.	Helping homeless animals with funds from waste paper.
	Clean FOV	2 actions performed.
Other activities	Joint step	1 day workshop with persons after head injury.
	International AIDS day.	1 day of promotional activities.
	New year's gifts for children.	Entertaining event for children of students and employees.

With the promotion of sustainable thinking, the number of topics selected by the students for their seminar work also raised. The research and seminar work included topics such as waste separation, ecological food production, biodiesel, alternative fuels, air pollution, acid rain, greenhouse effect, heating principles, renewable energy resources, water pollution and industrial waste, water cleaning plants, environmental and carbon footprint, etc.

Further on, several sustainable and environmentally oriented topics were also selected and presented as the graduated diploma work:

- Environmental management system ISO 14001 in Slovenian organizations,
- Organizational model of municipal waste management in Slovenia,
- Handling with dangerous substances at petrol gas stations,
- Development possibilities of organic agriculture in republic of Slovenia,
- Firefighters intervention model in case of spills of dangerous substances in traffic for Ljubljana area and
- Strengths and weaknesses of petrol, gas and electric drive.

In addition to students' research activities, academic and research staff of FOV was also involved in publication of several interesting topics in the area of sustainability. Six conference papers and one paper in an international journal were published in the last months (school year 2013/14) only.

The University of Maribor is involved in the international ranking of sustainable aware universities and was ranked on the 229th place among more than 300 universities from entire world that are involved in the UI GreenMetric World University Ranking.

Discussion

To become a sustainable and social responsible organization, the FOV devoted itself to protecting and preserving the environment by integrating principles of sustainable development into its daily operations, processes and curriculum. It is suggested from this perspective that institution will create more value over the long run if it takes into consideration environmental quality, social equity and economic prosperity (Elkington, 1999). However, the transition towards sustainable higher education institution is complex and requires several factors to be considered, such as individual commitment of employees, cross organizational collaboration, cultural change, etc. (Hoover and Harder, 2014). Having this in mind, we argue that several activities conducted by FOV, as discussed in this paper, have contributed in making sustainability principles integral to the fulfilment of research, teaching, and operational objectives.

Sustainability disclosure is also considered as an important element in showing the commitment to sustainable development and revealing the extent to which the company has managed to improve its economic, environmental and social performance (Roca and Searcy, 2012). As stated by Lozano (2011), sustainability reporting also helps universities to communicate such efforts to their stakeholders (e.g. new students, parents, funding bodies, government departments, alumni, current students, academics, and staff). Owing to the above-explained motives, University of Maribor has recently started to establish the sustainability indicators aiming to monitor the progress, to report and to continuously improve a wide array of sustainability aspects.

In addition to five courses discussing sustainability issues are offered to the students, there are other courses that involve sustainability and environmental topics, but are not explicitly defined with the title of the course (e.g. Planning methods and techniques, Product and process development, Operational research and stochastic processes, Quality engineering, Supply chain collaboration, Organization of production process, Man in work process, ...). As an example of indirect inclusion of sustainability issues, the course Organization of business processes contains topics covering business process reengineering, basically one of the core activities in Green BPM as presented by Ghose et al. (2009). In conclusion, one could say that overall, with courses covering business processes and information systems, the indirect relationship of the educational programme at FOV with sustainability and environmentally friendly initiatives is inevitable.

Conclusion

This paper draws together experiences from FOV regarding its activities and transition towards sustainable and social responsible organization. To sum up, the findings of this case study indicate that effective integration of sustainability principles into higher education institution requires coordinated governance (e.g. structure, processes, decision-making) that can facilitate the incorporation of sustainability aspects in the process of developing curriculum, infrastructure management as well as in the other key activities of institution.

An intensified commitment to sustainability initiatives, in particular in the form of students and staff engagement in academic and practical sustainability work are vital to advance the sustainability in higher education and to grow the faculty sustainability movement.

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