

ZELENI INTEGRALNI MODEL BIOTEHNIŠKEGA CENTRA NAKLO KOT PRIMER DOBRE PRAKSE

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Povzetek: Integracija je pomemben vidik trajnosti, ki povezuje ekonomske, družbene, okoljske vidike z etiko in kulturno dediščine. Naravni in socio-kulturni kapital sta soodvisna in ju je potrebno vključiti v integralne razvojne strategije. Pri načrtovanju gospodarske rasti pa moramo upoštevati dejavnike v družbi in okolju. Izobraževalne ustanove bi lahko veliko doprinesle k modelu za pridobivanje trajnostnih rezultatov. BC (Biotehniški center) Naklo je edinstvena ustanova v Sloveniji, saj je hkrati šola (srednja in višja strokovna šola), center za prenos tehnologije in aplikativne raziskave, izobraževalni center za odrasle in izobraževalna komercialna ekološka kmetija, dobro povezana z lokalno skupnostjo. Raziskovalne dejavnosti vključujejo tudi mednarodno sodelovanje, pri čemer se narava in kultura spet povezujeta z znanostjo in podjetništvom. Članek opisuje zeleni integralni model BC Naklo kot primer dobre prakse. Poleg tega se osredotoča predvsem na trajnostne vidike raziskav in izobraževanja na tej ustanovi.

Ključne besede: vzgoja in izobraževanje za trajnostni razvoj (VITR), zeleni integralni model

THE GREEN INTEGRAL MODEL OF BIOTECHNICAL CENTRE NAKLO AS AN EXAMPLE OF GOOD PRACTICE

Abstract: The integration is a relevant aspect of sustainability that connects economic, social, environmental aspects with ethics and cultural heritage. It is evident that the natural capital is connected with the socio-cultural capital and both need to be included in integral developmental strategies. Indeed, ecosystem and social resilience should be taken into consideration as a limiting factor of any economic growth. Educational institutions could contribute as a model to gain sustainable outcomes. BC (Biotechnical Centre) Naklo is a unique institution in Slovenia because it is simultaneously a school (secondary and higher vocational college), a technology transfer and applied research institute, an adult educational centre and an educational commercial organic farm, well connected with the local community. Moreover, its research activities involve a large network of international collaborations, whereby nature and culture is again linked with science and enterprise. The article enlightens the green integral model of BC Naklo as example of good practice. Furthermore it is focused in particular on sustainability aspects of research and education on this institution.

Keywords education for sustainable development (ESD), green integral models

1 Introduction

Global challenges require a radical change in thinking, some kind of transition thinking toward a more sustainable society (Sterrenberg, 2013). It will lead us out of our comfort zone, but also nearer to sustainable outcomes. The term “sustainable development” is quite contradictory, since the concept of sustainability could be understood as opposite of development and growth (Robinson, 2004) in particular regarding human population and industrialization. Sustainability must be an integrated concept, but it is radically insufficient if it addresses just economic, social and environmental dimension without ethics, values, culture heritage and social responsibility. The integral green economy model by Lessem and Shieffer (2010) is based on four pillars which integrated the world’s diversity of nature, community, economics, culture and spirituality, science and technology with the central ethical core. Indeed, the economic growth should be limited by ecosystem and social resilience intended as the ability of communities and natural environment to cope with external stresses and disturbances (Adger, 2000). Because of economic and social situation, alternative approaches in economic theories are an opportunity to rethink the bases of the materialistic approach in different aspects of our lifestyle, economic vision and education (Giacalone and Thomson, 2006). Materialism is driven by the desire for control, power and financial gain, but research data do not support that these values are connected with well-being enhancement. Based on researches, materialistic values are in fact associated with less personal happiness, satisfaction, interpersonal relationships, desire to help others and cooperate in the community. Moreover, it generates a more antisocial, unhealthy lifestyle (Kasser, 2002). If humans miss this message, it could cause deleterious outcomes in education and society that increase environmental degradation.

The aim of the article is to analyze the potential contribution of the strategically integrated smart specialization model of Biotechnical Centre Naklo to the local/regional community and small and medium enterprises (SMEs). The research and educational orientation are emphasized since we argue its important role in sustainability.

2. Integral green model of BC Naklo

Biotechnical Centre Naklo (2014, 2015) is a Slovenian public educational and research institution, ecologically orientated. In the vision of the Centre it is written that the Centre is a truly sustainable institution with a positive attitude towards nature, a concern for production and processing of healthy food and a great care for the natural environment in cooperation with the green economy sector.

The Centre property (organic farm) covers 4 hectares of build-up area and extra 22 hectares of ecological agricultural area. It is divided in 3 main units: Secondary school, Higher Vocational College, Enterprise Centre, Research Unit. The Centre already celebrated the hundredth anniversary; therefore it has a long tradition as an educational institute for nature protection and agriculture programs. The staff members are mainly teachers, lecturers and researchers. The Centre is the only institution in the mountain region of Slovenia that provides educational programs in the field of countryside and landscape management, nature protection and horticulture. Around 900 high school students and 300 vocational college students are included in educational programs every year. Students attend different clubs, contribute in various national and international projects and competitions and prepare several exhibitions. Biotechnical Centre’s Naklo primary goal is education and research for sustainability, biodiversity and nature protection with a great care for our socio-cultural capital. The Centre’s major contribution to raising the awareness of local population about the environmental situation and conditions is based on an active approach, natural resources protection, cultural and natural heritage protection actions and projects. The role of the Centre is enlightened to strengthen cooperation, coordinate and catalyse action of all institutions in the field of nature and environment protection of the region. To realize these aims, the Centre has good connection and collaboration with local authorities, municipality, enterprises and non-governmental organizations (NGOs) in the fields of environmental protection, nature conservation and sustainable development. The educational programs are focused on acquisition of practical knowledge with particular effort on students’ internship and practical work. These “practical educational collaborations” are integrated with research activities, technology transfer and R&D projects. All these experiences of good collaboration practices between educational institutes and local communities are very important; together with values and cultural background they are the core of the success of the Centre. Nevertheless, researches of BC Naklo explore new and new ways to give a more valuable contribution to strategies

for rural development and green economy through projects and new models of formal and non-formal learning programs. The aim of this is to obtain more relevant outcomes on the way of sustainable lifestyle.

New integral and social economy models for common well-being are supported by the Centre that is mainly oriented on implementation of theories through creation of new practical and virtual spaces for everybody who would like to join the Centre in its vision. In our opinion, a bridge between theory and practice could be possible inside CARE vision (Lessem et al., 2014) since the Centre covers activities of Catalysation, Activism, Research and Education (Figure 1). It would have an evident impact on rural development of the local/regional community since our ambition is to contribute to it in a synergic way to assure protection of socio-cultural and natural capital. The holistic approach is driven by the integration of all CARE activities inside diverse units of the Centre.

CARE vision is important since education couldn't be anymore ONLY education – BC's Naklo vision would like to integrate inside education also other aspects such as research and activism to catalyze and speed up the transitional process toward the strategy of integral green development.



Figure 1: CARE model of BC Naklo (modified from Lessem et al., 2014).

The integral green model (Figure 2) is supported by a central ethical core defined through the positive social and environmental impact of the Centre. Great care is given to good interpersonal relationships, correct administration and high certificated standards. Organic farming, low environmental impact of the estate, the use of removable energy sources and low waste production described the centre environmental engagement. The community of BC Naklo became larger and spread out of the national borders. The social responsibility of SMEs is supported by joint efforts in education, production and services offered to the community and environment.

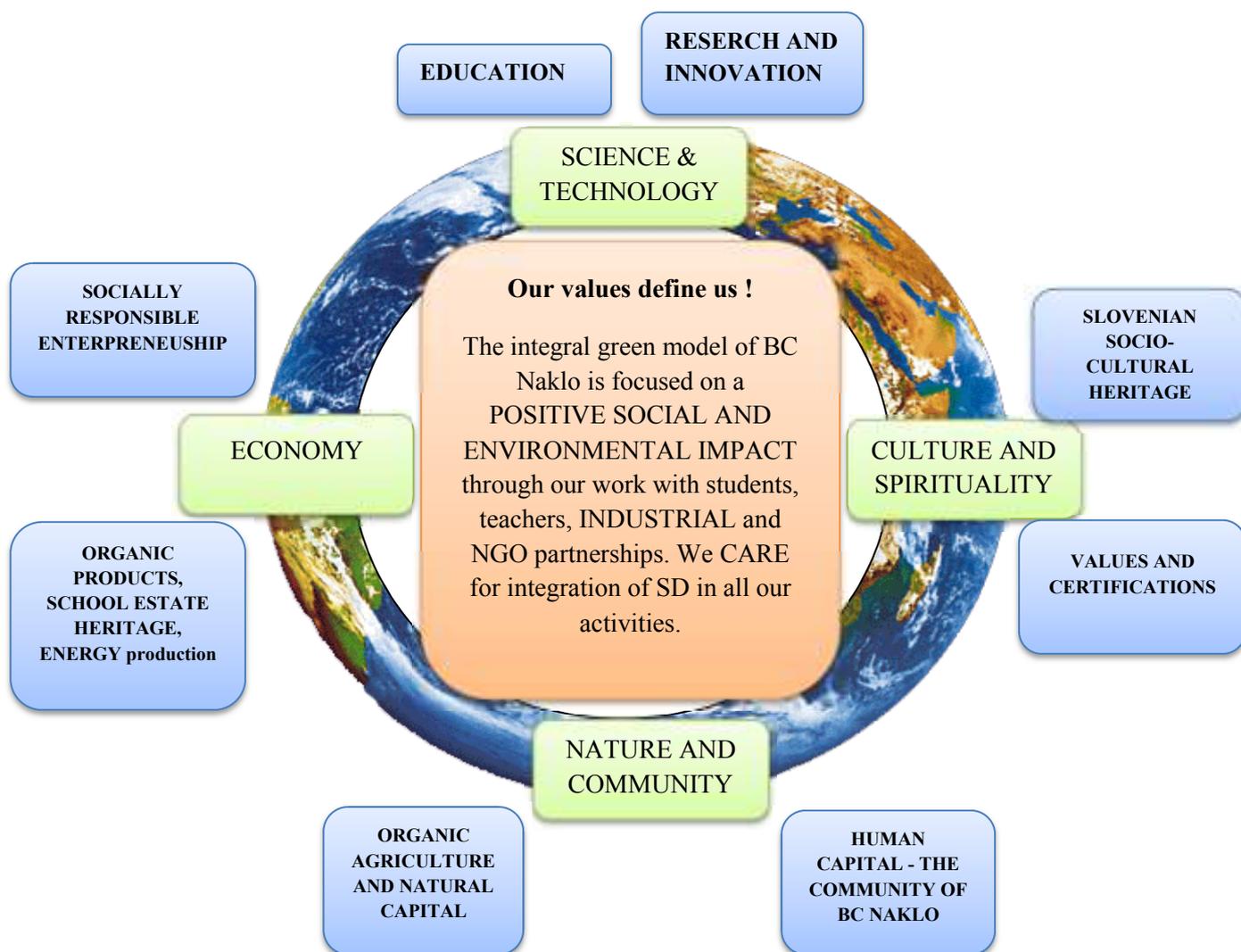


Figure 2: The integral green model of BC Naklo (modified from Piciga, 2012)

3. Sustainability in education and research

Higher education curricula should provide students with knowledge and competences to address the serious scientific, innovation and ethical issues of the 21st Century by equipping them with principles specific to the fields of health care, innovation and life sciences. Central concepts such as critical literacy, personal empowerment, mindfulness, human and nature well-being should be promoted by CARE integration strategy. The capacity for ethical reasoning present in human nature is the core of the future survival on this planet. A positive, supportive and productive learning environment including elements of positive psychology and empathetic concern is enlightened in our alternative approach in education (Vižintin and Logonder, 2014). The innovative dimension is focused on creative learning, both cognitively and emotionally, connecting science, ethics and art. Emotional literacy and self-

awareness ethical dimension are turning our attention to our inner world of thoughts and feelings; they allow us to manage ourselves well, but also manage the environment (natural and social).

Educational for sustainable development (ESD) could be approached with various methodology or educational models (Rusinko, 2010). BC Naklo include ESD in secondary and tertiary education through creation of new curricula and promotion of cross-curricular approaches between natural sciences, social sciences, economy or related subjects. Contemporary use of various and interdisciplinary approaches to ESD encourages students to better understand the complexities of the issues threatening sustainability. A significant impact on the community could be perceived, since ESD is performed using formal and informal educational programs and activities (training for adults, learning by doing projects, training organized by collaborations of NGOs).

The integral educational approach in higher vocational college of BC Naklo is based in particular on interdisciplinary oriented curricula, with many ecological and environmental contents in all educational programs. Indeed, the practical part of the curricula is dedicated with more emphasis on social and economic issues using active approaches as discussion, excursions, internship and project team work. Achieved cognitive and emotional learning outcomes have a more significant impact on values, attitudes and behaviours, as supported by researches (Shephard, 2008). Furthermore, the integration of positive psychology elements inside sustainability by cross-curricular collaborations (Vižintin and Logonder, 2014) is a new approach that we propose. Indeed, some aspects developed by our research and international collaborations are often included in the curricula, for example aspects of community creations, social inclusion and alternative economics models, and we believe that it is a benefit. The aim of this kind of innovative approach in ESD is to create a flow of knowledge, new skills and practical competences in the field of sustainable development, ecological settlements, sustainable architecture and self-maintained agricultural systems modelled from natural ecosystems. All aspects need to be included in the educational process as creative elements, in particular during practical education, project work of students and cooperation with NGO. Educators and experts from industry, NGO, research institutions should work in a synergy using tools like internship to better connect aspects of research, education and technology for developing multicultural, sustainable, open communities that connect nature, culture and intellectual life.

Basically, it is an integral approach since lecturers are at the same time also researchers, project managers and professionals from industry with a large experience in technology and methodology transfer. If we qualify educators from industry as being open minded to new green technology innovations, lifestyle and ecological oriented community cooperation, we believe that they could passionately lead students' learning process and transition thinking. A synergic interaction can contribute to educational paradigm, which will satisfy the needs of the labour market, so that students shall be provided with knowledge and courage to do business in the highly competitive international environment.

Students' internship plays a vital role in the higher vocational education, connecting educational institutes and entrepreneurs. Relevant cases of successful collaboration and mutual transfer of know-how between Higher Vocational College of Biotechnical Centre Naklo and local enterprises were already presented (Vižintin and Maček Jerala, 2014a, 2014b, 2014c; Maček Jerala and Vižintin 2014). We noticed that the integration of all these alternative aspects positively influenced the quality of internship program and raised students' employability.

The expected direct impacts of our approach in ESD enhance the level of knowledge and affective outcomes in students, but also entire community. The development of new formal and informal training module in the field of ESD is an essential tool for achieving rural sustainable development, because it reduces the population flow to the cities and offers more opportunities to engage people in self-employment projects in the countryside. ESD seeks to engage people in negotiating a sustainable future, making decisions and acting on them. We support farmers to develop more environmentally friendly traditional agricultural practices, use less agro-chemicals, and integrate their activities with tourism in countryside. The figure of "farmers as sentinels of the environment" was developed to integrate landscape management students' learning outcomes. It is expected that they would have several tools to cope with numerous environmental problems.

Local SMEs are connected with BC Naklo by R&D pilot projects that we have carried out to solve issues in industry and contribute to social responsibility of SMEs. Social responsibility of SMEs has significant economic, environmental and social impacts on the local and regional level. Based on the survey results (Vižintin, 2015), we estimated that many Slovenian companies are familiar with the concepts of social responsibility and green economy,

and that they are an important part of their business vision. Between many advantages for SMEs, a larger customer trust and reputation was observed. A lot of effort is actually dedicated by managers to ethical relations within enterprises and environmental issues (in particular recycling). The role of educators in promoting socially responsible business, particularly through project work and internship of future professionals is evident by good practices descriptions.

We strongly believe that creating learning and working environments that embrace diversity and enhance equity and intercultural understanding will enrich us and give more opportunity to students to be innovative and inclusive during their intellectual and social life. We wonder about aspects of our life and society that could be improved by experiences and models abroad and we try to connect with them. We focused on creating an equitable and inclusive learning environment which would permit educator and student to be addressed and engaged in the issues of diversity, equity, and intercultural understanding inside classroom and beyond. One of our most relevant collaborations started in 2014 with ecological community Sólheimar (2015), which was in particular important as a model of reverse integration of the entire society of non-disabled people regarding disabled people inside it. The focus of this approach is on the statement that the non-disabled people should fit to disabled and not inversely. Sólheimar has a long tradition as established in 1930 by Sesselja Hreindís Sigmundsdóttir. She strongly sustained the social inclusion, organic farming and a balanced alimentation. It is part of a Waldorf (Steiner) education's humanistic approach and focuses on the growth and development of human and nature. Although Sólheimar changed during the years, the vision remains basically unchanged. They support the aim of strengthening the qualities of each individual for everyone to manage his or her own story. It is considered an environmentally friendly community, since beside social development they try also to minimize the impact of the community on the environment.

Researchers in BC Naklo started a strong collaboration with professionals/staff from Sólheimar that promotes enrichment of both sides. We propose to Icelandic colleagues some aspects of Slovenian socio-cultural heritage and new attempts of Slovenian ecological communities that could combine with their local experiences of community creation and ecological thinking. Synergy between us burns up as an enthusiastic new vision of connection and energy flow. We strongly believe that Slovenian cultural and natural heritage must be connected to the international environment, since new bottom up initiatives as sustainable communities and cooperatives could be reinforced by this mutual cross-fertilization.

We would like to remark that the traditional education in many cases doesn't provide the best education for everyone because it overemphasizes rationality and fosters the belief that academic excellence is superior to other kinds of abilities. Numerous examples are offered by students who contribute these differing strengths and we need to examine how schools can best serve them. It is important to create a learning environment that supports students, community, environment and even ideas.

4 Conclusions

The green model of BC Naklo incorporates many innovative aspects inside its vision. Nevertheless, we realized that if we don't act in a synergy with community, SMEs, NGO, local authorities, it is quite difficult to challenge sustainability issues. In fact sustainability needs specialization and integration, negotiation and consensus that we tried to include in this innovative approach. Indeed, sustainability is included in all activities of BC Naklo and CARE approach is a frame inside which we operate. The green integral model described in the article is an attempt to explain the most relevant aspects of organization, vision and strategy of this unique institution and to inspire its further development.

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