

Promoting Student Innovation-driven Thinking and Creative Problem Solving For Sustainability and Corporate Social Responsibility

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Abstract

Higher education is uniquely positioned to play a leading role in supporting sustainable development, especially by promoting student innovation-driven thinking towards solving social and environmental challenges and creative problem solving. This article contributes to the ongoing academic discussion on how to prepare business students to adapt their business strategies to sustainable development priorities in innovative and creative ways. It is argued that by promoting student innovation-inspired thinking and creative problem solving capabilities, students develop a better understanding and competence on how to align business strategies with macro-level social and environmental needs and, in addition, find innovative and creative solutions and opportunities to develop more progressive and sustainable business models. Therefore, it is further argued that the curriculum related to sustainable development and corporate social responsibility should highlight the innovation-driven approach towards solving sustainable development priorities and include creative problem solving capability building. The regular update of curriculum with the latest case studies on social and environmental innovations and emerging new creative models of sustainable entrepreneurship has a potential to develop student skills and motivation to seek more innovative and creative solutions to address business, social and environmental issues.

Keywords: sustainability, CSR, innovation, creative problem solving, social and environmental innovations, education.

Introduction

Recent research suggests that CSR is an evolving concept. Its definition is constantly being developed and enriched, and it currently undergoes the transition towards conceptualizing CSR as sustainable development at organizational level. Currently CSR has emerged as a central business agenda, developing into a business megatrend. In turn, businesses are looking for innovative solutions to meet the societal challenges and needs facing us today and view CSR and sustainability as an opportunity ground for innovation potential.

The active development of CSR and sustainability trends are being influenced by many factors, which have interrelated connections in their discourse. First of all, businesses feel their own pressure to create credible sustainability policies and practices, especially the ones operating on the international scale. In turn,

stakeholders are demanding transparent sustainability reporting as a proof of the results. Each company is part of an industry, with the competitor pressures and alliances. Matching industry standards for sustainability reporting can be of great importance, especially for those who operate in the same supply chain and expect to have the same environmental or social standards as their partners. There is a growing trend for businesses to request sustainability information from their suppliers as part of their supply chain and purchasing evaluation criteria. Furthermore, the increasing consumer environmental literacy significantly influence their purchasing choices and brand loyalty; therefore, businesses are being under pressure to prove their transparency and CSR practices towards their consumers. In addition, the development of CSR is also highly dependent on the performance of NGO and media in the local area, since their pro-activism plays a significant role in CSR understanding and societal expectations. In turn, many advocacy organizations can damage business brand value or reputation if their concerns are not taken into consideration. In parallel to the before mentioned CSR influencing factors, investors also scan businesses for investment and want to know that their companies have sustainable and responsible business approaches. Subsequently, governments also practice their pressure on businesses to measure the impact of their operations on the environment and society at large. Currently legal regulations becoming more innovative and covers a widening range of activities with “soft law” finding new ways of enforcing certain practices.

In terms of this debate, researchers recently considered the theoretical and practical importance of innovation-driven approach towards CSR and sustainability. More recently, emerging new businesses have positioned CSR as a core focus for their innovation, taking social and environmental concerns to be included strategically in the core business model. This approach allows businesses to move beyond defensive and reactive CSR into a more rewarding, creative innovation –driven synthesis between social, environmental and commercial priorities. Furthermore, Fussler (1996) states that innovative businesses can succeed in driving ecological innovation profitably, not by following current customer demand but by creating future market space.

Academic research points out that promoting innovation and creative problem solving for sustainable development will also require changes in education, especially with focus on business education. Literature review suggests that education is critical for promoting sustainable development by improving the capacity to address environment and development issues. Higher education institutions are uniquely positioned for this transition since they legitimize new fields, their potential and career. Furthermore, they have the potential to promote innovative and creative outlook and approaches to meet social and environmental needs and forward the ideas of sustainable development and sustainable entrepreneurship so that the students would know how to create new and creative business opportunities, which would be not only economically viable, but would contribute towards environmental and

social goals. Therefore, higher education institutions are encouraged to play a leading role in supporting sustainable development, especially by promoting student innovation-driven thinking and creative problem solving towards solving social and environmental challenges.

This article aims to extend the argument that CSR and sustainability-based curriculum should be targeted towards innovation-driven and creative problem solving approaches. The purpose of this article is to contribute to the ongoing academic discussion on how to prepare entrepreneurship-oriented and business students to adapt their business strategies to sustainable development priorities. It is argued that by promoting student innovation-inspired thinking and creative problem solving, students develop a better understanding and competence on how to align their business strategies with macro-level social and environmental needs and, in addition, find innovative solutions and opportunities to develop more progressive and sustainable business models. Therefore, the author argues that the curriculum related to sustainable development and corporate social responsibility should highlight the innovation-driven and creative problem solving approach towards solving sustainable development priorities. In parallel, this article seeks to contribute theoretically to the research stream on the linkages between innovative thinking, creative problem solving and CSR development. By presenting a theoretical systemic analysis and synthesis of scientific literature focusing on interconnection between innovation, creative problem solving and sustainability, this article follows an exploratory approach to assess the concepts under analysis.

Assessing the complexity of CSR and sustainability education

In the discussion of CSR education, first of all, it is important to address the issue of subject complexity and interdisciplinary / transdisciplinary dynamics. Students are required to have strong knowledge base in order to understand the complex issues and linkages of sustainability and CSR by obtaining knowledge about the environment, the economy and the society. In turn, this knowledge should extend towards understanding of local, national, and global issue interdependence by being able to assess the cross-national, cross-sectoral, cross-disciplinary dynamics of sustainable development. The source of this knowledge can be obtained within existing curriculum, including science, social studies and other disciplines. However, education in this area seeks to establish such skills and competencies that would help to understand the complex relationships between different issues underlying sustainable development. The education of CSR and sustainable development is highly interdisciplinary and requires to develop such student capabilities that would allow to assess and appreciate many complex interdependencies in problem-solving and seeking solutions. Furthermore, studies of CSR and sustainability includes the analysis and comprehension of many complex concepts underlying sustainable developing like the following subjects:

- The limited carrying capacity of the Earth and the capacity of ecosystems to support continued growth in population numbers, resource consumption, and waste production;
- Interdependence of our society and natural systems;
- The value of biological, social and cultural diversity in maintaining the wellbeing of our planet and our society;
- Ecological footprint as the area of land and water needed to support the total flow of energy and materials consumed by a community or population;
- Biodiversity as the diverse and interdependent composition of life forms in an ecosystem that is necessary for sustaining flows of energy and materials indefinite;
- Intergenerational equity as a consideration of the need to live off net resource production rather than environmental capital in order to enable future generations access a world that is at least as diverse and productive as the one each generation inherits;
- Human rights as the fundamental freedoms of conscience and religion, expression, peaceful assembly and association which ensure access to democratic participation and the meeting of basic human needs;
- The essential role of equity and justice in a sustainable society;
- The presence of uncertainty and the need for precaution in decision-making that will affect society, and subsequently, affect the natural systems.

Since CSR is a basis of sustainable development at organizational level, the multi-level integration of CSR issues calls for the understanding of sustainable development issues. Previously, CSR practices were of fragmented nature and businesses tended to engage in random causes of philanthropy or some other fragmented pro-social or pro-environmental practices. However, today CSR is viewed through sustainable development lens and this approach calls for integrated and well-balanced measures to establish systematic CSR practices at organizational level. Therefore, it is highly advised to parallel CSR studies with sustainable development studies in order to better understand their inter-relational dynamics at micro and macro levels.

Furthermore, sustainability and CSR agenda is not static, but it is constantly evolving and expanding. CSR education is highly based on benchmarking and best practices of CSR proactive businesses; therefore the curriculum in question should be updated on a regular basis for the students to have the most updated knowledge on the issue. Furthermore, a growing number of businesses offer new innovative and creative solutions to tackle social and environmental challenges, so in order to provide students with the cutting-edge knowledge on CSR and sustainability, educators should update study curriculum in terms of innovative approaches and creative solutions. The preparation of the future generation of professionals is a complex task; however, our future depends on

their understanding and conceptualization of CSR and sustainability and their competence to forward sustainable business agenda.

One of the most complex tasks in CSR and sustainability education is the application of systems thinking. Senge et al. (2008) defines systems thinking as seeing the whole picture. Clark (2001) suggests that systems thinking reinforces the intuitive insight that no single, discrete entity can be fully understood apart from the complex whole of which it is an integral part. Systems thinking is contextual thinking because it recognizes that without a context, meaning is incomplete. Clarke outlines several characteristics of systems thinking; thus, it allows us to consider several implications on how those characteristics affect CSR and sustainability education:

- Systems thinking incorporates a “both / and” logic rather than an “either / or” logic. This approach encourages to view CSR and sustainability as integrative, holistic processes.
- Systems thinking assumes a living universe and encourages to view phenomenon not as a machine but as an organism.
- Systems thinking is ecological thinking and calls for the functional understanding of how systems work.
- Systems thinking recognizes that we live in a participatory universe, where we are creators of knowledge and, in turn, gained knowledge always reflects the subjective perspectives of those who created it.
- Systems thinking is both global and, at the same time, local.
- Systems thinking promotes the long-range view by favoring decisions in the context of future generations.

Following this perspective, it is important to note that both analytical thinking and systems thinking are complementary capacities to promote the understanding of multi-dimensional sustainability complexity. Recent research suggests that there is a growing importance to develop systems thinking in education since system change is possible only upon human understanding of system thinking approaches (Senge et al. 2008). In this context the researchers emphasize that system change is possible upon evaluating the following points:

- Interdependence. In a world of growing interdependence, it's more important than ever to learn how to expand the boundaries and see the larger systems;
- Cross-boundary collaboration.
- Purpose-driven acting: Going beyond reactive problem solving and envisioning what future one would like to create.

CSR and sustainability education encourages to use integrative and creative approaches to learning, develop and apply critical thinking skills to complex local, regional and global issues, think creatively and apply creative problem solving, question established ways of doing things, and be self-directed at investigating and proposing creative solutions to sustainability problems. In

turn, integration of sustainability within higher education implies many transitional shifts (Sterling, 2004):

- From transmissive learning towards learning through discovery;
- From teacher-centered approach towards learner-centered approach;
- From individual learning towards collaborative learning;
- From focus on accumulating knowledge and content orientation towards focus on self-regulative learning and ‘real issues’ orientation.

Preparing future business professionals and entrepreneurs for sustainable innovation-driven thinking

In order to prepare students for innovative sustainable thinking, students should be introduced with the theory of innovations and its dynamics within sustainable development context. However, it is important to note that innovations of sustainability have their own specificity and should be addressed by educators as a particular innovative direction, influenced by socially and environmentally beneficial principles of creation. To illustrate this thought and approach, this section places emphasis on the very understanding of sustainable innovation. A relatively well-developed body of research suggests that sustainable development drives innovations (Hockerts, 1999, 2003). Sustainability innovations, also called eco-innovations, eco-preneurship, eco-design, are proposed as a breakthrough discipline for innovation (Fussler, 1996) and as a source of creative destruction (Hart and Milstein, 1999). A number of researchers have developed approaches for linking sustainability to advancing management tools for furthering the creation of new markets through environmental innovation (Fussler, 1996; Cohen et al., 2008). The concept of corporate social innovation was first introduced by Kanter (1999) by arguing that businesses should use social issues as a learning laboratory for identifying unmet needs and for developing solutions that create new markets while also addressing passionate concerns in society. Following this perspective, a number of theories on sustainability and CSR emphasize the importance of transformative innovation. Transformative innovation is a set of activities that are associated with the development of an organization’s capacity to create mutual benefits that contribute to the well-being of both business and society. Business organizations engage in transformative innovation when they embrace social, environmental, ethical, or similar initiatives as an integral part of their strategic missions. The benefits of transformative innovations can produce deep change (Quinn, 1996) in organizational settings and society.

It is important to note that both social and eco-innovations are complex concepts which refer to the creation of novel goods, processes, systems, services, and procedures designed to satisfy human needs and provide a better quality of life for everyone. In turn, eco-innovation encompasses new or significantly improved solutions introduced at any stage of the product life-cycle with the aim of improving resource productivity or reducing environmental impact. Indeed, evidence suggests that the biggest resource efficiency can be

implemented in the upstream part of the supply chain that is in the production of basic (most notably during extraction of the raw material) or intermediate goods. In the downstream phases of the product life cycle (use of the product, consumer practices) resource efficiency gains are significantly lower. Therefore, it is of great importance to understand that eco-innovation has to be analyzed at three levels: micro (product, service, process, company); meso (sector, supply chain, region, product/service system) and macro (economy-wide). This multi-level approach towards sustainable innovations emphasizes their complexity of understanding and requires to develop substantial knowledge and competences to exploit their potential.

The complexity of sustainability education also stresses the importance for students to adopt life cycle thinking since it is essential to sustainable development. Life cycle thinking refers to going beyond the traditional focus on production and manufacturing processes and considers the environmental, social, and economic impacts of a product over its entire life cycle. The main objective of life cycle thinking is to reduce product's resource use and emissions to the environment as well as improve its socio-economic performance throughout its life cycle. Lifecycle thinking is also a highly opportunity-driven thinking mode, because this approach can help identify important business opportunities by reducing resource consumption and improving the performance of products. Life cycle thinking involves the following preferred action directions, which should be emphasized in order to develop student competencies for sustainable innovations:

- Rethinking the product and its functions.
- Reducing energy, material consumption and socio- economic impacts throughout a product's life cycle.
- Recycling or selecting materials that can be recycled.
- Reusing or designing the product for disassembly so parts can be reused.
- Replacing harmful substances with safer alternatives.
- Repairing and making the product easy to repair.

The above mentioned factors indicate that preparing business professionals and entrepreneurs for innovative sustainable thinking should encompass many different issues and aspects of innovation. In addition, the development of CSR curriculum for business students should place emphasis on the following content directions of business sustainability; thus, even further extending the content of sustainable development into operation-based business process analysis:

- Sustainable production referring to industrial processes that transform natural resources into products that society needs in ways that minimize the resources and energy used, the wastes produced and the effects of work practices and wastes on communities.
- Sustainable consumption as the use of services and related products in such a manner that satisfies basic human needs and brings a better

quality of life while minimizing the use of natural resources and toxic materials as well as emissions of waste and pollutants over the life cycle of the service or product.

- Eco-efficiency as the strategy for maximizing the productivity of material and energy inputs to a production process while reducing resource consumption and waste production and generating cost savings and competitive advantage.
- Lifecycle analysis as a management tool for identifying the net flows of resource and energy used in the production, consumption and disposal of a product or service in order to leverage eco-efficiency gains. In turn, life cycle management aims to minimize the environmental and socio-economic burdens associated with product throughout its entire life cycle and value chain.

Promoting innovative and sustainable entrepreneurship

Sustainable innovations are mostly linked with sustainable entrepreneurship; therefore, encouraging students for sustainable innovations affects the chances of their involvement in sustainable entrepreneurship. Entrepreneurship has been a key subject of business studies for many years and has strong ties with creative solutions. Entrepreneurship typically focuses on identifying new opportunities for creating value for customers or users and commercially developing those opportunities to establish a profitable business (Shane and Venkataraman 2000). Entrepreneurs are the catalysts who bring together money, people, ideas to establish value creating networks and combinations. The opportunities identified by entrepreneurs can be for new products or services, new markets, new production processes, new raw materials, or new ways of organizing existing technologies (Schumpeter, 1934). While Schumpeter recognized that entrepreneurs can be driven by non-economic motives such as a desire for creativity or power, the economic theories of entrepreneurship generally emphasize the role of profit as one of the major underlying goals of entrepreneurs and investors in developing a new venture opportunity.

The literature review suggests that the concept of entrepreneurship underlies many different phenomena (Lambing and Kuehl, 1997). Many authors concentrate on the process of a start-up company (Bennett, 1991), where entrepreneurs are viewed as actors opening a new company and entrepreneurship is the process of creating and establishing a new company. Another aspect of entrepreneurship is the striving for growth (Kyrö, 2001), where entrepreneurs are viewed as actors enlarging companies and expanding businesses. Sometimes entrepreneurship is characterized by the personal characteristics of a leader like leadership, team building and commitment (Pralhad, 2005; 2006). Joseph Schumpeter (1934) referred to entrepreneurial activities as creative destruction. It is important to note that often entrepreneurs are distinguished from traditional businesses by their capability to innovate and to create competitive advantage (Schumpeter, 1934; Wiklund,

1999). Indeed, entrepreneurship links innovations and inventions with market success.

A number of researchers have developed approaches for linking sustainability to entrepreneurship and forwarded the theory of sustainable entrepreneurship. Sustainable entrepreneurs differ from conventional entrepreneurs because this concept bridges between environmental and social progress and market success (Mair and Marti, 2006). In this perspective, entrepreneurs are actors changing existing consumption and production patterns. Literature review suggests that the relationship between entrepreneurship and sustainable development has been addressed by various streams of conceptual theories such as ecopreneurship, social entrepreneurship, and sustainable entrepreneurship. In terms of previous research, earlier authors addressing sustainability and entrepreneurship have dealt exclusively with environmentally orientated entrepreneurship, often referred to as 'ecopreneurship' (Blue, 1990; Bennett, 1991; Cohen, 2006). The societal ambition to achieve societal goals by means of entrepreneurship and business approaches has been approached under the term of social entrepreneurship (Prahalad and Hammond, 2002; Mair et al., 2005), therefore some authors have focused exclusively on social entrepreneurship (Brinckerhoff, 2000; Prahalad and Hammond, 2002; Mair et al., 2005; Ridley-Duff, 2008; Bull, 2008).

Recent research suggests that up to now significantly less attention has been devoted to sustainable or sustainability entrepreneurship as a concept integrating environmental and social aspects (Larson, 2000; Kyrö, 2001; Strothotte and Wüstenhagen, 2005; Cohen et al., 2006). Sustainable entrepreneurship is described as an innovative, market-oriented and personality driven form of creating economic and societal value by means of break-through innovations that are environmentally or socially beneficial. Sustainable entrepreneurs destroy existing conventional production methods, products, market structures and consumption patterns, and replace them with superior environmental and social products and services. Therefore, sustainable entrepreneurs create the market dynamics of environmental and societal progress. This approach takes a different perspective from the traditional focus of entrepreneurship by emphasizing additional goals of promoting sustainable living and environmental improvement. This type of entrepreneurship involves searching for opportunities for new products or services or new technologies or production processes that help to solve social or environmental challenges. As a distinction to many views of conventional entrepreneurship, sustainable entrepreneurship forwards the role of business to initiating societal change and changing market conditions, possibilities and regulations.

Promoting creative problem solving for sustainability and corporate social responsibility

The complexity of CSR and sustainability also requires much creativity in finding possible solutions. In this respect, creative problem solving is an integral part of

stimulating innovation-driven thinking. Creative problem solving refers to the process or procedure applied to discover original, creative ideas or reorganize existing ideas in new ways. Currently there are many models for step-by-step creative problem solving. Nevertheless, the domain of CSR and sustainability calls for a specific approach towards creative problem solving, since the knowledge and expertise of sustainability domain plays the key role in finding creative solutions. Csikszentmihalyi (1996) referred to this idea as the mastery of a domain of knowledge or skill. In CSR and sustainability context, the more knowledge and expertise you have, the more you are likely to generate successful and creative solutions and ideas.

Creative problem solving can be approached in a systematic way. One particular model, which can be successfully applied for CSR and sustainability context in this case, was developed by Osborn (1953) and updated with Parnes (1967). In this paper their model is introduced within the context of sustainability by emphasizing the possible implications of creative problem solving in the field:

- *Mess or objective finding.* Many sustainability-based problems are highly complex, intertwined and “a mess”; therefore, in order to solve a problem we must first identify it. Complex problems require deconstruction and active discussion of challenges, possibilities, concerns, and opportunities. In this respect, creative brainstorm on mess deconstruction and formulation of a clear objective finding plays a key role.
- *Fact finding.* The second stage of the creative problem solving is the fact finding. This is in particular important for sustainability discourse, since there are many interdisciplinary issues involved in decision-making. Gathering important information and facts may indicate different perspectives of the problem and provide implications for potential solutions.
- *Problem finding.* Mess finding and fact finding lead to more accurate problem finding, where a statement of the real problem is being defined. During this step the refinement of the problem plays a key role. Usually it is not easy to define and formulate problems in sustainability discourse, since many related issues are highly intertwined. In this respect, creative brainstorming and idea synthesis may offer some clearer problem definitions.
- *Idea finding.* In the idea-finding stage, brainstorming should incorporate as many ideas or potential solutions as possible. Creativity-driven techniques such as forced relationships can be adopted in order to support a divergent-convergent process.
- *Solution finding.* In this stage, evaluation and selection of potential and most promising solutions are the main goals. Creative brainstorm may focus on the criteria, which are necessary for evaluation of the ideas.

- *Acceptance finding.* In the acceptance finding phase, a focus is placed on overcoming barriers to implementation, since the solution will have to be integrated into the action plans and strategies.

All the above mentioned factors of the previous sections indicate that innovative sustainable thinking and creative problem solving require to develop substantial competence in order to tackle the complexity of sustainability field. In turn, the following competence guidelines are being proposed by the author in order to educate students to be the sustainable and creative power of upcoming generation that forwards innovative and creative sustainable solutions into our reality:

- To promote student understanding of CSR, sustainability and sustainable entrepreneurship as multi-dimensional and multi-level concepts involving innovative and creative thinking;
- To promote student creative problem solving skills that could potentially address sustainability-based issues;
- To promote student knowledge of the ecological and social problems facing local and global communities and recognize opportunities in this context;
- To promote student insight into sustainable development trends and knowledge on how to use them to their creative or entrepreneurial advantage;
- To promote student awareness on how local actions impact global situations and, in turn, how global challenges should be solved locally;
- To promote student understanding and competence on how to align business strategies with macro-level social and environmental priorities;
- To promote student personal responsibility by emphasizing that the starting point of change and behaviour is within personal motivation;
- To promote student self-directed continuous education in advancing sustainable business goals and the importance of life-long learning in order to be a frontrunner of innovative thinking and creative problem solving for sustainable development.

Conclusions

Sustainability and CSR requires incremental and continuous improvement. Innovative solutions underlying sustainable development are increasingly becoming more complex; thus, requiring different kind of skills and competencies. In order to become an innovation frontrunner, education and continuous development of competencies are of key importance. Following this perspective, business students are encouraged to develop a better understanding and competence on how to align business strategies with macro-level social and environmental needs and, in addition, find innovative and creative solutions and opportunities to develop more progressive and sustainable business models.

The first section of this article investigated the complexity of CSR and sustainability education, where the importance of content interdisciplinary approach and systems thinking were emphasized. The second section of this article addressed this complexity by assessing on how to prepare business professionals and entrepreneurs to exploit sustainable innovation potential and innovative thinking. This section emphasized the importance of understanding transformative innovations and lifecycle thinking in order to promote innovative thinking for sustainable development. The third section of this article focused on sustainable entrepreneurship as an opportunity for sustainable innovation. The fourth section of this article introduced the importance of creative problem solving and its techniques for finding solutions to sustainability issues.

Higher education is uniquely positioned to play a leading role in supporting sustainable development, especially by promoting student innovation-driven thinking and creative problem solving towards solving social and environmental challenges. The creativity and innovation perspective is a new approach towards education of CSR and sustainability; therefore, this approach is a highly rewarding sphere for those students, who view sustainability and CSR as their inspiration and as a starting point for innovation-driven business planning.

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