Business Education for Sustainable Development through an Experiential Quantitative Multi-Criterial Decision Making

Business education for sustainable development includes learning about distinct disciplines, cultures, interests, values and risks. There is a gap in learning techniques and processes that are appropriate for multidisciplinary curricula, like sustainability. Sustainable development requires the creation of new knowledge and the transfer of methods from different disciplines to enable a holistic and integrative perspective that include the development of personal and team skills.

This paper discusses the effectiveness of a Learning Tool for Sustainable Decision Making (LTSDM) based on theoretical foundations of team Experiential Learning Theory (ELT) and Multi-Criteria Decision Aids (MCDA). This approach applies quantitative multi-criteria techniques with qualitative experiential learning process in a business context faced with a complex decision with significant sustainable development consequences.

ELT provides a framework for understanding and managing how teams learn from experience and stress the importance of a team learning experience that requires: 1) creation of new knowledge from a given reality or context (concrete experience); 2) engagement in reflection and sharing of experiences and knowledge (reflective observation); 3) critical thinking (abstract conceptualization), and 4) decision-making (active experimentation).

The stages of our LTSDM are structured according to Kolb's (1985) experiential learning cycle. The multi-criteria modelling element of the case is introduced in stage 3 (abstract conceptualization) to help structuring the data and provides a heuristic pathway towards the decision.

An illustrative trial was carried out with undergraduate students in Accounting of a Brazilian State University. We developed a fictitious story about the commercialization of a fruit pulp by three main groups of stakeholders to simulate the complexity of sustainable decision making, which required students to role-play different stakeholders associated with this decision.

In this case, we defined: a) three alternatives for negotiation from the combination of forest management techniques and application of different levels of technology; b) twelve

criteria to measure the economic, financial, social and environmental impacts generated by each alternative; c) the measurement against each of the criteria for the three alternatives.

Students, role-playing different stakeholders, were required to determine their relative preferences for each criteria. These preferences were then input into the MCDA, which calculated indices and a profile for each stakeholder group in relation to an 'ideal' alternative. The generated indices and profiles made visible different preferences, trade-offs and sacrifices of each groups, providing the basis for discussion, construction of collective knowledge and multi-perspective evaluation of sustainable solutions.

The results demonstrated that LTSDM can broaden the competences of the students, especially to enabling them to deal with more comprehensive information and the consideration of the relationship of social, environmental, economic and financial criteria. The simulated decision-making highlighted the importance of the trade-offs between alternatives, challenged the students as to the diversity of knowledge required and the need to understand the interests and motivations of other stakeholders. In addition, the LTSDM underlined the necessary personal and teams skills associated with complex decision-making processes. We argue that LTSDM can offer a practical and complementary contribution to business teaching for sustainable development in different learning environments, such as seminars, workshops, interdisciplinary learning contexts at undergraduate and postgraduate levels.