

EDUHEM 2018
VIII International conference on intercultural education and
International conference on transcultural health: THE
VALUE OF EDUCATION AND HEALTH FOR A GLOBAL,
TRANSCULTURAL WORLD

EVALUATING SOCIAL ENTREPRENEURSHIP AND
SUSTAINABILITY IN UNIVERSITY SUBJECTS

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Abstract

Universities and a multitude of scientific and academic entities have become aware of the need to promote entrepreneurship in higher education (UNESCO, 2009, Guerrero, et al., 2016). The same is happening with the need to introduce and develop sustainability in university teaching (CRUE, 2011, among others). Sustainability implies working key environmental issues in the university curriculum in a cross-cutting way but also others that are substantially relevant, such as health promotion, poverty reduction, human rights, and ethical behavior, among others. These two concepts – entrepreneurship and sustainability – converge in social entrepreneurship, which is key to another of the concepts that articulate this work: environmental health. This paper lays out the process of construction and validation of an instrument aimed at the assessment of social entrepreneurship, sustainability, and health promotion. The validation of the instrument was carried out in several phases with the participation of 12 experts in the field. A first version of the instrument was tested in 31 educators from eight Spanish universities. A pilot study applied to university students ($n_2 = 237$) was carried out with the second version of the instrument in order to assess its reliability and structural validity. The results show the degree of inclusion and subjects' improvement in social entrepreneurship, sustainability and health promotion concepts.

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Keywords: Entrepreneurship, environmental health, higher education, social economy, sustainability.



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1. Introduction

A series of international organizations such as UNESCO (2009) are calling on Higher Education institutions to assume an entrepreneurial culture in order to respond and anticipate social needs. Furthermore, the Report on the Entrepreneur Profile of University Students (Guerrero et al., 2016) highlights the relevant role that the University has in the configuration of “entrepreneurial ecosystems”. This relevant role does not only mean contributing as a transforming agent, but also contributing to the creation of favorable environments for the generation of human capital, attracting talent, and the generation of knowledge that can be transferred to society through initiatives with a high social and economic impact. From this perspective, universities should invest in innovation in all areas. Innovation and interdisciplinary training are strengthened by an increasingly strong agreement on the need to generate new business and business models aimed at solving the social and environmental sustainability problems of our time. The new university model promoted by the European Convergence Process attempts to respond to the complex and heterogeneous economic and social context of our current society. The initiatives and proposals of social entrepreneurship that emanate from universities’ objectives and commitments are aimed at establishing new, broader and plural business formulas that facilitate sustainable human development (Seguí-Mas, Tormo-Carbó, Sarrión-Viñes, & Julià Igual, 2014).

Social entrepreneurship data in Spain further support this entrepreneurial trend as a job opportunity for young people since a large number of them – 37% – are between 25 and 34 years old. In addition to this, a striking fact pointed out by the authors of the report is the high percentage (compared to that of the other industrialized countries) of social entrepreneurs with middle or vocational training education level. Surprisingly, the percentage of social entrepreneurs with higher education level is only 7.1%. Consequently, one of the great challenges of Higher Education for the 21st century is to train students in the development of competencies for social entrepreneurship and sustainability that allow them to prevent and solve socio-environmental problems and to carry out actions based on sustainable criteria in their future professional area of action.

2. Problem Statement

Health and sustainable development are closely linked concepts. Sustainability implies working on key environmental issues in the university curriculum in a cross-cutting way (Solís, Poza, & Estrada, 2016), but also other substantially relevant issues such as ethical behavior, poverty reduction, health promotion, human rights, peace, responsible production and consumption, etc. (Azcárate, Navarrete, & García, 2012). For Martínez Abreu, Iglesias, Pérez Martínez, Curbeira, & Sánchez Barrera (2014), “environmental protection and the reduction of harmful effects of the environment on health have become inseparable requirements of the efforts to build an effective and sustained process of economic and social development” (p. 406). The association of health and sustainable development together with socio-economic proposals promoting entrepreneurship are key to societal improvement. As pointed out by Becerra and Mújica (2016), “health equity is the moral and political support of any proposal for sustainable development; development sustainability itself will depend on the degree of social equity achieved” (p. 1). Monteiro et al. (2015) present four case studies (Brazil, Colombia, Chile and Cuba) in which diverse social determinants of health

and universal coverage influence the sustainable development of countries. Fundamentally, these authors found that certain intersectoral actions (negotiation and distribution of power, resources, and capacities), and social participation in health promotion programs favored sustainable development. When it comes to promoting a more social economy, professionals must develop a series of key transversal competencies.

In this line, the Conference of Rectors of Spanish Universities (CRUE, 2011), stated that the Higher Education trained professionals should be capable of:

- Understanding how their professional activity locally and globally interacts with society and the environment to thus identify possible challenges, risks and impacts.
- Understanding the contribution of their work in different cultural, social and political contexts, and how the latter affect this work and the socio-environmental quality of their environment.
- Working in multidisciplinary and transdisciplinary teams to solve the demands imposed by socio-environmental problems derived from unsustainable lifestyles by including proposals for professional alternatives that contribute to sustainable development.
- Applying a holistic and systemic approach to the resolution of socio-environmental problems and have the ability to go beyond the tradition of breaking down reality into disconnected parts.
- Actively participating in the discussion, definition, design, implementation and evaluation of policies and actions both in the public and private spheres to help redirect society towards a more sustainable development.
- Applying professional knowledge in accordance with deontological principles and universal ethical values that protect human rights.

Consequently, one of the great challenges of Higher Education for the 21st century is to educate students in the development of competencies for sustainability which allow them to prevent and solve socio-environmental problems, and to carry out actions based on sustainable criteria in their future professional area of action. Taking into account possible ways to make the development of these capacities a reality and the fact that one of the main purposes of universities is the training of professionals, it seems appropriate to emphasize that teachers are a key element in the implementation of this process.

3. Research Questions

This research was carried out by university teachers committed to change and believing in the need to research their teaching methods in relation to the inclusion of sustainability in the curriculum (Tójar et al., 2015). The project focused on the teaching practice carried out in the classrooms of several Spanish universities and on its relation to the characteristics associated with curriculum sustainability. The main questions that guided this work can be formulated in the following terms:

- What are the teaching practices applied by university teachers like and how are the criteria associated with curriculum sustainability and environmental health reflected in them?
- What margins of improvement exist to promote curricula consistent with the principles of sustainability and the proposals of educational change of the European Area?
- What strategies, processes and resources are necessary to promote the integration and development of competencies for sustainability in each of the subjects involved in the project?
- How do students perceive the work their teachers do in relation to curriculum sustainability?

4. Purpose of the Study

The first phase of the research took into account the concepts of curricular sustainability and environmental health, leaving social entrepreneurship for a second phase. Bearing in mind that the research questions cover a broad field of research and considering that this project is an initial approach to the field of curriculum sustainability, the objectives of this work were:

- To carry out a diagnosis of those teaching practices related to sustainability criteria in different subjects and official university degrees.
- To analyze margins of improvement towards sustainability in each of the subjects.
- To propose integration initiatives and development of cross-cutting contents from a sustainability perspective.
- To discover students' perception on sustainable development in each of the subjects.
- To assess the effectiveness of applying the improvements on the teaching of the subjects that participated in the project.

5. Research Methods

A collaborative project methodology was designed for the development of the proposed objectives. The group of educators directly involved ($n_1 = 31$) was committed to promoting collaborative teamwork to foster coordination between the subjects and cooperative learning in the students involved. The usual teaching practices and the elements that promoted the integration and development of sustainability criteria in each of the subjects involved in the project were analyzed and evaluated in the coordination meetings. Students of some of the subjects were selected to attend these meetings.

Data collection tools to obtain information on the development and impact of the tasks and activities designed were created collaboratively: A record for teachers and a questionnaire which was validated and applied to an incidental sample of students ($n_2 = 237$). Improvement proposals and collaborative initiatives were prioritized to favour coordination between subjects of the same degree course, and similar or different areas of knowledge. Another relevant characteristic of these tasks was the promotion of training consistent with the criteria of sustainability for the development of professional activity based on respect for and commitment to the improvement of human well-being and social equity (social entrepreneurship). This aspect was suitably evaluated following the main criteria of competence development obtained. The testing and assessment of the activities and tasks as well as the results of the project were also evaluated by the work team.

6. Findings

A summary of the results obtained with the teaching staff is presented in the first place, followed by a summary of the results of the application of the questionnaire to students.

6.1. Results obtained by educators

One of the most tangible results of the project was the design, development, validation and application of the Record of Assessment of Curriculum Sustainability in the University (RESCU, Spanish

acronym). This instrument was validated and applied to 27 subjects belonging to eight different degree courses from seven universities (Cádiz, Córdoba, Granada, Huelva, Málaga, Pablo de Olavide and Sevilla).

The following tables show the most studied curricular sustainability indicators in the subjects involved in the project (Table 1), the least studied (Table 2), and the sustainability indicators on which more intervention proposals were made in the following academic year (Table 3). The improvements introduced during the second year on each indicator have been indicated in the tables with one or two "*", depending on the intensity: one "*" when they were improved by 10 teachers or more; and two "*" when they were by at least 14 educators.

Table 01. Sustainability indicators most worked in degree subjects

Sustainability indicators	Score (scale 0 to 4)
1.7. My subject contributes to students' professional qualification	4
1.8. My subject contributes to students' comprehensive education	4
1.11. I use teaching and learning techniques that promote the participation of my students	4
1.12. My evaluation criteria are transparent	4*
1.13. I discuss and agree on the evaluation criteria with my students	4
1.14. I use participatory techniques to evaluate learning	4
2.7. This subject is committed to collecting citizens' perception, demands and proposals and to promoting their voices in their community development	4
2.8. This subject is committed to a comprehensive approach to knowledge, procedures, attitudes and teaching values	4
2.9. This subject is committed to promoting work in interdisciplinary and / or transdisciplinary teams	4
2.10. This subject is committed to stimulating creativity and critical thinking	4
2.11. This subject is committed to promoting communication and the exchange of opinions	4
2.12. This subject is committed to encouraging reflection and self-learning	4
2.13. This subject aims at training participative and pro-active people who are capable of making responsible decisions	4
3.3. My subject deals with matters related to natural and / or respectful upbringing	4
3.12. My subject deals with topics related to democratic forms of coexistence	4
3.13. My subject includes the discussion of issues related to citizen participation	4
4.1. My subject takes into account the following principles: Ethics	4
4.2. My subject takes into account the following principles: Wholeness	4
4.3. My subject takes into account the following principles: Complexity	4
4.4. My subject takes into account the following principles: Glocalization	4
4.5. My subject takes into account the following principles: Transversality	4
5.2. Sustainable use of resources and prevention of negative impacts on the natural and social environment	4
5.3. Participation in community processes promoting sustainability	4

Table 1 shows the sustainability indicators most worked in class before the start of the project, evaluated based on the first application of the RESCU. Being already the most worked indicators, educators did not particularly focus on them over the second year of the project. Only 1.12 (Evaluation criteria are transparent), marked "*" in the table, had a margin of improvement and was improved (and was seen as

such by as many as 11 participants). It is interesting to see how an indicator related to evaluation transparency that is already worked with certain frequency also improved in application over the second year.

Table 02. Sustainability indicators least worked in degree subjects

Sustainability indicators	Scores
1.4. The competences worked in my subject respond to current social needs	2*
1.5. My students learn to make decisions and perform actions based on sustainable criteria	2*
1.16. Work and time organization in the classroom is agreed with my students	2**
1.17. Research activities are carried out on different contexts, realities and socio-environmental problems	2**
3.5. My subject deals with issues related to poverty reduction	2
3.7. My subject deals with issues related to <i>health promotion</i>	2*
3.15. My subject deals with issues related to natural and / or respectful upbringing	1*
5.2. Sustainable use of resources and prevention of negative impacts on the natural and social environment	2
5.3. Participation in community processes promoting sustainability	2

Most of the least worked curricular sustainability indicators (Table 2) according to the first application of RESCU have received special attention over the second year of the project ("*" marked). The item related to *health promotion* (3.7) is also included here. Only 3.5, 5.2 and 5.3 were improved by fewer than 10 participants over the second year (7, 8 and 6, respectively). Within the most worked indicators over the second year of the project with applied improvements, two of them stand out: 1.17 (*Research activities are carried out on different contexts, realities and socio-environmental problems*), with an improvement of 19, and 1.16 (*Work and time organization in the classroom is agreed with my students*) with an improvement of 14.

Table 03. Sustainability indicators on which more improvement proposals have been made

Sustainability indicators	Nº de propuestas de mejora
3.1. Issues related to environmental quality are dealt with in my class	5*
3.4. My subject deals with topics related to the protection of the natural environment	6
3.5. My subject deals with issues related to poverty reduction	4
3.7. My subject deals with issues related to <i>health promotion</i>	5*
3.15. My subject deals with subjects related to natural and / or respectful upbringing	4*
4.6. The following principles are taken into account in my subject: university social responsibility	6
5.2. Sustainable use of resources and prevention of negative impacts on the natural and social environment	4

All the sustainability indicators included in Table 3 – on which improvement proposals were made during the first year – were improved in class over the second year. Those that less improved are 3.4, 3.5, 4.6 and 5.2. Despite this, these indicators show improvements ranging between 6 and 8. The greatest

improvements were made in 3.1 (*Issues related to environmental quality are dealt with in my class*) with 13 improvements, 3.7 (*My subject deals with issues related to health promotion*) with 11, 3.15 (*My subject deals with topics related to natural and / or respectful upbringing*) with 10, and 5.4 (*Application of ethical principles related to the values of sustainability in personal and professional behavior*) with 10 improvements.

6.2. Results of the application of the questionnaire to students

The questionnaire constructed for students (40 items on a Likert scale from 1 to 4) was validated by 12 judges expert in research methodology and sustainability. In addition to this, after the pilot application ($n_2 = 237$) the Cronbach's alpha coefficient was calculated to evaluate the internal consistency (reliability), and a factor analysis of the main components was carried out. The coefficient value was 0.74 (acceptable). Factor analysis (KMO measure = 0.713, Bartlett's sphericity test with $\chi^2 = 2,281.79$, with 780 df., $p \leq 0.0005$) showed a structure of 13 factors that explained 62.98% of the variance.

Some of the most relevant results in the pilot sample were the following:

- The most valued item (mean = 3.84 and SD = 0.45) refers to the fact that environmental care has an impact on quality of life.
- In relation to "sustainability", students admit that they do not know the concept correctly (mean = 2.32 and SD = 0.77); they affirm that the protection of the environment depends on this type of development (mean = 3.00 and SD = 0.68); and that environmental education is very important for sustainability (mean = 3.39 and SD = 0.60).
- Students point out that the current economic model is not based on sustainability (mean = 2.19 and SD = 0.79).

7. Conclusion

Coordination and cooperation to carry out teaching practices and design of resources and tasks, which favour the acquisition of competences for sustainable development in students of different subjects and degrees courses are essential elements to promote the sustainability introduction processes in university curricula (Azcarate, Navarrete & García, 2012; CRUE, 2011; Vilches & Gil Pérez, 2012).

Furthermore, not all activities, tasks, resources and systems designed, tested and evaluated are applicable to all subjects, even if they are in the same area of knowledge. Compilation of the activities (portfolio) included an assessment on its applicability in certain subjects involved in the project. The questionnaires applied to students also confirm this point. Some were transferable and applicable to other subjects as long as they met certain characteristics specified in the portfolio.

The work dynamics related to participatory coordination (between the teachers involved and the participating students), and effective communication between the inter-university work groups for the cross-cutting application of the strategies, processes and improvement elements that promote the inclusion and development of criteria of sustainability in each of the subjects participating in the project, were undoubtedly the most transferable elements (Tójar et al, 2015, Tójar, Mena, & Velasco, 2017).

In the same way, the multidimensional and cross-cutting nature of the subject of sustainability in the curriculum, together with the work methodology used, allowed the incorporation of other projects, or

subgroups of work within the same project, which are made up of educators of the same or of different Education Sciences areas of knowledge (Tójar, Mena, & Velasco, 2017).

The application of the RESCU instrument created to evaluate the introduction of practices that promote curricular sustainability has been a success. Its first application made it possible to identify the usual practices related to sustainability in a large number of educators from up to seven universities. At the same time, this initial evaluation on the inclusion of curricular sustainability allowed us to detect the margins and improvement proposals detailed in different blocks. The second application of the RESCU further allowed us to assess the effective application of the improvement proposals and the innovative practices introduced in each case. That is why the Record of Evaluation of Curriculum Sustainability in the University (RESCU) has proven to be a useful and effective instrument to promote innovation in sustainability in Higher Education (Gutiérrez et al., 2016; Tójar, Mena, & Velasco, 2017) and to make sustainable curricular proposals (Ull, Martínez, Piñero, & Aznar, 2010).

Acknowledgments

We thank educators and students who have participated in this work.

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