Campus greening from social sciences: emerging formulas on social responsibility and teaching innovation

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Abstract

Purpose – This paper aims to show how the Green Campus Program has been implemented at the Faculty of Sociology of the University of A Coruña (Spain). It describes the criteria used to create teaching sustainability actions related to community engagement to introduce education for sustainable development into college curricula.

Design/methodology/approach – Drawing on a human-centered design model approach, as well as on transformative teaching theories, this study explores the criteria used to build the Free Classroom based on a participatory model.

Findings – The authors argue that the success of this activity depends on how it relates to the theme-based specialization of the different academic degrees through which they are managed. Equally important is the creation of permanent spaces that enable the collaboration of other organizations, such as non-governmental associations and local public administrations.

Originality/value – The findings provide valuable insights into how the social dimension of sustainability in higher education institutions can be emphasized. A model of implementation of the activities is offered under which academic, political, student and community agents are coordinated to favor the change of attitudes and behaviors to strengthen SD.

Keywords Sustainability, Campus greening, Social responsibility, Human-centered design model, Learning, Social responsibility

Paper type Case study

1. Introduction

A holistic approach to sustainability involves reaching a balanced combination between economic, social and environmental goals when dealing with the long-term effects of human actions. Following the UN Conference on the Human Environment in 1972, higher education institutions (HEIs) have stepped up the measures that contribute to such holistic understanding of sustainable development (SD). The commitment of HEIs to SD gained momentum in the 1990s, to the point of becoming a key issue in the field of academic administration (Lozano *et al.*, 2013). The Kyoto Declaration of 1993, adopted by 90

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universities, challenged higher education worldwide to accomplish an essential mission in global SD. The UN Decade of Education for Sustainable Development (DESD, 2005-2014) reinforced its application, by fostering the integration of the principles of SD into all aspects of academic life. This has encouraged both the incorporation of sustainability into different fields of research and its inclusion in the planning (e.g. defining the strategic lines of action) and the campus operations (for example, by reducing energy and paper consumption) of these institutions (Vaughter *et al.*, 2013). The recently set "Sustainable Development Goals" (SDGs) included in the 2030 Agenda for SD further strengthens the commitment of HEIs to SD [United Nations (UN), 2015].

In general terms, the implementation of "Campus Greening" programs has become the main channel through which universities have adopted SD principles (Radford, 2012). Green Campus interventions encourage environmentally friendly practices in all dimensions of university operations and infrastructure, which leads to an increase in initiatives related to waste reduction, energy-efficient buildings, sustainable transport and ecological food (Sima *et al.*, 2019). Similarly, one of the Green Campus activities carried out at some universities involves the incorporation of SD principles into curriculum design, through the concept known as Education for SD (ESD) (UNESCO, 2006). The universities are thus making an enormous effort to embrace sustainability through specific education initiatives that reinforce the values of critical thinking, collaborative decision-making and responsibility for present and future generations (Leicht *et al.*, 2018).

In recent years a growing number of publications have examined the institutional operations through which sustainable campuses have been created (Findler *et al.*, 2019). However, less attention has been paid to the educational challenges posed by the integration of ESD into university curricula and the type of pedagogical models that should be promoted by HEIs to reinforce these values (Savelyeva and McKenna, 2011; Qian, 2013). This gap may be attributed to the complexity of explaining how universities manage to incorporate ESD into their graduate outcomes. Since these institutions are focused on the assessment of learning competences through quantitative outcomes, it is difficult for them to try and introduce new teaching guidelines that are able to assess the level of acquisition of ESD principles. Moreover, the rigidity of the university bureaucracy that regulates teaching makes it difficult to adopt new pedagogical techniques, especially if they involve a management design that goes against the traditional model (Sterling, 2004).

Despite these difficulties, in recent years, the implementation of education for sustainability has been gaining ground (Wals, 2014; Wu and Shen, 2016). The 2030 Agenda for SD and its 17 SDGs, which include ESD as one of the aspects to be fomented by the HEIs, encourages this trend. ESD is specifically referred to in Target 4.7 of SDG4, which aims to ensure that:

> [...] all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development [United Nations (UN), 2015, p. 17].

Compliance with these standards clearly aims to encourage the adoption of sustainable criteria in environmental matters, but also to promote educational training that stimulates critical thinking on human behavior and the bases for growth underlying our political and economic systems. Therefore, ESD is faced with the dilemma of creating environmentally responsible professionals who are also socially committed.

This challenge means undertaking ESD at HEIs from a perspective that includes the need to change attitudes and behaviors as well as to:

> [. . .] engage in real problem-understanding and problem-solving, and ensure that universities become a pivotal force to guide wider community efforts to advance societal sustainability (Leal *et al.*, 2018, p. 86).

However, while it is well-known that ESD is the prevailing strategy in the fields of environmental education and natural sciences, the social dimension of sustainability has received considerably less attention in the academic literature (Yugendar, 2014). In the social sciences, this topic has been included only marginally, though some studies highlight the importance of this perspective in order to raise issues about sustainability-oriented ethics, values, and culture (Zint, 2016; Leiserowitz and Fernandez, 2008). This paper addresses this gap by exploring the way in which ESD actions have been implemented in the social science field at one university in Spain.

The article describes and analyzes the construction of the "Free Classroom", organized by the Faculty of Sociology at the University of A Coruña over the course of 2019 as part of the activities of the Green Campus program. This project was designed according to the philosophy of the transformative learning theory (Taylor, 2008), using a human-centered design (HCD) model approach (Buchanan, 2001; Frascara, 2002). This methodology consists of encouraging the involvement of teachers and students in collaborations with other non-academic associations, both in the design and the implementation phases, to raise awareness about sustainability and promote the university's commitment to social responsibility. Our results show that the success of this initiative (in terms of the expertise acquired on sustainability) may be attributed to the ability to transfer the learning process to real-world situations and professional practices. The paper describes the criteria used to develop this activity in order to introduce ESD into college curricula and proposes that the university as an institution should play a role that can help reduce social inequality (Goal 10), achieve sustainable cities and communities (Goal 11), promote peace, justice and strong institutions (Goal 16), as well as guarantee quality education (Goal 4). The article also provides insights into the following:

- how to incorporate ESD into the college curricula in the social sciences from an HCD approach; and
- how to focus on higher education pedagogical actions in order to promote engaged social responsibility.

The paper sectioned as follows. Section 2 presents a review of previous studies on the benefits of promoting activities that engage with social responsibility at HEIs to foster the inclusion of ESD in the curricula. This includes the literature related to transformative learning, HCD and engaged scholarship theories. In Section 3, we contextualize the case study carried out by the Faculty of Sociology at the University of A Coruña and the strategies used by this institution both to implement the Campus Greening program and to steer it toward the social aspect of sustainability. Section 4 provides a detailed description of the design and development of the construction of the "Free Classroom" and the application of the HCD methodology. This section also reflects on the results of the activity and shows its contributions towards the inclusion of ESD in the curricula and the promotion of the social responsibility of HEIs. Finally, the paper is concluded in Section 5.

2. Linking activities engaged with social responsibility and human-centered design theories to promote education for sustainability development

The inclusion of ESD in SDGs has shed light on the potential of education for promoting SD, but it has also unveiled the need for changes in the management practices and educational

methods of universities. For this reason, in recent years, academic debates on ESD have focused on determining the possibilities of promoting real sustainability-oriented education, which involves changing awareness among students and encouraging teachers to apply new pedagogical methods. There is a widely-held consensus in the literature that one of the fundamental issues of ESD is to redirect learning from a teacher-centered approach with an emphasis on cognitive learning and memorization, towards the development of problem-solving capacity and critical thinking (Sterling, 2016; Mandikonza and Lotz-Sisitka, 2016; von Weizsäcker and Wijkman, 2018; Schnitzler, 2019). Quality education must also be transformative (Sterling, 2016) and a vehicle for social change toward SD, which also requires a fundamental change in the learning model: from learning how to understand to learning how to act and transform (Schnitzler, 2019). As the quest to achieve environmental equilibrium and social justice becomes the central goal of SD, academic training should increasingly focus on humanistic aspects, compelling students to tackle real-life problems, while at the same time connecting them to social commitment for change (Mandikonza and Lotz-Sisitka, 2016).

These are the guidelines of critical pedagogy and transformative learning approaches (Wallace, 2020; Schnitzler, 2019). Critical pedagogy is rooted in the work of Freire (1971) and refers to a number of critical provisions on the position of education and its role in the community and the political realm. This author posited an approach to problem-based learning in which dialogue was central and from which critical reflection and critical consciousness emerged. Returning to these pedagogical considerations, transformative learning offers a change in both the way in which we understand the world and in how we, as human beings, relate to one another and to the natural world (Taylor, 2008). The transformative learning theory "explains this learning process of constructing and appropriating new and revised interpretations of the meaning of an experience in the world" (Taylor, 2008, p. 7). It is a learning approach whose purpose is to produce a change in awareness that teaches us to assess social issues from a non-hegemonic position.

In order to establish agency-centered pedagogical guidelines linked to collective social learning, it is generally necessary to "transgress the norms." This can be extremely burdensome for teachers in terms of management and preparation work. For this reason, despite their benefits, the dominant models tend to be more in line with the technocratic trends and the marketization of institutions. The problem is that these dynamics are hardly compatible with the above-mentioned principles. Moreover, university professors are involved in a system that rewards them – in terms of Curriculum Vitae enhancement – for the publication of the results of their research activity, and rarely for the quality of their teaching work. As such, establishing educational initiatives linked to civic commitment and social issues require a great deal of effort that is not compensated for in their professional careers. This flaw had already been pointed out as early as the 1990s by Boyer in his seminal work, Scholarship Reconsidered (1990), in which the author challenges higher education institutions to embrace a more broad-ranging scope of academic work that would go beyond the classic triad of teaching, research and service, where research is the only legitimate way to achieve greater recognition . In opposition to this three-fold model, Boyer proposed four academia-related aspects: discovery, integration, application and teaching, to which he later added the concept of "scholarship of engagement":

> The academy becomes a more vigorous partner in the search for answers to our most pressing social, civic, economic and moral problems, and must affirm its historic commitment to what I call the scholarship of engagement (Boyer, 1996, p. 11).

Consequently, to adopt the pedagogical model put forth by ESD, universities must combine organizational forms of both academia and social engagement. The two dynamics tend to operate using opposing logics, which means that both the HEIs and the possible collaborating organizations must broaden the scope of their efforts. One proposal made to overcome this tension is "hybrid organizing," a term coined by Battilana and Lee (2014) that refers to "the activities, structures processes and meanings by which organizations make sense of and combine multiple organizational forms" (Battilana and Lee, 2014, p. 397). Although they mostly talk of actions directed from social enterprises, their ideas are also useful to set up social missions at institutions that focus on other aspects. While such hybrids are a *locus* of disorder, they also prompt creativity and innovation from which to channel the dynamics of collective and community participation.

Investigations on commitment, engagement and social responsibility in higher education highlight the benefits of this kind of initiatives. Some scholars argue that transformations towards greater sustainability depend on the expansion of university services to include local communities via programs that encourage joint collaborations among academics, governments and civil society (Trencher *et al.*, 2014). Empirical evidence demonstrates the positive impacts of this kind of commitment, which attest to both its potential to promote change and to raise awareness among university students (Yarime and Tanaka, 2012). Paterson *et al.* (2014), for instance, focusing on the reduction of homelessness in US towns, describe how it is possible to create spaces at universities that would help curb poverty and social injustice both through the dissemination of scientific results and by sharing them with the local authorities. Anstadt (2009) demonstrates how a community program can reduce the social isolation of older adults, connecting their caregivers with international university students through meetings where cultural traditions are shared. It also gives foreign students the chance to practice and improve the local language.

Designing these types of activities, which take place outside the classroom, requires incorporating a participatory learning model in which students and their concerns about the local environment play an active role. This is where a HCD model (Frascara, 2002; Buchanan, 2001) can bring new possibilities into the field of sustainability. This model was designed to create innovative solutions in companies, but has now branched out to other scenarios, becoming particularly important in the field of education and in the design of programs to address social needs (Brown and Wyatt, 2010). This model was initially used to design products that would respond to user's needs. Thus, it emerged from a concern about the way in which products influence the social experience of individuals and the role they play as commodities that mediate between people and the natural environment on which their interactions are modeled (Buchanan, 2001, p. 14). Junginger (2012, p. 171) defines this model as follows:

> [...] a human-centered design approach fully embraces the social, political, ecological and economical context in which individual interactions take place. Furthermore, human-centered design pays attention to the ways in which any product or service enables, encourages or discourages, even disables, a person to engage with other people, objects, services and environments. A focus of human-centered design is therefore on the human relationships people and groups of people have or may have. Following these principles, the designers had to develop new learning methods to understand the behavior of both the users and the communities with which they have interacted.

The criteria of the HCD model may be embedded in the practical experiences of the outreach community aimed at sustainability. In fact, their application in non-industrial and non-technological disciplines has undergone a rapid increase in recent years. For example, the work of Bowie and Cassim (2016) presents ways in which the HCD model can be

incorporated into higher education practices geared towards ESD. They highlight the possibilities of this methodology by showing how its application allows for the creation of highly flexible academic programs in terms of design and development, and with strong student participation. Jones (2016) emphasizes the potential for the HCD model to promote participatory learning processes and how this model is able to align itself with socially relevant issues, such as social justice. The HCD model thus offers tools to lead initiatives through a participatory design process, which is supported by activities such as building listening skills, running workshops and implementing ideas. In fact, the acronym HCD, as Tschimmel points out (2012, p. 7), has a double meaning, as it can also stand for the three steps to which the model is applied: hearing, creating and delivering (Figure 1).

3. Context: the implementation of campus greening activities

The University of A Coruña was founded in 1989. It is a public institution whose primary objectives are the generation, management and dissemination of culture and scientific, technological and professional knowledge through the development of research and teaching. It aims to provide a quality public service that contributes to achieving greater levels of welfare through the pursuit of social, scientific and technological advances in a framework of ethical values. Part of its mission is the formation of an open, critical, democratic and solidarity citizenship, capable of analyzing reality, diagnosing problems, formulating and implementing solutions based on knowledge and oriented to the common good. The environmental commitment of the UDC was reinforced in 2003 with the creation of the Vice-President's Office for Infrastructures and Environmental Management, which put into place mechanisms for participation, management and access to environmental information. In 2005, the Faculty of Sociology introduced environmental criteria into its "Plan for a Sustainable Faculty": a comprehensive program that established a protocol for good practices in the eco-efficiency of water consumption, waste collection and the elimination of plastic waste.

Furthermore, UDC's current Action Plan (2013–2020) shows an active engagement with the surrounding environment. Some of its priority action areas include the promotion of equal opportunity, non-discriminatory culture and sustainability. Particularly, UDC's Strategic Goal 3 pursues a university model responsible for its own environmental impact. In line with this plan, in 2014 the University of A Coruña and the Association for Environmental and Consumer Education signed an agreement to develop the Green Campus Program. The base document highlights the importance of online participation and

HUMAN CENTERED DESIGN	**HEAR** During the Hear phase, your Design Team will collect stories and inspiration from people. You will prepare for and conduct field research
	CREATE In the Create phase, you will work together in a workshop format to translate what you hear from people into frameworks, opportunities, solutions and prototypes. During this phase you will move together from concrete to more abstract thinking in identifying themes and opportunities, and then back to the concrete with solutions and prototypes.
	DELIVER The Deliver phase will begin to realize your solutions through rapid revenue and cost modeling, capability assessment, and implementation planning. This will help you launch new solutions into the world.

Source: Tschimmel (2012, p. 8)

Figure 1.
Description of the three steps of the HCD model

transversal collaborations with local and global social agents. In its educational program, the university commits itself to strengthening and visualizing the promotion of sustainable and equitable development in its academic curricula as well as to inform of these efforts in their CSR report.

The Faculty of Sociology stepped up its commitment to SD in 2017, embracing the "Green Campus Program." It began with basic tasks required by the standard protocol, such as the establishment of an environmental committee and a self-assessment on the environmental situation of the Faculty. The program continued with the implementation of environmental sustainability measures related, for example, to the reduction of air pollution, energy consumption saving and light bulb recycling. Actions were also taken to improve the food served on campus and to encourage collective mobility programs, such as car sharing (see details in Table 1). These actions have been complemented with other types of activities at the community level, which show the social aspect of sustainability and the incorporation of ESD in the graduate outcomes. However, they were not designed as part of a specific course, but rather as a type of training which all the students of the Faculty of Sociology

Actions	Steps
Reduce air pollution	Routine measuring of radon gas Measuring of environmental pollutants Testing subsoil and taking samples of water pollutants
Reduce light, energy and water consumption	Installation of energy-saving lamps Installation of motion sensor lights Upgrade water taps Awareness campaign on switching off lights in offices and classrooms
Green purchasing, fair and responsible trade	Implement eco-friendly purchasing on a gradual basis Reduce the use of paper in administrative procedures Promote campaigns for the re-use of clothing, food, etc. with third sector organizations that raise awareness on circular consumption
Separate, collect and recycle waste	Create spaces for the selective collection of waste and electronic material Control the number of photocopies made, avoiding the use of color photocopies and printed material
Encourage sustainable mobility	Activate the "Autocolega" or carpool program to encourage Faculty users to share car rides
Healthy Diet	Contract a dietician to plan healthy menus for the cafeterias Change the terms and conditions of the cafeteria service so they will include healthy foods and eco-friendly considerations (local products, recyclable packaging. . .) Request vending machines with healthy products
Promote environmental awareness and social responsibility	Include cross-disciplinary areas of responsibility/contents about healthy habits for sustainable people/environments in the subjects of the degree programs. Develop complementary educational activities outside the classroom that include training in sustainable development (city tours, film festivals, educational trips on sustainability. . .) Collaboration with the "Recetas Urbanas" (Urban Recipes) Project, to self-build a "Free Classroom" built with reused and recycled material

Source: Prepared by the authors

Table 1.
Green campus program action plan, Faculty of Sociology – UDC

could sign up for. These training initiatives in ESD were planned according to the criteria identified by the transformative learning approach, which are as follows:

- social and collaborative learning;
- problem-based learning;
- participative learning; and
- empowerment and dialogue education (Missimer and Connell, 2012).

ESD initiatives were conducted considering a number of basic objectives. The first goal (G1) deals with *directing the Campus Greening Action Plan towards the specializations of the degrees offered*. Since the courses offered at the Faculty of Sociology are the "Bachelor's Degree in Sociology", the "Master's Degree in Political Science: Migration, Gender and Aging" and the "Master's Degree in Management and Planning of Tourist Destinations", the priorities that best fitted into the college curricula and research interests were the promotion of sustainability by seeking cohesion between academia and society, as well as strengthening common social values related to equitable economic growth without harming the environment. The second goal (G2) is focused on *seeking out actions that would allow sociology students to commit to community engagement and social responsibility, while exercising their profession*. In this sense, the objective was to break with the academic-industrial model (Freire, 2003), so that the students could immerse themselves in activities that would change the surrounding environment. The idea was to design a management model that would boost student participation and promote initiatives aimed at community welfare, thus bringing the Faculty of Sociology closer to social organizations and public institutions in the area. This was the most suitable way to guarantee the third goal (G3), *the active participation of the students in developing the measures to be taken*. Teachers would create the structure to implement the actions as well as provide the pertinent knowledge and skills. This means that they took care of the administrative work, while negotiating with participating associations, seeking funding for the Green Campus program's implementation and designing and imparting the specific training depending on the theme of each initiative. Despite the importance of the role played by the teachers, eventually students had to develop the activities by themselves. This involved teamwork, organizing meetings with their groups of peers and making self-management decisions. In other words, it was what is commonly known as free-choice learning, i.e. "non-sequential, self-paced, and voluntary, with considerable learner discretion as to setting, time and content" (Falk and Dierking, 2000). Active learning, action and direct participation were key mechanisms to promoting *transformation and social change* (G4), the fourth and last goal of the Green Campus program at the Faculty. We will now examine how this training was carried out in practice in the construction of a "Free Classroom" on campus, according to the methodological tools of the HCD model.

4. Study process: the construction of the Free Classroom

In order to define, design and implement the ESD activities guided by the abovementioned four objectives, a design team was created within the faculty, which included five teachers (the authors of this article), who became involved in the Green Campus program on a voluntary basis. The team's mission was to identify the graduate outcomes targeted by each action and to set up spaces for collaboration with the students. These meeting spaces were used by students, in participation with the teachers, to define the social issues that they wanted to act on or change. The teachers on the team would then be responsible for giving shape to these aspirations by designing specific actions. These spaces served to promote

collaborative learning and became the bridge between learning and action. The idea was to leave passive pedagogical methods behind and create an atmosphere of collaboration between the different groups, which could also be joined by non-academic institutions (von Weizsäcker and Wijkman, 2018). The idea of building a Free Classroom on campus arose precisely from the discussions held at one of these learning spaces. The design practice of this activity was carried out according to the three step scheme of the HCD model explained in Figure 1 and it was inspired by the toolkit created by IDEO, the American design agency, to guide the implementation of the activities linked to this methodology (www.designkit.org/).

Phase 1 of this project focused on the creation of a space shared by students and teachers that would help *reinforce the inspiration of the participants by "Hearing" their needs and making their stories part of the process*. This phase began with a field trip to Madrid (Spain), organized by the Design Team for undergraduate Sociology students. The trip included a visit to Cañada Real, a marginalized neighborhood, marked by prejudice and social exclusion, where a social center was being built as a collective project. Sixty students and 5 lecturers from the Faculty of Sociology were part of a total of 1200 volunteers who participated in the building process. The social center was being constructed by *Recetas Urbanas*, an interdisciplinary team comprising architects, designers and engineers, who had set out to create a social building for the residents of Cañada Real. *Recetas Urbanas* is an internationally acclaimed project honored with the Global Award for Sustainable Architecture in 2015, among other prizes. It operates as a nexus between the community and public authorities, while practicing social architecture, defending collective habitat management and advocating responsible, participatory construction with positive community impacts. Their projects bring together the three pillars of SD: social (given their inclusive and participatory nature), environmental (owing to their focus on energy, choice of materials, re-use and implementation) and economic (for the care taken in mounting strategic installations, favoring hybrid financing structures with feasible, cost-effective projects). It was the Design Team who made the decision to take part in this process, since they were familiar with *Recetas Urbanas'* previous projects and with their impact in the area of critical thinking (Plate 1).

The bonds created during the construction of Cañada Real's social center, connecting lecturers and students as well as the *Recetas Urbanas* team, led to the design of a self-build activity on the UDC Campus. During the seven-hour trip back from Madrid to A Coruña, the students were talking about how eager they were to continue working with Recetas Urbanas – some of them had already signed up as volunteers on their next projects – and how necessary

Source: Photograph taken by the authors

Plate 1.
Hearing Phase (meeting to gather narrative information on students' needs. Location: Cañada Real, Madrid)

it was to have a common space to be used and managed by students themselves. Following the involvement of the Design Team, a new activity was planned. The process consisted of the creation of a "Free Classroom" to be built by the UDC community with recycled and re-used materials. Phase 2 of the project aimed *"to Create" a social innovation project, which, through civic participation and collaboration, would give rise to a space for the cultural and leisure activities of students*. This prompted the Design Team to contact the A Coruña City Council, the University President's Office and the Luis Seoane Foundation. This Foundation is a cultural organization located in the city of A Coruña that has, on several occasions, exhibited the work of Recetas Urbanas. Negotiations with these administrations and institutions were grueling. The Design Team spent three long months meeting with the political and administrative representatives of these institutions explaining this innovative initiative. We also arranged for Recetas Urbanas to give a lecture in A Coruña, explaining the relevance of their actions in the area of sustainability and social responsibility. The Design Team participated at this event as well, with a detailed presentation of the pedagogical philosophy behind this process and its transformative capacity. An agreement was finally reached with the three organizations and the project was granted public funding in the amount of €13,000 (by the City Council), intended to cover the logistics costs of the Recetas Urbanas team during la construction of the "Free Classroom".

Construction began at the end of May 2019 and lasted 10 days, during which volunteer students, teachers and management staff participated. A total of 80 people signed up as volunteers but in the end only 53 participated. Volunteers were summoned by means of an Open Call describing the activity's characteristics and its learning methodology through training workshops carried out by a team of experts and using a crowdsourcing method (Estellés and González, 2012) (Plate 2). The self-build workshops ran over the course of 20 work sessions, lasting 4 h and 24 min each, distributed over 10 days, amounting to a total of 88 h of workshop. Out of the total number of participants, 56.6% were students, who spent 63.3% of the hours dedicated to construction work. The lecturers were the group who devoted the smallest number of hours to the actual construction, since their job was centered on the administration and management of the process and on maintaining daily contact with the City Council and the University President's Office to comply with the necessary bureaucratic procedures. In terms of the disciplinary background of the students, the largest number came from the Faculty of Sociology, accounting for 33.6% of the participation and 46.4% of hours spent. Students from the Faculty of Architecture were the other group with a great interest and strong involvement in the project. Although they were not initially involved in the design of the activity, their interest grew significantly after the activity was posted on the university's social networks.

During the construction, students played an active role in the design of the project. Although the University President's Office and the Design Team first suggested that the "Free Classroom" should be located inside the Campus Student Center – a building designed for administrative use – on the first day of work, the volunteers unanimously chose to take another course: The classroom would be built outdoors, in the middle of a green, wooded space and visible to the whole university community. At the second stage, this negotiation also involved a semantic change: the Free Classroom was renamed "El Despachito" (The Little Office), an informal name, which was seconded mainly by the Sociology students, who recalled stories about past students who used to have a multi-function room available to them within the Faculty, with that same name. The use of this endearing nickname served to strengthen the ties of identity between the lecturers (some of them alumni of the Faculty) and the students and reflected the communitarian spirit that was forged at the university by the self-build experience.

Source: Photographs taken by the authors

Plate 2.
Creation of the "Free Classroom" with the self-build process

After "*hearing*" the students (Phase 1) and "*creating*" a practical and applied project of social innovation (Phase 2), the self-build activity became a key element for the achievement of Phase 3 of the HCD model: to *"Deliver" a space to the students for their use, management and enjoyment.* Once the collective construction process had been completed and the students association established, Phase 3 of the HCD-model was also reached: giving "El Despachito" to the UDC students. As a symbolic or ritual gesture, the *Recetas Urbanas* team met with the volunteer lecturers and students to hand over the keys to the students who were the builders and, since then, also custodians of their own space on campus (Plate 3).

With a surface area of some 30 m^2, this building is more than just a new University premises. It represents the socio-educational experience between students and the University territory, opening the door for possible actions and experiments in the future. Although not without difficulties – e.g. overcoming cultural differences among participants, the need of a flexible attitude in light of the open design project and other unforeseen

Plate 3.
End result of
"El Despachito"

Source: Photograph taken by the authors

contingencies, grueling negotiations with authorities–, this innovative, self-build process was an important step forward in the faculty's commitment to social responsibility, teaching innovation and the Green Campus program. Indeed, we consider that the graduate outcomes obtained with this activity, designed according to the principles of the HCD model, are connected with the ESD philosophy as defined by the SDGs and meet the criteria of the transformative learning approach. In this activity we identify the following learning processes:

- The students became aware of their role in their immediate environment. Not only did they realize that they were part of it, just like their faculty, but over the course of the project they discovered that they could also change it with their own hands – that they were agents of their environment who were able to understand it, take care of it, and be socially responsible for it.
- The design team and experts from *Recetas Urbanas* relinquished total control of the process, so that the students were no longer mere passive recipients of knowledge (Freire, 2003) but rather they became active, creative and productive agents with full participation. The lecturers' role was to be part of an open, decentralized network of knowledge, while acknowledging their own limitations and encouraging the coproduction and co-construction not only of practical and manual but also technical and relational knowledge.
- The self-build project challenged the traditional, monolithic regime of expert knowledge and fomented learning through experience and experimentation. A collaborative and experimental turn, which, by the way, has recently garnered some success, not only in the field of education (Bowie and Cassim, 2016) but also in the social sciences, by redefining the different research methodologies and the teaching-learning relationship (Holmes and Marcus, 2008).
- The students claimed their right to the habitat and proceeded to take action with the help of *Recetas Urbanas,* who provided the technical and material support for the

project. They acquired manual and relational skills through this experience: learning how to make a building, using construction tools, working as a team, collaboration, communication and decision-making skills, respect for the environment, effort, empathy, among others. Other technical and managerial skills were also developed, such as learning how to set up a student association to administer the space and how to overcome bureaucratic obstacles and red tape.

- The construction of the "Free Classroom" pursued the generation of 'social value', i.e. the creation of a common benefit for society; as well as collaborations among the people involved and the creation of cooperative networks, carried out on an interdisciplinary level in contact with professionals from other fields outside the University. This intersection enriches academic knowledge and enhances research talent to adapt it to new, unknown scenarios. Moreover, it "breaks up with the limitations of the tunnel-vision" (Jucker, 2002, p. 13) that is characteristic of a single discipline perspective in education. As defined by the growing field of environmental justice, the attainment of SD goals does not depend only on a more equitable distribution; rather it is also based on the promotion of participatory procedures that will ensure control by the more vulnerable groups (Schlosberg, 2007). In this sense, the responsibility for the construction of the "Free Classroom" fell mainly on the students, who traditionally occupy a vulnerable position in the hierarchy of academic institutions.
- Thus, the approach and management of this project entails new learning settings and methods for teaching sustainability. This experience shows that Campus greening activities are a good opportunity to transcend the barriers between theory and practice (Leal *et al.*, 2015), and strengthen the ability of universities to take up the challenges of globalization and the information society through the SD of teaching activities, research and management (Vallaeys, 2006). Campus greening activities, like this self-construction project, come up against obstacles related to the traditional culture and structure of universities, the lack of collaboration among the teaching, research and management/services staff, and the lack of time and resources (Abadía *et al.*, 2012). They may be considered a model to follow when designing and planning education policies for SD.

5. Conclusions

Based on transformative learning theory from a HCD approach, this article contends that, to focus graduate outcomes on ESD in HEIs, it is necessary to create learning activities that are developed in collaborative and participatory spaces and aimed at achieving engaged social responsibility. Engaging with an outreach community is particularly important in order to strengthen both the social aspect of sustainability and to promote SD principles in the social sciences, because it places the learning process into real-world situations, connecting with professional practice. Drawing on a case study of the university in Spain in its Faculty of Sociology, this paper has detailed how ESD can be included as part of Green Campus operations. Specifically, it has been explained how a "Free Classroom" has been created using recycled materials, which in the future will be managed by the students themselves to conduct cultural activities.

The HCD model was the methodology followed in the design of this activity. The practical application of this model shows how this technique promotes the goals of sustainability education in two ways. First, it encourages collaboration between university groups and other social and political organizations unrelated to the academic world. Secondly, it possesses a great transformative potential, because it affects both the pedagogical practices and the attitudes of its

participants. This model serves as a channel for more democratic modes of operation, which permit us to manage and carry out projects in line with SD priorities, while also deciding on how to accomplish this, which procedures to use, how to make them sensitive and meaningful, and who will carry them out.

Furthermore, the HCD model applied to a process of social innovation in the area of education provides for the participation of students and other community and political groups in every phase of the project: from the identification of problems and challenges, to the generation of ideas and assessment. The benefits of this type of collective management, which focuses on open and creative design, are the increase of interactions between collaborators, the promotion of shared identity, and a larger awareness of the agents that are involved in the field of sustainability. As a result, more autonomous, self-management oriented relations are promoted. This demonstrates the potential of the HCD model as a strategy that can be used to encourage the contribution of HEIs to the promotion of SDGs. In short, the key issue is not only to articulate teaching sustainability, but also to stimulate individuals and communities to participate actively in the entire learning process and the implementation of the action.

However, the creation of this design structure and the implementation of these pedagogical guidelines present a number of challenges that limit the success of these activities. First, it is important to note the complexity of maintaining fluid collaborations between institutions, because of the wide variety of logics and dynamics and their different academic, business and political interests. Second, it is impossible to ensure the long-term continuity of this type of actions due to the high fluctuation of the interlocutors, which results from political cycles, the graduation of students, and the change of contact persons in companies. Third, this type of activities has been effective in overcoming the pre-existing barriers between theoretical knowledge and its empirical application, but it is still too early to say that their impacts will persist and advance towards new challenges, such as greater interdisciplinary proposals or closer collaborations with other national or foreign universities. And finally, it should be noted that despite the sustainability criteria that underpin the development of these initiatives, this does not mean that their results are equally beneficial to students and the community.

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