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Fostering Sustainable Development and Social Responsibility in Higher Education: The Case of Tor Vergata University of Rome

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Abstract: In the panorama of international strategies and commitments to sustainability, education is central to the pursuit of sustainable development. Educational institutions at all levels are playing a new role in promoting values and ideals linked to sustainable behavioral models. These models can face the complexity of reality in a cooperative, active and responsible way, leading to a vision for solidarity and progress. In this context, universities face huge challenges. They must recognize the changes happening in society and change accordingly. Universities are therefore increasingly required to actively introduce attitudes and behaviors that favor sustainable development and involve the entire academic community in this process. This paper aims to define the role of universities in sustainable development. As well as training professionals, their roles and responsibilities mean that they strongly influence the societies in which they operate. To become sustainable and ensure that their respective territories follow suit, universities must change internally and initiate systemic processes to engage all members of their communities. Moreover, dynamic bottom-up models of learning and dissemination of environmental sustainability and social responsibility should aim to encourage students to be active inside and outside their universities. After a detailed literature review, this paper explores how sustainable development should be used in educational paths as well as didactic activities to influence the way students think, act and engage within their academic communities. Based on the objective of this work, the case of the Tor Vergata University of Rome is used to describe the results of the active change.

Keywords: Higher education; Sustainable development; Student engagement; Sustainable projects; UN 2030 Agenda.

Introduction

Universities are increasingly aware of their role in society. Today, it is essential to consider the issue of sustainability and the need to develop concrete actions to achieve it. Ultimately, this must happen through education. However, it is crucial to instill the principles of sustainability from a young age when individuals are more easily influenced. On reaching adulthood, people often enter tertiary education. At this time, they also become aware of their responsibility concerning developing global sustainability. The major challenges posed by the UN 2030 Agenda for Sustainable Development (or simply UN 2030 Agenda), signed in September 2015, and the related 17 Sustainable Development Goals (SDGs), require profound changes in culture, lifestyle, attitudes and actions. This awareness requires specific attention to education, which is both present in the agreement as a cross-cutting goal and is considered as the most suitable and effective means for implementing the 2030 Agenda itself (Mori Junior, Fien, & Horne, 2019). Therefore, universities, in their capacity as social institutions, are responsible for imagining and defining the future of the world and society (Albareda-Tiana, Ruíz-Morales, Azcárate, Valderrama-Hernández, & Muñoz, 2020). Universities develop concepts, corroborate them with empirical evidence and teach them to students to contribute to social progress and increase knowledge (Kang & Xu, 2018). However, universities are responsible for

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acting as sources of vision with a mission that transcends technical knowledge. University education should not, therefore, be exclusively linked to formal teaching but should evolve into a new concept combining education and action (EducAction). Thus, students will acquire both knowledge about sustainable development and skills that will make them politically aware and respectful citizens. Hence, the research aim is twofold.

1) Definition of a theoretical framework for the role of the university and tertiary education in promoting sustainable development. As today's vision concerns sustainable development, it is understandable that many universities have identified sustainability as a central part of their courses, research and community service.

2) Identification of the key initiatives that universities have used to implement sustainability. In this regard, we present a case study of the Tor Vergata University of Rome, which is implementing governance that favors sustainability. We also highlight how this university identified initiatives that address important issues about SDGs and teachings based on a dynamic bottom-up approach to learning and dissemination of sustainable and entrepreneurial ideas, actions and activities to improve the proactivity of students.

This document highlights some initiatives implemented during the past year at the Tor Vergata University of Rome. These have increased the interest of the university community in supporting its sustainable growth. As the authors have been directly involved in the planning and coordination of these initiatives, this paper begins with an analysis of the education and sustainability framework. The article then addresses the case of the Tor Vergata University of Rome and its commitment to projects linked to teaching and Third Mission¹ areas. Finally, the conclusions are presented.

Education and sustainability: meanings and scenarios

International literature

For several years, sustainable development (World Commission on Environment and Development, 1987) has attracted public and private interest (i.e. institutions, schools, companies, and associations). The rise of sustainable development has inspired organizations to become involved in academia as they rethink their missions and make sustainability a core value.

An analysis of the specialist literature allows us to understand its role in disseminating the principles and methods of sustainability (Lozano et al., 2015). This research started in 1990 with a large number of universities worldwide formally signing commitments to implement sustainability. Additionally, numerous international networks have connected sustainable universities committed to realizing innovative practices, initiatives and pilot projects with significant impacts at the managerial and/or curriculum level. Many of these efforts have focused on minimizing the institutions' ecological footprints, for example, by reducing energy consumption, rather than on practices such as waste management or eco-friendly mobility. However, international literature indicates that, despite these positive signs, the role of universities in disseminating sustainability must not be confined exclusively to scientific research or management practices. Universities are responsible for training future citizens, politicians, decision-makers, and professionals. Thus, they should take larger steps towards sustainability by reflecting on their impact from an educational viewpoint. Particularly, academia must address sustainability from multiple perspectives while acknowledging that the training offered by universities must respond

¹ Third Mission refers to a set of activities by which universities trigger processes of direct interaction with civil society and businesses, public institutions and non-profit organisations (the so-called quintuple helix approach) with the aim of promoting the growth of the territory. Traditionally, the Third mission of a university has been studied and implemented as a means for transferring technology and economically exploiting the results of research activities carried out by universities, for example through the creation of spin-offs and incubators (Malakoff, 2013; Mititelu, Fiorani, & Litardi, 2017).

to the demands of a rapidly changing society. Universities also function in a world that requires professionals with both specific disciplinary skills and a systemic perspective based on a knowledge of cross-cutting and interdisciplinary aspects (Owens, 2017). This requires universities to provide each student, regardless of their specialization, with educational opportunities centered on sustainability. This is especially true since the professional world is increasingly seeking graduates with knowledge and skills in this area. This change is now not only necessary but also invoked by many people. In this context, universities face a huge challenge. They must recognize the changes happening in society and change accordingly (Geryk, 2018). Universities are therefore increasingly required to actively introduce attitudes and behaviors that favor sustainable development and involve the entire academic community in this process. Many initiatives and activities assume a good education and knowledge of planetary emergencies or sustainability. These initiatives may be sufficient to guarantee an increasing desire for change by new generations. This form of sustainability education, which considers including sustainability in existing training courses to be sufficient, cannot be the only contribution to sustainability provided by the academic world. Expert debate indicates that the challenge of sustainability cannot and should not be met by simple “sustainability pills” in the curricula of different courses of study and teaching. Conversely, this requires a new training approach with far more ambitious and complex objectives.

In international literature, it is important to note how links between education and sustainability are referred to as education for sustainability, education-oriented towards sustainability, and education for sustainable development. These links refer not only to knowledge but also to experiences and behaviors. Indeed, in documents prepared for the Rio Summit (1992), education was considered critical for promoting sustainable development and improving people’s capacity to address and developmental issues. Education was also considered important for achieving environmental and ethical awareness; values, attitudes, skills, and behavior consistent with sustainable development; and effective public participation in decision-making. In recent years, numerous events and documents have helped to consolidate the strategic role of education in sustainability. These have strongly confirmed the importance and urgency of reviewing not only the contents but also (and particularly) dominant transmissive teaching practices. Instead, education on sustainability should take a transformative (i.e. sustainable education) approach (Sterling, 2013) that can strengthen new behaviors and lifestyles. Thus, the main objective of this type of education is learning for change. In considering this, universities should train tomorrow’s citizens by providing them with new knowledge and affirming the logic of the complex system which characterizes the society of today.

Universities should also incentivize the division of knowledge and interdisciplinary dialogue (Fornasa & Salomone, 2007) while supporting reflection on values, attitudes, and behaviors (i.e. individual, community and professional). This remains a relatively new challenge for the academic world, which usually attributes the role of reflecting on lifestyles to families, society or education. In this regard, UNESCO (United Nations Educational, Scientific and Cultural Organization) recently reflected on the learning objectives that can be linked to the 17 SDGs shaping the UN 2030 Agenda. The organization considered it necessary to emphasize that sustainability education does not only involve teaching sustainable development and adding new content to courses and training. Schools and universities should identify as places for learning and experiencing sustainable development and should, therefore, orient all their processes towards the principles of sustainability (UNESCO, 2017). An awareness of the need for a decisive change in perspective should, therefore, translate into profound changes in the way education and education for sustainability are implemented at a university level, in terms of both the content and teaching methods. Reorienting university education towards sustainability in this broad perspective means being more responsive to the demands of a rapidly changing society and a professional world that focuses on innovation and change as well as integration. In light of this, academic institutions (e.g. students, professors, and technical/administrative staff) should be configured as agents of change that are implemented and are visible and coherent with the content taught rather than vehicles to promote change in the

professional world. This is possible because higher education not only play an important role in guiding changes through education, research, and outreach (Larsson & Holmberg, 2018), but it has academic freedom and the critical mass and diversity of skills to develop new ideas, comment on society and its challenges, and engage in bold experimentation with sustainable living (Cortese, 2003).

Analysis of the Italian scenario

Italian universities, following recent international events and through confrontation generated within the RUS (Rete delle Università per lo Sviluppo Sostenibile)², have been approaching sustainability for some years. Some training and educational activities aim to make sustainability education the cornerstone of an “investment for the future” (UNESCO, 2009). However, the above-mentioned methodological aspects have not yet been realized.

The state of the art in terms of sustainable development in Italian universities is considered complex and delicate inasmuch objective criteria have not yet been defined to identify sustainable development educational activities and tools. Sustainable development is, in fact, a cross-cutting issue that can be treated, by every disciplinary scientific sector, with multiple approaches and different intensity. Hence, defining an overview of these activities and approaches is necessary. In this regard, the debate is still open and RUS is currently working for both mapping existing experiences and consequently identifying best practices. Moreover, this activity can stimulate benchmarking and benchlearning among universities. Since objective criteria have not yet been explained (Antonelli et al., 2019), the analysis on sustainable development in Italian universities should only be considered as a first study, where the *RUS – Educazione* (2020) working group classified the SDGs experiences in six categories:

- *Lezione Zero*
- Bachelor degrees and master courses
- High education courses (Ph.D., Master’s degree, and business school)
- Curricular activities on sustainable development
- Training for teaching and administrative staff
- Extra-curricular activities

Lezione Zero is an online or frontal course for students that aims to introduce the sustainability and issues on sustainable development topics, an overview of 2030 Agenda, and implementation of strategies on SDGs. Table 1 shows Italian universities where the *Lezione Zero* course is held. *RUS - Educazione* (2020) identifies bachelor degrees and master courses about sustainability. Table 1 shows that mapping experiences are mostly concentrated in the North and the Centre of Italy. Table 1 also points out high education courses. Among these training activities, Master’s degrees are predominant, followed by Ph.D. and business schools. By mapping, this category, higher education courses seem fairly distributed among North, Centre, and South of Italy. Curricular activities on

² Rete delle Università per lo Sviluppo Sostenibile is an initiative committed to the coordination and sharing of the topic of sustainable development among Italian universities. Formally established at the CRUI (Conferenza dei Rettori delle Università Italiane) in July 2016, the main purpose of RUS is disseminating culture and good sustainability practices, both inside and outside universities. Moreover, by sharing skills and experience to increase the positive impacts in environmental, ethical, social and economic terms of the activities conducted by individual universities, RUS strengthens the recognisability and value of the Italian experience at an international level. Currently, 74 Italian universities have joined this national network. RUS has launched seven cross-cutting and pivotal thematic working groups: 1) climate change; 2) food; 3) education; 4) energy; 5) mobility; 6) waste and 7) inclusion and social justice. The institutional objectives of RUS are 1) harmonisation of institutional activities and improvement of the management of environmental and social aspects; 2) creating a community that can develop best practices and represents Italian universities at a national and international level; 3) promotion and development of sharing knowledge and skills among universities; 4) development of an interdisciplinary educational dimension in the university programs to accelerate growth of a culture of sustainable development and encourage the adoption of correct lifestyles by students; 5) training and updating on the issues of sustainable development for teachers and staff of the universities; 6) development and promotion of social awareness initiatives on sustainability and contextual involvement of stakeholders and 7) synergistic collaborations with public and private institutions on projects related to the aims of RUS.

sustainable development recognize university credits for those courses on sustainable development. Concerning the training for administrative-technical staff, few experiences have been planned, despite their adopted approach. Universities have opted for specific lectures and postgraduate training in which participation is not only reserved to students, but also the administrative-technical staff. In all these cases, is relevant to the potential for interaction and contamination of professionalism and knowledge (Carayannis & Campbell, 2010). This can generate a significant impact in terms of sustainable projects taken by universities. RUS practices defined by the Italian universities on sustainability cannot be limited to frontal teaching, but it is also particularly evident through extra-curricular and informal activities for students. These EducAction experiences can affect art, cinema, volunteering, sustainable management social gardens, active participation in social awareness events (Ethical Cash Mobs), campaigns of civic crowd-funding, promoting sustainable start-ups, and creation of student associations aimed at encouraging the spread of sustainability values and logics of the Third Mission in universities. Table 1 shows the higher concentration of extra-curricular activities in the North and the Centre of Italy.

Currently, the educational courses at Italian universities are oriented towards sustainability education. It is debated whether sustainability should be included as a discipline in its own right or within the training courses provided. Training courses would enhance only content-based aspects and consequently risk not recognizing the cross-cutting nature of sustainability, losing its interdisciplinary value and not promoting the acquisition of skills (UNESCO, 2014, 2017) that are indispensable to being “citizens of sustainability” (Leicht, Heiss, & Byun, 2018; Wals, 2015). Education on sustainability is not only required for all these reasons, but also to globally rethink the formal education system: from teaching to research to the Third Mission, from management to leadership, from the roles of students and teachers to the relationships created within the territory, and to the interventions and policies that dictate the daily life of educational institutions (UNESCO, 2014).

Thus, redirecting university curricula towards sustainability cannot be considered sufficient to activate profound and global change. Instead, universities create a sustainable educational paradigm to embrace and suggest a new participatory epistemology (Sterling, 2013) as well as rethink their design in response to constantly changing questions and problems. In this way, universities reimagine their vocation to form in individuals, not simply the keys to learn statically but to learn evolutionarily (Bocchi & Ceruti, 2004) and recognize that education is, in the fullest sense of the term and today more than ever, an essential investment in the future.

The analysis highlights Italian universities have activated multiple transdisciplinary, transformative, holistic and experiential teaching-learning experiences. This first mapping activity process in the Italian universities scenario cannot be considered exhaustive. However, it shed light on the variety of interventions on sustainability and further stimulate the improvement of existing practices as well as the development of new experiences through objective criteria. The Tor Vergata University of Rome observes most of the experiences classified by RUS – Educazione (2020) working group to demonstrate the commitment in paying attention to relevant topics like sustainability and social responsibility. For this reason, in the next section, a case study is used to describe the results reached in sustainable development by the Tor Vergata University of Rome.

Table 1. RUS - Educazione working group activities and related application in Italian universities

Name of the University	Lezione Zero	Degrees and Master	HEC	C. activities	Training for admin. staff	E.C. activities
North of Italy						
Politecnico di Milano			X (1)	X (4)		
Politecnico di Torino		X (1)				
Univ. Studi di Bologna		X (1)				
Univ. Studi di Milano		X (1)				
Univ. Studi di Milano - Bicocca			X (1)			
Univ. Studi di Padova	X (2)	X (18)	X (7)		X (2)	
Univ. Studi di Parma		X (1)				
Univ. Studi di Siena	X (1)				X (1)	
Univ. Studi di Venezia - Ca' Foscari	X (1)	X (10)	X (19)	X (3)		X (4)
Univ. Studi di Venezia - IUAV			X (1)	X (1)		
Univ. Studi di Verona			X (2)			
Univ. Studi di Torino			X (10)	X (1)		X (2)
Central Italy						
Univ. Studi di Roma - LUISS				X (6)		X (3)
Univ. Studi di Roma - Tor Vergata	X (1)		X (5)	X (4)	X (1)	X (17)
Univ. Studi di Perugia		X (1)				
South of Italy						
Univ. Studi di Bari		X (1)		X (1)	X (1)	
Univ. Napoli – L'Orientale			X (1)	X (20)		
TOTAL	5	34	47	40	5	26

Sustainable development at the Tor Vergata University of Rome

Collective method

We will now analyze best practices oriented to sustainable development by using a qualitative single case study method of the Tor Vergata University of Rome. We chose this approach because there are not evident and objective criteria to identify sustainable development activities in Italian universities. Hence, the analysis of the Tor Vergata University of Rome can be a good starting point for a practical understanding of previously described experiences in the Italian context and consequently the state of the art of the authors' university. The choice to include these projects in the discussion is justified by the fact that these initiatives not only represent the results of some activities but are configured as the nexus of community-wide change. This is because the projects aim to be inclusive, involving everyone and motivating the whole community to promote certain behaviors.

From a practical point of view, information and data on sustainability experiences collected in this paper have been the result of the work carried out by "Comitato per la Sostenibilità di Ateneo" established on 1st December 2016 to collect and report the activities which all faculties have individually carried out (courses, seminars, workshops, events, and initiatives) in terms of human rights and environmental safety³.

Since 2015, as a consequence of the 2030 Agenda program, Tor Vergata University of Rome defined its mission and vision in favor of sustainable development to become, through continuous change, academically excellent in the European context. Research and teaching, together with international, technological, economic, organizational and social development, are the key factors in realizing this goal. In pursuit of its mission and vision, the university joined the RUS and contributed to creating the "Alleanza Italiana per lo Sviluppo Sostenibile" (ASviS). This alliance aims to increase awareness of the UN 2030 Agenda and SDGs among Italian society, economic subjects, and institutions. Hence, the case study will be explained starting from the two areas of action of the university, i.e. "teaching area", through the educational pathways for sustainable development, initiated by the different macro-areas and faculties, involving both university students and staff. Through the Third Mission, projects were implemented to disseminate sustainability issues and culture and, simultaneously, create improvements in terms of the social and environmental impact of the university.








The ideas reported arose from a participatory group of students and technical-administrative personnel interested in sustainability. Particularly, three interdepartmental projects are analyzed to understand the cross-cutting concepts of sustainability across different subjects and departments.

Teaching area

The Tor Vergata University of Rome has recently launched a mapping and coordination operation to systemize the many activities and initiatives implemented in the branch of education concerning sustainable development. Particularly, the mapping project on SDGs of Tor Vergata University of Rome, started in 2017, involves implementing activities aimed at recognizing which teaching classes address and deepen the SDGs.

³ The pivotal core of the committee is to evaluate sustainable activities in a synergistic way in order to expanding and improving them. Since the committee was established, its process has been continuously monitored, documented, and evaluated by its staff. The committee is composed by representatives for sustainable development appointed by each faculty department. Consequently, data related on sustainability events were collected through committee meetings and briefings, and by documents presented on the website.

Table 2. Educational courses: description and achievement of SDGs

Courses with SDGs	Description	SDGs
Objectives for sustainable development	The course aims to familiarize students with SDGs, with a particular focus on the economic and environmental foundations of the sustainable development concept. Specific aspects are enhanced with particular reference to the role of companies and technology and the possibility of voluntary cooperation in the pursuit of SDGs by Countries.	
Corporate Social Responsibility (CSR) and social reporting	The course aims to provide a general framework on the development of social responsibility and accountability logic in businesses, public administrations, and non-profit organizations. At the end of the course, participants will be familiar with public and private stakeholders working on CSR and sustainable development, the related national and European legislation, and its historical evolution and current trends. Students will be able to understand the importance of CSR's logic in strategic choices and business activities and collaboration among different sectors and sustainable development stakeholders. Finally, students will be able to interpret current trends and develop a proactive attitude on sustainable development (both as responsible citizen-students and as future CSR managers) in line with the SDGs of the UN 2030 Agenda.	
Environmental law	The course aims to provide students with an analysis of legislation relating to environmental law, particularly concerning some of the most important topics needed for training as an environmental engineer. The course is divided into two parts: the first part provides the basic notions of law and particularly administrative law, while the second part addresses the special issue of environmental law.	
Economics and sustainability of companies and public administrations (PAs)	The course aims to provide a general framework on the state of the art of companies and public administrations in Italy and the dissemination of their managerial logic based on a corporate approach. The important role played by the public sector in the sustainable development of a country, focusing on system relations and those between PAs and private, for-profit and non-profit companies. The main challenges posed by the current economic situation to the management of PAs also focus on measuring and evaluating performance, improving the quality of services and interacting with users and citizens.	
Sustainable development ethics: sustainable development and dignified work	Goal 8 of the UN 2030 Agenda (Dignified work and economic growth) links the commitment to incentivize lasting, inclusive and sustainable economic growth with full and productive employment and decent work. The concept of dignified work will be identified through crucial issues for the labor market and the main international documents that refer to it.	
Social innovation and common goods	The course aims to provide the tools to understand and analyses social innovation and share economic practices developed in different sectors of the economy and society in response to current trends (UN 2030 Agenda).	
Health, nutrition and sustainable development	The course aims to address biological and biomedical issues in light of the objectives of sustainable development, Responsible Research and Innovation (RRI) and open science proposed by the European Commission. Epidemiological data on communicable and non-communicable diseases (cardiovascular, metabolic and respiratory problems and cancer) will be analyzed, especially considering developing countries concerning social conditions, environmental factors, food availability, and health provision.	




Courses with SDGs	Description	SDGs
Environmental sustainability assessment tools	The course aims to explore some environmental issues with particular reference to an assessment of the main effects of anthropogenic activities on human health, ecosystems, resource use and climate change. The course provides familiarity with tools and methodologies to quantify the environmental (water, carbon and ecological) effect of a person, production process or system.	
Master MARIS (reporting, innovation and sustainability)	This aims to create and develop qualified professional profiles in the field of sustainable development, non-financial reporting, social innovation and social and environmental responsibility. MARIS focuses on development models promoted by international organizations and national governments to instill the knowledge necessary to achieve sustainable growth goals.	
Sustainable Labs	This extra training activity encourages young people to identify the social and environmental needs of the Lazio Region territory and to take a proactive attitude aimed at designing and investigating innovative ideas of sustainable development in response to identified needs.	

Table 2 shows how the Tor Vergata University of Rome is expanding its range of courses aimed at sustainable development. It offers students numerous opportunities to study sustainability issues and obtain a title that ensures them the acquisition of environmental, economic and social sustainability skills. Sustainable Labs have contributed significantly to reinforcing the proactive approach of students and applying it to the themes of innovative and sustainable entrepreneurship. EducAction has been realized in a model of bottom-up academic training to encourage young students to focus on the needs of their territory and to be active in their future. By becoming the promoters of change and spokespeople of this innovative culture, students can spread their enthusiasm and vision to other generations.

Table 3. Projects and related participant to Sustainable Labs

Academic year	Students engagement	Activated sustainable project
2014-2015	120	21
2015-2016	200	35
2016-2017	110	25
2017-2018	63	15
2018-2019	106	23
2019-2020	77	17
TOTAL	676	136

Table 3 shows the sustainable development projects initiated by Tor Vergata University of Rome in the last six years and the relative involvement of students in the same projects.

Third Mission area

Three projects were analyzed by assessing the social and environmental dimensions of sustainability.

1. I GREENtosi - The green cultural association of the university

The first project aimed to actualize and highlight an idea born in the New Economy Labs⁴: the definition of a green cultural association (I GREENtosi) that would nurture an

⁴ In 2015, the Department of Management and Law of the Faculty of Economy successfully started an extracurricular activity called New Economy Labs, a new training-action format capable of interesting young students in the needs of

innovative culture oriented toward socio-environmental progress. This started with a change in students' attitudes to favor environmental protection.

A group of students at the Tor Vergata University of Rome wanted to challenge the entire academic community to change their habits and adopt proactive and sustainable attitudes and behaviors from environmental, social and economic viewpoints. Hence, the name "I GREENtosi" indicates concrete actions favoring green activities at Athenaeum.

I GREENtosi was formally established in March 2019 as a green cultural association to promote sustainability and manage activities for sustainable development and social responsibilities by the university. To date, the association has over 150 members, including students, alumni, professors, and technical-administrative staff. This number is set to rise as students' interest in sustainability grows. A survey conducted at the university (2017) shows that nine out of ten students say they are recycling and over 70% travel to the university by public transportation. However, students do not feel a strong commitment from the university, as an institution, to sustainability. This is precisely the reason for the birth of I GREENtosi. This association aims to be a bridge between students and administration because students can be spokespersons for bottom-up ideas and sustainable changes. The youth of the association has so far prevented it from defining concrete projects and verifying its impact and repercussions on the university. Similarly, it remains difficult to evaluate the change in mentality at the university.

2. Goccia Goal One - Climate Change in Athenaeum

Based on a project with MARIS Master, the authors started an initiative aimed at combining a master's research with projects that would impact the university's administration. The final goal was to make the university plastic-free, responding to the invitation of the RUS to reduce the consumption of disposable plastic and annual CO₂ emissions. We reached our initial goal: to significantly reduce the consumption of bottled water and provide a service that increases the well-being of the university community. It was thought that to reduce the amount of plastic used on our campus, we needed to reduce the amount of bottled water consumed by those who attend the university daily. To achieve this, two tools were needed: reusable water containers and drinking water that was certified and responsive to the needs of the university community.

About the container fillable stainless steel bottles were distributed. However, in formulating a project that reflected the concept of sustainability, we went a step further. To ensure that the bottle was carbon neutral, we used a supplier who guaranteed compensation for carbon dioxide emitted during production, packaging, and transportation through international projects and reforestation certificates. Therefore, each 500 ml water bottle filled with water contributed to reducing atmospheric carbon dioxide emissions by approximately 0.08 kg CO₂ eq.

Concerning the second tool, we decided to offer a service that met the needs of the university community by installing purified water dispensers supplying smooth, sparkling and chilled water. To guarantee the quality, in collaboration with the Analysis and Process Certification Laboratory (LabCap) in the Department of Chemical Sciences and Technologies, water is periodically subjected to laboratory analysis and the results are published on the LabCap website. During the "Caccia al kWh" event⁵, 300 free water bottles were distributed, and ten dispensers were installed in the macro-areas of Sciences and Letters and the Faculties of Medicine and Economics. Therefore, the project deliverables can be

their own territory/university and implementing innovative ideas and projects in cooperation with local businesses, creating a bridge between science and society with a view to generating shared value and sustainable development.

⁵ Caccia al kWh is an annual event organised by RUS to reduce energy waste within universities and raise the awareness of the entire academic community of responsible environmental behaviours. The third edition of this event will be held in April 2020.

summarized as 1) stainless steel bottles distributed during the event and 2) purified water dispensers installed in every macro-area and faculty of the university.

When each person has a reusable container and access to certified drinking water, the demand for water bottled in plastic containers should decrease, even if only to save the cost of purchasing water. The benefit of the Goccia project to the university community is therefore evident, as is the reduction in the use of plastic and the CO₂ emissions associated with it. Only three months after the start of the project, important results have been achieved. After the “Caccia al kWh” event, more than 2,000 bottles were sold, with a total of 509,754 liters of water dispensed and a reduction of 1,019,508 plastic bottles at the university.

Table 4. Project results

Project start date: 28 th February 2019 (data updated to 31 st January 2020)			
Number of dispensers of water: 25			
	Liters of water dispensed	Number of bottles avoided	CO ₂ emissions avoided (kg)
Administrative office	14,119	28,238	2,259
Economics	133,227	266,454	21,316
Engineering	108,010	216,020	17,282
Literature	49,587	99,174	6,750
Medical	78,838	157,676	12,614
Science	125,973	251,946	25,368
TOTAL	509,754	1,019,508	85,589

3. Ethical Cash Mobs

Ethical Cash Mobs represent a new frontier that encourages people to participate in the collective shopping experience in favor of products that embody ethical values. Within the Sustainable Labs course of the Tor Vergata University of Rome, various initiatives have been launched, involving the active participation of students in the design and implementation of events, by initiating stakeholder engagement processes, to raise awareness of critical and responsible consumption. Particularly, several Ethical Cash Mobs have been organized (Mititelu et al., 2017). The first was organized during 2015 and involved two different projects. The first was called “Ricompriamoci il Futuro” and this took place on the outskirts of Rome for purchasing fair-trade products. The event was held in the first eco-friendly supermarket of Lazio Region, named *Simply Market*. The second project, named “Abbattiamo le ingiustizie”, took place at the *La locanda dei girasoli* restaurant. This was dedicated to disadvantaged young people. Both events showed a high level of participation and engagement of the academic community (researchers, students and the Rector of the Faculty).

Two Ethical Cash Mobs were also organized by the university during 2016. The Ethical Cash Mob for the World Fair Trade Challenge was linked to a worldwide campaign for fair-trade coffee to support farmers in countries affected by climate change. The project “Doni di Natale” at the *Le Artigiane* department store supported products made in Italy and recycling waste materials.

Responsible consumer action launched with the 2017 Ethical Cash Mob “I tempi della natura” was organized by the *Orto Botanico di Ateneo* and the Faculty of Economics of the Tor Vergata University of Rome. The intention was to finance green therapy and rehabilitation programs for people with disabilities through the sale of vegetables grown in the natural season of production. The process of cultivation, harvesting, and selling involved disabled people.

During a national event, Saturday for Future, in 2019, an Ethical Cash Mob was held in Rome in *Piazza del Popolo*. Students of the Tor Vergata University of Rome became spokespeople for sustainable change through communication and gamification (sustainability questionnaires). The students, interviewing and directly involving passers-by at the event, asked them about their knowledge of sustainability. The project aims to affirm the need for sustainable change with a much wider group of consumers. Hence, through students' involvement, it is possible to demonstrate how the university should act as a bridge between training and territory (sustainability).

Conclusions

Universities are experiencing a growing trend in redefining their strategies and organizations concerning sustainability (Beynaghi et al., 2016; Ferrer-Balas et al., 2010; Waas, Verbruggen, & Wright, 2010). Sustainability is seen not only as a component of education, research, and innovation but also as a social learning process within and beyond academia (Barth & Michelsen, 2013; Ferrer-Balas, Buckland, & Mingo, 2009).

This study shows how the Tor Vergata University of Rome has adopted sustainable development through the active participation of the academic community. In this way, both the environmental and social impact are realized. Moreover, the role of individual actors is reconceived as "multipliers of sustainability" (Calvano, 2017) in the places and environments of their lives, work, and society.

We consider the two themes to which the Tor Vergata University of Rome is particularly committed. Concerning teaching, Table 2 shows the different courses provided by the university, emphasizing the commitment to sustainable development that each faculty demonstrates. This commitment incorporates all faculties, which work together to raise the awareness of their students.

As regards the second area of the action analyzed in this paper, the aforementioned projects show how the Tor Vergata University of Rome, through a bottom-up model, is increasingly integrating experiential teaching to actively engage students and communicate with the entire university community the value of environmental sustainability and social responsibility.

The lesson we can learn from this paper lies in the dynamism created around these initiatives implemented for students over the years by the university (but also organized by students) has aroused a strong spirit of participation and strong enthusiasm from the academic community. Hence, the originated value is the presence of community which can be more careful to sustainability and consequently to the safety of what concerns the planet and the future of mankind.

However, this paper is limited only to describing the teaching courses and projects and their quantitative aspects without evaluating qualitative areas that relate more to student satisfaction. This limitation of the case study can be circumvented, in future research, through a survey on sustainable behavior across the entire academic community, to understand whether the actions are taken to influence the attitudes of those who live in university spaces daily.

The projects at the Tor Vergata University of Rome show how the commitment to sustainable development by the entire community is strategic to creating cultural change (Larsson & Holmberg, 2018). Especially, the commitment of students is linked to the adoption of sustainable behaviors and lifestyles both inside and outside the university. Awareness of the key role of students is what leads the Tor Vergata University of Rome to involve them in University sustainability projects that often take the form of system projects as well as sporadic events.

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References

- Albareda-Tiana, S., Ruíz-Morales, J., Azcárate, P., Valderrama-Hernández, R., & Muñoz, J.M. (2020). The EDINSOST project: implementing the sustainable development goals at the university level. In Leal Filho, W., Salvia, A.L., Pretorius, R., Brandli, L., Manolas, E., Alves, F., Azeiteiro, U., Rogers, J., Shiel, C., & Do Paco, A. (Eds), *Universities as Living Labs for Sustainable Development* (pp.193-210). Cham, CH: Springer.
- Antonelli, A., Bachiorri, A., Calvano, G., De Nictolis, E., Fiorani, G., Giommarini, C., & Iaione, C. (2019, May). *Educazione Universitaria per la Sostenibilità [University Education for Sustainability]*. Paper presented at the Conferenza dei Rettori delle Università Italiane, Rome, Italy.
- Barth, M., & Michelsen, G. (2013). Learning for change: an educational contribution to sustainability science. *Sustainability Science*, 8, 103-119. DOI: 10.1007/s11625-012-0181-5.
- Beynaghi, A., Trencher, G., Moztarzadeh, F., Mozafari, M., Maknoon, R., & Leal Filho, W. (2016). Future sustainability scenarios for universities: moving beyond the United Nations decade of education for sustainable development. *Journal of Cleaner Production*, 112, 1464-1474. DOI: 10.1016/j.jclepro.2015.10.117.
- Bocchi, G., & Ceruti, M. (2004). *Educazione e globalizzazione [Education and globalization]*. Milan, IT: Raffaello Cortina.
- Calvano, G. (2017). *Educare per lo sviluppo sostenibile [Educate for sustainable development]*. Rome, IT: Aracne.
- Carayannis, E.G., & Campbell, D.F.J. (2010). Triple helix, quadruple e helix and quintuple helix and how do knowledge, innovation and the environment relate to each other? A proposed framework for a trans-disciplinary analysis of sustainable development and social ecology. *International Journal of Social Ecology and Sustainable Development*, 1(1), 41-69. DOI: 10.4018/jesd.2010010105.
- Cortese, A.D. (2003). The critical role of higher education in creating a sustainable future. *Planning for Higher Education*, 31(3), 15-22.
- Ferrer-Balas, D., Buckland, H., & Mingo M. (2009). Explorations on the university's role in society for sustainable development through a systems transition approach. Case-study of the Technical University of Catalonia (UPC). *Journal of Cleaner Production*, 17(12), 1075-1085. DOI: 10.1016/j.jclepro.2008.11.006.
- Ferrer-Balas, D., Lozano, R., Hisingh, D., Buckland, H., Ysern, P., & Zilahy, G. (2010). Going beyond the rhetoric: system-wide changes in universities for sustainable societies. *Journal of Cleaner Production*, 18(7), 607-610. DOI: 10.1016/j.jclepro.2009.12.009
- Fornasa, W., & Salomone, M. (2007). *Formation and sustainability. Responsibility of the University*. Milan, IT: Franco Angeli Editore.
- Geryk, M. (2018). Sustainable development goals as a perspective for higher education institutions. *Research Papers of Wroclaw University of Economics*, 520, 54-63.
- Kang, L., & Xu, L. (2018). Creating sustainable universities: organizational pathways of transformation. *European Journal of Sustainable Development*, 7(4), 339-339. DOI: 10.14207/ejsd.2018.v7n4p339.
- Larsson, J., & Holmberg, J. (2018). Learning while creating value for sustainability transitions: the case of Challenge Lab at Chalmers University of Technology. *Journal of Cleaner Production*, 172, 4411-4420. DOI: 10.1016/j.jclepro.2017.03.072.
- Leicht, A., Heiss, J., & Byun, W. J. (2018). *Issues and trends in education for sustainable development*. Paris, FR: UNESCO.
- Lozano, R., Ceulemans, K., Alonso-Almeida, M., Huisinigh, D., Lozano, F.J., Waas, T., Lambrechts, W., Lukman, R., & Hugè, J. (2015). A review of commitment and implementation of sustainable development in higher education: results from a worldwide survey. *Journal of Cleaner Production*, 108(A), 1-18. DOI: 10.1016/j.jclepro.2014.09.048.

- Malakoff, D. (2013). The many ways of making academic research pay off. *Science*, 339(6121), 750-753. DOI: 10.1126/science.339.6121.750.
- Mititelu, C., Fiorani, G., & Litardi, I. (2017). Fostering sustainable development and entrepreneurship: the new role of university. *Management Dynamics in the Knowledge Economy*, 5(3), 395-414.
- Mori Junior, R., Fien, J., & Horne, R. (2019). Implementing the UN SDGs in universities: challenges, opportunities, and lessons learned. *Sustainability: Journal of Record*, 12(2), 129-133. DOI: 10.1089/sus.2019.0004.
- Owens, T.L. (2017). Higher education in the sustainable development goals framework. *European Journal of Education*, 52(4), 414-420. DOI: 10.1111/ejed.12237.
- RUS – Educazione (2020). Gruppi di Lavoro. Retrieved on January 25, 2020 from <https://sites.google.com/unive.it/rus/gruppi-di-lavoro/educazione>.
- Sterling, S. (2013). *Educazione sostenibile [Sustainable education]*. Cesena, IT: Anima Mundi Editrice.
- UNESCO (2009). *Review of contexts and structures for education for sustainable development*. Paris, FR: UNESCO.
- UNESCO (2014). *UNESCO Roadmap for implementing the global action programme on education for sustainable development*. Paris, FR: UNESCO.
- UNESCO (2017). *Educazione agli obiettivi per lo sviluppo sostenibile - obiettivi di apprendimento [Objective education for sustainable development - learning objectives]*. Paris, FR: UNESCO.
- Waas, T., Verbruggen, A., & Wright, T. (2010). University research for sustainable development: definition and characteristics explored. *Journal of Cleaner Production*, 18(7), 629-636. DOI: 10.1016/j.jclepro.2009.09.017.
- Wals, A.E.J. (2015). *Beyond unreasonable doubt. Education and learning for socioecological sustainability in the Anthropocene*. Wageningen, NL: Wageningen University.
- World Commission on Environment and Development (1987). *Our Common Future*. Retrieved on January 25, 2020, from <https://sustainabledevelopment.un.org/content/documents/5987our-common-future.pdf>.

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