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SUSTAINABLE DEVELOPMENT IN HIGHER EDUCATION IN BUSINESS SCIENCES: A MULTIDIMENSIONAL ANALYSIS IN THE PORTUGUESE CONTEXT

Doctoral Thesis in Business Management, supervised by Professor Doctor Susana Margarida Faustino Jorge and Professor Doctor Teresa Cristina Pereira Eugénio and presented to Faculty of Economics of Coimbra University.

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TERMO DE RESPONSABILIDADE

I declare that I am the author of this thesis, which is an original and unpublished work that has never been submitted to another higher education institution for obtaining an academic degree or other qualification. I also attest that all citations are properly identified and that I am aware that plagiarism is a serious lack of ethics, which may result in the annulment of this dissertation.

Dedication

To my family, especially my husband
who always walked by my side and in difficult moments
supported me and gave me the strength to continue.

"Education and teaching are the most powerful weapons you can use to change the world."

Nelson Mandela

"From a new consciousness can arise the creation of a new world, fairer and more sustainable. We have to reinvent ourselves, reframe our perceptions, reshape our beliefs and behaviours, fertilise our knowledge, restructure our institutions and recycle our societies.

our institutions and recycle our societies."

Hazel Henderson

"Within the next 10 *years*, *the higher education sector in this country will be recognised as a major contributor to society's efforts to achieve sustainability – through the skills and knowledge that its graduates learn and put into practice*, *and through its own strategies and operations*."

(Higher Education Funding Council for England, 2008, 2005, p. 8)

"The change the company wants for the country is that in ten years time we will have professionals of the future, who are aware of their decision process, interested in innovating and able to have better social, economic, financial and educational performance."

Bianca B. Moreira Talassi, da Fundação Siemens

"*The PRME initiative was launched to nurture responsible leaders of the future. Never has this task been more important. Bold leadership and innovative thinking are needed to achieve the Sustainable Development Goals."*

António Guterres, United Nations Secretary-General

"Collaboration is key to tackling the existential threats and risks that face economies and societies due to climate change. Professional accountants are therefore an essential part of this necessary joined-up thinking to drive good decision-making, and make the necessary links with the investment community and other stakeholders. Accountants' skills and knowledge around integrated reporting, encompassing capitals be they natural, financial, manufactured, human, social/relationship or intellectual, have a vital role in this global effort."

Helen Brand, Chief Executive of ACCA

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Everything we are, we owe to something or someone because each of us is the result of our learning, experiences, sharing, diversity, difficulties, joys and sorrows.

A thesis is never an individual project, and throughout its development, there were several people who, in one way or another, collaborated and contributed to its realisation. With enormous gratitude and esteem, I express here my appreciation for all those who were somehow involved in this project.

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Abstract

Within Higher Education Institutions (HEI), the new perspective of Education for Sustainable Development (ESD) and Teaching about Sustainable Development (TSD) has led to a greater openness of their activity to society and those around them, highlighting the need to improve the capacity of education systems to prepare societies for Sustainable Development (SD). These improvements include developing teaching programs and the development of curricula for sustainability that prepare students for various professional fields. Course and curriculum reform offers an opportunity to produce the desired changes in teaching programs by providing a natural basis for analyzing existing practices and updating learning outcomes. The future professional in accounting and management should be prepared to produce, interpret, and review companies' performance in the different dimensions of SD (environmental, social and economic). To this end, the students themselves and the Professional regulators must contribute to incorporating this SD theme and collaborate with HEI in coherently reformulating the curricula to prepare future professionals for the new challenges.

This thesis aims to achieve three general objectives, translated into the three articles that constitute it within the scope of courses in the areas of Accounting and Management: 1) to analyze state of art on the integration of Teaching on Sustainable Development of Higher Education Institutions in Portugal, 2) to understand the students' perception of this theme 3) to analyze the importance assigned by students to the SD themes for the performance of their future profession and to evaluate the contribution of the regulators of the profession in this process. The study focuses on courses in the areas of Business Sciences (Accounting and Taxation, and Management and Administration) in public higher education, with reference to Portuguese HEIs.

The research is framed fundamentally by Stakeholder Theory. This theory assumes that organizational changes occur in the organization's attempt to respond to stakeholders and, therefore, stakeholders shape the life of entities. This study draws on stakeholder theory for a better understanding of the influence of internal (students) and external (professional regulators) stakeholders for the integration of TSD in HEI in Accounting and Management courses, in Portugal.

Several methodologies of analysis were used. For the first work, content analysis was used to analyze the curricular unit syllabi collected from the data available on the web pages of each HEI.

For the second work, a questionnaire addressed to the students was used. Descriptive (tables and requirements graph illustrating the distributions of values for the student characterization and academic profile variables) and inferential (Spearman's Coefficient, Internal Consistency Analysis, Cronbach's alpha and Discriminant Analysis) statistical techniques were used to process the data.

Data for the third work were collected based on a questionnaire to students, interviews with the President of the professional associations, and content analysis of technical journals and other publications of the professional associations and their websites and social networks.

Statistical methods were used for data processing, such as consistency analysis, binary logistic regression and Student's t-test. Regarding the interviews, the qualitative information collected was processed after transcription. Finally, a content analysis was performed on the documents/information from professional associations.

This thesis, in general, fills a gap in the literature, as it seeks to draw the attention of HEI and regulators of the profession to the importance of integrating the topic of SD in Accounting and Taxation and Management and Administration courses. Future professionals in these areas should be prepared with awareness, knowledge, skills, and values on this current and relevant theme to respond to the new demands of the labor market, companies, and society in general, given the challenges of the change process catalyzed by the Sustainable Development Goals (SDGs).

Keywords: Sustainable development, Academic curricula, Business sciences, Teaching, Future accountants, Professional regulators, Stakeholder Theory

Resumo

No âmbito das Instituições de Ensino Superior (HEI), a nova perspetiva da Educação para o Desenvolvimento Sustentável (ESD) e o Ensino sobre Desenvolvimento Sustentável (TSD), têm levado a uma maior abertura da sua atividade à sociedade e a todos os que a rodeiam, destacando a necessidade de melhorar a capacidade dos sistemas educacionais para preparar as sociedades para o Desenvolvimento Sustentável (SD). Essas melhorias incluem o desenvolvimento dos *curricula* para a sustentabilidade e o desenvolvimento de programas de ensino que preparem os estudantes para diversas áreas profissionais. A reforma dos cursos e curricula oferecem uma oportunidade para produzir as mudanças desejadas nos programas de ensino, proporcionando uma base para analisar as práticas existentes e atualizar os resultados da aprendizagem. É crucial que o futuro profissional das áreas da contabilidade e gestão esteja preparado para a produção, interpretação e revisão de informação das empresas acerca da sua atuação nas diferentes dimensões do SD (ambiental, social e económica). Para tal é importante que os Reguladores profissionais contribuam para a integração desta temática de SD e colaborem com as HEI na reformulação dos *curricula* de forma coerente entre si, para preparar os futuros profissionais para os novos desafios.

Esta tese pretende concretizar três objetivos gerais, traduzidos nos três artigos que a constituem no âmbito dos cursos nas áreas da Contabilidade e da Gestão: 1) analisar o estado da arte sobre a integração do Ensino sobre o Desenvolvimento Sustentável das Instituições de Ensino Superior em Portugal, 2) perceber a perceção dos estudantes sobre esta temática e 3) analisar a importância atribuída pelos estudantes aos temas SD, para o desempenho da sua futura profissão e avaliar sobre qual o contributo dos reguladores da profissão neste processo. O estudo centra-se em cursos nas áreas das Ciências Empresariais (Contabilidade e Fiscalidade, e Gestão e Administração) do ensino superior público, tendo como referência as HEI portuguesas.

A investigação é enquadrada fundamentalmente pela Teoria dos *Stakeholders*. Esta teoria assume que as mudanças organizacionais ocorrem na tentativa de a organização responder aos *stakeholders* e, portanto, estes moldam a vida das entidades. Neste estudo recorre-se à teoria dos *stakeholders* para uma melhor compreensão da influência dos

stakeholders internos (estudantes) e externos (Reguladores profissionais) para a integração do TSD nas HEI nos cursos de Contabilidade e Gestão, em Portugal.

Foram utilizadas várias metodologias de análise. Para o primeiro trabalho, foi utilizada a análise de conteúdo para analisar os programas das unidades curriculares recolhidos a partir dos dados disponíveis nas páginas de internet de cada HEI.

Para o segundo trabalho, foi utilizado um questionário dirigido aos estudantes. Para o tratamento dos dados foram utilizadas técnicas de estatística descritiva (tabelas e gráfico de requisitos que ilustram as distribuições de valores para as variáveis de caracterização do estudante e perfil académico) e inferenciais (Coeficiente de *Spearman*, Análise de consistência interna, *Cronbach's alpha* e Análise Discriminante).

Os dados para o terceiro trabalho foram recolhidos com base num questionário aos estudantes, entrevistas aos Bastonários das ordens profissionais e análise de conteúdo a revistas técnicas e outras publicações das ordens profissionais e aos respetivos sítios web e redes sociais.

Para o tratamento dos dados recorreu-se a métodos estatísticos, a análise de consistência, a regressão logística binária e ao teste t de *Student*. Relativamente às entrevistas, foi efetuado o tratamento da informação qualitativa recolhida, após a respetiva transcrição. Por último foi elaborada uma análise aos conteúdos aos documentos/ informação das ordens profissionais.

Esta tese vem preencher uma lacuna na literatura, na medida em que procura ser uma chamada de atenção e um contributo para as HEI e Reguladores profissionais, da importância da integração da temática do SD nos cursos de Contabilidade e Fiscalidade e Gestão e Administração. Os futuros profissionais destas áreas devem ser preparados com a consciência, o conhecimento, as capacidades e os valores sobre esta temática tão atual e relevante, para que possam vir a responder às novas exigências do mercado de trabalho, das empresas, e da sociedade em geral, face aos desafios do processo de mudança catalisado pelos Objetivos do Desenvolvimento Sustentável (SDGs).

Palavras-chave: Desenvolvimento sustentável, Currículos académicos, Ciências empresariais, Ensino, Futuros contabilistas, Reguladores profissionais, Teoria dos *Stakeholders*

List of abbreviations and acronyms

A3ES	Assessment and Accreditation of Higher Education
ACCA	Association of Chartered Certified Accountants
BSc	Bachelors
CUs	Curricular units
EMAS	Eco-Management and Audit Scheme
ESD	Education for sustainable development
ESG	Environmental, Social and Governance
ECTS	European Credit Transfer System
EU	European Union
DGES	General Directorate of Higher Education
GRI	Global Reporting Initiative
HEI	Higher Education Institutions
IAESB	International Accounting Education Standards Board's
IFAC	International Federation of Accountant
IFRS	International Financial Reporting Standards Foundation
IIRC	International Integrated Reporting Council
ISO	International Organization for Standardization
MSc	Master
MDGs	Millennium Development Goals
NGOs	Non-governmental organization
OCC	Order of Certified Accountants
OROC	Order of Statutory Auditors
OECD	Organisation for Economic Co-operation and Development
PRME	Principles for Responsible Management Education
PAOs	Professional Accountancy Organizations
SD	Sustainable Development
SDGs	Sustainable Development Goals
SDGD	Sustainable Development Goals Disclosure
SDSN	Sustainable Development Solutions Network
TSD	Teaching about Sustainable Development
UNESCO	United Nations Educational Scientific and Cultural Organization
UN	United Nations Organization

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GENERAL INTRODUCTION

1. Background of the research

This PhD thesis focuses on the context of Sustainable Development in public Higher Education Institutions (HEI) in Portugal and, more specifically, on Teaching about Sustainable Development (TSD) in Accounting and Management courses.

1.1. Education for Sustainable Development – Historical Evolution

In 1972, at the United Nations Conference on the Human Environment, held in Stockholm, the book "The limits to growth" was presented, whose theme was the impact of pollution and man's productive activity on future generations. In this book, the term "Sustainability" began to be outlined; the international community began to adopt the idea that socio-economic development and the environment until then treated as separate issues, could be managed mutually, and a series of principles for sound environmental management was adopted, which resulted in the Stockholm Declaration and Action Plan for the environment.

The Stockholm Declaration with 26 principles on environmental issues at the forefront of international concerns marked the beginning of a dialogue between industrialized and developing countries and established principles for international environmental issues, including human rights, natural resource management, pollution prevention, and the relationship between environment and development.

The Action Plan was composed of 109 recommendations focused on three basic aspects: a) Global Environmental Assessment Program; b) Environmental management activities; and c) International measures to support assessment activities carried out at national and international levels in the form of education, training, and public information programs.

The Stockholm Conference was thus widely recognized as an important milestone in environmental education by establishing that education should integrate environmental issues and be directed both to the younger generations and to adults, constituting the basis for a well-informed public opinion, and the conduct of individuals, enterprises, and collectivities, inspired by a sense of their responsibility for the protection and improvement of the environment (Stockholm Declaration, 1972).

In October 1977, influenced by the Belgrade Charter, the world's first Intergovernmental Conference on Environmental Education took place in Tbilisi, Georgia, with representatives from 68 states and 20 non-governmental organizations (NGOs). The result was the Tbilisi Declaration, which called for education to consider the environment in its totality, natural, artificial, ecological, economic, technological, social, legislative, cultural and aesthetic; to be a continuous and permanent process, adopting an interdisciplinary method. In addition, the declaration calls for higher education to consider environmental and sustainability concerns within the overall scope of the university, being the first declaration to take an international and holistic approach to the environment within a higher education context.

In 1987 the concept of Sustainable Development (SD) emerged, preceded by the World Commission on Environment and Development led by Former Norwegian Prime Minister Gro Harlem Brundtland, who conceived, together with the UN (United Nations Organization), the report "Our common future". Also known as the Brundtland Report, this report details common challenges and efforts, including the management of common areas such as peace, security, development, and the environment; and proposes institutional and legal changes (Holden et al., 2014).

It is important to note that SD and Sustainability are two distinct yet directly related terms. According to the Brundtland Report, SD is understood as: a development that seeks to meet the needs of the present generation without compromising the ability of future generations to meet their own needs, enabling people, now and in the future, to achieve a satisfactory level of social and economic development and human and cultural fulfilment, while making reasonable use of the earth's resources and conserving species and natural habitats (UNDESA, 2002).

Sustainability refers to the ability of society to sustain itself, to maintain itself, aiming to establish a balance between what nature can offer, the limit to the consumption of natural resources and the improvement in the quality of life in society (Duran et al., 2015).

The Brundtland Report also presents a list of measures, among them: a) limiting population growth; b) guaranteeing long-term food supply; c) preserving biodiversity and ecosystems; d) reducing energy consumption and developing technologies that allow for the

use of renewable energy sources; e) increasing industrial production in non-industrialized countries based on ecologically adapted technologies; f) controlling unregulated urbanization and integrating smaller towns and cities; and g) satisfying basic needs (Cavalcanti, 1995).

At the international level, with the various international institutions as agents, the Brundtland Report defines the following goals: h) development organizations must adopt a sustainable development strategy; i) the international community must protect supranational ecosystems, such as Antarctica, the oceans and space; j) wars must be banned, and k) the United Nations (UN) must implement an SD program (Cavalcanti, 1995).

The idea of Education for Sustainable Development emerged at this time and began to be explored from the moment SD was assumed as a global goal at the UN General Assembly (Hopkins and McKeown, 2002).

In October 1990 in Talloires, France, came the Talloires Declaration, created by university leaders for a sustainable future (Association of University Leaders for a Sustainable Future - ULSF)[1]. The Talloires Declaration was endorsed by about 280 universities from 40 nations and was the first official document that involved sustainable development with higher education (Brito et al., 2018). The Talloires Declaration determines that HEI have a key role in creating a just and sustainable future for all humanity, in harmony with nature[2].

In 1991, the Halifax Declaration, endorsed from the Conference on University Action for Sustainable Development, held at Dalhousie University, Halifax, Canada, called for Higher Education Institutions to place much more emphasis on the value of interdisciplinary work and to be more proactive about SD. The Halifax Declaration contributed to an action plan that outlined short- and long-term goals for Canadian universities and served as the basis for the United Nations Conference on Environment and Development (Wright, 2002).

At that conference held in Rio de Janeiro in 1992, the theme of SD gained even more prominence. Known as Rio-92 or Eco-92, the conference consolidated the concept of SD with the junction of the economic development and environmental protection terms, materializing the possibility only outlined at the Stockholm Conference in 1972, and

[1] Conformed http://www.ulsf.org. Accessed in 20/01/2021

[2] ULSF. Programs: Talloires Declaration. Washington, DC: Association of University Leaders for a Sustainable Future, 1990.

consecrating the use of the SD concept defended in 1987 by the World Commission on Environment and Development (Brundtland Commission).

This conference contributed, in a way, to a deeper and more mature consolidation of the concept of SD, which materialized in 40 chapters of a document called Agenda 21, signed by 179 countries. Agenda 21 established the importance of each country committing to reflecting, globally and locally, on how governments, companies, organizations, and all sectors of society could cooperate in studying solutions for socio-environmental problems (Dias, 2009).

The Rio Declaration and Agenda 21 resulted in two documents of great relevance to environmental education.

Chapter 36, "Promoting Education, Public Awareness and Training", of Agenda 21, points to Tbilisi as the leading precedent, emphasizing the role of education in achieving environmental awareness and development in all sectors of society, which contributes to the concept of Education for Sustainable Development (ESD). The three strands that inspire the chapter are reorienting education for SD, raising public awareness of SD, and strengthening training to assist in this process.

In addition, Chapter 31, "The Scientific and Technological Community", discusses the role of the scientific and technological community. This chapter focuses on enabling the scientific and technological community, comprised of, among others, engineers, architects, industrial designers, urban planners, policymakers, and other professionals, to make a more open and influential contribution to decision-making processes concerning the environment and development.

Also of note is Chapter 35, "The Science for Sustainable Development", which notes that the role of HEI is crucial in helping society by developing and assisting in the implementation of new, scientifically sound approaches to support SD; and Chapter 37, "National Mechanisms and International Cooperation for Institutional Strengthening in Development Countries", which calls for the development and enhancement of national and regional capacities for SD.

Another initiative is the Campus Earth Summit at Yale University in 1995, which resulted in the document entitled "Blueprint for a Green Campus", an action plan for the "Green Campus". Of the ten recommendations in the Blueprint, two emphasize teaching,

arguing that environmental knowledge should be integrated into all relevant disciplines and that the quality of environmental course offerings should be improved.

In August 1993, the Swansea Declaration was promoted and signed by the Association of Commonwealth Universities gathered at the 15th Conference, at the University of Wales, Swansea, Wales, in August 1993, attended by over 400 universities. This meeting, inspired by examples of Talloires and Halifax, represents another initiative to protest against the planet's degradation. In the same period, the Kyoto Declaration emerged. Some 90 university leaders met to discuss and adopt a declaration of principles based on the declarations made at the Talloires (1990), Halifax (1991), and Swansea (1993) conferences.

For the International Association of Universities, which promoted this event, universities have an important role in promoting SD. This unique document perfectly fits the continuity of the mission of promoting education through SD teaching and research.

Both statements refer to the capacity of HEI to teach and develop research on SD principles and encourage the promotion of Teaching about Sustainable Development (TSD) to respect the ethical obligations of a development that meets the needs of the present without compromising the capacities of future generations.

As an educational movement leading to global awareness of the environmental, social and economic crises, ESD aims to influence educational policies and provide guidance for all levels of education on knowledge, skills, values, behaviors and attitudes with a focus on sustainability (UNESCO, 2005).

In 1994, as a result of the COPERNICUS Program, a European cooperation and partnership program of the European University Association, Sustainable Europe Research Institute, Environmental Association of UK Universities and Colleges and some individual European universities proactive in SD, there appeared a document “THE CRE-COPERNICUS UNIVERSITY CHARTA”[3].

This document defines the actions to be taken by universities aiming at SD, among them: to encourage interdisciplinary education and collaboration and to develop research programs related to SD; to make efforts to disseminate knowledge and fill the gaps in the current literature available by preparing didactic material and establishing training

[3] Association of European Universities (CRE). (1994). COPERNICUS—The University Charter for Sustainable Development. http://www.copernicus-alliance.org/images/Documents/CRE_COPERNICUS_University_Charta.pdf Accessed in 11/10/2021

programs, and to create environmental education programs adapted to the different target groups.

Another declaration is the Thessaloniki Declaration, signed in December 1997 by the 93 states present at the international conference "Environment and Society: Education and Public Awareness", organized by the United Nations Educational Scientific and Cultural Organization (UNESCO) in Thessaloniki Greece. This declaration represents a turning point in education on environmental issues, placing environmental education within a perspective of education for a viable future at the service of SD.

In 1998, in the document "World Declaration on Higher Education in the 21st Century: Vision and Action", approved by the World Conference on Higher Education, higher education is understood as the educational level responsible for studies, training and research orientation, offered by universities or other post-secondary institutions approved by the State. In this view, higher education is understood as the place of formation of critical, qualified, and educated individuals contributing to the SD of a country.

In September 2000, world leaders meeting at the Millennium Summit reaffirmed their common obligations under a set of specific goals, the Millennium Development Goals (MDGs), to all the world's people, especially the most vulnerable and, in particular, to the world's children, to whom the future belongs. The eight MDGs comprised specific actions to fight hunger and poverty, associated with the implementation of policies on health, sanitation, education, housing, promotion of gender equality, and the environment, as well as measures to establish a global partnership for SD. For each of the eight goals, global targets were set, for a total of 21 targets, with progress monitored through a set of 60 indicators. Most of the targets set for the MDGs had a time horizon of 1990 to 2015, assessing progress on the indicators at regular intervals through 2015, based on initial data obtained in 1990 (Roma, 2019).

In October 2001, in the Declaration on Higher Education for SD, called the Luneburg Declaration, one of the main concerns was globalization. Higher education for sustainable human development was taken as a critical component of efforts to humanize globalization.

The declaration states that education in all its forms plays an indispensable role in meeting the critical challenges of SD.

Even before the UN resolution that declared 2005 the United Nations Decade of Education for Sustainable Development, the Ubuntu Declaration on Education, Science and Technology for Sustainable Development was signed in September 2002 during the World Summit on Sustainable Development or Rio+10, held in Johannesburg. The aim of this declaration was to create a global alliance to promote SD by integrating it into curricula at all levels of education[4].

A few days later the main challenges to be addressed for SD were recognized, the eradication of poverty, changing consumption and production patterns, the preservation of natural resources and the conscious use of these resources. It was emphasized once again on this occasion that education has the potential to play an important role in the future realization of a vision of sustainability that links economic well-being with respect for cultural diversity, the earth and its resources (UNESCO, 2007).

In 2005, UNESCO launched the United Nations Decade of Education for Sustainable Development, which reaffirmed the key role of education in shaping values that are supportive of SD, and in consolidating sustainable societies (UNESCO, 2005). The decade was established for the period between 2005 and 2014.

Launched in 2007 during the UN Global Compact Leaders' Summit in Geneva, the UN and the academic community recognized that the business leaders of the future would have to play a critical role in solving sustainability challenges. In response came the Principles for Responsible Management Education (PRME)[5], encourage educational institutions to implement sustainability in their programs, promoting the development of globally responsible leaders (Filho, 2017).

[4] Ubuntu Declaration on Education and Science and Technology for Sustainable Development. Available at: http://ulsf.org/the-world-summit-on-sustainable-development-and-higher-education-for-sustainable-development/. Accessed in 23/07/2021.

[5] The mission of the PRME is to transform business and management education, research and thought leadership globally, while promoting awareness about the Sustainable Development Goals, and developing the responsible business leaders of tomorrow. Currently the initiative counts over 850 business and management-related higher education institutions across 96 countries. PRME is governed, alongside the UN Global Compact, by a Board comprised of experts in academia and business. PRME works with UN Global Compact participants to help advance the Sustainable Development Goals in academia and connects responsible businesses with higher education institutions to help recruit talent with sustainability mindsets, skills and capabilities.
https://www.unglobalcompact.org/take-action/action/management-education. Accessed in: 21/08/2021

The six PRME can be summarized as follows[6]:

- Principle 1: Purpose: Develop the capabilities of students to be future generators of sustainable value for business and society at large and to work for an inclusive and sustainable global economy.
- Principle 2: Values: Incorporate into our academic activities and curricula the values of global social responsibility as portrayed in international initiatives such as the United Nations Global Compact.
- Principle 3: Method: Create educational frameworks, materials, processes, and environments that enable effective learning experiences for responsible leadership. Principle 4: Research: Engage in conceptual and empirical research that advances our understanding about the role, dynamics, and impact of corporations in the creation of sustainable social, environmental, and economic value.
- Principle 5: Partnership: Interact with managers of business corporations to extend our knowledge of their challenges in meeting social and environmental responsibilities and to explore jointly effective approaches to meeting these challenges.
- Principle 6: Facilitate and support dialogue and debate among educators, students, business, government, consumers, media, civil society organizations and other interested groups and stakeholders on critical issues related to global social responsibility and sustainability.

In the context of ESD, it is also important to highlight the Turin Declaration, produced in May 2009 in Italy, which highlights Sustainability Science that is coming to play an increasingly important role, in that it states that sustainability cannot be achieved only by involving the natural sciences but must also encompass the life, social sciences and humanities (Lozano et al., 2013b).

And, also, the Abuja Declaration, produced in May 2009 at the 12th General Conference of the Association of African Universities. The authors of this declaration recognize the sustainability problems on the African continent, such as poverty, disease, conflict, land degradation, deforestation, and urbanization, as well as the important role of

[6] http://www.unprme.org/about-prme/the-six-principles.php. Accessed in 18/03/2018

higher education in generating knowledge and educating the leaders and educators of the future (Lozano et al., 2013b).

In June 2012, as part of the process of creating an agenda that would replace the MDGs, given the end of their execution period in 2014, the United Nations Conference on Sustainable Development (Rio+20) was held in Rio de Janeiro. The resulting document, entitled "The Future We Want", laid the foundation for UN member countries to collectively build on the MDGs a new set of goals and targets for SD, which would come into effect in the post-2014 period - the Sustainable Development Goals (SDGs).

At this conference an initiative was also launched regarding the sustainable practices of HEI[7]. In the Declaration of the Higher Education Sustainability Initiative one of the points states: Teach sustainable development concepts, ensuring that they form a part of the core curriculum across all disciplines so that future higher education graduates develop skills necessary to enter sustainable development workforces and have an explicit understanding of how to achieve a society that values people, the planet and profits in a manner that respects the finite resource boundaries of the earth.

Higher Education Institutions are also encouraged to provide sustainability training to professionals and practitioners.

There is also to mention the Barcelona Declaration of October 2014 that calls for multidisciplinary, critical, and participatory thinking and comprehensive education for engineers. As Lozano et al. (2013b) explains “Although the Declaration of Barcelona is focused on engineering education, its principles are also valid for other disciplines.”

More than two years after the Rio+20 Conference in May 2015, at the World Education Forum in Incheon, South Korea, representatives of the global education community signed the Incheon Declaration - Education 2030 Framework for Action[8], embracing the proposal of the SDGs and in September 2015, the UN adopted a global action plan for SD called “Transforming Our World: The 2030 Agenda for Sustainable

[7] UNITED NATIONS. Higher Education Sustainability Initative for Rio+20. 2012. Available at: https://sustainabledevelopment.un.org/rio20 Accessed in: 23/08/2020.
The initiative is convened by the UNESCO, United Nations University, the UN Global Compact, the UN-backed Principles for Responsible Management Education (PRME) initiative, and the UN Environment Programme (UNEP).
[8] https://www.anafae.af/wp-content/uploads/2016/09/Education-2030-Fromwork-for-Action.pdf Accessed in 10/06/2021

Development", which presents 17 SDGs with 169 targets to be implemented by 2030 (UN 2015).

This Agenda calls for the shared responsibility of all actors, public and private, from all UN Member States, for the challenge of achieving the 17 SDGs in their three dimensions: Environmental, Social and Economic. The adoption by all 193 UN Member States of the 2030 Agenda for Sustainable Development represented the most relevant international political moment for SD after the Rio+20 Conference.

The Incheon Declaration constitutes the education community's commitment to the ESD 2030 (Education 2030) program and the 2030 Agenda for Sustainable Development, recognizes the important role of education as a key driver of SD and provides guidance for its implementation.

In September 2019, during the SDG Summit, António Guterres, Secretary-General of the United Nations, declared a Decade of Action to in order accelerate progress on the SDGs. Despite the great changes already registered, many are the problems that persist still; more needs to be done, and actions must become not only global but also local and individual. The year 2020 was then chosen for the beginning of this commitment, with the aim of strengthening, during the next ten years, the fight for the SDGs[9].

But in 2020, the world stopped, not only to take stock of what had already been achieved but mainly because of the Covid-19 pandemic. The World Health Organization (WHO) declared a global pandemic situation on March 11, 2020. The pandemic has resulted in significant global social and economic instability, and while the full extent of its impacts on global development and the achievement of the 2030 Agenda for Sustainable Development remains to be seen, they are inevitably harsh and worrisome, both in terms of hard data and in terms of perceptions and outlook for the future, given the increased instability and uncertainty[10].

Globally, global human development is expected to decline for the first time since the Human Development Index was created in 1990[11].

[9] https://unric.org/pt/objetivos-de-desenvolvimento-sustentavel-5-anos-depois/ Accessed in 22/07/2021
[10] https://www.plataformaongd.pt/noticias/revista-da-plataforma-o-roteiro-para-o-desenvolvimento-global-ate-2030
[11] http://hdr.undp.org/en/hdp-covid Accessed in 20/05/2021

According to the KPMG[12] study "ESG in times of crisis", the pandemic has brought "relief" to the environment, but with it, a wake-up call on the urgency of a more sustainable future and has shown how businesses are directly connected to society and how Environmental, Social and Governance (ESG) risks can spread very quickly throughout the global economic system. The Covid-19 pandemic is seen as a catalyst for the implementation of ESG strategies. Actions and trends that were already being developed in relation to these issues are now seen with more meaning and more urgency.

Very recently, more specifically in May 2021, and after a Conference organized by UNESCO in cooperation with the Federal Ministry of Education and Research of Germany and the German Commission for UNESCO as an advisory partner, over 80 ministers and vice ministers and 2,800 education and environment stakeholders committed to taking concrete steps to transform learning for the survival of our planet by adopting the Berlin Declaration on ESD. The adoption of the Berlin Declaration will create momentum for the implementation of ESD for 2030 Roadmap, the framework for this decade of Education for Sustainable Development. Every UNESCO Member State will be asked to create a network of actors who together can implement the ambitious vision for education until 2025[13].

Recent decades have witnessed a growing public awareness of SD and sustainability, and the inclusion of these subjects in higher education has not been excluded from the debate. Indeed, HEI around the world have signed international declarations to implement SD and sustainability through environmental literacy, curriculum development, research, and partnerships with governments, NGOs, and industry in developing sustainability initiatives and sustainable practices (Franco et al., 2019; Lozano, et al., 2013a; Waas et al., 2010).

ESD requires a shift of focus from teaching to learning. It requires an action-oriented transformative pedagogy that supports self-learning, participation, and collaboration; a problem-solving orientation; inter-and transdisciplinary; and the connection between formal and informal learning. Only such pedagogical approaches make it possible to develop the key competencies needed to promote sustainable development.

[12] KPMG is one of the largest professional services firms, including Audit, Tax and Advisory Services. It is part of the group of companies called Big Four, the four largest multinational companies in the sector.
[13] https://en.unesco.org/news/unesco-declares-environmental-education-must-be-core-curriculum-component-2025 Accessed in 09/07/2021

In the scope of this research and considering the "Teaching" dimension implicit in Education for Sustainable Development, the need arises to frame the expression "Teaching about Sustainable Development" to refer to what is taught in HEI on the subject.

1.2. Role of Higher Education Institutions in the Sustainable Development

From the analysis of the Declarations mentioned in the previous point, it is possible to conclude HEI themselves recognize education and research in SD with an unquestionable protagonism among the components of their priority mission around the creation and dissemination of knowledge. HEI have been strong drivers of global, national and local innovation, economic development and social welfare and are recognized as having a key role in meeting the SDGs (Blasco et al., 2021).

According to Esgaio and Gomes (2018), the issue of student training in the area of SD is necessary for two reasons. The first one is related to the fact that HEI cannot abstract from the need to incorporate the so-called transversal competencies in their curricular and extracurricular programs and assessments to in order train technically competent and socially responsible citizens. The second is that this imperative is imposed as a way of responding to the market's own needs; all organizations in any sector of activity need professionals with technical competencies on SD.

HEI bring together a unique combination of competencies that enable them to play a crucial role in the areas of education, scientific research, social responsibility, and defense of the common good. They must, therefore, be particularly active elements in the global movement and in the search for ways that allow future professionals to learn to meet their needs without jeopardizing the possibility of future generations to do so as well[14].

More than ever HEI, and also stakeholders such as students, staff, academics, administration and management, research communities, alumni, businesses, social movements, consumer organizations, governments and professional associations, need to reflect on their alignment with SD and the SDGs (Yonehara et al., 2017; Degtjarjova et al., 2018; Franco et al., 2019; Nagy and Somosi, 2020)

[14] https://noticias.up.pt/ensino-superior-portugues-unido-pelo-desenvolvimento-sustentavel/ Accessed in 23/07/2021

HEI are beginning to support the SDGs as a result of efforts by organizations such as Sustainable Development Solutions Network (SDSN), Future Earth, UNESCO and the PRME, and other independent associations, such as Australasian Campuses Towards Sustainability, Environmental Association of UK Universities and Colleges or Association for the Advancement of Sustainability in Higher Education (SDSN, 2017).

The understanding of a whole set of issues surrounding this theme has generated reflections and debates with the purpose of evaluating the possible divergences between higher education courses and the needs of the labor market in order to prepare competent and competitive professionals (Kavanagh and Drennan, 2008).

Higher education courses and TSD should prepare students for their future profession, insofar as it is assumed that, at the end of the learning process, they have developed awareness and acquired knowledge, skills, and values that will enable them to contribute to meeting the needs inherent to SD (Filho, 2017).

1.3. Contribution of the Accounting and Management Education to the Sustainable Development

Society is increasingly sensitive to SD related issues, and there is no doubt that HEI contribute to explaining this issue (Lozano et al., 2013a; Alonso-Almeida et al., 2015). It is globally recognized that addressing the challenges posed by the SDGs is everyone's responsibility, and the role of TSD has been clearly emphasized on several occasions (SDSN, 2017).

Understanding the concept of SD and the environmental, social and economic aspects is crucial for future decision-makers, entrepreneurs and leaders to lead business and society to act in a responsible and sustainable way (Bebbington e Unerman, 2018; Botes et al., 2014; Filho *et al.*, 2019; Rezaee, 2016). It is crucial to adopt approaches that highlight the relevance of SD for different disciplines and perspectives (Annan-Diab and Molinari, 2017). In this context, accounting and management courses offer a huge potential to teach and learn how to ensure the long-term sustainability of companies (Reza, 2016).

Accounting and Management education has always reflected the need to adapt to the constantly changing context of organizations. According to Ferreira et al. (2017), the world is experiencing the era of connection, the connection between cultures, people, ideas

and activities, causing more significant pressure on the way companies to exercise and communicate their activities to stakeholders. Accounting represents a significant contribution for companies in general. Regardless of the industry in which it is applied, accounting is a reality in all companies, so future accounting professionals must be appropriately prepared. To this end, HEI must provide in-depth and specialized training that enables future professionals to meet the needs of the labor market (Kavanagh and Drennan, 2008).

Accounting applies methods and systems to record, analyze, evaluate and report the social, environmental and ecological impacts, such as the interactions of social, environmental and economic issues, that make up the three dimensions of sustainability (Schaltegger e Burritt, 2010).

According to IFAC (2016) the three dimensions of sustainability can be defined according to the following expressions:

- The Economic Dimension - deals broadly with the impact of organizations on the economy and does not recognize only the financial performance of companies a fundamental. It emphasizes that profit, growth, and job creation are equally fundamental in providing compensation and benefits to families and generating taxes for governments.
- The Environmental Dimension - recognizes the importance of the environmental impact of the operations carried out in organizations and the consumption of natural resources derived from the design of products and the performance of services.
- The Social Dimension - portrays the impact organizations have on people and their issues, including health, skills and motivations, human relationships, and ethical business conduct.

According to Calixto (2006), accounting is part of the management structure of companies, and it is relevant that the professional be prepared to identify the evolution of legislation, of potentially polluting sectors, of environmental and social impacts, and the evolution of the concepts of environmental assets, liabilities, and costs. The author explains that the responsibility for acquiring these competencies is undoubtedly that which HEI provide to their students under the TSD in courses in the areas of business sciences.

1.4. Sustainable Development requirements for accounting and auditing

As a driver of economic growth, employment and as a source of technology and innovation, the business sector, like HEI, is seen as critical to the success of the SDGs (Annan-Diab and Molinari, 2017; Christ and Burritt, 2019; Rezaee, 2017; Weybrecht, 2017; Rosati and Faria, 2019).

Companies have a critical role to play and self-interest in contributing to achieving the SDGs, which are an opportunity to improve strategic actions and projects and implement new actions and projects to contribute to the integration of social and environmental concerns in the organizations' strategy and interaction with other stakeholders.

Concerns about the impact of human activities on the natural, social and economic environment have led to a worldwide call for corporate responsibility, transparency and stakeholder engagement.

In response to the various calls for students to acquire knowledge about SD and how to apply it in professional and social life, topics on Ethics, Corporate Social Responsibility, and Sustainability must be integrated into academic curricula.

To answer this call, accounting has challenged the traditional financial reporting model, arguing that it does not adequately meet the needs of stakeholders (IFAC, 2019).

There is thus a growing need for companies to disclose more and better information on how they identify and manage social, ethical, and environmental risks and to explain the extent to which these risks affect the value of the company, both financial and non-financial, in the short and long term.

The new market relations with an increasingly more extensive group of stakeholders require a relationship between financial and non-financial information disclosure; that is, information disclosure that involves the evaluation and measurement of tangible and intangible elements that make up the assets of companies, and that, interacting with the environment through economic, financial, and human relations, promote internal and external impacts to organizations.

Stakeholders need a more concise, less extensive, and more integrated type of report, a report that, as a whole, has the essential aspects of all the other extensive and unspecific reports that companies disclose (Owen, 2013).

This financial and non-financial reporting, Integrated Reporting (Owen, 2013), although in many cases voluntary, can be audited by independent auditors to provide stakeholders with the necessary credibility. Reliability serves as a control mechanism, enhancing the credibility of the information disclosed, providing greater trust by those who use it (Simnett et al., 2009). This helps investors, civil society organizations, consumers, policy makers and other stakeholders to evaluate the non-financial performance of large companies and encourages these companies to develop a responsible approach to business.

According to Tinoco and Kraemer (2008), accounting, understood as a means of providing information, must seek to meet these new challenges, i.e., contribute so that companies can adapt to new development criteria on a sustainable basis.

Until the end of the 20th century, although the information disclosed was predominantly financial information, some organizations already used part of their annual report to disclose sustainability information. Thus, many sustainability reports were included in the annual financial reports (Villiers et al., 2014). This interest on the part of companies in disclosing information on sustainability has led to a search for new ways of assessing and communicating the non-financial impacts of organizations, has given rise to a proliferation of various types of disharmonized reports, presented by companies, governments and civil society (Dias, 2009), among them: Sustainability Reporting, Environmental Performance Reporting, Corporate Responsibility Reporting, Reporting on Non-financial Information, and Integrated Reporting. These have been used as a means of communicating to various stakeholders the contribution of organizational values, actions, and performance to SD. However, this diversity does not guarantee that users' needs are met, as the information disclosed is often not sufficiently reliable and comparable between companies (proposed Directive 2021/0104/EU).

Non-financial information comprises all the quantitative and qualitative data on the policies adopted, the commercial operations and the results of the organizations' policies. It refers to information not integrated in the conventional financial statements, not having a direct financial impact. Non-financial information comprises topics such as, social accounting, social responsibility, environmental reporting, sustainability, service performance reporting, etc. (Yonan et al, 2016).

In order to give consistency to this type of reporting, within the scope of non-financial information reporting, several organizations have developed guidelines for Sustainability Reporting, allowing it to achieve greater credibility and comparability at the international level.

Ceulemans et al. (2015) states that Sustainability Reports can function as a tool for organizational analysis, presenting what has been achieved in the present and the issues that are intended to be developed and achieved in the future, because, in addition to functioning as a tool for communication and engagement with stakeholders, their preparation can also be driven with the aim of improving the organization's management practices for better SD integration.

Integrated Reporting is still at an early stage of diffusion and implementation around the world. The main organization promoting this type of reporting, the International Integrated Reporting Council (IIRC), was established in 2010. The version of the framework structure for Integrated Reporting proposed by this organization dates back to 2013. The IIRC is a global alliance of regulators, investors, companies, standard setters, accounting professionals and NGOs that promotes value creation reporting as the next step in the evolution of reporting for organizations.

The guidance "Towards Integrated Reporting" (IIRC, 2011) defines Integrated Reporting as a set of “material information about an organization’s strategy, governance, performance and prospects in a way that reflects the commercial, social and environmental context within which it operates. It provides a clear and concise representation of how an organization demonstrates stewardship and how it creates and sustains value”. The development of Integrated Reporting is designed to enhance and consolidate existing reporting practices and, through collaboration, consultation and experimentation, to move towards a reporting framework that provides the information needed to assess organizational value in the 21st century (IIRC, 2011).

In 2020, the IIRC launched a review process of its framework and identified three main themes of the review: a) business model considerations, b) responsibility for Integrated Reporting, and c) charting a way forward. In January 2021 it published a revision of this framework for Integrated Reporting which aims to promote an integrated thinking and

approach to reporting, enabling an understanding of how environmental and social aspects are integrated into the management and all activities of the organization.

These disclosure models have been encouraged internationally, by stakeholders, governments, and international organizations, mainly through principles and guidelines, namely: OECD Guidelines for Multinational Enterprises, ISO 26000 Standard, UN Global Compact, United Nations Conference on the Human Environment (UNCND), GRI Guidelines, among other initiatives.

Although the adoption of International Financial Reporting Standards (IFRS) by several countries around the world was intended to standardize the accounting language and increase the quality of reporting by business entities (Rezaee, 2016), information and indicators on social and environmental impacts are not properly contemplated in such standards.

Increasingly, there is strong support for the creation of an International Sustainability Standards Board under the oversight of the International Financial Reporting Standards Foundation to provide transparency and accountability for the activities of listed private sector companies. IFAC has been a strong voice within the profession in favor of this initiative[15].

Various organizations, particularly companies, have sought to adapt to these new reporting requirements, where management and accounting and the professionals associated with them play a central role.

To meet these challenges on the issue of SD, must be increasingly engaged particularly with regard to the use of accounting information and internal control processes to verify and validate SD information. To meet these challenges is essential that practitioners are increasingly engaged in the SD issue, particularly in the preparation, verification and validation of non-financial information (Boulianne and Keddie, 2018).

In this sense, Williams et al. (2010) refers that both professional organizations and business schools need to encourage the TSD so that future professionals can play a central role in the preparation of the non-financial report.

[15] https://www.ipsasb.org/focus-areas/sustainability-reporting Accessed in 05/11/2021

This reality will also represent a challenge for Professional regulators to modify accounting and auditing standard-setters, and the reliability of Integrated Reporting can be increased by issuing assurance reports on the information contained therein (Villiers et al., 2014; Gary et al., 2011).

Consequently, according to Boulianne and Keddie (2018), accounting and management professionals are called upon to deal with these issues, although the authors argue that the skills to deal with SD issues are not yet being integrated into their curricula. However, for the integration of SD practices and the implementation of reporting of non-financial information in companies, there is still a long way to go.

For a response to this change, the TSD is recognized as a starting point for the integration of the Triple Bottom Line philosophy; these various dimensions, environmental, social and economic, and according to Franco et al. (2019) and Blasco et al. (2021) it is necessary that stakeholders participate in the change process.

Since HEI are responsible for preparing future professionals, and the curricula represent an important contribution to the incorporation of sustainable attitudes and practices in the future professional life of students, it is essential that HEI integrate subjects on SD in the curricula. However, HEI still do not seem to be very oriented towards teaching these topics in accounting and management (e.g., Beddewela et al., 2017; Bebbington and Larrinaga 2014; Gomes et al., 2021; Lacy et al., 2010; Larrán et al., 2018; Ngwakwe, 2012).

As highlighted throughout this work, in the scope of HEI, the new perspective of ESD and TSD has led to a greater openness of their activity to society and to all those around them, further intensifying the need for HEI to know and meet the effective needs of their stakeholders.

2. Theoretical Framework

In the context of accounting and management education and SD, HEI assume the role of training professionals and supporting the development of organizations, responding to present needs and general knowledge and, on the other hand, opening the horizons to the future and to new paradigms, helping to find the best balance between education and SD (Weybrecht, 2017).

To answer the base research problem and contribute to understanding the influence of internal (Students) and external stakeholders (Professionals, Employers, Companies, Professional regulators, Society in general) for the integration of TSD in management and accounting courses in Portuguese HEI, we consider that the most appropriate theory to explain our results is the Stakeholder Theory.

The Stakeholder Theory was conceived in a traditional capitalist production context, in which the company considered itself related only to four groups: suppliers, employees, shareholders and customers (Mainardes and Raposo, 2011).

According to stakeholder theory, the key to an organization's success in the marketplace is how it satisfies all stakeholders (Freeman, 2010). The theory considers that the organization is inserted within society and functions as part of it, considering several groups that have common goals and that the organization's objectives should be aligned with the objectives of these groups of stakeholders. In this scenario, organizations affect and are affected by stakeholders, and with that, they cannot conduct their activity and achieve their goals without considering the existence of these stakeholders (Jongbloed et al., 2008).

Successful organizations learn to manage relationships with and respond to their stakeholders, thus contributing to their success. Monitoring the interests of an organization's stakeholders can contribute to its success in various ways, including anticipating problems, predicting trends, creating new ideas, or improving organizational processes (Harrison and John, 1994).

Regarding identifying stakeholders, within HEI there are more complex perspectives, since this type of organization has a different nature, structure, and objectives from companies. For Mitroff (1983) stakeholders of HEI are individual group (internal and external) with a right and interest, who exercise a power over the institution and who, in this sense, both affect and are affected by the actions, and policies HEI.

In other words, as defined by Amaral and Magalhães (2002), the stakeholders of HEI are the people, individual or collective entities with legitimate interest in higher education and that, as such, acquire some right of intervention. Among them we can list as stakeholders of HEI, students, businesses, employers, Professional regulators, municipalities,

governmental organizations and society in general (Degtjarjova et al., 2018; Franco et al., 2019; Nagy and Somosi, 2020).

In this thesis, students are considered internal stakeholders and Professional regulators as external stakeholders. Students (Franco et al., 2019; García-González et al., 2020) and Professional regulators (Ngwakwe, 2012) want to see their interest satisfied by HEI.

According to Franco et al. (2019) and Blasco et al., (2021) the need for stakeholders to participate in the change process implies that they can contribute to this change according to their needs. In this sense the contribution of students and Professional regulators as stakeholders is seen, as fundamental to shape the curricula according to their needs, in this case, contributing to the integration of TSD in the curricula of Accounting and Management courses.

3. Purpose, research questions and research design

The choice of the topic of this research resulted from the combination of a set of factors: 1) personal interest in studying the TSD in HEI; 2) professional reasons, since the researcher, as a teacher and accounting professional, considers the teaching of this topic important and indispensable in the preparation of future professionals; and 3) to respond to the needs felt at the level of research in the area. Moreover, the topicality and relevance of the subject, as shown in the previous sections, the curiosity about the situation in Portugal, the fact that a change in policy, curricula and practices in higher education is necessary and urgent, the small number of studies and articles dedicated to TSD in Accounting and Management courses at a national level, were also reasons that motivated the elaboration of this thesis about this topic.

Thus, it is expected this study may serve as reference for knowledge of the state of the art on the integration of Teaching on Sustainable Development in Higher Education Institutions in Portugal, understand the students' perception of this theme and the importance they attribute to it for their future professional life and to evaluate the contribution of the regulators of the profession, for inclusion of this theme in the curricula.

The study of the SD theme in HEI is of considerable importance and is the motto for the present research. The main general objectives of this thesis are:

1) Analyze the current state of implementation of SD, in the academic curricula of Business Sciences in Accounting and Taxation and in Management and Business Administration;
2) To apprehend about the knowledge and perception of future professionals enrolled in business science courses at Portuguese HEI, and also to evaluate to what extent the demographic or academic profile discriminates the knowledge and perception of students in relation to SD;
3) Analyze the importance attributed to the teaching of Sustainable Development issues in Accounting and Management courses for the performance of future professionals, accountants, and auditors. It considers both the students' and the Professional regulators perspectives. It also intends to investigate the contribution of Professional regulators to the integration of SD subjects in Accounting and Management courses.

For the 1st objective the following research questions were defined:

- RQ1. In which of the two existent types of HEI, universities and polytechnics, is the TSD most prevalent?
- RQ2. In which of the two types of degrees (cycles of study) considered, Bachelor or Master, is the TSD most prevalent?
- RQ3. What are the areas of the degrees where the teaching of SD is most observed?
- RQ4. Which SD topics are taught and in what curricular units?
- RQ5. What is the importance of SD in each of the degrees and types of HEI?

This study responds to a number of suggestions from several authors (e.g. Abu-Hola e Tareef, 2009); Shriberg e Harris, 2012; Hesselbarth e Schaltegger, 2014; Malkki e Paatero, 2015) and fits into one of the SDGs, "Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all".

This study aims to analyze the presence of SD topics in the academic curricula of Business Sciences, Bachelor or master's degrees in HEI in Portugal. The study expects to contribute to the design of future teaching processes in Business Sciences based on the formative experience of courses in Accounting and Taxation, and in Management and

Administration, ultimately assessing whether Portuguese HEI contribute to students' transversal competencies. Using the website of the DGES, 359 courses were initially selected and a set of 196 courses was selected.

The method used for data collection consisted of checking the curriculum structure and curriculum plans of the 196 degrees. Thus, the data collected for the purpose is qualitative. They portray several particularities, such as identifying each HEI, the type of Institution - Polytechnic or University; Degree - Accounting and Taxation or Management and Business Administration; Cycle of studies - Bachelor or Master.

With this study and based on the analysis of all the curricula, we concluded that there is already a concern in addressing the issue of SD in 48.5% of the undergraduate and master's degrees of accounting and management courses. Given the fact that the subject of SD is increasingly relevant, the paper evidence still much room for improvement, indicating that TSD is yet a big challenge for HEI.

For the 2nd objective the following research questions were defined:

- RQ1. What are students' knowledge and perception about SD?
- RQ2. How important the teaching of SD is for the students?
- RQ3. What are the most important themes, and what have students learned about SD?
- RQ4. Do demographic and academic profile discriminate students' knowledge and perceptions of SD?

We found that Portuguese business school students' perceptions of SD and their importance to teaching on this topic were not addressed in any study. According to Getachew (2018), students' perceptions of SD issues are important and contribute to improved ESD, although they are often neglected when defining competencies or curriculum innovation (Lambrechts et al., 2018).

In order to assess students' knowledge and perception of SD, a questionnaire survey was developed. This was based on a literature review of empirical studies, with the systematization of information from studies conducted by various authors (e.g. Lambrechts et al.., 2018; Larrán et al., 2018; Azapagic et al., 2005; Tuncer, 2008; Chulián, 2011; Yuan and

Zuo, 2012; Botes et al., 2014; Sharma and Kelly, 2014; Kagawa, 2007; Bahaee et al., 2014; Beddewela et al., 2017; Wyness and Dalton, 2018).

The statistical techniques used in this study included descriptive and inferential statistics. In terms of descriptive statistics, frequency tables and charts illustrating the verified value distributions are presented for the student characterization and academic profile variables. As for inferential statistics, several techniques were used: Association analysis, using Spearman's coefficient, to study the relationship between the variables measured on a Likert scale. Internal consistency analysis to study the properties of measurement scales from the questions that compose them, and Cronbach's alpha, to check the internal consistency and validity of scales, measuring how well a set of variables represents a given dimension.

The main findings show that most students, future professionals welcome significant knowledge about SD. Regarding the students' perception of the SDGs, we found that they attach more importance to the environmental dimension. Students in general consider SD education as an important contribution to their personal and professional life. Only 38.6% (n=143) stated that this topic was addressed in the curricula of the HEI they attended, and students point out “Social Responsibility” and “Ethics” as the most important topics to be taught.

For the 3rd objective the following research questions were defined:

- RQ1. How important do students consider the TSD, including the SDGs, to the practice of their future profession?
- RQ2. How does this importance relate to students' knowledge of SD subjects?
- RQ3. What is the Professional regulators perspective on the topic of SD for current and future professionals, and how do they contribute to the curricular structures of courses, namely those that allow access to the profession?
- RQ4. What is the Professional regulators perception of the training offered by HEI concerning general and specific skills for the future professional on SD and non-financial reporting? What should it cover?

To conduct this study, information was collected in three ways.

A questionnaire was applied, interviews were conducted, and, finally, data were collected through document analysis. To collect the students' perceptions, we used a questionnaire survey based on the literature review of empirical studies, with the systematization of information from studies conducted by several authors (Beddewela et al. 2017; Botes et al. 2014; Larrán et al., 2016; Sharma e Kelly 2014; Wyness e Dalton 2018; Zamora-Polo et al., 2019).

In order to analyze the importance attributed to SD subjects for the performance of future professionals, accountants and auditors, from the perspective of Professional regulators, and to verify their contribution to the integration of SD subjects in Accounting and Management courses, interviews and document analysis were conducted.

The interviews were conducted with the Chief Executives of the two professional accounting and management regulators (OCC and OROC) in August and September 2021. Finally, content analysis consisted of documentary analysis technical journals and other types of publications, training activities, videos of conferences, meetings, and training sessions, available on the websites and social media, between 2017. The year in which Decree-Law No. 89/2017 of July 2021 came into force in the Portuguese context.

The results point to the urgent need to update accounting and management training, taking into account the new and future demands of the accounting and auditing profession. Students consider that knowledge on the subject of SD is fundamental for their professional future. The results show that there is still no interaction between Professional regulators and HEI for the integration of TSD; however, they expressed the concern to raise awareness of the topic among professionals. This collaboration would enable the alignment of curricula in order to ensure training that prepares future accountants and auditors to produce, interpret and review companies' information on their performance in the different dimensions of SD (environmental, social and economic).

4. Organization of the thesis

After this Introduction, the thesis is organized in three main chapters, as the three papers. In Paper I the current state of integration of Sustainable Development, in the

academic curricula of Business Sciences degrees, including matters about Ethics, Corporate Social Responsibility and Sustainability was analyzed. In this way, the paper explores how Portuguese public Higher Education Institutions contribute to Teaching about Sustainable Development.

In Paper II, the knowledge and perception about Sustainable Development Goals and Sustainable Development of students, future professionals were analyzed. As well as the importance they attach to Teaching about Sustainable Development, what are the most important topics and what they have learned about SD.

In Paper III is analyzed the importance of the subjects taught on Sustainable Development, in Accounting and Management courses, for the performance of future professionals, accountants and auditors. It considers both the students' and the Professional regulators perspectives, seeking to investigate their contribution to integrating SD topics in the curricula of Accounting and Management courses.

Finally, the thesis concludes with an overall conclusion, dedicated to summarizing the main findings, by article, seeking to link to theory when applicable, and highlighting the main contributions of each part of this study. Some difficulties in carrying out the research, which led to limitations in the study, are also mentioned, and paths for other future studies are pointed out.

References

Abu-Hola, I. R. M., & Tareef, A. Bin. (2009). Teaching for Sustainable Development in Higher Education Institutions: University of Jordan As a Case Study. *College Student Journal*, *43*(4), 1287–1305.

Alonso-Almeida, M. del M., Marimon, F., Casani, F., & Rodriguez-Pomeda, J. (2015). Diffusion of sustainability reporting in universities: current situation and future perspectives. Journal of Cleaner Production, 106, 144–154. https://doi.org/10.1016/j.jclepro.2014.02.008

Amaral, A. & Magalhães, A. (2002): The emergent role of external stakeholders in European higher education governance. In: Amaral, A.; Jones, G.; Karseth, B. (EDs.): Governing higher education: National perspectives on institutional governance, (pp.1-21. Kluwer: The Netherlands.

Annan-Diab, F., & Molinari, C. (2017). Interdisciplinarity: Practical approach to advancing education for sustainability and for the Sustainable Development Goals. The International Journal of Management Education, 15, 73–83. https://doi.org/http://dx.doi.org/10.1016/j.ijme.2017.03.006

Azapagic, A., Perdan, S. and Shallcross, D. (2005) 'How much do engineering students know about sustainable development? The findings of an international survey and possible implications for the engineering curriculum', International Journal of Phytoremediation, 30(1), pp. 1–19. doi: 10.1080/03043790512331313804.

Bahaee, M., Perez-Batres, L. A., Pisani, M. J., Miller, V. V., & Saremi, M. (2014). Sustainable Development in Iran: An Exploratory Study of University Students' Attitudes and Knowledge about Sustainable Development. Corporate Social Responsibility and Environmental Management, 187(21), 175–187. https://doi.org/10.1002/csr.1312

Blasco, N., Brusca, I., & Labrador, M. (2021). Drivers for universities' contribution to the sustainable development goals: An analysis of Spanish public universities. *Sustainability (Switzerland)*, *13*(1), 1–19. https://doi.org/10.3390/su13010089

Bebbington, J., & Unerman, J. (2018). Achieving the United Nations Sustainable Development Goals: An enabling role for accounting research. *Accounting, Auditing and Accountability Journal*, *31*(1), 2–24. https://doi.org/10.1108/AAAJ-05-2017-2929

Beddewela, E., Warin, C., Hesselden, F., & Coslet, A. (2017). Embedding responsible management education – Staff, student and institutional perspectives. International Journal of Management Education, 15(2), 263–279. https://doi.org/10.1016/j.ijme.2017.03.013

Botes, V., Low, M., & Chapman, J. (2014). Is accounting education sufficiently sustainable? *Sustainability Accounting, Management and Policy Journal*, *5*(1), 95–124. https://doi.org/10.1108/SAMPJ-11-2012-0041

Boulianne, E., Keddie, L. S., & Postaire, M. (2018). (Non) coverage of sustainability within the French professional accounting education program. *Sustainability Accounting, Management and Policy Journal*. https://doi.org/10.1108/SAMPJ-09-2017-0119

Calixto, L. (2006) O ensino da contabilidade ambiental nas universidades brasileiras: um estudo exploratório. Revista Universo Contábil, v. 2, n. 3, p. 65-78.

Cavalcanti, C. (2015). Desenvolvimento e natureza: Estudos para uma sociedade sustentável. 1995. Acessed 10-11-2021 in de http://biblioteca.clacso.edu.ar/Brasil/dipes-fundaj/20121129023744/cavalcanti1.pdf

Ceulemans, K., Molderez, I., & Liedekerke, L. Van. (2015). Sustainability reporting in higher education: A comprehensive review of the recent literature and paths for further research. Journal of Cleaner Production, 106, 127–143. https://doi.org/10.1016/j.jclepro.2014.09.052

Christ, K. L., & Burritt, R. L. (2019). Implementation of sustainable development goals: The role for business academics. Australian Journal of Management, 44(4), 571–593. https://doi.org/10.1177/0312896219870575

Chulián, M. F. (2011). Constructing new accountants: The role of sustainability education. Revista de Contabilidad Contabilidad-Spanish Accounting Review, 14, 241–265. https://doi.org/10.1016/S1138-4891(11)70034-6

United Nations Conference on Environment and Development. (1995). Agenda 21 - Documents of the United Nations Conference on Environment and Development- Rio de Janeiro.

Dias, A. (2009), Corporate sustainability reporting: Practices in Portugal. Master's Thesis in Accounting and Auditing - Universidade Aberta http://repositorioaberto.uab.pt/handle/10400.2/1410%5Cnhttp://repositorioaberto.uab.pt/bitstream/10400.2/1410/1/TMCA_AntonioDias.pdf

Degtjarjova, I., Lapina, I., & Freidenfelds, D. (2018). Student as stakeholder: "voice of customer" in higher education quality development. Marketing and Management of Innovations, 2, 388–398. https://doi.org/10.21272/mmi.2018.2-30

Duran, D. C., Gogan, L. M., Artene, A., & Duran, V. (2015). The Components of Sustainable Development - A Possible Approach. Procedia Economics and Finance, 26(15), 806–811. https://doi.org/10.1016/S2212-5671(15)00849-7

Esgaio, A., & Gomes, S. (2018). Livro Verde sobre Responsabilidade social e instituições de ensino superior (A PRESS FO). ORSIES - Observatório sobre Responsabilidade Social e Instituições de Ensino Superior.

Ferreira, N. J., Kassai, J. R., Lucas, E. C., & Gomes Ferreira, H. M. (2017). Integrated report and the financial information format to evidence the value creation of pilot program enterprises. Revista Evidenciação Contabil & Finanças, 5(3), 99–122

Filho, N. (2017). The agenda 2030 for responsible management education: An applied methodology. International Journal of Management Education, 15(2), 183–191. https://doi.org/10.1016/j.ijme.2017.02.010

Filho, W., Shiel, C., Paço, A., Mifsud, M., Ávila, L. V., Brandli, L. L., Molthan-Hill, P., Pace, P., Azeiteiro, U. M., Vargas, V. R., & Caeiro, S. (2019). Sustainable Development Goals and sustainability teaching at universities: Falling behind or getting ahead of the pack? *Journal of Cleaner Production*, *232*, 285–294. https://doi.org/10.1016/j.jclepro.2019.05.309

Freeman, R. E. (1984). Strategic Management: A Stakeholder Approach, Massachusetts: Pitman.

Freeman, R. E., Harrison, J. S., Wicks, A. C., Parmar, B. L., & De Colle, S. (2010). Stakeholder theory: The state of the art. Cambridge University Press.

Franco, I., Saito, O., Vaughter, P., Whereat, J., Kanie, N., & Takemoto, K. (2019). Higher education for sustainable development: actioning the global goals in policy, curriculum, and practice. Sustainability Science, 14(6), 1621–1642. https://doi.org/10.1007/s11625-018-0628-4

Gary, C. M., Fagerström, A., & Hassel, L. G. (2011). Accounting for Sustainability: What Next? a Research Agenda. Annals of Faculty of Economics, 97–111.

Getachew, T. (2018). Quantitative skill retention and curriculum integration in a typical business school in the United States – A student perspective.pdf. *The International Journal of Management Education*, *16*, 292–308.

Gomes, S.F., Jorge, S. and Eugénio, T. (2021), Teaching sustainable development in business sciences degrees: evidence from Portugal, Sustainability Accounting, Management and Policy Journal, Vol. 12 No. 3, pp. 611-634. https://doi.org/10.1108/SAMPJ-10-2019-0365

Harrison, J. S. & John, C. H. (1994). Strategic Management of Organizations and Stakeholders. St. Paul: West Publishing Company.

Hesselbarth, C., & Schaltegger, S. (2014). Educating Change Agents for Sustainability Learnings from the first Sustainability Management Master of Business Administration. *Journal of Cleaner Production*, *62*, 24–36. https://doi.org/https://doi.org/10.1016/j.jclepro.2013.03.042

Holden, E., Linnerud, K., & Banister, D. (2014). Sustainable development: Our Common Future revisited. Global Environmental Change Part A: Human & Policy Dimensions, 26, 130–139.

Hopkins, C., & McKeown, R. (2002). Education for sustainable development: An international perspective. In D. Tilbury, R. B. Stevenson, J. Fien, & D. Schreuder (Eds.), Environmental education for sustainability: Responding to the global challenge. Gland, Switzerland and Cambridge, UK: IUCN Commission on Education and Communication

IIRC (International Integrated Reporting Council) (2011) Towards Integrated Reporting Communicating Value in the 21st Century.

IFAC. (2016). The 2030 Agenda for Sustainable Development: A Snapshot of the Accountancy Profession's Contribution. In International Federation of Accountants. International Federation of Accountants, New York,. http://www.ifac.org

IFAC (2019). International Education Pronouncements. New York; NY: IFAC. https://www.ifac.org/system/files/publications/files/Handbook-of-International-Education-Standards-2019.pdf

Jongbloed, B., Enders, J., & Salerno, C. (2008). Higher education and its communities: Interconnections, interdependencies and a research agenda. Higher Education, 56(3), 303–324. https://doi.org/10.1007/s10734-008-9128-2

Kavanagh, M. H. & Drennan, L. (2008). What skills and attributes does an accounting graduate need? Evidence from student perceptions and employer expectations. Accounting & Finance, 48(2), 279-300. doi:10.1111/j.1467-629x.2007.00245.x.

Kagawa, F. (2007). Dissonance in students' perceptions of sustainable development and sustainability. International Journal of Sustainability in Higher Education, 8(3), 317–338. https://doi.org/10.1108/14676370710817174

Lacy, P., Cooper, T., Hayward, R., & Neuberger, L. (2010). A New Era of Sustainability UN Global Compact-Accenture CEO Study 2010.

Lambrechts, W., Ghijsen, P. W. T., Jacques, A., Walravens, H., Liedekerke, L. Van, & Petegem, P. Van. (2018). Sustainability segmentation of business students: Toward self- regulated development of critical and interpretational competences in a post-truth era. *Journal of Cleaner Production*, *202*, 561–570.

Larrán, M., Andrades, J., & Herrera, J. (2018). An examination of attitudes and perceptions of Spanish business and accounting students toward corporate social responsibility and sustainability themes. Revista de Contabilidad – Spanish Accounting Review, 21(2), 196–205.

Lozano, R., Lukman, R., Lozano, F. J., Huisingh, D., & Lambrechts, W. (2013a). Declarations for sustainability in higher education: Becoming better leaders, through addressing the university system. Journal of Cleaner Production, 48, 10–19. https://doi.org/10.1016/j.jclepro.2011.10.006

Lozano, R., Lukman, R., Lozano, F. J., Huisingh, D., & Lambrechts, W. (2013b). Declarations for sustainability in higher education: Becoming better leaders, through addressing the university system. Journal of Cleaner Production, 48, 10–19. https://doi.org/10.1016/j.jclepro.2011.10.006

Mainardes, H. A. & Raposo, M. (2011). Stakeholder theory: issues to resolve. Management Decision, 49 (2), 226-252.

Malkki, H., & Paatero, J. V. (2015). Curriculum planning in energy engineering education. *Journal of Cleaner Production*, *106*, 292–299. https://doi.org/10.1016/j.jclepro.2014.08.109

Mitroff, I. I. (1983). Stakeholders of the organizational mind. In *Jossey-Bass San Francisco.* https://doi.org/10.1177/0885066610366936

Nagy, S., & Somosi, M. V. (2020). Students' perceptions of sustainable universities in hungary: An importance-performance analysis. Amfiteatru Economic, 22(54), 496–515. https://doi.org/10.24818/EA/2020/54/496

Ngwakwe, C. C. (2012). Rethinking the Accounting Stance on Sustainable Development. *Sustainable Development*, *20*, 28–41. https://doi.org/10.1002/sd.462

Owen, G. (2013). Integrated Reporting: A Review of Developments and their Implications for the Accounting Curriculum. Accounting Education, 22(4), 340–356. https://doi.org/10.1080/09639284.2013.817798

Reza, M. I. H. (2016). Sustainability in higher education: Perspectives of Malaysian higher education system. *SAGE Open*, *6*(3). https://doi.org/10.1177/2158244016665890

Rezaee, Z. (2016). Business sustainability research: A theoretical and integrated perspective. *Journal of Accounting Literature*, *36*, 48–64. https://doi.org/10.1016/j.acclit.2016.05.003

Rezaee, Z. (2017). Corporate Sustainability: Theoretical and Integrated Strategic Imperative and Pragmatic Approach. The Journal of Business Inquiry, 16(1), 60–87. http:www.uvu.edu/woodbury/jbi/articles

Rosati, F., & Faria, L. G. D. (2019). Business contribution to the Sustainable Development Agenda: Organizational factors related to early adoption of SDG reporting. Corporate Social Responsibility and Environmental Management, 26(3), 588–597. https://doi.org/10.1002/csr.1705

Roma J. C. (2019) Os objetivos de desenvolvimento do milênio e sua transição para os objetivos de desenvolvimento sustentável. Ciência e Cultura. São Paulo; 71(1): 33-39. http://dx.doi.org/10.21800/2317-66602019000100011.

Sharma, U., & Kelly, M. (2014). Students' perceptions of education for sustainable development in the accounting and business curriculum at a business school in New Zealand. Meditari Accountancy Research, 22(2), 130–148. https://doi.org/10.1108/MEDAR-12-2012-0042

Shriberg, M., & Harris, K. (2012). Building sustainability change management and leadership skills in students: lessons learned from "Sustainability and the Campus" at the University of Michigan. *Journal of Environmental Studies and Sciences*, *2*(2), 154–164. https://doi.org/10.1007/s13412-012-0073-0

Simnett, R.; Vanstraelen, A.; Chua, W. F. (2009) Assurance on sustainability reports: an international comparison. The Accounting Review, 84(3), 937-967

Schaltegger, S., & Burritt, R. L. (2010). Sustainability accounting for companies: Catchphrase or decision support for business leaders? Journal of World Business, 45(4), 375–384. https://doi.org/10.1016/j.jwb.2009.08.002

SDSN. (2017). Getting started with the SDGs in universities: A guide for universities, higher education institutions, and the academic sector. Australia, New Zealand and Pacific Edition (p. Sustainable Development Solutions Network – Austra).

Tinoco, J. E. P. & Kraemer, M. E. P. (2008). *Contabilidade e gestão ambiental.* 2. ed. São Paulo: Atlas.

Tuncer, G. (2008). University Students' Perception on Sustainable Development: A Case Study from Turkey. International Research in Geographical and Environmental Education, 17(3), 212–226. https://doi.org/10.1080/10382040802168297

UNDESA (2002) 'Guidance in Preparing a National Sustainable Development Strategy:Managing Sustainable Development in the New Millenium', Commission on Sustainable Development, (13).

UNESCO. (2005). Década da Educação das Nações Unidas para um Desenvolvimento Sustentável, 2005-2014: Vol. Documento.

UNESCO. (2007). The UN Decade of Education for Sustainable Development Report (The first years*)* (pp. 1–64).

United Nations (UN) (2015), "Transforming Our World: The 2030 Agenda for Sustainable Development", United Nations, New York, NY, available at: https://sdgs.un.org/sites/default/files/publications/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf

Waas, T., Verbruggen, A., & Wright, T. (2010). University research for sustainable development: definition and characteristics explored. Journal of Cleaner Production, 18(7), 629–636. https://doi.org/10.1016/j.jclepro.2009.09.017two years) (pp. 1–64).

Weybrecht, G. (2017). From challenge to opportunity- Management education's crucial role in sustainability and the Sustainable Development Goals-An overview and framework. International Journal of Management Education, 15, 84–92. https://doi.org/10.1016/j.ijme.2017.02.008

Wyness, L., & Dalton, F. (2018). The value of problem-based learning in learning for sustainability: Undergraduate accounting student perspectives. *Journal of Accounting Education*, *45*, 1–19. https://doi.org/10.1016/j.jaccedu.2018.09.001

Wright, T. S. A. (2002) Definitions and Frameworks for Environmental Sustainability in Higher Education. In: Higher Education Policy, Volume 15, Issue 2, 2002. pp. 105-120 https://doi.org/10.1016/S0952-8733(02)00002-8.

Villiers, C. de Rinaldi, L., & Unerman, J. (2014). Integrated Reporting: Insights, gaps and an agenda for future research. Accounting Auditing and Accountability Journal, 1–47.

Williams, B., Wilmshurst, T. and Clift, R. (2010), "The role of accountants in sustainability reporting: a local government study", paper presented at the Asia Pacific Interdisciplinary Research in Accounting Conference, Sydney, July.

Yonehara, A., Saito, O., Hayashi, Kaoru, Nagao, M., Yanagisawa, R., Kanako Matsuyama, Hayashi, K., Nagao, M., Yanagisawa, R., & Matsuyama, K. (2017). The role of evaluation in achieving the SDGs. Sustainability Science, 12(6), 969–973. https://doi.org/10.1007/s11625-017-0479-4

Yonan, R., M., Bakhtiar, M., & Rafsanjani, M. (2016) Analytical study on the importance of non-financial information in company reporting. International Journal of Management and Business Studies. Vol. 6, nº. 3, pp. 251-255

Yuan, X., & Zuo, J. (2012). A critical assessment of the Higher Education For Sustainable Development from students' perspectives e a Chinese study. Journal of Cleaner Production, 48, 108–115. https://doi.org/http://dx.doi.org/10.1016/j.jclepro.2012.10.041

Zamora-Polo, F., Sánchez-Martín, J., Corrales-Serrano, M., & Espejo-Antúnez, L. (2019). What do university students know about sustainable development goals? A realistic approach to the reception of this UN program amongst the youth population. Sustainability (Switzerland), 11(13), 1–19. https://doi.org/10.3390/su11133533

THESIS DEVELOPMENT

PAPER I - Teaching sustainable development in business sciences degrees: evidence from Portugal

Gomes, S.; Jorge, S. e Eugenio, T. (2019), Sustainable Development in Public Higher Education Institutions – what is taught in the courses of Accounting and Management, 5th Symposium on Ethics and Social Responsibility Research, Theme: Linking Ethics, Social Responsibility and Sustainability - Challenges for science and practice. Organized by DINAMIA'CET-IUL, ISCTE, Lisbon, Portugal, 6 and 7 June.

Gomes, S.; Jorge, S. e Eugénio, T. (2019), Sustainable Development: what is taught in the courses of Accounting and Management? Evidence from Portugal, 18th International Conference on Corporate Social Responsibility, Social Responsibility Research Network (SRRNet), IPCA, Barcelos, Portugal, September 10-13.

Gomes, S.F., Jorge, S. and Eugénio, T. (2021), "Teaching sustainable development in business sciences degrees: evidence from Portugal", *Sustainability Accounting, Management and Policy Journal*, Vol. 12 No. 3, pp. 611-634. https://doi.org/10.1108/SAMPJ-10-2019-0365
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Abstract

Purpose: This paper aims to analyze the current state of integration of Sustainable Development (SD), in the academic curricula of Business Sciences degrees, including matters about Ethics, Corporate Social Responsibility and Sustainability. In this way, the paper explores how Portuguese public Higher Education Institutions (HEI) contribute to Teaching about Sustainable Development (TSD).

Design/methodology/approach: The study focuses on Business Sciences degrees. The webpages of all public HEI with BSc and MSc degrees in those areas in Portugal were analyzed, to obtain curricular plans and syllabus. Content analysis was performed on each of these elements of Accounting and Taxation, and Management and Business Administration courses.

Findings: There is already some concern about addressing SD in Business Sciences, inasmuch as SD-related topics are taught in Accounting and Taxation, and in Management and Business Administration degrees and courses. However, the analysis shows that TSD was integrated in the academic curricula in only 95 degrees (48.5%). Additionally, in these, there are only 79 compulsory curricular units that address this theme. Given the fact that the subject of SD is increasingly relevant, the paper evidences still much room for improvement, indicating that TSD is yet a big challenge for HEI.

Originality/value: TSD is increasingly important due to the growing globalization that requires skilled professionals able to assess the complex and controversial issues related to the topic, in order to achieve and implement the Sustainable Development Goals in 2030. The literature evidences lack of studies addressing the integration of the SD theme in academic curricula. This paper makes here a contribution by showing what HEI are teaching in the area of business studies. It also brings good implications for society, while showing that sustainability content is becoming more apparent within certain HEI courses. This could be used to create follow up research on what type of sustainability content is being included within the courses and the learning that is happening in students in regard to this sustainability content.

***Keywords**:* Sustainable development, Teaching, Education, HEI, Academic curricula, Business sciences, Portugal.

1.Introduction

At the beginning of the 1970s, the term 'Sustainable Development' appeared in the initiative of the Club of Rome, with the publication of the book *The Limits of Growth* (Meadows et al., 1974). From this period, the international interest in the role of higher education in promoting a sustainable world has increased considerably. For its part, the concept is fairly recent, bearing in mind that it only emerged in 1987 when the *Brundtland Report* was published. Sustainable development (SD) may be understood as development that meets the needs of the present without compromising future generations, aiming at improving the living conditions of all, preserving the environment in the short and long term, aiming at an economically effective, socially equitable and ecologically sustainable world (UNDESA, 2002). SD has become, ever since, one of the main concerns at a global scale, based on three pillars – environmental, social and economic – called the 'Triple Bottom Line' (Elkington, 1998).

The World Summit on Sustainable Development held in Johannesburg in 2002 highlighted education as fundamental to SD and proposed the UN Decade of Education for Sustainable Development (UNESCO, 2005; Annan-Diab and Molinari, 2017). This proposal was approved and was established between 2005 and 2014. In doing so, the UN placed education at the heart of its strategy to promote SD, supporting initiatives such as the *Principles for Responsible Management Education* (PRME) and the *UNESCO Global Program of Action on Education for Sustainable Development*. As a result, degrees and academic curricula were globally reformed. The need to improve the capacity of educational systems for preparing society for SD was also highlighted in the report of the UN Conference on Sustainable Development held in 2012 (Rio + 20) (Filho et al., 2015). Curricular reforms provide an opportunity to produce the desired changes in academic curricula and a natural basis for looking into existing practices and updating learning outcomes (Malkki and Paatero, 2015).

At the heart of the UN Agenda 2030 are 17 Sustainable Development Goals (SDG)[1] (UNESCO, 2017) unanimously approved by 193 UN Member States, meeting in the General

[1] https://www.globalgoals.org/

Assembly, which demonstrates the ambition to achieve SD. One of these goals announced by the UN in September 2015 is to ensure that all students acquire the necessary knowledge and skills to promote SD, including, but not limited to, a comprehensive Education for Sustainable Development (ESD). ESD was designed to integrate SD principles and practices into all aspects of education and learning, namely by encouraging changes in knowledge, values and attitudes, and empowering students to promote the transition to sustainability, in order to ensure a more sustainable and fair society for all.

Both Teaching about Sustainable Development (TSD) and Education for Sustainable Development (ESD) are two important concepts related to SD learning that, though associated, are different. Gadotti (2008), quoted by Nishimura (2015), explains that TSD involves awareness, theoretical discussion, information and data about SD; ESD is broader and includes many dimensions beyond teaching, research, practice and operations, and involvement in society – it says how to use education as a means to build a more sustainable future, which involves setting the example for a sustainable life. Therefore, TSD implies integrating SD themes in curricula and syllabus, ultimately contributing for ESD.

This paper focuses on TSD. Given the relevance of teaching as a means to enhance ESD and achieve a sustainable future, it is important to analyze the contribution of HEI to SD, starting by understanding how they integrate in their degrees and courses, topics concerning Ethics, Corporate Social Responsibility and Sustainability. According to Ceulemans and Prins (2010), SD topics may be incorporated into academic curricula using horizontal and vertical integration. Horizontal integration consists in the integration of the subject in the academic curricula; vertical integration can be understood as the organization of separate degrees related to a specific topic. This study addresses horizontal integration, as established by Figueiró and Raufflet (2015), Lambrechts et al. (2013) and Lozano et al. (2013). This research specifically aims to analyze the presence of SD subjects in the academic curricula of Business Sciences degrees in HEI in Portugal.

Several authors (e.g., Lozano, 2010; Burns, 2011; Watson et al., 2013; Lozano et al., 2017; Findler et al., 2019; Olalla and Merino, 2019) argue that there is still a gap in the literature on the integration of SD in academic curricula. Therefore, this study makes here a contribution by showing what HEI are teaching in the area of Business Sciences, allowing to infer about the importance they allocate, hence their contribution, to TSD. The paper

provides an overview of general SD presence in Portuguese curricula. This can serve as a case for comparative assessment and policy, as benchmark for further developments.

Existing research is predominantly dominated by case studies (Barth and Rieckmann, 2012; Taylor and Kraly, 2012; Colombo and Alves, 2017; Kolb et al., 2017) and there is a lack of works aimed at informing about the current state of SD integration in teaching in different study programs (Lambrechts et al., 2013). Several studies only look at postgraduate courses (Matten and Moon, 2004; Cornelius, et al., 2007; Christensen et al., 2009; Wu et al., 2010; Godemann et al., 2011), or only analyze MBA courses (Benn and Dunphy, 2009; Hesselbarth and Schaltegger, 2014); other studies only look at individual courses in engineering (Azapagic, et al., 2005; Boks and Diehl, 2006; Aurandte and Butler, 2011; Bielefeldt, 2011; Malkki and Paatero, 2015; Colombo and Alves, 2017). This paper attempts to fill in this gap by expanding the scope of study comprising all courses, BSc and MSc, in the areas of Accounting and Taxation, and Management and Business Administration, in polytechnics and universities, in one country. It brings a contribution showing, for the first time, what the 34 HEI in Portugal are teaching about SD in the field of business studies. Analyzing the current status on the TSD can be a starting point for redesigning academic curricula, and can benefit a number of institutional processes, from the creation and review of academic curricula to teaching and learning assessments.

Henceforth, the paper is divided into four sections. Section two, the literature review, presents some important aspects that provide the theoretical framework for the empirical work to be developed, namely concerning TSD overall and the role of HEI in TSD in Business Sciences degrees. Section three addresses methodological issues, starting by detailing the objectives and research questions, and then describing the methodology for the sample and the gathering and processing of data. Section four presents and discusses the findings and, finally, section five summarizes the conclusions and implications of the study.

2. Literature review

HEI seek to incorporate SD principles into teaching and researching, practices and operations, and involvement with society (Weybrecht, 2017). Although teaching SD issues in HEI is considered a difficult task (Sethi, 1995; Ryan and Tilbury, 2013; Lozano et al., 2017;

Lovren et al., 2020), the findings of Ramos et al. (2015) in the Portuguese context highlight that academic curricula are key to setting the results of ESD, reinforcing the importance of academic curricula as the main bases that provide a positive impact of sustainability on society. For these reasons, education has been increasingly emphasized as a means to achieve a sustainable future, and there is a need to incorporate SD-related matters into academic curricula (Shriberg and Harris, 2012; Grace and Humphris, 2013; Lozano et al., 2017; Creel and Paz, 2018). However, as verified by several authors (e.g., Thomas, 2005; Velazquez et al., 2005; Taylor and Kraly, 2012; Xiong et al., 2013; Ferreira and Blomfield, 2016; Antolin-Lopez and Garcia-de-Frutos, 2018), this process has been very slow.

Therefore, HEI face a big challenge as they take on the mission of training professionals and supporting the development of organizations: on the one hand, responding to present and known needs and, on the other, opening the horizons for the future and new paradigms, helping to strike the balance between teaching and SD (Disterheft et al., 2014; Weybrecht, 2017). In carrying out its function of creating, transmitting and disseminating knowledge under the three basic pillars of sustainability (environmental, social and economic), and considering the teaching dimension, HEI should seek to meet the needs of society by training citizens and multidisciplinary professionals, capable of planning and developing SD-related actions in their field of intervention (Junyent and Ciurana, 2008; Lourenço et al., 2013; Purcell et al., 2019). Also, according to Ramos (2009), HEI should direct their know-how towards the various sectors of activity, thus fostering the necessary market linkages.

2.1 Teaching about Sustainable Development

In recent decades, sustainability issues in HEI have attracted increasing levels of attention of the general public and policy makers, acknowledging there is a need for more comprehensive SD in academic curricula (PRME, 2018).

Increased globalization requires future professionals to assess the complex and controversial SD-related issues. In addition, to preparing students for critical, reflective and autonomous thinking to better assess sustainability issues, TSD should foster the ability to work with stakeholders with distinct interests and value systems to meet common goals (Dale and Newman, 2005, quoted by Annan-Diab and Molinari, 2017).

The integration of TSD has become a key issue in public HEI, not only for differentiating them from other educational institutions, but also for finding new ways of creating a kind of knowledge needed in a world characterized by turbulent and growing environmental change in society (Abu-Hola and Tareef 2009).

As SD is considered to be an integral part of today's business strategy (Hall et al., 2010; Kuckertz and Wagner 2010; Kolb, et al., 2017), there has been a shift in business strategy in recent years towards engaging SD for the benefit of stakeholders. These issues require the adoption of strategies that include the training of technical and ethical skills and qualifications to build awareness of companies, organizations and citizens. Creel and Paz (2018) explain that, if companies have adopted the 'Triple Bottom Line', HEI need to prepare students for thinking in these various dimensions, environmental, social and economic. Concerns with SD should be present in the educational process of future professionals. Furthermore, it is imperative that this subject is discussed and implemented extensively and in depth in academic curricula, in order to ensure that students understand and can apply SD-related matters, such as Ethics, Corporate Social Responsibility and Sustainability, to their future professional life.

Taylor and Kraly (2012) explain that curricular enrichment is a method that can be used to achieve sustainability. Other authors (e.g., Sammalisto et al., 2005; Velazquez et al., 2005; Watson et al., 2013) support this idea and consider that an academic curriculum, in any degree of studies, must have a holistic view; therefore, it should consider SD contents, in the environmental, social and economic dimensions. Also Abu-Hola and Tareef (2009) emphasize that the improvement of strategies of teaching and learning sustainability, involves the integration of these topics in academic curricula.

Fernández et al. (2015) analyzed the implementation of sustainability practices in Spanish HEI, concluding that such implementation has been very slow and not significant, and that one of the measures to be adopted for continuous improvement must be the integration of courses and academic curricula on SD. Xiong et al. (2013) concluded further that there is an urgent need to implement TSD in HEI, and there is still a lot of work to be done in this area. They also point to the need for more efforts to develop academic curricula that specifically address these issues.

Viegas et al. (2016) explain that the issue of curricular adaptation is seen as a limitation for changing '*old sustainability visions that accommodate future vision*' (p.270). However, the authors argue for the need for SD topics to be discussed in HEI and applied extensively and in depth, to ensure that students understand and can apply SD in their future professional life. The integration of TSD in higher education helps students to learn in a systemic and holistic way, demonstrating how these subjects can contribute to create sustainable projects (Ceulemans and Prins, 2010).

According to Godemann et al. (2011), TSD in HEI is a fairly recent practice. After some environmental, social and economic crises in recent years, several organizations have begun to consider the importance of SD issues for the survival of business and society, which leads to the need for teaching on this subject.

Despite the scarcity of literature about TSD, some studies can be found. For example, Xiong et al. (2013) analyze the implementation of a 'green curriculum' in several areas of study, such as engineering, agriculture, forestry, medicine, education, art, ethics, economics, sports, languages and law, in various Chinese universities. The authors note that institutions located in underdeveloped areas are less concerned with environmental education than those in more developed areas. Also Aurandt and Butler (2011) conducted a study based on three engineering courses, concluding that SD (environmental, social and economic) dimensions should be addressed simultaneously (and not separately). Other studies, in particular case studies, have been carried out. E.g., Colombo and Alves (2017) analyzed how the issue of sustainability is taught in various engineering programs in a Portuguese public university; Taylor and Kraly (2012) carried out a similar study in HEI in the USA; and the study by Watson et al. (2013) verified that there is an increased number of engineering HEI that incorporate sustainability into teaching.

Despite all authors corroborating the integration of TSD in academic curricula, it was overall acknowledged that curricular reforms are still needed, to improve SD education and raise students' awareness of the implications of their work for the environment and society. Accordingly, it is important to analyze the contribution of TSD, as a starting point to understand how SD is taught and how it can be improved (Malkki and Paatero, 2015). However, incorporating TSD into academic curricula, as an instrument that encourages

individuals to reflect and act on environmental, social and economic challenges, is an increasingly complex task in different areas of knowledge (Sethi, 1995).

According to Filho (2017), in the mid-2000s the UN and the academic community recognized that future business leaders would have to play a critical role in tackling sustainability challenges. In response, the initiative "Principles for Responsible Management Education" (PRME) was launched in 2007 by the former UN Secretary-General, Ban Ki-moon. The PRME[2] aim to inspire and promote sustainability in higher education in management areas. They are a way of implementing in HEI continuous improvement conducive to the development of a new generation of business leaders, capable of managing the complex challenges faced by companies and society in the 21st century.

The PRME initiative is a global call for HEI around the world to gradually adapt academic curricula, research, teaching methodologies and institutional strategies to new business challenges and opportunities (Greenberg et al., 2017). The principles provide a basic framework for HEI and consist of global action to update program content, research and teaching methods of management schools and other academic institutions to meet the social realities and demands of the 21st Century, by including social responsibility and sustainability values in the education of future managers.

The intention of UN programs to promote a continuous improvement of educational management, results from the need to train new business leaders who must be aware of the impacts of their choices at different levels (Fiates, 2012).

2.2 Teaching about Sustainable Development in Business Sciences – Accounting and Management

The demands of the labor market for cross-cutting, technical and behavioral skills are increasing. Employers are looking for professionals who are critical, qualified, skilled and able to deal with various types of problems.

As the PRME (2007) initiative states:

'*It has become essential to understand the fundamental connections between business, the environment and society. The responsibility of business as a global force*

[2] The PRME are composed of six principles based on universally accepted values and inspired by the UN *Global Compact* initiative to transform teaching, research and thinking in the areas of management, with the overall objective of supporting universal values of sustainability, social responsibility and ethics, providing the framework of principles for responsible management, developing skills and promoting awareness of the SDG.

has become urgent, and concepts related to social responsibility and sustainability are recognized as essential elements in the conduct of business. Businesses need management tools that help integrate environmental, social and economic concerns into strategic planning and day-to-day operations. It requires professionals with skills that cannot only anticipate organizational goals and meet obligations for shareholders, but also professionals prepared to deal with the impact and the broader potential of business as a global positive force in society' (PRME, 2007, p. 2).

According to Annan-Diab and Molinari (2017), business organizations, and therefore accounting and management areas, have been confronted with the need to process non-financial data. Gray (2010b) explains that the non-financial information disclosed by companies in most cases has little or nothing to do with sustainability. Aware of a company's role in generating profit but also in promoting SD (Gray, 2010a), accounting and management professionals should be prepared to determine the costs and benefits, identify and measure events and their positive and negative impacts, and disseminate environmental, social and economic information (Jenkins, 2006; Boulianne, et al., 2018).

Burritt and Schaltegger (2010) find that the process of changing the various types of accounting systems is progressive. According to Carvalho et al. (2014) and Sammalisto et al. (2015), in the business world, SD issues are still seen as an obstacle to economic development. However, many managers are trying to contribute to SD and need relevant and reliable information to support their decisions, namely those concerning solving environmental, social and economic problems, while strengthening the competitive position of companies.

HEI degrees in Accounting and Taxation, and in Management and Business Administration, assume as a priority mission the training of future professionals who, in an autonomous or integrated way, reveal the ability to perform accounting, financial, administrative, management and taxation functions, inherent to the correct functioning of a company or any other organization, public or private. These activities should support decision-making and the setting up of assertive strategies, with positive repercussions for the revitalization and growth of organizations (Burritt and Schaltegger, 2010; Boulianne, et

al., 2018). SD matters must have a central position is these strategies, hence becoming crucial for the future of business professionals.

Nevertheless, in the opinion of several authors (e.g. Thomas, 2005; Junyent and Ciurana, 2008; Walck, 2009; Wu et al., 2010; Audebrand, 2010; Lourenço et al., 2013; Xiong et al., 2013; Botes et al., 2014; Boulianne, et al., 2018), the integration of TSD in the courses of Business Sciences has not gathered much support. Figueiró and Raufflet (2015) conclude, from their analysis to 63 papers on the topic, for the great need to include environmental, social and economic issues in higher education.

In the case of accounting, there is a need to reflect rigorously on how to better prepare and educate future accounting professionals (Creel and Paz, 2018), and to find more ways of integrating sustainability into academic curricula (Chan et al., 2014). Lourenço et al. (2013) explain that teaching in accounting courses establishes a materialistic and profit-oriented vision of the world. This type of teaching can compromise ethical values and weaken students' perceptions about SD issues. As previously argued by Giacalone and Thompson (2006) and Singh et al. (2011), Lourenço et al. (2013) explain that teaching in these areas is focused on the treatment of financial information for making profit, without consideration for the importance of themes on SD, sustainability and social responsibility. According to Chulián (2011), academic curricula in accounting courses have been criticized as they focus on two general assumptions, shareholder primacy and the way accounting is presented. While Hazelton and Haigh (2010) argue that accounting perpetuates unsustainable practices, ignoring, or even concealing, the effects of social and environmental impacts of organizations, Kelly and Alam (2009) and Boulianne et al. (2018) explain that the purpose of the business may gain advantages when decision-making also addresses economic, social and environmental issues. So, accounting and business studies curricula should include such matters.

Gray (2010b) explains that, if one seeks to solve the problems of the world, he will hardly choose or consider accounting to start with. However, accounting is the basis for the dissemination of corporate financial information, which supports management decision-making; therefore, accounting should increasingly be founded on environmental, social and economic issues.

Botes et al. (2014) analyzed the perception of students and teachers about the integration of sustainability topics in accounting courses and note that there are already some signs of change. Through a review of New Zealand HEI web pages and interviews, the authors found that there was some integration of TSD; yet, according to the students and teachers, this was not enough. Both groups of participants indicated that the integration of TSD in accounting courses is highly important.

Carvalho et al. (2014) present a review of the literature for understanding the progress of TSD in management courses. Just as Audebrand (2010) and later Ferreira and Blomfield (2016), the authors realize the urgent need to adapt academic curricula in order to prepare professionals for SD. This, in turn, opens up a range of possibilities when thinking about teaching strategies and practices.

To verify the extent to which TSD was incorporated into the management courses taught at Australian HEI, Fisher and Bonn (2011) carried out a documentary analysis using information taken from the web pages of 40 universities. They observed that more than half of the Australian HEI had not integrated TSD in academic curricula, and the rest had done so in limited form. Singh et al. (2011) carried out a similar study in India, considering a sample of 35 teachers from 17 HEI; the authors found that the lack of availability, development of didactic materials, and course design represent a difficulty for the integration of TSD.

Filho (2017) found that the integration of SD into academic curricula of a Brazilian business school, as suggested by the PRME and the UN Sustainable Development Agenda 2030, requires a greater involvement of students to raise awareness about their role in society and participation as protagonists in the changes the world needs.

Singhal et al. (2017) aimed at understanding the PRME implementation process and the challenges they posed to the institutions. They looked, in particular, into a management course in a HEI in north India. The authors highlighted several challenges that arose from adapting the academic curricula according to the PRME; notwithstanding, the integration was successful, which is why continuous improvement for teaching the principles in management courses is expected.

3. Methodological issues

3.1 Objectives and research questions

Considering the importance discussed in the above literature review, this study aims to analyze the current state of implementation of SD, including matters about Ethics, Corporate Social Responsibility and Sustainability, in the academic curricula of Business Sciences degrees. Using Portuguese public HEI data, it explores about how HEI contribute to TSD. Taking into account the diversity of HEI and of areas of knowledge, the main goal is to emphasize the academic curricula of courses in Accounting and Taxation, and in Management and Business Administration. The research questions (RQ) to be addressed are:

RQ1. In which of the two existent types of HEI, universities and polytechnics, is the TSD most prevalent?

RQ2. In which of the two types of degrees (cycles of study) considered, Bachelor (BSc) or Master (MSc), is the TSD most prevalent?

RQ3. What are the areas of the degrees where the teaching of SD is most observed?

RQ4. Which SD topics are taught, and in what curricular units?

RQ5. What is the importance of SD in each of the degrees and type of HEI?

3.2 Sample Definition

There are 34 public HEI in Portugal and, according to the classification of the General Directorate for Higher Education (DGES)[3], 9 areas of knowledge. The courses in the area of Business Sciences were selected according to the areas in the National Classification of Education and Training. The area of Social Sciences, Commerce and Law was selected from various. As this area is still very broad, there was a need to limit to the Business Sciences, and then focus on:

- Accounting and Taxation, and
- Management and Business Administration courses (Table 1).

[3] http://www.dges.gov.pt/guias/indarea.asp?area=VII accessed in February 2018.

Table 1: Areas of study for the analysis

Social Sciences, Commerce and Law	Business Sciences	Business Sciences
		Commerce
		Marketing and Advertising
		Finance, Banking and Insurance
		Accounting and Taxation
		Management and Business Administration

Source: Ordinance Nº. 256/2005 - National Classification of Education and Training

All public universities (14) and polytechnic institutes (20) were considered[4], with a focus on undergraduate (BSc) and master (MSc) study cycles.

Using the website of the DGES, 359 degrees were initially selected, including, in many cases, the same degree being taught during the day and after labor hours. These cases count as one for this study, because there are no differences in their curricular structure. After this collection, it was necessary to validate the information by checking the website of the Agency for Assessment and Accreditation of Higher Education (A3ES), in order to conclude whether the study cycle under analysis was accredited and whether it was running in the year 2018/2019. Accordingly, a set of 196 degrees was finally selected, as shown in Figure 1.

Figure 1: Sample definition

Source: Prepared by the authors

3.3 Data collection method

The method used for data collection followed several authors (e.g., Mathews, 2004; Wu et al., 2010; Fisher and Bonn, 2011; Botes et al., 2014; Colombo and Alves, 2017), and consisted in verifying the curricular structure of the degrees. The research began with an exploratory analysis intended to obtain information about the integration of TSD in

[4] University vs Polytechnic - In Portugal, higher education is organized in a binary system that includes university and polytechnic education. University education is guided by a perspective of promoting research and creating knowledge, in order to ensure sound scientific and cultural preparation and to provide technical training that enables the exercise of professional and cultural activities and fosters the development of design, innovation and critical analysis skills. Polytechnic education has in view applied research and development, aimed at understanding and solving concrete problems; it seeks to deliver solid cultural and technical training at the higher level, to develop the capacity for innovation and critical analysis and to provide scientific knowledge of theoretical and practical nature for the pursuit of professional activities. https://www.dges.gov.pt/pt/pagina/sistema-de-ensino-superior-portugues?plid=371 accessed in February 2018

Accounting and Taxation, and in Management and Business Administration degrees in Portuguese public HEI. The data of each degree were collected from the curricular plans and course syllabus, scrolling through the web pages of each HEI where the degree is taught (as Cornelius et al., 2007; and Fisher and Bonn, 2011). All curricular plans of the 196 degrees were checked; for those not available, it was necessary to send e-mail messages to the coordinators of each degrees requesting this information. The collected data gave rise to a database in *Microsoft Office Excel* ®, with the purpose of classifying, grouping and comparing the data, including the creation of categories.

The collection of information began with the identification of each HEI. Accordingly, the data collected for this are of qualitative nature, since they portray several particularities, such as: Type of Institution – Polytechnic or University; Degree – Accounting and Taxation or Management and Business Administration; Cycle of studies – Bachelor or Master.

Based on the study by Abbott and Monsen (1979), a score of 0 to 1 was used, where 0 means absence of the desired information, and 1 means it exists. For each one of the degrees, the initial procedure was to verify whether subjects concerning SD were integrated into the academic curricula, that is to say, whether there is TSD. For this, curricular plans were analyzed in order to identify and gather keywords, a method also used by several authors (e.g., Wu et al., 2010; Watson et al., 2013; Botes et al., 2014; Byrne et al., 2015; Holm et al., 2015; Jorge et al., 2017; Stough et al., 2017; and Findler et al., 2019).

One of the criteria for analyzing the integration of TSD into the degrees, was the presence in the title of the curricular units (CU) (or courses) of one of the following keywords, derived from those used in the literature, namely in the above-referred authors: 'sustainable development', 'environmental', 'sustainability' and 'social responsibility'.

In this stage of data collection, the existence of autonomous CU was considered, whenever a CU in the curricular plan was seen to contain one of these keywords. The second phase consisted of the analysis of the contents of the course syllabus; the research was carried out based on the same approach as the previous stage.

For each syllabus in which any of the keywords were verified, the following information was collected:

- The name of the degree (Wu et al., 2010; Fisher and Bonn, 2011);
- The name of the curricular unit or course (Colombo and Alves, 2017);

- The number of credit units (Lozano and Young, 2013; Colombo and Alves, 2017);
- If the subject of SD is addressed in an autonomous CU, or as a chapter in the syllabus, or inserted only as a theme within a chapter (Jorge et al., 2017; Stough et al., 2017); consequently, it is classified as 'autonomous CU', 'CU with Chapter' and 'CU with Theme' (Fisher and Bonn 2011);
- If it is a compulsory or optional CU (Fisher and Bonn, 2011; Watson et al., 2013; Byrne et al., 2015; Jorge et al., 2017);
- In which semester it is taught; and which specific SD-related topics are taught (Burritt and Schaltegger, 2010).

3.4 Analysis and data processing

This study uses content analysis (e.g., Wu et al., 2010; Godemann et al., 2011; Botes et al., 2014; Disterheft et al., 2014; Jorge et al., 2017). The content analysis is divided into three phases: pre-analysis, this being the intuition phase, which aimed at operationalizing and systematizing the information; the exploration of the material, consisting of coding operations, break down or enumeration, according to previously formulated rules; and finally, processing of the results obtained and their interpretation (Bardin, 2011). Content analysis was essentially quantitative, counting how often the terms appear; however, some qualitative assessment was also done regarding the context in which they appear.

Based on frequency tables to characterize the population of the 196 degrees in the area of Business Sciences, it was found that 110 are taught in Polytechnic institutes and 86 in Universities; 146 degrees are in Management and Business Administration, and 50 in Accounting and Taxation; and 117 are MSc, whereas 79 are BSc degrees (Table 2).

Table 2: Characterization of the study population

196 degrees	146 Management and Business Administration degrees	117 MSc
	50 Accounting and Taxation degrees	79 BSc

Source: Prepared by the authors

For Abu-Hola and Tareef (2009), SD topics that must be explicitly addressed in higher education programs vary according to the CU. Holm et al. (2015) have identified relevant aspects of academic curricula in the Nordic countries, including: Sustainable products and solutions, Sustainable production, Sustainable technical solutions, environments, natural resources, and the local environment. Also Wu et al. (2010) had previously carried out a similar analysis in the main European Business Schools, considering as the most frequent terms: Ethics, Sustainability, Sustainable Development, Corporate Social Responsibility and Natural Resources.

Taking into account the objectives established for the research in this paper, and basing on the information collected about what is taught in each of the CU, SD-related topics were grouped into seven categories: 'Social Responsibility'; 'Ethics'; 'Environment or Environmental'; 'Sustainability'; 'Sustainable Development'; 'Corporate Governance'; and 'Report'. The classification and categorization of the different topics resulted from the combination of those found in the academic curricula and the literature analyzed.

4. Main findings – presentation and discussion

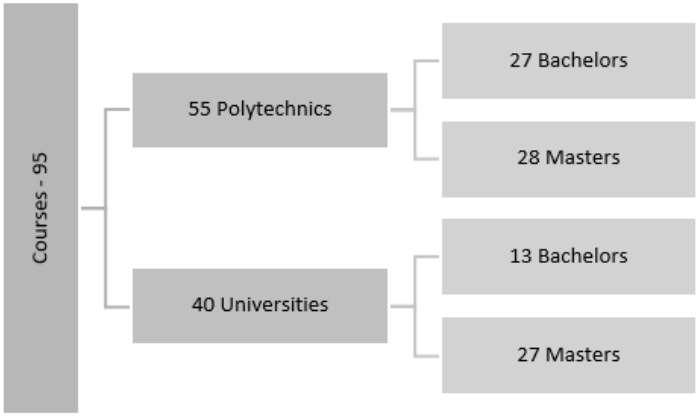
Authors such as Lozano (2010) and Jorge et al. (2017) consider that the integration of TSD in academic curricula lacks, among other things, assessing the proportion of curricular units contributing to SD, given by the number of courses related to the topic, divided by the total number of courses. Attempting to fill in this gap, this study first characterized the sample, highlighting that none of the 196 Accounting and Taxation and Management and Business Administration degrees contained in its identification any of the defined terms; nevertheless, TSD was integrated into the academic curricula of 95 degrees (48.5%). Therefore, TSD is not yet integrated in more than half of the degrees analyzed. These findings are in accordance with Watson et al. (2013), who showed that sustainability has been broadly integrated in academic curricula but, despite the efforts, there are still significant improvements to be made.

This study considers the way HEI is organized in Portugal – a binary system that includes university and polytechnic education (see footnote 4). As explained, while university teaching is oriented toward research and creation of scientific and cultural knowledge,

polytechnic teaching is oriented toward applied research and the creation of professional knowledge. To the best of our knowledge, no study has been found to have made this distinction so far but, taking into account the different orientations in teaching, it was considered important to make such a division herein.

Therefore, to answer RQ1, the degrees were classified by type of HEI. Of the 95 degrees, it was observed that TSD is more frequent in polytechnic institute degrees, as shown in Figure 2.

Figure 2: HEI of Business Sciences with TSD



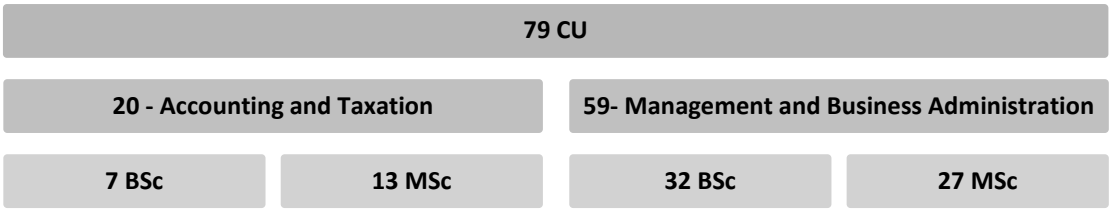
Source: Prepared by the authors

Based on the quantitative analysis and using frequency tables, it was found that TSD is a reality in 139 CU of the 95 degrees previously mentioned. It was also verified that the distribution of CU by type of HEI is contrary to the previous case, that is, when analyzing the type of HEI where TSD occurs in each CU, one concludes that the number of CU with TSD is slightly higher in universities (51%), although the number of degrees is smaller.

However, it is also important to consider the CU which are mandatory, out of the 139, since this greatly impacts the total number of students that will be reached through the integration of TSD, ensuring that at least one CU addresses these issues. It was verified that about 56.80% (79) of the CU of Business Sciences degrees at HEI in Portugal integrating subjects on SD are compulsory, and 43.20% (60) of the CU are elective. In the study by Wu et al. (2010), in which the authors analyzed TSD in management courses worldwide, the number of compulsory CU is also higher than the number of elective ones. Of compulsory CU, 64% are taught in polytechnic institutes and the remaining 36% in universities.

RQ2 intends to analyze the type of degrees and study cycles in which the TSD is identified. For this, only the compulsory CU were considered (79), because it is not sure that the elective ones are in fact taught, as it depends on the choice of the student. As shown in Figure 3, it was verified that the integration of TSD is a reality in half of both MSc (51%) and BSc programs (49%).

Figure 3: Mandatory CU with TSD



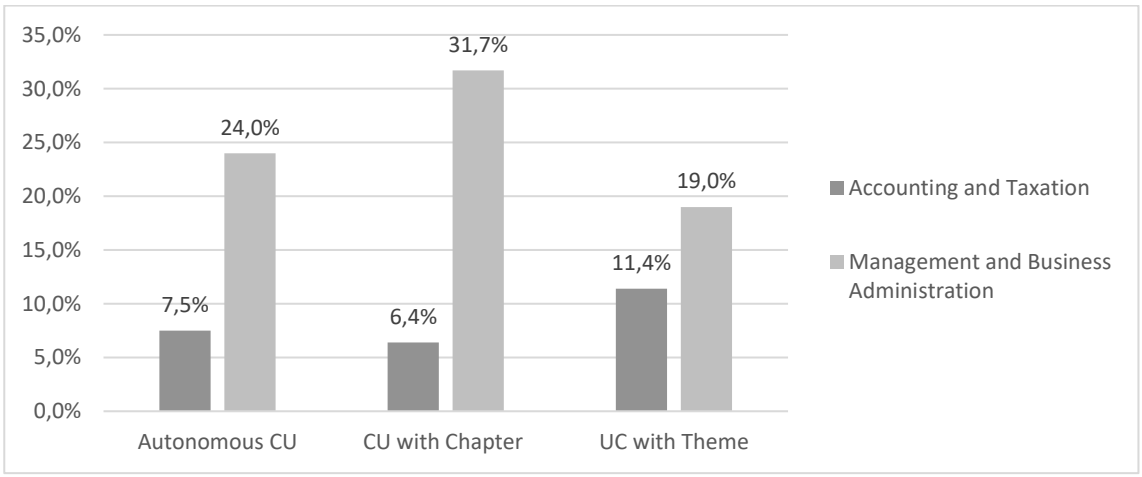
Source: Prepared by the authors

In respect to the distribution of TSD between BSc and MSc degrees, Wu et al. (2010) found that TSD is most frequently found in undergraduate degrees. The study by Botes et al. (2014), in turn, revealed that a large part of HEI in New Zealand does not integrate TSD in the academic curricula of the BSc and MSc degrees, which, according to the authors, reveals a lack of priority on the part of this subject's teachers. The Portuguese case goes beyond these, already showing some concern in including SD-related topics at both levels of study cycles.

Regarding the area of the degree (RQ3), it was found that TSD (namely, in compulsory CU) is more frequent in Management and Business Administration (75 %) than in Accounting and Taxation (25%) degrees, which can be explained by the fact that, in the sample, there are more degrees in the former area than in the latter. These findings go with the literature that emphasizes the low importance of SD topics in accounting degrees, Singh et al. (2011) and Lourenço et al. (2013).

RQ4 aims to ascertain which subjects on SD are taught and in what CU. As displayed in Figure 4, it was verified that there are no significant differences between the number of "autonomous CU" (25), "CU with the chapter" (30) and "CU with the theme" (24) in the different areas of knowledge; however, the "CU with the chapter" appear more frequently, namely, within the degrees in Management and Business Administration.

Figure 4: Type of CU with TSD in Business Sciences degrees

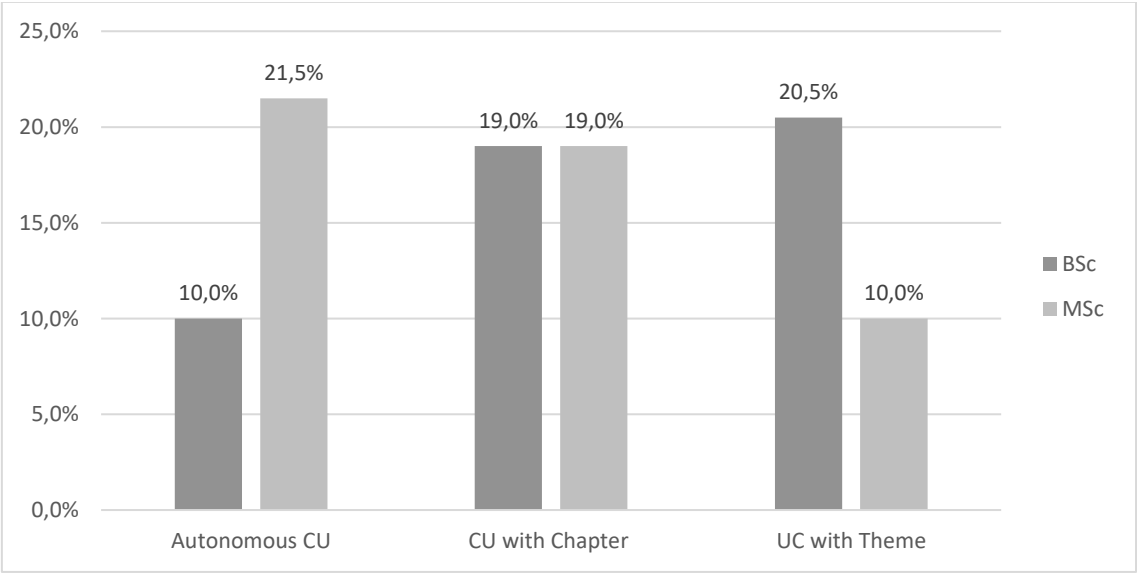


Source: Prepared by the authors

In contrast to Fisher and Bonn (2011) in Australia, where TSD was found in only 14.58% of all CU, currently in Portugal 31.5% of all CU address these matters as a general theme; CU that address SD only in one Chapter reach 38.1% and finally 30.4% of CU address these topics under a Theme in a chapter.

Moreover, in the case of cycles of study (Figure 5), some differences were observed. In the case of MSc, 'Autonomous CU' prevail, unlike what happens in the BSc, where the 'CU with Theme' are the most frequent.

Figure 5: Cycle of study with TSD in Business Sciences degrees



Source: Prepared by the authors

Based on the themes found in the syllabus contents of the 79 compulsorily CU, a categorization was then applied considering SD-related matters referred to in the literature and listed in section 3.4. Accordingly, one of the seven categories of themes is 'Environment or Environmental'. Within this, the following topics were considered: Accounting and Reporting Standard 26 – Environmental Matters, Environmental Auditing and Policies, Legal Instruments of Environmental Law, Environmental Management Systems (e.g., ISO 14001, EMAS), Environmental Performance, Environmental Accounting, Environmental Licensing and Technologies, and Environmental Resources Management. Another category is 'Sustainability' comprising topics such as: Accounting and Sustainability, Sustainability Indicators, Sustainability Fundamentals, Sustainability Practices, Energy Sustainability, Sports, Environment and Tourism, and Tourism and Sustainability. Under the category 'Sustainable Development' the topics considered were: Sustainable Development, Sustainable Development Strategies, 2030 Agenda for Sustainable Development, Sustainable Development Goals, and Regional Sustainable Development Models. Another category is 'Report' in which topics such as Sustainability Reports, Integrated Reports, Social and Environmental Reports were considered, which typically involve non-financial information and auditing-related information. To the themes 'Social Responsibility', 'Ethics' and 'Corporate Governance' the topics considered were exactly the expression of the theme. Table 3 summarizes these findings, considering the frequency distribution of the various topics taught by each CU of the various degrees.

Table 3: Summary of themes in CU in each degree

Themes/Degrees	Accounting and Taxation	% **of themes**	Management and Business Administration	% **of themes**	Total
Environment or Environmental	16	26%	46	74%	62
Social Responsibility	13	24%	41	76%	54
Sustainability	10	30%	23	70%	33
Report	6	55%	5	45%	11
Sustainable development	3	17%	15	83%	18
Ethics	0	0%	10	100%	10
Corporate governance	0	0%	4	100%	4

Source: Prepared by the authors

The SD-topics mostly taught are included in the categories of 'Environment', 'Social Responsibility' and 'Sustainability'. Moreover, except for the topics in the category 'Report',

the topics appear much more frequently in CU of Management and Business Administration degrees than in those of Accounting and Taxation degrees, again confirming that SD matters are not given such importance in accounting-related courses.

Finally, RQ5 aims to analyze the importance of SD topics in each of the degrees. As in other European countries, in Portugal the educational courses on offer in HEI are organized according to credit units (ECTS[5]). This system of credit allocation to courses was developed to regulate the recognition of higher education programs in Europe (Ceulemans et al., 2011). Based on these assumptions, this study evaluates the importance of the SD subjects in each degree based on the number of ECTS awarded (Colombo and Alves, 2017; Lozano and Young, 2013). Accordingly, of the 95 degrees with TSD, comprising 139 CU, it is important to analyze again: whether the CU are mandatory or elective, thereby demonstrating the importance awarded to these themes in academic curricula (Fisher et Bonn, 2011; Watson et al., 2013; Byrne et al., 2015); whether courses are 'Autonomous CU', 'CU with a Chapter' or 'CU with a Theme' (Stough et al., 2017); and how often do CU on SD occur in each of the degrees (Wu et al., 2010; Lozano and Young, 2013).

This analysis begins by characterizing the total of 139 CU initially considered. In Accounting and Taxation degrees, 59% of the CU are compulsory, while 41% are elective; in Management and Business Administration degrees, 56% of the CU are compulsory, while 44% are elective. Therefore, in both cases, mandatory CU are more frequent.

Concerning 'Autonomous CU', 'CU with a Chapter' or 'CU with a Theme', in both areas of knowledge it was found that 50% of the CU are Autonomous. 'CU with a Chapter' on SD topics are most frequent in the degrees of Management and Business Administration; 'CU with a Theme' on SD are more common in Accounting and Taxation, as displayed in Table 4.

Table 4: Curricular units by area of study

Curricular units / Area of study	Accounting and Taxation		Management and Business Administration	
Autonomous CU	17	50%	53	50%
CU with Chapter	6	18%	34	33%
CU with Theme	11	32%	18	17%
Total	**34**		**105**	

Source: Prepared by the authors

[5] ECTS – European Credit Transfer System.

As for ECTS, 59% of CU have 5 or more ECTS. Table 5 shows the frequency per degree and study cycle.

Table 5: ECTS by degree and study cycle

Study cycle / ECTS	Up to 3 ECTS		Between 3 and 5 ECTS		More than 5 ECTS	
	BSc	MSc	BSc	MSc	BSc	MSc
Management and Business	4%	4%	12%	9%	22%	24%
Accounting and Taxation	1%	3%	1%	6%	4%	9%

Source: Prepared by the authors

Regarding the CU frequency in each degree, for the 95 degrees (40 BSc and 55 MSc), in most cases there is only one CU on SD, as shown in Table 6.

Table 6: Curricular units with TSD per study cycle

Curricular units / TSD per study cycle	1 CU		2 CU		3 CU		4 + CU		Total
	BSc	MSc	BSc	MSc	BSc	MSc	BSc	MSc	
Management and Business	5	17	3	7	2	2	3	1	**40**
Accounting and Taxation	22	20	5	8	0	0	0	0	**55**
Total	**27**	**37**	**8**	**15**	**2**	**2**	**3**	**1**	**95**

Source: Prepared by the authors

Although TSD is acknowledged to be rather important, considering the respective ECTS, most of the 95 degrees and 139 CU that address SD, only dedicate one CU to the subject. Taking into account the importance of this topic for companies and society in general, the integration of TSD in Business Sciences degrees is fundamental, but it can be said that it is still at an early stage in Portugal. HEI in this country still have a long way to run and big challenges to face, in order TSD reach a satisfactory level.

Taking into account the different characteristics in teaching between universities and polytechnics, it was found interesting to analyze which type of HEI give more importance to the integration of these themes in Accounting and Taxation, and in Management and Business Administration degrees. In similar way to what was previously done, also in this case it was considered for this comparison that CU are mandatory or elective, the SD topics are addressed in 'Autonomous CU', 'CU with Chapter' or 'CU with Theme', and lastly the ECTS assigned to each SD-related CU.

Looking at the issue of mandatory and elective CU, as previously concluded, 79 out of 139 CU analyzed, are mandatory. Regarding the distribution by type of HEI, of compulsory CU, 64% are taught in polytechnic institutes and the remaining 36% in universities. From the total (139) 37% are offered in polytechnics and 20% in universities. So, one may say that polytechnics find SD topics more important, as they have relatively more compulsorily CU.

As to SD topics being addressed in 'Autonomous CU', 'CU with Chapter' or 'CU with Theme', findings summarized show in Table 7.

Table 7: Curricular units by type of HEI

Curricular units / Type of HEI	Universities		Polytechnics	
Autonomous CU	41	58%	29	43%
CU with Chapter	21	29%	19	28%
CU with Theme	9	13%	20	29%

Source: Prepared by the authors

Therefore, universities seem to find more important to address SD topics separated from other disciplines, while polytechnics tend to teach these as parts of other courses, which could indicate the former allocate more importance to SD matters. However, a more refined analysis of the ECTS allocated, as in Table 8, must complete these findings.

When the analysis is performed taking into account the 139 CU, 35% of CU with 5+ ECTS are found in polytechnics and 40% in universities, showing not such a considerable difference between the two types of institutions.

But when the analysis is made taking into account only the 79 mandatory CU, the distribution becomes contrary, with 49% of CU with 5+ ECTS by polytechnics and 25% by universities. This points to polytechnics giving more importance to SD topics as more HEI of this type make them compulsory for students in their business degrees, with 5+ ECTS.

Table 8: ECTS by curricular unit and type of HEI

Type of HEI / ECTS	Total CU	5+ ECTS	%	Mandatory CU	Mandatory CU with 5+ ECTS	%
Polytechnics	68	49	35%	51	39	49%
Universities	71	55	40%	28	20	25%
Total	**139**			**79**		

Source: Prepared by the authors

Based on all the issues considered for the analysis of the importance of TSD, it becomes evident that HEI that teach Business Sciences in Portugal, regardless their type, consider this topic important and put already some care into the integration of TSD in the Accounting and Taxation, and above all, in Management and Business Administration degrees. Special attention seems to be given to it by the MSc degrees, where 'Autonomous CU' on SD issues prevail.

5. Conclusion and implications

As the UN acknowledges that education is a considerable instrument of change for adopting more integrated forms of SD, HEI is seen as crucial stakeholders in such change. They can contribute significantly to promoting the transition to a sustainable society, as well as to achieving the SDG because of their dual role in generating knowledge and transferring it to society and preparing students for their future in society. According to Creel and Paz (2018), HEI needs to prepare students for the various organizational dimensions – environmental, social and economic – as increasingly more companies have adopted the "Triple Bottom Line".

In response to the UN calls for students to acquire knowledge about SD and how to apply it in professional and social life, it is imperative that themes on Ethics, Corporate Social Responsibility and Sustainability be integrated into academic curricula.

The above being considered, this study explores how HEI contribute to TSD to the students in Business Sciences degrees, by researching TSD subjects. An analysis was made of the current state of implementation of SD-related matters, including Ethics, Corporate Social Responsibility and Sustainability, in the academic curricula of 196 degrees in Accounting and Taxation, and in Management and Business Administration, both at BSc and MS levels, in Portuguese HEI. Based on the analysis of the importance that HEI give to TSD, this paper tried to ascertain to what extent SD topics are integrated in the degrees those institutions offer, ultimately inferring about their contribution, via teaching, to ESD.

The study found that there is already some concern about the integration of TSD in Business Sciences degrees in Portugal, since SD topics have been integrated into the academic curricula in 48.5% of the degrees. However, given the fact that the SD subject is

increasingly relevant, it is apparent that there is still much work to be done, and HEI still face significant challenges in order to increase the level of TSD. As stated by Xiong et al. (2013) and Watson et al. (2013), also in Portugal, curricular reforms in HEI are still needed in Business Sciences degrees, to improve education and prepare students for the implications of their work on the environment and society.

Several authors (Singh et al., 2011; Chulián 2011; Hazelton and Haigh 2010) found that education in these areas focuses on processing of financial information targeting at profit-making, not considering the relevance of themes on SD, sustainability and social responsibility. Taking into account the issues addressed, this study otherwise concluded that, taking the Portuguese example, there is already some concern about addressing sustainable development issues in the preparation of accounting information for decision-making, inasmuch as SD topics are addressed in Accounting and Taxation, and in Management and Business Administration degrees and courses. But the challenges for improvement continue, and this paper highlight that they are especially important in the former area of knowledge, where TSD is (traditionally) lesser.

Understanding what is taught, and how, about SD in HEI in a first step towards analyzing how these institutions care and ultimately contribute to ESD. This paper not only assessed what Portuguese HEI teach about SD, but also evidenced how: at undergraduate or postgraduate level, via compulsory or elective courses, considering entire, or just parts, of courses. Moreover, the distinction between universities and polytechnics, allowed evidencing different priorities between more applied or more theoretical type of teaching. Main findings bring interesting implications for policy-making in Portuguese HEI, namely about redesigning academic curricula and reflecting on pedagogic issues concerning how to teach. The analysis in this paper may be taken as a starting point to comparative analyses in other jurisdictions.

Every year, hundreds of thousands of students graduate. These students will become professionals in the organizations where they will put into practice the knowledge they acquired; they can influence different types of organizations and foster SD practices. HEI not only prepare future business leaders, but global leaders. Therefore, Portuguese HEI must realize that it is necessary to develop academic curricula in Business Sciences studies that can deliver a more holistic education to help develop a more sustainable society.

All in all, this paper expects to draw attention to the importance of the SD theme to be taught in HEI, meeting the UN proposals and building on the importance of TSD as a contribution to mainstreaming principles and practices in all aspects of education and learning, encouraging changes in knowledge, values and attitudes, and enabling students to foster the transition to sustainability. It brings good implications for society, while showing that sustainability content is becoming more apparent within certain HEI degrees and courses. This could be used to create follow up research on what type of sustainability content is being included within the courses and the learning that is happening in students (competencies) in regards to this sustainability content.

Additionally, highlighting the increasing prevalence of sustainability teaching may help contributing to the shifting narrative regarding education for sustainability, providing validity and motivation to continue integration of sustainability thinking into HEI, and specifically into business education, which has traditionally been focused on other topics.

Despite these contributions, the study presents some limitations. One concerns that fact that it is essentially exploratory and descriptive, lacking a further analytic perspective. Another one relates to the fact that it addresses only Business Sciences degrees; extending to other areas would allow a boarder and more accurate perspective on TSD in the HEI in Portugal.

Future extensions of this study could explore students' perceptions of SD in education and analyze their views on the contribution thereof to their future professional life. The research could focus not only on the current situation, but also on whether the students of the Accounting and Taxation and Management and Business Administration degrees, at Business Schools in Portugal, have a forward-looking perspective, given the new trends of reorienting companies to SD.

References

Abbott, W. F. and Monsen, R. J. (1979) 'On Corporate the Social Measurement of Responsibility: Self-Reported Disclosures as a Method of Measuring Corporate Social Involvement', The Academy of Management Journal, 22(3), pp. 501–515.

Abu-Hola, I. R. M. and Tareef, A. Bin (2009) 'Teaching for Sustainable Development in Higher Education Institutions: University of Jordan as a Case Study', College Student Journal, 43(4), pp. 1287–1305.

Annan-Diab, F. and Molinari, C. (2017) 'Interdisciplinarity: Practical approach to advancing education for sustainability and for the Sustainable Development Goals', The International Journal of Management Education, 15, pp. 73–83. http://dx.doi.org/10.1016/j.ijme.2017.03.006

Antolin-Lopez, R. and Garcia-de-Frutos, N. (2018) Learning in Higher Education: The Role of Sustainability Integration Strategies, Legitimacy, and Teaching Tools, In book: Meeting Expectations in Management Education

Audebrand, L. K. (2010) 'Sustainability in strategic management education: The quest for new root metaphors', Academy of Management Learning and Education, 9(3), pp. 413–428. https://doi.org/10.5465/amle.9.3.zqr413.

Aurandt, J. L. and Butler, E. C. (2011) 'Sustainability Education: Approaches for Incorporating Sustainability into the Undergraduate Curriculum', Journal of Professional Issues in Engineering Education and Practice, 137(2), pp. 102–106. doi: 10.1061/(ASCE)EI.1943-5541.0000049.

Azapagic, A., Perdan, S. and Shallcross, D. (2005) 'How much do engineering students know about sustainable development? The findings of an international survey and possible implications for the engineering curriculum', International Journal of Phytoremediation, 30(1), pp. 1–19. doi: 10.1080/03043790512331313804.

Bardin, L. (2011) Análise Conteúdos. Edited by Edições 70. Paris: Reimpressão da Edição revista e actualizada de 2009.

Barth, M. and Rieckmann, M. (2012) 'Academic staff development as a catalyst for curriculum change towards education for sustainable development: an output perspective', Journal of Cleaner Production, 26(2012), pp. 28–36. doi: 10.1016/j.jclepro.2011.12.011.

Benn, S. and Dunphy, D. (2009) 'Action Research as an Approach to Integrating Sustainability Into MBA Programs-An Exploratory Study', Journal of Management Education, 33(3), pp. 276–295. doi: 10.1177/1052562908323189.

Bielefeldt, A. R. (2011) 'Incorporating a Sustainability Module into First-Year Courses for Civil and Environmental Engineering Students', Journal of Professional Issues in Engineering Education and Practice, 137, pp. 78–85. doi: 10.1061/(ASCE)EI.1943-5541.0000050.

Boks, C. and Diehl, J. C. (2006) 'Integration of sustainability in regular courses : experiences in industrial design engineering', 14, pp. 932–939. doi: 10.1016/j.jclepro.2005.11.038.

Botes, V., Low, M. and Chapman, J. (2014) 'Is accounting education sufficiently sustainable?', Sustainability Accounting, Management and Policy Journal, 5(1), pp. 95–124. doi: 10.1108/SAMPJ-11-2012-0041.

Boulianne, E., Keddie, L. S. and Postaire, M. (2018) '(Non) coverage of sustainability within the French professional accounting education program', Sustainability Accounting, Management and Policy Journal. doi: 10.1108/SAMPJ-09-2017-0119.

Burns, H. (2011) 'Teaching for Transformation: (Re)Designing Sustainability Courses Based on Ecological Principles', Journal of Sustainability Education, 2.

Burritt, R. L. and Schaltegger, S. (2010) 'Sustainability accounting and reporting: fad or trend?', Accounting, Auditing & Accountability Journal, 23(7), pp. 829–846. doi: 10.1108/09513571011080144.

Byrne, D. O., Dripps, W. and Nicholas, K. A. (2015) 'Teaching and learning sustainability: An assessment of the curriculum content and structure of sustainability degree programs in higher education', Sustainability Science, 10(1), pp. 43–59. doi: 10.1007/s11625-014-0251-y.

Carvalho, S. L. G., Brunstein, J. and Godoy, A. S. (2014) Um panorama das discussões sobre educação para a sustentabilidade no ensino superior e nos cursos de Administração. RiMA Edito, Ianette Brunstein; Arilda Schmidt Godoy; Helio Costa Silva. (Org.). Educação para sustentabilidade nas escolas de administração. RiMA Edito. São Carlos.

Ceulemans, K., De Prins, M., Cappuyns, V., and De Coninck, W. (2011) 'Integration of Sustainable Development in Higher Education´s Curricula of Applied Economics: Large Scale Assessments, Integration Strategies and Barriers', Journal of Management and Organization, 17(5), pp. 621–640.

Ceulemans, K. and De Prins, M. (2010) 'Teacher's manual and method for SD integration in curricula', Journal of Cleaner Production, 18(7), pp. 645–651.

Chan, M. C. C., Watson, J. and Woodliff, D. (2014) 'Corporate Governance Quality and CSR Disclosures', Journal of Business Ethics, 125(1), pp. 59–73. doi: 10.1007/s10551-013-1887-8.

Chulián, M. F. (2011) 'Constructing new accountants: The role of sustainability education', Revista de Contabilidad- -Spanish Accounting Review, 14, pp. 241–265. doi: 10.1016/S1138-4891(11)70034-6.

Colombo, C. R. and Alves, A. C. (2017) 'Sustainability in engineering programs in a Portuguese Public University', Production, 27(spe), pp. 1–16. doi: 10.1590/0103-6513.221416.

Cornelius, N., Wallace, J. and Tassabehji, R. (2007) 'An analysis of corporate social responsibility, corporate identity and ethics teaching in business schools', Journal of Business Ethics, 76(1), pp. 117–135. doi: 10.1007/s10551-006-9271-6.

Creel, T. and Paz, V. (2018) 'Teaching Sustainability in an Accounting Classroom', Discourse and Communication for Sustainable Education, 9(1), pp. 79–85. doi: 10.2478/dcse-2018-0006.

Christensen, P. et al. (2009) 'Sustainable development: Assessing the gap between preaching and practice at Aalborg University', International Journal of Sustainability in Higher Education, 10(1), pp. 4–20. doi: 10.1108/14676370910925217.

Dale, A. and Newman, L. (2005), "Sustainable development, education and literacy", International Journal of Sustainability in Higher Education, Vol. 6 No. 4, pp. 351-362, available at: https://doi.org/10.1108/14676370510623847

Disterheft, A., Caeiro, S., Azeiteiro, U., and Leal Filho, W. (2014) 'Sustainable universities - A study of critical success factors for participatory approaches', Journal of Cleaner Production, 106, pp. 1–11. doi: 10.1016/j.jclepro.2014.01.030.

Elkington, J. (1998) 'Accounting for the trile botton line', Measuring Business Excellence, 2 (3), pp. 18-22. https://doi.org/10.1108/eb025539.

Fernández, R. M., Serra, L. M., Morales, M. J., Carrasquer, J., Rodríguez, L. M. B., Valle, J. del, and Murillo, M. B. (2015) 'Environmental behaviours in initial professional development and their relationship with university education', Journal of Cleaner Production journal, 108, pp. 830–840. http://dx.doi.org/10.1016/S1138-4891(11)70034-6.

Ferreira, C. H. J.-A. and Blomfield, J. (2016) 'Teaching sustainable development in higher education: Building critical, reflective thinkers through an interdisciplinary approach', International Journal of Sustainability in Higher Education, 17(3), pp. 305–321.

Fiates, G. G. S., Parente, E. G. V., Leite, A. L., and Pfitscher, E. D. (2012) 'Principles created by the united nations for responsible management education: a proposal for innovative teaching of management', Revista Eletrônica de Estratégia & Negócios, 5(1), pp. 3–27. doi: 10.19177/reen.v5e120123-27.

Figueiró, P. S. and Raufflet, E. (2015) 'Sustainability in higher education: A systematic review with focus on management education', Journal of Cleaner Production, 106, pp. 22–33. doi: 10.1016/j.jclepro.2015.04.118.

Filho, N. (2017) 'The agenda 2030 for responsible management education: An applied methodology', International Journal of Management Education, 15(2), pp. 183–191. doi: 10.1016/j.ijme.2017.02.010.

Filho, W. L., Manolas, E., and Pace, P. (2015) 'The future we want: Key issues on sustainable development in higher education after Rio and the UN decade of education for sustainable development', International Journal of Sustainability in Higher Education, 16(1), pp. 112–129. doi: 10.1108/IJSHE-03-2014-0036.

Findler, F., Schönherr, N., Lozano, R., Reider, D., and Martinuzzi, A. (2019) 'The impacts of higher education institutions on sustainable development A review and conceptualization', International Journal of Sustainability in Higher Education, 20(1), pp. 23–38. doi: 10.1108/IJSHE-07-2017-0114.

Fisher, J., and Bonn, I. (2011) 'Business sustainability and undergraduate management education: An Australian study', Higher Education, 62(5), pp. 563–571. doi: 10.1007/s10734-010-9405-8.

Gadotti M. (2008) "What We Need to Learn to Save the Planet", Journal of Education for Sustainable Development, Vol 2 No. 1, pp. 21-30. doi:10.1177/097340820800200108

Giacalone, R. A., and Thompson, K. R. (2006) 'Business Ethics and Social Responsibility Education: Shifting the Worldview', Academy of Management Learning & Education, 5(3), pp. 266–277. https://doi.org/10.5465/amle.2006.22697016.

Godemann, J., Herzig, C., Moon, J., and Powell, A. (2011). `Integrating Sustainability into Business Schools: Analysis of 100 UN PRME Sharing Information on Progress (SIP) reports`. International Centre for Corporate Social Responsibility (ICCSR), Working Paper. 44(58), 1–58.

Grace, M., and Humphris, D. (2013) 'Organisational learning towards sustainability in higher education', Sustainability Accounting, Management and Policy Journal, 4(3), pp. 285–306. doi: 10.1108/SAMPJ-12-2012-0043.

Gray, R. (2010a) 'A re-evaluation of social, environmental and sustainability accounting', Sustainability Accounting, Management and Policy Journal, 1(1), pp. 11–32. doi: 10.1108/20408021011059205.

Gray, R. (2010b) 'Is accounting for sustainability actually accounting for sustainability...and how would we know? An exploration of narratives of organisations and the planet', Accounting, Organizations and Society, 35(1), pp. 47–62. doi: 10.1016/j.aos.2009.04.006.

Greenberg, D. N., Deets, S., Erzurumlu, S., Hunt, J., Manwaring, M., Rodgers, V., and Swanson, E. (2017) 'Signing to living PRME: Learning from a journey towards responsible management education', International Journal of Management Education, 15(2), pp. 205–218. doi: 10.1016/j.ijme.2017.02.007.

Hall, J. K., Daneke, G. A., and Lenox, M. J. (2010) 'Sustainable development and entrepreneurship: Past contributions and future directions', Journal of Business Venturing, 25(5), pp. 439–448. doi: 10.1016/j.jbusvent.2010.01.002.

Hazelton, J. and Haigh, M. (2010) 'Incorporating sustainability into accounting curricula: Lessons learnt from an action research study', Accounting Education, 19(1–2), pp. 159–178. doi: 10.1080/09639280802044451.

Hesselbarth, C. and Schaltegger, S. (2014) 'Educating Change Agents for Sustainability Learnings from the first Sustainability Management Master of Business Administration', Journal of Cleaner Production, 62, pp. 24–36. https://doi.org/10.1016/j.jclepro.2013.03.042

Holm, T., Sammalisto, K., Grindsted, T. S., and Vuorisalo, T. (2015) 'Process framework for identifying sustainability aspects in university curricula and integrating education for sustainable development', Journal of Cleaner Production, 106, pp. 164–174. doi: 10.1016/j.jclepro.2015.04.059.

Jenkins, H. (2006) 'Small business champions for corporate social responsibility', Journal of Business Ethics, 67(3), pp. 241–256. doi: 10.1007/s10551-006-9182-6.

Jorge, M. L., Andrades, F. J, and de los Reys, M. J. M. (2017) 'Analysing the inclusion of stand-alone courses on ethics and CSR A study of the MBA curricula of the Financial Times top-ranked business schools', Sustainability Accounting, Management and Policy Journal, 8(2), pp. 114–137. doi: 10.1108/SAMPJ-05-2015-0033.

Junyent, M., and Ciurana, A. M. G. De (2008) 'Education for sustainability in university studies: A model for reorienting the curriculum', British Educational Research Journal, 34(6), pp. 763–782.doi: 10.1080/01411920802041343

Kelly, M., and Alam, M. (2009) 'Educating Accounting Students in the Age of Sustainability', The Australasian Accounting Business & Finance Journal, 3(4), pp. 30–45.

Kolb, M., Frohlich, L., and Schmidpeter, R. (2017) 'Implementing sustainability as the new normal : Responsible management education e From a private business school ' s perspective', The International Journal of Management Education, 15, pp. 280–292.

Kuckertz, A., and Wagner, M. (2010) 'The influence of sustainability orientation on entrepreneurial intentions - Investigating the role of business experience', Journal of Business Venturing, 25(5), pp. 524–539. doi: 10.1016/j.jbusvent.2009.09.001.

Lambrechts, W., Mulà, I., Ceulemans, K., Molderez, I., and Gaeremynck, V. (2013) 'The integration of competences for sustainable development in higher education: An analysis of bachelor programs in management', Journal of Cleaner Production, 48, pp. 65–73. doi: 10.1016/j.jclepro.2011.12.034.

Lourenço, F., Jones, O. and Jayawarna, D. (2013) 'Promoting sustainable development: The role of entrepreneurship education', International Small Business Journal, 31(8), pp. 841–865. doi: 10.1177/0266242611435825.

Lovren, O. V., Maruna, M. and Stanarevic, S. (2020) 'Reflections on the Learning Objectives for Sustainable Development in the Higher Education Curricula– Three Cases from the University of Belgrade', International Journal of Sustainability in Higher Education, 21(2), pp. 315–335.

Lozano, R. (2010) 'Diffusion of sustainable development in universities' curricula: an empirical example from Cardiff University', Journal of Cleaner Production, 18, pp. 637–644. doi: 10.1016/j.jclepro.2009.07.005.

Lozano, R., Merrill, YM, Sammalisto, K., Ceulemans, K. e Lozano, JF (2017), 'Connecting Competences and Pedagogical Approaches for Sustainable Development in Higher Education: A Literature Review and Framework Proposal', Sustainability 2017, 9(10). https://doi.org/10.3390/su9101889

Lozano, R., Llobet, J., and Tideswell, G. (2013) 'Declarations for sustainability in higher education: Becoming better leaders, through addressing the university system', Journal of Cleaner Production, 48, pp. 10–19. doi: 10.1016/j.jclepro.2011.10.006.

Lozano, R. and Young, W. (2013) 'Assessing sustainability in university curricula: Exploring the influence of student numbers and course credits', Journal of Cleaner Production, 49, pp. 134–141. doi: 10.1016/j.jclepro.2012.07.032.

Malkki, H. and Paatero, J. V (2015) 'Curriculum planning in energy engineering education', Journal of Cleaner Production, 106, pp. 292–299. doi: 10.1016/j.jclepro.2014.08.109.

Mathews, M. R. (2004) 'Accounting curricula: does professional accreditation lead to uniformity within Australian bachelor's degree programmes?', Accounting Education, 13(sup1), pp. 71–89. doi: 10.1080/0963928042000310805.

Matten, D. and Moon, J. (2004) 'Corporate Social Responsibility Education in Europe', Journal of Business Ethics, 54, pp. 323–337.

Meadows, D. H., Meadows, D. L., Randers, J., and Behrens W. W. (1974) The Limits to Growth. A report for the Club of Rome's project on the predicament of mankind, Universe Books. New York doi:10.1016/0007-6813(73)90029-3.

Nishimura, E. (2015) `Inserção da Sustentabilidade nas Instituições de Ensino Superior: Um estudo comparativo dos casos da Escola de Engenharia de São Carlos da Universidade de São Paulo e da Universidade Leuphana de Lüneburg`. Monografia (Graduação em Engenharia Ambiental) -Escola de Engenharia de São Carlos da Universidade de São Paulo, 2015.

Olalla, C. B. and Merino, A. (2019) 'Competences for sustainability in undergraduate business studies : A content analysis of value-based course syllabi in Spanish universities', The International Journal of Management Education, 17, pp. 239–253.

PRME (2007) (an initiative of the United Nations Global Compact) '(Principles for Responsible Management Education'. https://www.unprme.org/about-prme/the-six-principles.php (last accessed April 2019)

PRME (2018) (an initiative of the United Nations Global Compact) '2017 Annual Report & 2018 Outlook' https://www.unprme.org/resource-docs/2017AnnualReportand2018Outlook.pdf (last accessed April 2019).

Purcell, W. M., Henriksen, H. and Spengler, J. D. (2019) 'Universities as the engine of transformational sustainability toward delivering the sustainable development goals ' Living labs ' for sustainability', International Journal of Sustainability in Higher Education, 20(8), pp. 1343–1357. doi: 10.1108/IJSHE-02-2019-0103.

QCA (2009) Sustainable Development in Action: A Curriculum Planning Guide for Schools, London, Qualifications and Curriculum Authority.

Ramos, T. B. (2009) 'Development of regional sustainability indicators and the role of academia in this process: the Portuguese practice', Journal of Cleaner Production, 17, pp. 1101–1115. doi: 10.1016/j.jclepro.2009.02.024.

Ramos, T. B., Caeiro, S., Hoof, B. Van, Lozano, R., Huisingh, D., and Ceulemans, K. (2015) 'Experiences from the implementation of sustainable development in higher education institutions: Environmental Management for Sustainable Universities', Journal of Cleaner Production, 106, pp. 3–10. doi: 10.1016/j.jclepro.2015.05.110.

Ryan, A., and Tilbury, D. (2013) 'Uncharted waters: Voyages for Education for Sustainable Development in the higher education curriculum', Curriculum Journal, 24(2), pp. 272–294. doi: 10.1080/09585176.2013.779287.

Sammalisto, K., Sundström, A., and Holm, T. (2015) 'Implementation of sustainability in universities as perceived by faculty and staff - A model from a Swedish university', Journal of Cleaner Production, 106, pp. 45–54.doi: 10.1016/j.jclepro.2014.10.015

Sethi, S. P. (1995) 'Introduction to AMR's Special Topic Forum on Shifting Paradigms: Societal Expectations and Corporate Performance', The Academy of Management Review, 20(1), pp. 18–21.

Shriberg, M., and Harris, K. (2012) 'Building sustainability change management and leadership skills in students: lessons learned from 'Sustainability and the Campus' at the University of Michigan', Journal of Environmental Studies and Sciences, 2(2), pp. 154–164. doi: 10.1007/s13412-012-0073-0.

Singh, T. P., Bisht, N. S., and Rastogi, M. (2011) 'Towards the integration of sustainability in the business curriculum', Journal of Global Responsibility, 2(2), pp. 239–252.doi: 10.1108/20412561111166076

Singhal, N., Suryawanshi, P. and Mittal, G. (2017) 'Crafting Responsible Management Practices in Business School Learning Outcomes: An Indian Case Study', Vision, 21(1), pp. 46–62. doi: 10.1177/0972262916681249.

Stough, T., Ceulemans, K., Lambrechts, W., and Cappuyns, V. (2017) 'Assessing sustainability in higher education curricula: A critical reflection on validity issues', Journal of Cleaner Production, 172, pp. 4456–4466. doi: 10.1016/j.jclepro.2017.02.017.

Taylor, J., and Kraly, E. (2012) 'The Role of Sustainability Curricula in Higher Education', Colgate University. EUA.

Thomas, T. E. (2005) 'Are business students buying it? A theoretical framework for measuring attitudes toward the legitimacy of environmental sustainability', Business Strategy and the Environment, 14, pp. 186–197. doi: 10.1002/bse.446.

UNDESA (2002) 'Guidance in Preparing a National Sustainable Development Strategy:Managing Sustainable Development in the New Millenium', Commission on Sustainable Development, (13).

UNESCO (2005) 'Década da Educação das Nações Unidas para um Desenvolvimento Sustentável, 2005-2014'. Brasilia.

UNESCO (2017) 'Education for sustainable development goals: Learning Objectives'.

Velazquez, L., Munguia, N., and Sanchez, M. (2005) 'Deterring sustainability in higher education institutions: An appraisal of the factors which influence sustainability in higher education institutions', International Journal of Sustainability in Higher Education, 6(4), pp. 381–393. https://doi.org/10.1108/1467637051062386

Viegas, C., Bond, A., Vaz, C., Borchardt, M., Pereira, G. M., Selig, P. M., and Varvakis, G. (2016) 'Critical attributes of Sustainability in Higher Education', Journal of Cleaner Production, 126, pp. 260–276. http://dx.doi.org/10.1016/j.jclepro.2016.02.106

Walck, C. (2009) 'Integrating Sustainability Into Management Education - A Dean's Perspective', Journal of Management Education, 33(3), pp. 384–390.doi: 10.1177/1052562908323091

Watson, M. K., Lozano, R., Noyes, C., and Rodgers, M. (2013) 'Assessing curricula contribution to sustainability more holistically: Experiences from the integration of curricula assessment and students' perceptions at the Georgia Institute of Technology', Journal of Cleaner Production, 61, pp. 106–116. doi: 10.1016/j.jclepro.2013.09.010.

Weybrecht, G. (2017) 'From challenge to opportunity- Management education's crucial role in sustainability and the Sustainable Development Goals-An overview and framework', International Journal of Management Education, 15, pp. 84–92. doi: 10.1016/j.ijme.2017.02.008.

Wu, Y.C. J., Huang, S., Kuo, L., and Wu, W.H. (2010) 'Management Education for Sustainability: A Web-Based Content Analysis', Academy of Management Learning & Education, 9(3), pp. 520–531. https://doi.org/10.5465/amle.9.3.zqr520

Xiong, H., Fu, D., Duan, C., Liu, C. E., Yang, X., & Wang, R. (2013) 'Current status of green curriculum in higher education of Mainland China', Journal of Cleaner Production, 61, pp. 100–105. doi: 10.1016/j.jclepro.2013.06.033

PAPER II - How students in Business Science degrees perceive Sustainable Development: a study on public higher education institutions

Gomes, S., Jorge, S. e Eugénio, T. (2020), Conhecimento e perceção dos estudantes sobre desenvolvimento sustentável. Um estudo nas instituições públicas de ensino superior em Portugal, in atas do XIX Encuentro Internacional AECA (online). Instituto Politécnico da Guarda. Guarda, Portugal, 17 e 18 de setembro.

Gomes, S., Jorge, S and Eugénio, T. (2021), Ensino sobre Desenvolvimento Sustentável em cursos de Ciências empresariais: um estudo nas Instituições Públicas de Ensino Superior em Portugal, XX Grudis Conference and Doctoral Colloquium, Higher School of Technology and Management (ESTG), Guarda Polytechnic Institute (IPG), Guarda (Portugal), January 22-23, 2021.

Gomes, S., Jorge, S. e Eugénio, T. (2021), How students, the future accountants perceive Sustainable Development? A study on public higher education institutions Submitted in 31-10-2021 to *Journal of Accounting Education* (SI: Sustainability) ACCEDU-D-21-00131
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Abstract

Objective: This research aims to analyse the knowledge and perception about Sustainable Development (SD) and Sustainable Development Goals (SDGs) of students, future accountants, the importance they attach to teaching about SD, what are the most important themes and what have you learned about SD.

Methodology: This study explores the views on Sustainable Development of Master's and Undergraduate students of Accounting and Taxation and Management and Administration courses in public Higher Education Institutions (HEI) in Portugal. The data were collected through a questionnaire applied to students. Descriptive and inferential statistical techniques were used to process the answers of a sample of 370 students.

Originality: This study, of exploratory nature, adds knowledge by analysing the situation specifically in Business Science courses taught at public higher education, taking Portuguese HEI as reference and examines the effect of demographic and academic profile on each of the questions through a Discriminant Analysis. This study allows to better understand the view of future accountants in order to discover new ways of thinking accounting education.

Conclusion: The main findings show that most students, future accountants' welcome significant knowledge about SD. Regarding the students' perception of the SDGs, we found that they attach more importance to the environmental dimension. Students in general consider SD education as an important contribution to their personal and professional life. Only 38.6% (n=143) stated that this topic was addressed in the curricula of the HEI they attended, and students point out Social Responsibility and Ethics as the most important topics to be taught.

Contributions: The findings presented may contribute to, and enhance, the debate on improvements for teaching on this topic in this area of education, which gains even greater relevance in the current pandemic context. It also provides valuable information for the future implementation of processes to embed sustainability in HEI and give contributions to future better articulation between companies and education system bring sustainability to the accounting language.

Keywords: Future accountants; Sustainable Development; Business science courses; Education; Portugal

1.Introduction

Since the 1970s, with the first United Nations (UN) Conference on the Human Environment, the theme of Sustainable Development (SD) has been identified as an important area of focus for companies, UN Organizations, unions, non-governmental organizations, public entities, among others, aiming at the development of a more inclusive and sustainable global market. According to the Brundtland Report, SD is understood as that which meets the needs of the present without compromising future generations, aiming to improve the living conditions of all, preserving the environment in the short and long term, with the objective of an economically efficient, socially equitable and ecologically sustainable development (WCED,1987).

Later, appears the concept of "education for sustainable development (ESD)" ESD is defined by UNESCO as the "process of learning how to make decisions that consider the long-term future of the economy, ecology, and equity of all communities" (UNESCO, 2017). According to Jones et al. (2008, p.342), ESD is "an approach to learning that enhances the capacity to cope with the uncertainties inherent in a complex world that is facing unprecedented challenges". This concept was established at the Summit on SD held in Johannesburg, South Africa, in 2002. In December of the same year, the UN General Assembly adopted a resolution to establish a UN Decade for ESD, extending from 2005 to 2014. During this period and after multiple conferences, major efforts have been made to transform traditional environmental education into ESD (Alonso-Almeida et al., 2015).

In 2007, the Principles for Responsible Management Education (PRME), a United Nations-backed initiative, was adopted and implemented to raise the profile of sustainability in business schools around the world. In 2015 the need for a more sustainable world was unanimously recognized by the members of the United Nations, which came up with the 17 Sustainable Development Goals (SDGs) composed of 169 targets to be implemented.

This Agenda calls for the shared responsibility of all actors, public and private, from all UN member states, for the challenge of achieving by 2030, the 17 SDGs in their three dimensions: environmental, social and economic, recognizing that addressing the challenges posed by the SDGs is everyone's responsibility (SDSN, 2017).

The degree of success in addressing these complex issues and promoting SD and SDGs depends largely on educational standards (Kolb et al., 2017; SDSN, 2017; Weybrecht, 2017). It is necessary to raise the awareness and skills of students, future accountants in these matters, helping companies and future decision-makers to adapt to the new SD challenges (Cortese, 2003; Findler, 2021).

The role of ESD was clearly emphasized, and the business sector was seen as critical to the success of the SDGs (Annan-Diab and Molinari, 2017; Weybrecht, 2017).

The SDGs provide several suggestions to the academic community (Alm et al., 2021; Bebbington and Unerman, 2018), and one of the SDGs is to "improve the capacity of our education systems to prepare people to pursue sustainable development" through curricula.

According to the UN approach, HEI should address the transposition of SD and SDGs principles into society. The role of HEI for SD is quite clear. They should have transformative tendencies and act as co-creators of change by promoting SD principles in future professionals (Barth and Rieckmann, 2012; Lozano, 2013; Beddewela et al., 2017; Creel and Paz, 2018). HEI play a critical role in societies' transition to SD since they educate future professionals (Lozano et al., 2013).

The expectation that HEI should lead thought and action on SD and SDGs related issues has been reinforced, considering the failures of business leaders, including corporate corruption, the financial crisis, and various crises of the ecological system (Godemann et al., 2014, Creel and Paz, 2018).

It was found that business leaders view education as a very important issue, as future business professionals increasingly need to articulate and quantify the contribution of sustainability in the language of accounting and management and consider the risks associated with social and environmental issues decisions (Lacy et al., 2012). In this sense, business schools are among the leading and most influential global players, as they can shape the skills and mindset of future business leaders (PRME, 2007).

According to Findler (2021) and Kolb et al. (2017), Business schools have the potential to become an essential driver for SD by broadening their research assessments beyond scientific performance. Assessment frameworks that expand the scope from academic performance to actual contributions to SD can support business schools in this regard. With their unique set of research skills, business schools can generate the necessary knowledge

to align today's organizational and societal systems with the requirements of sustainable development (Christ and Burritt, 2019).

In this way, students are recognized as key for promoting SD, which requires their preparedness to address sustainability issues in all aspects of their lives and participate in activities that will help them master future issues (Alm et al., 2021; Brito et al., 2018).

Consequently, in the second decade of the 21st century, HEI need to prepare, future professionals for living, working, and thriving in an uncertain and risky world that requires them to possess knowledge and skills in SD (Jones et al., 2008; Wyness and Dalton, 2018).

There is vast literature reporting HEI experiences around the world. In Portugal, the studies carried out essentially case studies; Azeiteiro et al. (2015) look into the expectations of students in environmental science courses in e-learning format at two HEI, Colombo and Alves (2017) analyzed the integration of the SD theme in the curricula of engineering courses at one HEI. Pestana and Parreira (2016) conducted a study on the perception of Human Resource Management students in a private HEI. In turn, Aleixo et al. (2020) analyzed the vertical integration of sustainable development objectives in HEI in Portugal.

Studies on students' perceptions of SD generally focus on their general perceptions towards climate change and personal responsibility (Eagle et al., 2015). Although students can provide innovative ideas or suggest and contribute to improvement in terms of universities' current performance, studies on students' perceptions of the university's contribution to teaching about SD are little researched (Dagiliūtė et al., 2018).

We found that knowledge and perception about SD and SDGs among Portuguese business students, the importance they attach to teaching about SD, whether they learn anything about SD in the courses they attend and what they consider essential to be taught were not addressed in any study. According to Getachew (2018), students’ perception of SD issues is important and contributes to an improvement of ESD. Lambrechts et al. (2018) state that it is necessary to consider the students' perspective in defining competences and curriculum innovation although it is often neglected in defining competences or curriculum innovation.

In this sense, this exploratory study aims to analyses students' knowledge and perceptions of SD in business science courses at Portuguese HEI. The aim of this study was to broaden the knowledge about the promotion of SD in Portuguese HEI by learning more

about students' knowledge and perceptions of SD and SDGs. We consider necessary more detailed information on students', future accountants' opinions about what they understand about SD and SDGs, whether they consider necessary the teaching about SD for their future professional life, what they consider more important to be taught in HEI and what have learned about SD.

The SDGs provide a context for (re)invigorating the contribution of accounting and management to SD debates (Bebbington and Unerman, 2018).

This student survey could be an essential contribution to the education and design of curricula on SD based on the needs of enterprises and society. Business students are seen as a necessary means to implement more sustainable practices in companies, as they are the future accountants. Also, the profession's regulatory bodies reinforce the need to implement all these subjects in Accounting and Management in companies, so it is essential to prepare future professionals in this sense.

Those responsible for the companies believe that business schools have a crucial role to play in helping solve the skills gap and develop the next generation of managers and business leaders. The business environment is rapidly changing, and we believe that the following themes are key to setting our findings' context. They should also be top of the agenda for leading business schools that want to be at the forefront of catalysing the transition to a sustainable economy (Lacy et al., 2012).

Henceforth, the article is divided into five sections. Following this introduction, section 2 briefly introduces the topic and its development in the international, European, and national context. This section includes some relevant aspects to frame the study about the knowledge and perception about Sustainable Development and Sustainable Development Goals of students, future accountants, the importance they attach to teaching about SD, what are the most important themes and what have you learned about SD.

Section 3 describes the methodology for choosing the sample, collecting, and processing data. Section 4 introduces the results and respective discussion, and, finally, section 5 summarizes the conclusions and lines for future research.

2.Theoretical framework

2.1. Students' knowledge and perception of Sustainable Development and Sustainable Development Goals

In the literature we can find several studies that analyze the knowledge and perception of students in various HEI around the world (e.g. 2021; Azapagic et al., 2005; Kagawa, 2007; Tuncer, 2008; Barth and Timm, 2011; Bielefeldt, 2011; Yuan and Zuo, 2012; Bahaee et al. 2014; Pestana and Parreira, 2016).

Azapagic et al. (2005) found that the level of knowledge of engineering students from 21 universities in several countries globally was significant in terms of environmental issues and that they were relatively familiar with crucial environmental legislation, policies, and standards. However, there was a significant knowledge gap in the social and economic areas.

Kagawa (2007) found that 1,889 students at Plymouth University in the UK very often associated the concepts of SD and sustainability with environmental impacts; only one-third showed some knowledge of SD across all three dimensions. In both studies the authors observed that most students showed interest in SD and considered it an important or very important topic.

Tuncer (2008) found that students at 3 Middle Eastern HEI in Turkey were aware of the definition of SD; however, about 74% related it only to environmental protection. The results revealed that in spite of the high percentage of participants accepting change for the sake of natural resource conservation, a broader viewpoint regarding economic and social dimensions would need to be developed.

The research that Barth and Timm (2011) carried out indicated that about 1,120 students at Leuphana University in Germany demonstrated a "*complex*" understanding of sustainability, and as verified by Kagawa (2007) and Tuncer (2008), students emphasized the environmental dimension. The authors suggested that some German students believed sustainability to be a "*Strong*" or "*Very strong*" compo for professional (28.5%) and private life (35.7%), so it is very important that this topic be integrated into curricula.

Bielefeldt (2011) adapted Kagawa (2007) research to analyze the knowledge about SD and sustainability of civil and environmental engineering students at the University of Colorado in the USA. The author found that more than half of the 344 first-year students

were very unfamiliar, while the second- and third-year students were more familiar with the topic. However, he also found that students generally considered it an important topic and showed interest in this subject.

Yuan and Zuo (2012) surveyed 1,134 students at Shandong University in China and found that in that student community there was a high awareness of sustainability issues, but a low level of understanding of their importance in education for SD. In general, the environmental aspects of SD received higher priority from students.

Bahaee et al. (2014) came to the same conclusion and found that although many university students in Iran showed a positive attitude towards SD, this did not mean that their behavior was consistent with the goals of SD. Students recognized that sustainability is 'a good thing' (p.176), but they were not sufficiently familiar with the concept and its dimensions.

Pestana and Parreira (2016) showed that human resource management students at a private university in Portugal have a 'consistent' idea of sustainability; they are also 'well informed' about the concept and motivated to encourage and support organizations to adopt sustainable practices in human resource management.

Based on the literature reviewed we found that students in HEI around the world consider this an important and priority matter. However, in general, the student has a significant perception about SD, but the knowledge itself is not complete, as it focuses mostly on environmental issues.

2.2. Student awareness of the role of Sustainable Development teaching in Business Science courses

In the mid-2000s, the United Nations and the academic community recognized that the business leaders of the future would need to play a critical role in solving sustainability challenges. In response, the former UN Secretary General Ban Ki-moon (Filho, 2017) launched in 2007 the Principles for Responsible Management Education (PRME) initiative.

The PRMEs aim to inspire and promote sustainability in higher education in the areas of Management. They are a way to implement in HEI continuous improvement conducive to the development of a new generation of business leaders capable of managing the complex environmental, social, and economic challenges, faced by businesses and society in the 21st century (Filho, 2017).

The founders of PRME believe that the principles will help restructure and gradually transform business education. Business Schools will train professionals who are able to consider the links between social, environmental, and economic considerations to promote a more inclusive global economy, while delivering meaningful environmental, economic, and social outcomes (Singhal et al., 2017). The PRME provides six guiding principles to encourage business schools and universities to recognize their role as drivers of sustainable change and adapt their curriculum, pedagogy, and institutional strategies.

According to PRME (2007) "*It has become essential to understand the fundamental relationships between business, environment, and society. The responsibility of business as a global force has become urgent, and concepts related to social responsibility and sustainability are recognized as essential elements in the conduct of business. Companies need management tools that help integrate environmental, social, and economic concerns into strategic planning and daily operations. Professionals are needed with skills that can not only anticipate organizational goals and fulfill shareholder obligations, but also professionals prepared to address the broader impact and potential of business as an overall positive force in society.*"

In the literature on Teaching about SD, Lourenço et al. (2013) point to the negative stereotypes in the teaching of business science courses. In the same vein, Beddewela et al. (2017) explain that teaching in accounting and management courses establishes a materialistic and profit-oriented world view, so it can compromise ethical values and weaken students' perceptions of topics such as SD. According to Kolb et al. (2017), as a result, companies face entirely new challenges in their value creation processes and need to generate substantial new strategic issues. In particular, the next generation of professionals will consider new dimensions in strategic business orientation, which requires a new perspective on accounting and management education.

Annan-Diab and Molinari (2017) show that business organizations, and consequently the fields of accounting and management, have been faced with the need to process non-financial data.

However, according to Gray (2010) "*It is increasingly well-established in the literature that most business reporting on sustainability and much business representative activity around sustainability actually have little, if anything, to do with sustainability*", which

demonstrates that in companies there is still a lack of knowledge about what to disclose regarding this topic (Schaltegger and Burritt, 2010).

An essential issue that we should not overlook at this stage of addressing the SDGs from an institutional point of view is that companies need to learn to look after the triple bottom line to demonstrate the degree of sustainability they have achieved (Kolb et al., 2017)

The creation of environmental policies, legislation and environmental regulation in specific cases has led to changes in the business system, so this theme assumes a prominent position in the business context, integrating management models that assist decision making and the definition of business strategies (SDSN, 2017).

The process of globalization based on major developments in communication systems and various technologies has had companies change their business strategies, which has led to adjustments being made to their areas of accounting and management (Farashahi and Tajeddin, 2018). On the other hand, as they seek to respond to technological changes and adapt to new environmental, social and economic challenges (Creel and Paz, 2018), companies are an ever-changing labor market where students will develop their professional activity, so each of these future professionals must also adapt to the needs and demands of the Triple Bottom Line (Beddewela et al., 2017).

Some authors, (such as Cortese, 2003; Barth and Rieckmann, 2012; Godemann, 2014; Alonso-Almeida et al., 2015), encourage Business Schools to adopt a central role in promoting SD. It is widely acknowledged that today's business and management graduates need a form of education that helps them to realize their potential to make a positive contribution to the three pillars of SD (Warwick et al., 2017).

In this regard, in recent years, there has been a growing international concern to incorporate SD topics into Accounting and Management courses (Chulián, 2011; Botes et al., 2014; Sharma and Kelly, 2014; Warwick et al., 2017; Getachew, 2018; Larrán et al., 2018; Wyness and Dalton, 2018). Accounting and Management courses should undertake the priority mission of training professionals who, autonomously or in integrated way, can meet SD challenges, through the accounting, financial, administrative, management and tax functions, that are inherent to the correct functioning of a company, public organization, or

private non-profit entity (Schaltegger and Burritt, 2010). This is reflected in the ongoing and growing challenges for HEI in teaching about SD in those areas.

Botes et al. (2014) studied students' and teachers' perception on including Sustainability in accounting courses by analyzing New Zealand HEI websites and conducting interviews. Both groups of participants believed it was important to strengthen the integration of educating for SD in accounting courses. Beddewela et al. (2017) analyzed a study conducted in 2012 by the British Sky Broadcasting Group and found that 70% of Accounting and Management professionals in the UK agreed that SD is important for business; however, only 35% of these professional's report that students develop some knowledge on this topic. Weybrecht (2017) analyzed student interest and engagement in encouraging the development and integration of SD teaching in UK Business School curricula. He found that students are increasingly interested in SD. Wyness and Dalton (2018) examined the importance of SD teaching from the perspective of third-year accounting students at a university in the southwest of England. The results suggest that students believe that learning more about SD is essential for everyone, not just for students who opt to enroll in a course unit on SD. This ethnographic study points to the high value that teaching about SD has in accounting courses and, in the long term, it can positively influence society at large.

Considering students' perspective, Farashahi and Tajeddin (2018) show that students perceive the integration of SD teaching as an effective contribution to the development of soft, technical, and behavioral skills. According to Dagiliūtė et al. (2018), curricula and course plans are fundamental because HEI help form students' identities, worldviews, and values and for the creation of a sustainable society. However, studies reflecting on the importance of student participation and involvement in this process are still scarce (Dagiliūtė et al., 2018).

3. Research Design

3.1 Sample and Data Collection

To set up the sample, the list of courses in the areas of business sciences was compiled according to the website of the Directorate General for Higher Education in

Portugal. The area of Business Sciences was selected from all areas of knowledge, it was restricted to courses in the areas of (1) Accounting and Taxation, and (2) Management and Administration. In Portugal the future accountants must have a degree in accounting and taxation or in management and administration according to the Portuguese regulator.

After selecting the courses, the number of students in each teaching area and study cycle was calculated. From the 196 courses obtained, based on the Directorate General of Education and Science statistics, it was found that 28,417 students were enrolled in the 2019/2020 academic year. Of these, 7,540 students enrolled in Accounting and Taxation, 20,877 students enrolled in Management and Administration, of which 21,831 were studying for a bachelor's degree and 6,586 were master's students. Considering the size of the population, the sample was chosen based on a pre-established criterion for this study. We selected master's degrees with more than 100 students enrolled and undergraduate degrees with more than 400 students enrolled.

In order to assess students' knowledge and perception of SD, a questionnaire[1] survey was developed. This was based on a literature review of empirical studies, with the systematization of information from studies conducted by various authors (e.g. Lambrechts et al.., 2018; Larrán et al., 2018; Azapagic et al., 2005; Tuncer, 2008; Chulián, 2011; Yuan and Zuo, 2012; Botes et al., 2014; Sharma and Kelly, 2014; Kagawa, 2007; Bahaee et al., 2014; Beddewela et al., 2017; Wyness and Dalton, 2018).

The questionnaire was divided into three major groups of questions. The first group included three questions addressing the first research question, to gauge business students' knowledge and perception of SD. The second group included five questions to ascertain the importance that students attach to teaching about SD in accounting and management courses, what is being taught in HEI and what future accountants consider to be the most important thing to learn for their professional life. In both groups of questions, a Likert scale with 5 categories was used to evaluate the degree of knowledge, agreement, and importance. Finally, in the third group, the demographic and academic data on each respondent were collected.

[1] The questionnaire is available upon request

The first version of the questionnaire was pre-tested on a group of 10 people. The questionnaire was applied to students from polytechnics and universities in Portugal, from Accounting and Taxation and Management and Administration courses through the students' institutional e-mails, after approval by the HEI. The entire process took place between December 2019 and May 2020.

From a total of 7,326 students, 661 responses were thus collected (about 9% response rate), which given the size of the sample can be assumed as acceptable (Dalton et al., 2019). Of the total responses, 291 were considered invalid due to incomplete responses. These were eliminated, and 370 responses were considered valid in total.

At first, respondents were characterized according to gender (male or female), age group (scales) and nationality (national or foreign), as shown in Table 1.

Table 1: Characterization of the sample as to demographic data

	N	%
Female	222	60
Male	148	40
17 to 20 years old	150	40,5
21 to 24 years old	139	37,6
25 to 28 years old	36	9,7
29 to 32 years old	18	4,9
33 to 38 years old	11	3
39 to 41 years old	6	1,6
Over to 41 years old	10	2,7
Other	19	5,1
National	351	94,9
	370	100

Source: Prepared by the authors

As for the data on the academic profile (Table 2), the sample is composed mainly of full-time students and only 27% of working students (Jones et al., 2008; Weybrecht, 2017). Most are enrolled in bachelor's degrees and only 15% in master's degrees, with a predominance of Management and Administration students. As for the years in which students are enrolled (Lambrechts et al., 2018; Larrán et al., 2018), in the case of undergraduate degrees, a significant number of students are in the 3rd year, whereas in the master's degrees, we find that the majority are 1st year students.

Table 2: Characterization of the sample according to the academic profile

		N	%
Scheme	Student	270	73
	Working student	100	27
Study	Degree	316	85,4
	Master's Degree	54	14,6
Course	Accounting and Taxation	44	11,9
	Management and Administration	326	88,1
Total		370	100

		Degree		Master's Degree	
		N	%	N	%
Year	1st year	76	24,1	39	72,2
	2nd year	116	36,7	15	27,8
	3rd year	124	39,2		
Total		316	100	54	100

Source: Prepared by the authors

Contextualized by the previous literature, this study explores the knowledge and perception of future professionals enrolled in business science courses at Portuguese HEI. The main research questions addressed are:

- RQ1 - What are students' knowledge and perception about SD?
- RQ2 - How important the teaching of SD is for the students?
- RQ3 - What are the most important themes, and what have students learned about SD.
- RQ4 - Do demographic and academic profile discriminate student' knowledge and perceptions of SD?

3.2 Data Processing and Analysis

The statistical techniques used in this study included descriptive and inferential statistics. In terms of descriptive statistics, frequency tables and charts illustrating the verified value distributions are presented for the student characterization and academic profile variables. The variables measured in the Likert scale were analyzed through the categories used, i.e. items of each question in the questionnaire, presenting some relevant data, such as the mean (on a scale from 1 to 5, a value higher than 3 is higher than the midpoint of the scale), the standard deviation, the minimum and maximum values observed, and the respective quartiles.

As for inferential statistics, several techniques were used. The association analysis, through Spearman's coefficient, explained by Marôco (2018) to study the relationship

between variables measured on a Likert scale, is a measure of association and varies between -1 and 1. The closer it is to the extreme values, the greater the association between the variables. The internal consistency analysis allows for studying the properties of measurement scales from the questions that make them up, according to Anastasi (1990) and DeVellis (1991). We chose Cronbach's alpha, the most widely used model in social sciences to verify the internal consistency and validity of scales, measuring how well a set of variables represent a given dimension (Hill and Hill, 2002).

Discriminant analysis was also applied, which helps to identify the variables that best differentiate the groups of different and mutually exclusive individuals and uses these variables to create a discriminant function that represents the differences between the groups (Marôco, 2018). When the sample groups under study are large, the distribution tends toward normality. According to Murteira et al. (2001), for samples with more than 30 elements in each of the groups under study, the breach of the normality assumption does not call the conclusions into question (Gravetter and Wallnau, 2000; Stevens, 1996).

In the cases under review, the sample size meets these conditions, and it will not be necessary to verify the assumption in order to apply parametric tests. To study the relationship between quantitative variables and a dichotomous variable, the parametric test, Student's t was used. To analyze the relationship between quantitative variables and a qualitative variable, the parametric ANOVA test was used (Marôco, 2018).

As age has few observations in some of the upper age groups, to facilitate inferential analysis, age was reclassified according to Table 3.

Table 3: Characterization of age reclassified

	N	%
17 to 20 years old	150	40,5
21 to 24 years old	139	37,6
25 to 32 years old	54	14,6
Over 32 years old	27	7,3
Total	370	100

Source: Prepared by the authors

4. Results and discussion

The results section is analyzed for each of the research questions and is organized as follows. Initially, the data is analyzed using descriptive statistical methods. Secondly,

Discriminant Analysis was used to identify the variables that best differentiate the groups of individuals (groups considered by demographic and academic profile).

4.1 Students' knowledge and perception of Sustainable Development

The results presented in this section aim to answer the research question "Q1 - What is students' perception of SD?"

Descriptive statistics

Regarding the first question about whether students believe they have knowledge about SD, most answers fall into the categories "3- moderate knowledge" and "4- very knowledge" on a scale of 1-5, so we can see that students believe they have knowledge slightly about what SD is. To analyze who among the various groups and regarding the demographic profile believes to have more knowledge about SD, we found, like Kagawa (2007), that Portuguese women above 32 years of age believe in having greater knowledge about SD. In turn, regarding the academic profile, we found that full-time students, Master's students, and students in Management and Administration courses enrolled in the 1st year in the case of master's students and in the 3rd year in the case of undergraduate students, believe that they have greater knowledge about SD.

In the second question, about the definition of SD, students were asked about various definitions, and it was found that the majority agreed with the correct statements about what SD is. According to Table 4, respondents significantly agree that SD has three dimensions (environmental, social and economic). Furthermore, students tend to agree, at a high level of the scale, that SD is a form of global development capable of meeting the needs of the present generation without compromising future generations.

Table 4: Descriptive analysis on knowledge about SD

	Totally disagree		2		3		4		Totally agree	
	N	%	N	%	N	%	N	%	N	%
a) It is based on three dimensions, environmental, social and economic.	2	,5%	6	1,6%	45	12,2%	163	44,1%	154	41,6%
b) It is based only on the environmental dimension.	226	61,1%	66	17,8%	44	11,9%	23	6,2%	11	3,0%
c) It is based only on the social dimension.	235	63,5%	69	18,6%	44	11,9%	17	4,6%	5	1,4%
d) It is based only on the economic dimension.	237	64,1%	67	18,1%	41	11,1%	19	5,1%	6	1,6%
e) It refers to the global mode of development, capable of meeting the needs of the present without compromising future generations.	11	3,0%	16	4,3%	44	11,9%	110	29,7%	189	51,1%

Source: Prepared by the authors

Regarding the relationship between the knowledge that students believe they have on SD and the definitions of what is understood as the scope of SD, Spearman's correlation coefficient allowed us to conclude that their score of knowledge about SD is related in a statistically significant way (p=0.014) with the degree of agreement with the three-dimensional scope of SD. It is a positive relationship, i.e. the greater the assumed knowledge about SD, the greater the degree of agreement that it is based on three dimensions (environmental, social and economic).

Contrary to the results of Bielefeldt (2011) study in the USA, involving engineering students, the results of this study prove that students on Business Science courses at HEI in Portugal have knowledge on this topic, as already verified by Sharma and Kelly (2014), in New Zealand, and Wyness and Dalton (2018), in England.

The results show that, in general, students consider the SDGs necessary. However, the issues related to; measures to combat climate change and its impacts, measures to ensure the availability and sustainable management of water and sanitation, the protection and restoration of terrestrial and marine life and ensuring sustainable production and consumption patterns (Table 5), are the issues that draw more attention of future professionals. These results show that issues related to the environmental dimension are the most valued, as seen previously. These results find support in several authors (e.g. Kagawa, 2007; Tuncer, 2008; Barth and Timm, 2011; Larrán et al., 2018), who also found that students tend to associate SD with environmental issues.

Table 5: Descriptive analysis of "1.3 - Level of importance of actions for Sustainable Development"

	Not important		2		3		4		Very important	
	N	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
1. Ending poverty.	10	2,7%	23	6,2%	86	23,2%	114	30,8%	137	37,0%
2. End hunger and promote sustainable agriculture.	4	1,1%	11	3,0%	53	14,3%	128	34,6%	174	47,0%
3. Ensure a healthy life and promote well-being.	6	1,6%	2	0,5%	53	14,3%	147	39,7%	162	43,8%
4. Ensure quality education and combat illiteracy.	9	2,4%	20	5,4%	54	14,6%	132	35,7%	155	41,9%
5. Achieving gender equality.	20	5,4%	23	6,2%	80	21,6%	103	27,8%	144	38,9%
6. Ensure availability and sustainable management of water and sanitation.			6	1,6%	30	8,1%	121	32,7%	213	57,6%
7. Ensure access to sustainable, modern and affordable energy.	3	0,8%	5	1,4%	40	10,8%	135	36,5%	187	50,5%

8. Promote economic growth, employment, and affordable energy.	6	1,6%	7	1,9%	52	14,1%	150	40,5%	155	41,9%
9. Build resilient infrastructure, promote sustainable industrialization, and support innovation.	2	0,5%	4	1,1%	63	17,0%	163	44,1%	138	37,3%
10. Reduce inequality by promoting social, economic, and political inclusion.	5	1,4%	18	4,9%	71	19,2%	137	37,0%	139	37,6%
11. Making cities and communities sustainable.	1	0,3%	4	1,1%	42	11,4%	145	39,2%	178	48,1%
12. Ensure sustainable production and consumption pattems.	2	0,5%	4	1,1%	28	7,6%	144	38,9%	192	51,9%
13. Adopt measures to combat climate change and its impacts.			3	0,8%	28	7,6%	110	29,7%	229	61,9%
14. Protect marine life.	1	0,3%	10	2,7%	35	9,5%	111	30,0%	213	57,6%
15. Protect and restore terrestrial life.			6	1,6%	43	11,6%	106	28,6%	215	58,1%
16. Promote peaceful and inclusive societies by providing access to justice.	3	0,8%	17	4,6%	71	19,2%	151	40,8%	128	34,6%
17. Strengthen the means of implementation and revitalize the global.			4	1,1%	45	12,2%	164	44,3%	157	42,4%

Source: Prepared by the authors

The 17 SDGs were subsequently classified into the three factors defined in theoretical and conceptual terms: Environmental, Social and Economic. The items' internal consistency in each factor were analyzed to test the reliability of the scales built to measure each factor. Table 6 shows the Cronbach's alpha value, higher than 0.80 for all factors under study. Thus, the items of each factor adequately measure each of the dimensions associated with them. The item-total correlations are always positive, with values higher than the desired minimum of 0.3 for all situations and even higher than 0.5. Furthermore, in the correlation and covariance matrices between items, all values are positive. Therefore, we can consider that the factors highlight internal consistency, so we can now analyze each factor as a dimension or a pillar of SD.

Table 6: Analysis of internal consistency of the factors of actions for Sustainable Development

	N Items	Alfa de Cronbach	Correlation item-total
Environmental	9	0,888	0,508-0,743
Social	9	0,892	0,537-0,759
Economic	5	0,818	0,543-0,653

Source: Prepared by the authors

In Table 7, we can see that the Environmental pillar is most valued, followed by the Economic pillar and then the Social one, with all factors having scored much higher than the midpoint on the measurement scale. Therefore, in general, we confirm that, regardless of

their demographic or academic profile, the environmental pillar or dimension of SD is that to which business science students attach more importance.

Table 7: Descriptive analysis of the factors of actions for Sustainable Development

	N	M	DP	Mín	Q1	Md	Q3	Máx
Environmental	370	4,36	0,55	2,44	4	4,44	4,89	5
Social	370	4,15	0,67	1,6	3,7	4,2	4,7	5
Economic	370	4,21	0,63	1,4	3,8	4,2	4,8	5

Source: Prepared by the authors

To verify whether the profile variables discriminate the respondents' perception of the SDGs, the discriminant analysis for the student profile variables, both demographic and academic, is presented next.

Discriminant Analysis

Respondent Demographic Profile

Table 8 summarizes the results of this analysis. It is concluded that the Environmental, Social and Economic pillars are all significantly higher for the female gender ($p<0.001$). Tuncer (2008), Alonso-Almeida et al. (2015) and Larrán et al. (2018) arrived at similar conclusions, showing that women are more aware of these matters.

Regarding age it is concluded that the Economic dimension shows significantly higher importance for older respondents (25 to 32 years and over 32 years) ($p=0.017$), which is in line with the findings of Larrán et al. (2018); the Environmental ($p=0.105$) and Social ($p=0.301$) dimensions do not show significant differences between age groups. Between national and foreign students we conclude that foreign students ($p=0.009$) award significantly higher importance to the Economic dimension and, as before, the Environmental ($p=0.057$) and Social ($p=0.482$) dimensions do not present significant differences between the different nationalities.

Table 8: Relationship between SD dimensions/pillars and student demographic profile

	Female (n=222)		Male (n=148)		Teste t	
	M	DP	M	DP	t	p
Environmental	4,47	0,49	4,2	0,59	4,487	*** 0,000
Social	4,25	0,63	3,99	0,71	3,657	*** 0,000
Economic	4,29	0,58	4,07	0,67	3,387	** 0,001

	17 to 20 years old (n=150)		21 to 24 years (n=139)		25 to 32 years old (n=54)		> 32 years (n=27)		ANOVA	
	M	DP	M	DP	M	DP	M	DP	F	p
Environmental	4,33	0,58	4,32	0,55	4,5	0,43	4,48	0,53	2,063	0,105
Social	4,07	0,73	4,19	0,6	4,21	0,62	4,24	0,81	1,224	0,301
Economic	4,11	0,68	4,21	0,6	4,39	0,48	4,37	0,66	3,423	*

	Other (n=19)		National (n=351)		Teste t	
	M	DP	M	DP	t	p
Environmental	4,6	0,49	4,35	0,55	1,912	0,057
Social	4,25	0,69	4,14	0,67	0,703	0,482
Economic	4,57	0,48	4,19	0,63	2,615	** 0,009

* p<0,05, ** p<0,01, ***

Source: Prepared by the authors

Academic profile of the respondent

Still on how the variables discriminate students' perception of the SDGs, Table 9 presents the results of the discriminant analysis for the variables, student regime (full-time or working student), study cycle (Bachelor or Master), course (Accounting and Taxation or Management and Administration) and year of attendance.

The results reveal that the Environmental, (p=0.326), Social (p=0.203) and Economic (p=0.078) dimensions do not present significant differences between full-time students and working students. In the case of the study cycle, the Environmental (p=0.028), Social (p=0.005) and Economic (p=0.004) dimensions are all significantly higher for Master's students. No significant differences are found between the Accounting and Taxation, Management and Administration courses for the Environmental (p=0.634), Social (p=0.678) and Economic (p=0.528) dimensions nor between the years of each study cycle (Environmental p=0.553, Social p=0.598 and Economic p=0.430).

Table 9: Relationship between dimensions/pillars of SD and the student's academic profile

	Full Time (n=270)		Working student (n=100)		Teste t	
	M	DP	M	DP	t	p
Environmental	4,35	0,54	4,41	0,57	-0,984	0,326
Social	4,12	0,68	4,22	0,67	-1,276	0,203
Economic	4,17	0,63	4,3	0,59	-1,766	0,078

	Degree (n=316)		Master's Degree (n=54)		Teste t	
	M	DP	M	DP	t	p
Environmental	4,34	0,55	4,51	0,53	-2,208	* 0,028
Social	4,11	0,68	4,39	0,58	-2,839	** 0,005
Economic	4,17	0,63	4,43	0,57	-2,872	** 0,004

	Accounting and Taxation (n=44)		Management and Administration (n=326)		Teste t	
	M	DP	M	DP	t	p
Environmental	4,33	0,62	4,37	0,54	-0,476	0,634
Social	4,11	0,72	4,15	0,67	-0,415	0,678
Economic	4,15	0,63	4,21	0,63	-0,632	0,528

	1st year (n=115)		2nd year (n=131)		3rd year (n=124)		ANOVA	
	M	DP	M	DP	M	DP	F	p
Environmental	4,39	0,62	4,38	0,5	4,32	0,53	0,594	0,553
Social	4,19	0,78	4,11	0,69	4,15	0,54	0,516	0,598
Economic	4,26	0,7	4,15	0,62	4,21	0,55	0,845	0,43

* p<0,05, ** p<0,01, *** p<0,001

Source: Prepared by the authors

4.2 Importance that students attach to teaching about Sustainable Development

The results presented in this section allow us to answer the research question "Q2 - What importance do students attach to teaching about SD?"

Descriptive statistics

In the Business Science courses, most of the answers (83.5%) about the importance attributed to the teaching of SD scored "4" and "5" on a scale of 1-5, with M=4.20 and SD=0.81, confirming that students believe that SD teaching at HEI in Portugal, is very important. Several authors (e.g., Chulián, 2011; Botes et al., 2014; Beddewela et al. 2017; Wyness and Dalton, 2018) have also concluded that students in Business Sciences feel teaching about SD is important.

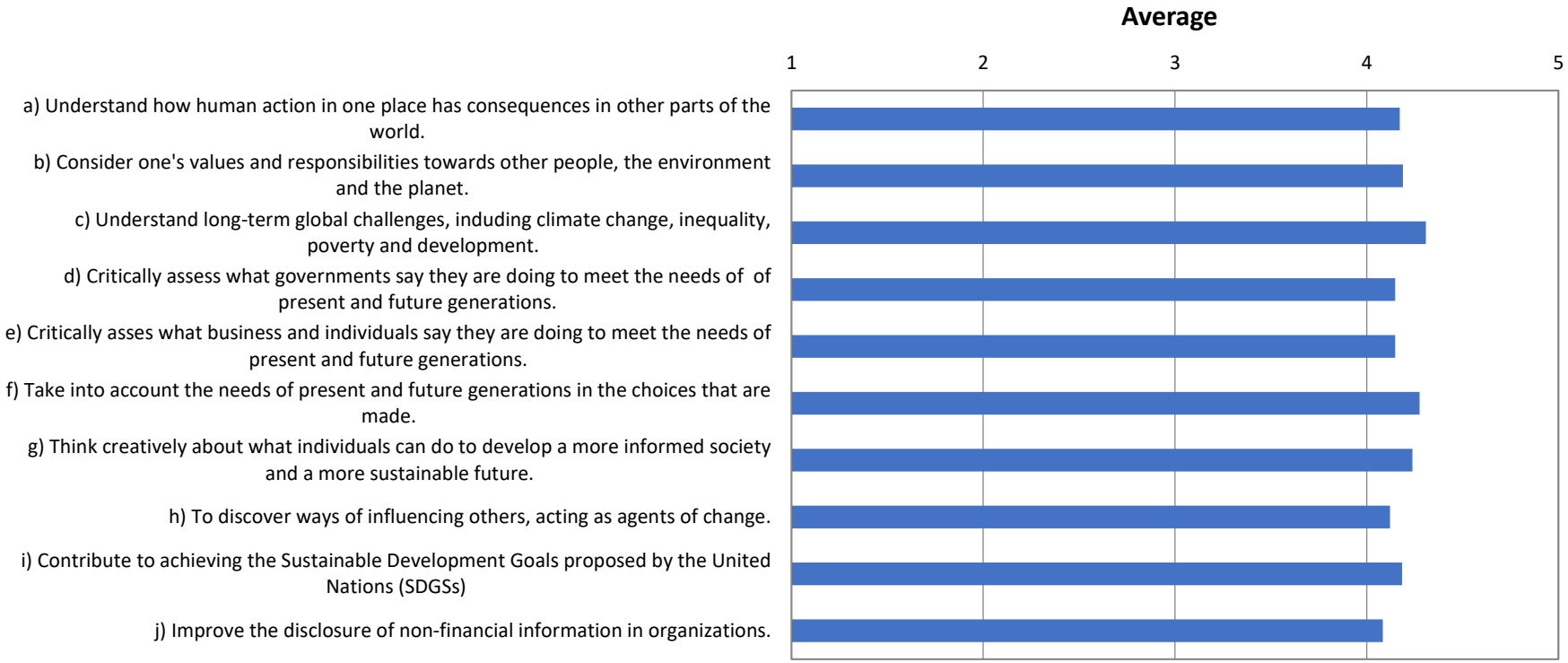
According to Warwick (2017), this student interest in acquiring specific knowledge about SD is important, as they show an interest in transferring this knowledge to their future profession.

Based on the goals of SD education (Perera and Hewege, 2016) and according to QCA (2009), the opportunities for students arising from SD teaching were selected.

Figure 1 shows that, in general, students consider SD education important. Among them, they emphasize that the teaching on SD can contribute more to understanding the long-term global challenges, including climate change, inequalities, poverty and development. In their turn, and as less critical, students point out the issue of contributing to improving the disclosure of non-financial information in organizations.

The UN Agenda 2030 describes in SDG 12.6 "Encourage substantial and transnational companies to adopt sustainable practices and integrate sustainability information into business reporting", i.e. reporting in companies is a crucial factor. However, based on the results obtained for future professionals, this is the point to which they attach less importance. In this sense, it will be essential to integrate SD education to answer this question and reinforce the importance of this point among future professionals.

Figure 1: Means for Importance about the opportunities that the teaching of Sustainable Development offers to students of Business Science areas



Source: Prepared by the authors

In order to analyze the relationship between the importance attached to teaching about SD and the opportunities that SD offers. The results allow us to conclude that the significance of all statements about options is related in a statistically significant way ($p<0.001$) to the importance that students attach to teaching about SD. The relationships are all positive, i.e. the higher the importance attached to SD teaching, the more students feel that SD teaching offers them more significant opportunities.

Discriminant Analysis

Student demographic profile

The importance assigned to the 10 items on opportunities provided by teaching about SD does not vary significantly between men and women, nor across the different age groups. For the nationality variable, the importance of "Taking into account the needs of current and future generations in the choices that are made" ($p=0.017$) is significantly higher in the case of foreign students; the importance of the remaining opportunities does not show significant differences between the two groups.

Student academic profile

Concerning student regime, study cycle and year of study, the importance attached to the different opportunities arising from education for SD does not present significant differences between full-time and working students, nor between bachelor's and master's students.

Comparing the importance of the opportunities by course, Management and Administration students value significantly more "Understanding how human action in one place has consequences in other parts of the world" ($p=0.006$), "Taking into account the needs of current and future generations in the choices one makes" ($p=0.003$) and "Discovering ways to influence others by acting as agents of change" ($p=0.032$) than Accounting and Taxation students, while the other opportunities do not differ significantly between courses.

4.3 Topics on Sustainable Development that students consider most important and what they learn

The results presented in this section answer the research question "Q3 - What topics about SD do the students consider most important, and if you have ever taken a course on SD, what topics did they learn?"

Descriptive statistics

From the 23 topics presented (Annex 1) (Gomes et al. 2021), the most frequent responses range from "3-moderately important" to "5-very important," indicating that all topics are rated, on average, from quite important to very important, with higher average values for "Implementation of sustainable development strategies" and "Sustainable Development Goals."

Subsequently, the topics were categorized according to what was found in the literature (Reza, 2016; Gomes et al. 2021): 1- Social Responsibility; 2- Ethics; 3- Environment or Environmental issues; 4- Sustainability; 5- Sustainable Development; 6- Corporate Governance; 7- Reporting.

Table 10 shows that the value of Cronbach's Alpha, is higher than the value of 0.80 for three of the topics, so the items comprising each of these topics adequately measure the associated dimensions. Cronbach's alpha is at least higher than 0.60 for two of the topics, meaning that the items that make up these topics measure the associated dimensions in an acceptable manner.

The internal consistency value is lower than desirable for topic "1- Social Responsibility", but this is also due to the fact that it consists of only two items. Ethics is a single-dimensional topic, so there is no sense in determining its consistency. The item-total correlations are always positive and with values higher than the desired minimum of 0.3 for all situations. Furthermore, in the inter-item correlation and covariance matrices, all values are positive. Therefore, we can consider that the topics present internal consistency, with the exception mentioned before. Consequently, we can now analyze each of the themes as global dimensions.

Table 10: Internal consistency analysis of the categories of themes associated with SD that students consider important to be taught in the course

	N Itens	Alpha of Cronbach	Correlation item-total
1- Social Responsability	2	0,499	0,333
2- Ethics	1	n.d.	n.d.
3- Environmental	7	0,836	0,511-0,714
4- Sustainability	3	0,736	0,307-0,717
5- Sustainable Development	5	0,841	0,586-0,668
6- Corporate Governance	4	0,813	0,564-0,677
7- Report	2	0,63	0,462

Source: Prepared by the authors

In Table 11 we see that the topics "2- Ethics" and "6- Corporate Governance" are considered the most important subjects to be taught, followed by "1- Social Responsibility" and "5- Sustainable Development", then "3- Environment or Environmental", followed finally by "7- Reporting" and "4- Sustainability". Still, all topics obtained high scores, much higher than the midpoint of the measurement scale.

Table 11: Descriptive analysis of the categories of topics associated with SD that students feel should be taught in the course

	N	M	DP	Mín	Q1	Md	Q3	Máx
1- Social Responsibility	370	3,9	0,74	1,5	3,5	4	4,5	5
2- Ethics	370	4,02	0,93	1	3	4	5	5
3- Environmental	370	3,77	0,69	1,43	3,29	3,86	4,29	5
4- Sustainability	370	3,53	0,86	1	3	3,67	4	5
5- Sustainable Development	370	3,86	0,74	1,6	3,4	4	4,4	5
6- Corporate Governance	370	3,98	0,75	1,5	3,5	4	4,5	5
7- Report	370	3,59	0,84	1	3	3,5	4	5

Source: Prepared by the authors

According to Filho (2017), teaching about SD is a possible solution to chronic global problems and is increasingly present on the agenda of society and business. Increasing poverty, scarcity of natural resources and climate change are some conflicts that could be partially solved by focusing on values, such as ethics and corporate social responsibility. According to Wyness and Dalton (2018) educational efforts have gained urgency in recent years and sustainable and ethical practices are of increasing concern to accounting and management professionals. In this sense, it is important to integrate these themes in the curricula to meet future professionals' needs.

Discriminant Analysis

Student demographic profile

Women awarded significantly higher scores to the topics "1- Social Responsibility" (p=0.030), "3- Environment or environmental" (p=0.002), "5- Sustainable Development" (p=0.006), "6- Corporate Governance" (p=0.011) and "7- Reporting" (p=0.001); as for the remaining topics, they do not differ significantly. The results thus seem to show that women attach greater importance to teaching about SD.

Concerning different age groups, the importance of the topics "1- Social Responsibility" (p=0.040) "3- Environment or Environmental" (p=0.027) and "6- Corporate Governance" (p=0.022) is higher for 25-32 year old and lower for the 17-20 year old and 21-24 year old respondents; the importance of the remaining topics does not differ significantly between ages. As for the nationality of the students, there are no significant differences between importance, so it does not discriminate.

Table 12: Relationship between importance and themes on SD and the demographic profile of the student

	Female (n=222)		Male (n=148)	
	M	DP	M	DP
1- Social Responsibility	3,97	0,72	3,8	0,75
2- Ethics	4,09	0,87	3,92	1,01
3- Environmental	3,86	0,67	3,63	0,69
4- Sustainability	3,59	0,87	3,44	0,85
5- Sustainable Development	3,95	0,75	3,73	0,72
6- Corporate Governance	4,06	0,75	3,85	0,74
7- Report	3,71	0,82	3,42	0,84

	17 to 20 years old (n=150)		21 to 24 years old (n=139)		25 to 32 years old (n=54)		> 32 years old (n=27)	
	M	DP	M	DP	M	DP	M	DP
1- Social Responsibility	3,87	0,75	3,83	0,71	4,16	0,69	3,93	0,79
2- Ethics	3,99	0,98	3,96	0,91	4,28	0,83	4	0,88
3- Environmental	3,73	0,7	3,69	0,67	3,98	0,66	3,94	0,7
4- Sustainability	3,54	0,89	3,5	0,85	3,63	0,81	3,44	0,9
5- Sustainable Development	3,85	0,75	3,79	0,76	4,03	0,63	3,91	0,78
6- Corporate Governance	3,91	0,74	3,92	0,79	4,25	0,65	4,06	0,69
7- Report	3,54	0,83	3,53	0,87	3,81	0,7	3,8	0,91

	Other (n=19)		National (n=351)	
	M	DP	M	DP
1- Social Responsibility	4,05	0,72	3,89	0,74
2- Ethics	4,21	1,03	4,01	0,92
3- Environmental	3,89	0,63	3,76	0,69
4- Sustainability	3,68	0,77	3,52	0,87
5- Sustainable Development	4,03	0,66	3,85	0,75
6- Corporate Governance	4	0,79	3,97	0,75
7- Report	3,92	0,71	3,58	0,84

Source: Prepared by the authors

Student academic profile

We found that the importance of topic "7- Reporting" (p=0.030) is significantly higher for working students compared to full-time students, and that the importance of the other topics does not differ significantly between study regimens. This result, as analyzed above, supports that working student have a better understanding of the importance of this topic for their professional life. Regarding the study cycle, master's students attach greater value to the topics "1- Social Responsibility" (p=0.036), "6- Corporate Governance" (p=0.030) and "7- Reporting" (p=0.002) than undergraduate students; the importance of the remaining topics does not differ significantly between the groups.

In the case of the course, Management and Administration students attach significantly greater importance to the topics "3- Environment or environmental issues" (p=0.048), "4- Sustainability" (p=0.001), "5- Sustainable Development" (p<0.001) and "6- Corporate Governance" (p=0.009); the other topics do not present significant differences between groups.

Finally, as for the importance that different year students attach to the topics, there are no significant differences, so the year of the course does not discriminate.

Table 13: Relationship between importance and topics on SD and student academic profile

	Student (n=270)		Working student (n=100)	
	M	DP	M	DP
1- Social Responsibility	3,87	0,74	3,99	0,72
2- Ethics	3,99	0,96	4,1	0,83
3- Environmental	3,74	0,68	3,83	0,7
4- Sustainability	3,54	0,86	3,5	0,89
5- Sustainable Development	3,85	0,75	3,87	0,72
6- Corporate Governance	3,93	0,77	4,09	0,69
7- Report	3,54	0,83	3,75	0,83

	Degree (n=316)		Master's Degree (n=54)	
	M	DP	M	DP
1- Social Responsibility	3,87	0,74	4,09	0,69
2- Ethics	3,99	0,94	4,19	0,87
3- Environmental	3,74	0,69	3,93	0,64
4- Sustainability	3,51	0,87	3,61	0,81
5- Sustainable Development	3,83	0,75	4	0,71
6- Corporate Governance	3,94	0,74	4,18	0,76
7- Report	3,54	0,83	3,93	0,79

	Accounting and Taxation (n=44)		Management and Administration (n=326)	
	M	DP	M	DP
1- Social Responsibility	3,81	0,79	3,91	0,73
2- Ethics	3,86	0,93	4,04	0,93
3- Environmental	3,57	0,84	3,79	0,66
4- Sustainability	3,13	1,18	3,58	0,8
5- Sustainable Development	3,4	0,93	3,92	0,69
6- Corporate Governance	3,7	0,98	4,01	0,71
7- Report	3,38	1,17	3,62	0,78

	1st year (n=115)		2nd year (n=131)		3rd year (n=124)	
	M	DP	M	DP	M	DP
1- Social Responsibility	3,89	0,78	3,93	0,72	3,88	0,72
2- Ethics	3,96	1,04	4,06	0,91	4,04	0,84
3- Environmental	3,77	0,73	3,8	0,61	3,73	0,73
4- Sustainability	3,55	0,89	3,52	0,78	3,52	0,93
5- Sustainable Development	3,79	0,82	3,92	0,67	3,85	0,75
6- Corporate Governance	3,88	0,85	4,06	0,64	3,98	0,76
7- Report	3,65	0,86	3,61	0,79	3,52	0,86

Source: Prepared by the authors

Frequency of a course unit that addresses this issue

Similarly, to Sharma and Kelly, 2014, we asked students whether they had attended or were attending any course units that addressed, in any way, the topic of SD. The majority of the students (61.4%; n=227), most of the second-year undergraduate students, replied that they had not yet addressed the topic of SD in their courses. Only 38.6% (n=143) stated that this topic was addressed in the curricula of the HEI they attended. These students were mostly 3rd year undergraduates. The results show that although students recognize the importance of teaching about SD, most of them state that they have never had a course unit that addressed this topic.

Based on these results, it will be fundamental that the curricula are updated and integrated into the context of education for SD in its environmental, social, and economic dimensions (Brito et al., 2018). The relevance of the theme leads us to affirm that SD and

SDGs should be included not only in the last years of the study cycle and that it would be fundamental to integrate them also in the first years.

Finally, where respondents replied positively to the previous question, they were required to indicate the topics that were or are (or are not) taught in the curricula of HEI in Portugal. Of the 143 students, who has already addressed SD in class, the topic mentioned most often was "e) Social and ethical responsibility" (73.4% of respondents), followed by "l) Economic, social, and environmental performance" (60.8% of respondents), "o) Performance evaluation and sustainability indicators" (53.8%) and "h) Education for sustainable development" (48.3%). The topic "g) Legal instruments of environmental law" was the least mentioned, by only 10.5% of respondents.

5. Conclusion

This work provides an exploratory and descriptive study and aims to analyze, the knowledge and perception about Sustainable Development and Sustainable Development Goals of future accountants, the importance they attach to teaching about SD, what are the most important themes and what have you learned about SD. HEI increasingly recognize their role as leaders in society, educating future generations professionals about progress in SD and SDGs.

In this context, the present study provides an overview of knowledge and perception of future professionals about SD and the teaching about SD in Business School undergraduate and master students in Business Science courses.

Despite the increasing adoption of best practices for sustainability around the world, particularly in Europe (Lozano et al., 2013), much still needs to be done to pursue SD and sustainability in HEI, namely by integrating the SDGs in the formative offer (Aleixo et al., 2020).

In general, the results show that students from Portuguese public HEI have some knowledge about SD, however, they value more the environmental dimension of sustainability issues. This result confirms other studies, for example Aleixo et al. (2020), García-González et al. (2020), and Kagawa (2007).

Considering the demographic and academic profile separately, we found that the variables under study discriminate the knowledge about SD, since the results show that Portuguese women, 32 years and older, full-time master's students of Management and Administration, attending the 1st year of the master's degrees and 3rd year of the undergraduate degrees, believe they have considerable knowledge about SD.

Based on the distribution of the 17 SDGs between the environmental, economic, and social dimensions, we confirm that women demonstrated greater concern and importance to issues related to the environment. On the other hand, as for the different age groups, older students (25 to 32 years and over 32 years) and international students attach greater importance to Economic factors.

Concerning the academic profile, there are differences only in the case of the study cycle. In this case, the students attending the master's degree attach more importance to the different dimensions of SD. These results demonstrate that, since Master's students are older, the age factor may influence the importance assigned to the different dimensions of SD.

Regarding the recognized importance of SD education, it is generally considered to make an important contribution to students' personal and professional lives. It is also possible to infer that student are incredibly interested in SD; they want to learn more about the subject and consider that their HEI should integrate teaching about SD in the curricula. It is also noted that while some higher education degree courses at different levels offer subjects related to SD and SDGs, participation and involvement is still low.

We found that there is still a large proportion of students who state that subjects on SD are not taught in HEI. They pointed out Social Responsibility and Ethics as the most important topic addressed.

These results point to important implications for, which may contribute to enhancing the debate on improvements in education for Sustainable Development in Business Science and to the design of future training processes in Business Science. We find that students want, and presumably are also interested and motivated, to learn about these topics. This research may also encourage these institutions to reinforce SD teaching making the education more innovative, thus helping students in their professional performance, in the labor market and in the management of companies.

According to the UN approach to the responsibility assigned to HEI for achieving the SDGs, curricula should be updated and adjusted to the context of education for SD in the environmental, social and economic dimensions. Thus, one of the main challenges for HEI is to rethink the curriculum, which in this process requires the participation of managers, teachers, students, and the entire university community.

This study is the first to identify students' knowledge and perception about SD and SDGs, the importance of teaching about SD and which topics they consider should be integrated into the curricula. Specifically for students who have already learned about these topics in their courses, which topics have been integrated in the curricula of Accounting and Taxation and Management and Administration courses.

Wyness and Dalton (2018) argued for the value of teaching about SD and found that students recognized that it developed employability-related skills; they also perceived that knowledge of SD issues is essential in boosting their employability.

Integrating sustainability into businesses is inevitable due to the influence of various international agreements and protocols. Consequently, business firms are now redesigning practices that could curtail energy and resource uses and are looking for skilled employees to develop such practices. This new change in the business environment poses considerable challenges to the higher education sector aiming to produce employable graduates. Students who wish to be used by contemporary business firms should be well equipped with the necessary skills and attitudes to be used in sustainable business firms (Perera and Hewege, 2016).

Despite the positive aspects and contributions, we can point out two limitations. One of them lies in the fact that this is not a longitudinal study. However, it would be interesting to carry out a similar analysis taking as reference the attitudes and perceptions of students during their academic period. On the other hand, this study involved only students from Accounting and Management courses, which does not allow the results to be generalized to the whole higher education system of Portugal.

Since this paper is only an exploratory approach to the topic, we suggest that further research be carried out, including more courses in order to compare different groups of

students. Comparing the attitudes and perceptions of students from all areas of education in Portugal can provide valuable input.

Future research will aim to identify some clear ways to implement SD education, considering the labor market's needs and the transition to a green and sustainable economy. The following works can be used to develop a more holistic tool to study students' perceptions of sustainability in more depth. Research could focus not only on the current situation, but also on the outlooks of students of Accounting and Taxation and Management and Administration degrees taught at Business Schools in Portugal, given the new trends of reorientation of companies towards SD. Given the national scope of the study, the results are only applicable to the Portuguese context. Given the changes we are seeing in the world due to the COVID-19 pandemic, it would also be fruitful to repeat the study a year from now to understand how these changes have impacted students' perceptions.

This article contributes to the literature by providing insight into HEI students' perceptions of SD and engagement. Furthermore, it supports the growing importance of encouraging the integration of teaching on SD as there is a need for Business Schools to provide students with in-depth and specialized training that enables them, as future professionals, to meet the needs of the labor market, and that enables HEI to meet the interests of stakeholders.

Annex 1- SD-related topics that students consider important to teach in the course.

Sustainability Reporting/ Integrated Reporting
Accounting for Sustainability
Accounting for Environmental Expenditures
Social Balance Sheet as a Demonstration of Corporate Social Responsibility
Environmental Management Accounting
Social Responsibility and Ethics
Heritage and Sustainable Development
Legal Instruments in Environmental Law
Education for Sustainable Development
Sports, Environment and Tourism
Tourism and Sustainability
Economic, Social and Environmental Performance
Climate Change
Agenda 21 - Portuguese Environment Agency
GRI - Global Reporting Initiative - Standards for sustainability reporting
Social and Environmental Auditing
Environmental Quality Management Systems (ISO 14001, EMAS,...)
Performance evaluation and sustainability indicators
Accounting standard NCRF26 - Environmental issues
Implementation of sustainable development strategies
Green Taxation
Circular Economy
Sustainable Development Goals (SDGs)

References

AASHE. (2010). Sustainability curriculum in higher education: a call to action. 1(2), Association for the Advancement of Sustainability. https://doi.org/http://www.aashe.org/files/A_Call_to_Action_final%282%29.pdf

Aleixo, A. M., Azeiteiro, U. M., & Leal, S. (2020). Are the sustainable development goals being implemented in the Portuguese higher education formative offer? International Journal of Sustainability in Higher Education, 21(2), 336–352. https://doi.org/10.1108/IJSHE-04-2019-0150

Alm, K., Melén, M., & Aggestam-Pontoppidan, C. (2021). Advancing SDG competencies in higher education: exploring an interdisciplinary pedagogical approach. International Journal of Sustainability in Higher Education, ahead-of-print(ahead-of-print). doi:10.1108/ijshe-10-2020-0417

Alonso-Almeida, M. del M., Marimon, F., Casani, F., & Rodriguez-Pomeda, J. (2015a). Corporate social responsibility perception in business students as future managers: A multifactorial analysis. Business Ethics: A European Review, 24(1), 1–17. https://doi.org/10.1111/beer.12060

Annan-Diab, F., & Molinari, C. (2017). Interdisciplinarity: Practical approach to advancing education for sustainability and for the Sustainable Development Goals. The International Journal of Management Education, 15, 73–83. https://doi.org/http://dx.doi.org/10.1016/j.ijme.2017.03.006

Anastasi, A. (1990). Psychological testing. New York: McMillan

Azapagic, A., Perdan, S., & Shallcross, D. (2005). How much do engineering students know about sustainable development? The findings of an international survey and possible implications for the engineering curriculum. International Journal of Phytoremediation, 30(1), 1–19. https://doi.org/10.1080/03043790512331313804

Azeiteiro, U. M., Bacelar-Nicolau, P., Caetano, F. J. P., & Caeiro, S. (2015). Education for sustainable development through e-learning in higher education: Experiences from Portugal. Journal of Cleaner Production, 106, 308–319. https://doi.org/10.1016/j.jclepro.2014.11.056

Bahaee, M., Perez-Batres, L. A., Pisani, M. J., Miller, V. V., & Saremi, M. (2014). Sustainable Development in Iran: An Exploratory Study of University Students' Attitudes and Knowledge about Sustainable Development. Corporate Social Responsibility and Environmental Management, 187(21), 175–187. https://doi.org/10.1002/csr.1312

Barth, M., & Rieckmann, M. (2012). Academic staff development as a catalyst for curriculum change towards education for sustainable development: an output perspective. Journal of Cleaner Production, 26(2012), 28–36. https://doi.org/10.1016/j.jclepro.2011.12.011

Barth, M., & Timm, J. (2011). Higher Education for Sustainable Development: Students' Perspectives on an Innovative Approach to Educational Change. Journal of Social Sciences, 7(1), 13–23.

Bebbington, J., & Unerman, J. (2018). Achieving the United Nations Sustainable Development Goals: An enabling role for accounting research. Accounting, Auditing and Accountability Journal, 31(1), 2–24. https://doi.org/10.1108/AAAJ-05-2017-2929

Beddewela, E., Warin, C., Hesselden, F., & Coslet, A. (2017). Embedding responsible management education – Staff, student and institutional perspectives. International Journal of Management Education, 15(2), 263–279. https://doi.org/10.1016/j.ijme.2017.03.013

Bielefeldt, A. R. (2011). Incorporating a Sustainability Module into First-Year Courses for Civil and Environmental Engineering Students. Journal of Professional Issues in Engineering Education and

Practice, 137, 78–85. https://doi.org/10.1061/(ASCE)EI.1943-5541.0000050.

Botes, V., Low, M., & Chapman, J. (2014). Is accounting education sufficiently sustainable? Sustainability Accounting, Management and Policy Journal, 5(1), 95–124. https://doi.org/10.1108/SAMPJ-11-2012-0041

Brito, R. M., Rodríguez, C., & Luis, J. A. (2018). Sustainability in Teaching: An Evaluation of University Teachers and Students. Sustainability, 10(2), 439. https://doi.org/10.3390/su10020439

Cortese, A. (2003). The Critical Role of Higher Education in Creating a Sustainable Future. Planning for Higher Education, 31(3), 15–22.

Chulián, M. F. (2011). Constructing new accountants: The role of sustainability education. Revista de Contabilidad Contabilidad-Spanish Accounting Review, 14, 241–265. https://doi.org/10.1016/S1138-4891(11)70034-6

Colombo, C. R., & Alves, A. C. (2017). Sustainability in engineering programs in a Portuguese Public University. Production, 27(spe), 1–16. https://doi.org/10.1590/0103-6513.221416

Creel, T., & Paz, V. (2018). Teaching Sustainability in an Accounting Classroom. Discourse and Communication for Sustainable Education, 9(1), 79–85. https://doi.org/10.2478/dcse-2018-0006

Christ, K. L., & Burritt, R. L. (2019). Implementation of sustainable development goals: The role for business academics. Australian Journal of Management, 44(4), 571–593. https://doi.org/10.1177/0312896219870575

Dagiliūtė, R., Liobikiene G., & Minelgaite, A. (2018). Sustainability at universities: Students ' perceptions from Green and Non-Green universities. *Journal of Cleaner Production*, *181*, 473–4832.

DeVellis, R.F. (1991). Scale Development. Theory and applications. London: Sage Publications.

Eagle, L., Low, D., Case, P. and Vandommele, L. (2015), "Attitudes of undergraduate business students toward sustainability issues", International Journal of Sustainability in Higher Education, Vol. 16 No. 5, pp. 650-668. https://doi.org/10.1108/IJSHE-04-2014-0054

Farashahi, M., & Tajeddin, M. (2018). Effectiveness of teaching methods in business education: A comparison study on the learning outcomes of lectures , case studies and simulations. The International Journal of Management Education, 16, 131–142.

Findler, F. (2021). Toward a sustainability assessment framework of research impacts: Contributions of a business school. Sustainable Development, June. https://doi.org/10.1002/sd.2218

Filho, N. (2017). The agenda 2030 for responsible management education: An applied methodology. International Journal of Management Education, 15(2), 183–191. https://doi.org/10.1016/j.ijme.2017.02.010

Getachew, T. (2018). Quantitative skill retention and curriculum integration in a typical business school in the United States – A student perspective.pdf. The International Journal of Management Education, 16, 292–308.

Godemann, J., Moon, J., Haertle, J., & Herzig, C. (2014). United nations Supported principles for Responsible Management Education. Journal of Cleaner Production, 62(1), 16–23. https://doi.org/10.1016/j.jclepro.2013.07.033

Gray, R. (2010). Is accounting for sustainability actually accounting for sustainability...and how would we know? An exploration of narratives of organisations and the planet. Accounting, Organizations and Society, 35(1), 47–62. https://doi.org/10.1016/j.aos.2009.04.006

Gravetter, F. J., & Wallnau, L. B. (2000). Statistics for the behavioral sciences (5th ed). Belmont, CA: Wadsworth.

Gomes, S.F., Jorge, S. and Eugénio, T. (2021), "Teaching sustainable development in business sciences degrees: evidence from Portugal", Sustainability Accounting, Management and Policy Journal, Vol. 12 No. 3, pp. 611-634. https://doi.org/10.1108/SAMPJ-10-2019-0365

Hill, M., & Hill, A. (2002). Investigação por questionário (2a ed.). Lisboa: Sílabo.

Jones, P., Trier, C. J., & Richards, J. P. (2008). Embedding Education for Sustainable Development in higher education: A case study examining common challenges and opportunities for undergraduate programmes. International Journal of Educational Research, 47(6), 341–350. https://doi.org/10.1016/j.ijer.2008.11.001

Kagawa, F. (2007). Dissonance in students' perceptions of sustainable development and sustainability. International Journal of Sustainability in Higher Education, 8(3), 317–338. https://doi.org/10.1108/14676370710817174

Lacy, P., Haines, A. and Hayward, R. (2012), "Developing strategies and leaders to succeed in a new era of sustainability: Findings and insights from the United Nations Global Compact-Accenture CEO Study", Journal of Management Development, Vol. 31 No. 4, pp. 346-357. https://doi.org/10.1108/02621711211218997

Lambrechts, W., Ghijsen, P. W. T., Jacques, A., Walravens, H., Liedekerke, L. Van, & Petegem, P. Van. (2018). Sustainability segmentation of business students: Toward self- regulated development of critical and interpretational competences in a post-truth era. Journal of Cleaner Production, 202, 561–570.

Larrán, M., Andrades, J., & Herrera, J. (2018). An examination of attitudes and perceptions of Spanish business and accounting students toward corporate social responsibility and sustainability themes. Revista de Contabilidad – Spanish Accounting Review, 21(2), 196–205.

Lourenço, F., Jones, O., & Jayawarna, D. (2013). Promoting sustainable development: The role of entrepreneurship education. International Small Business Journal, 31(8), 841–865. https://doi.org/10.1177/0266242611435825

Lozano, R., Lozano, F., Mulder, K., Huisingh, D., & Tom Waas. (2013). Advancing higher education for sustainable development: international insights and critical reflections. Journal of Cleaner Production, 48, 3–9. https://doi.org/10.1016/j.jclepro.2013.03.034

Marôco, J. (2018). Statistical Analysis with SPSS Statistics. 7th Edition. Editions ReportNumber.

Murteira, B., Ribeiro, C., Silva, J. & Pimenta, C. (2001). *Introduction to Statistics. Lisbon: McGraw-Hill Editions.*

Perera, C. R., & Hewege, C. R. (2016). Integrating sustainability education into international marketing curricula. International Journal of Sustainability in Higher Education, 17(1), 123–148.

Pestana, M. H., & Parreira, A. (2016). Human resources' student's sensitivity to factors of sustainability. Ensaio: Avaliação e Políticas Públicas Em Educação, 24(91), 337–358. https://doi.org/10.1590/S0104-40362016000200004

PRME. (2007). Princípios para a Educação em Gestão Responsável Pacto Global.

QCA (2009) Sustainable Development in Action: A Curriculum planning Guide for Schools, Londres, Qualifications and Curriculum Authority, p. 9.

Reza, M. I. H. (2016). Sustainability in higher education: Perspectives of Malaysian higher education system. *SAGE Open*, *6*(3). https://doi.org/10.1177/2158244016665890

Schaltegger, S., & Burritt, R. L. (2010). Sustainability accounting for companies: Catchphrase or decision support for business leaders? Journal of World Business, 45(4), 375–384. https://doi.org/10.1016/j.jwb.2009.08.002

Sharma, U., & Kelly, M. (2014). Students' perceptions of education for sustainable development in the accounting and business curriculum at a business school in New Zealand. Meditari Accountancy Research, 22(2), 130–148. https://doi.org/10.1108/MEDAR-12-2012-0042

SDSN. (2017). Getting started with the SDGs in universities: A guide for universities, higher education institutions, and the academic sector. Australia, New Zealand and Pacific Edition (p. Sustainable Development Solutions Network – Austra).

Singhal, N., Suryawanshi, P., & Mittal, G. (2017). Crafting Responsible Management Practices in Business School Learning Outcomes: An Indian Case Study. Vision, 21(1), 46–62. https://doi.org/10.1177/0972262916681249

Tuncer, G. (2008). University Students' Perception on Sustainable Development: A Case Study from Turkey. International Research in Geographical and Environmental Education, 17(3), 212–226. https://doi.org/10.1080/10382040802168297

UNESCO. (2017). Education for sustainable development goals: Learning Objectives.

Warwick, P., Wyness, L., & Conway, H. (2017). 'Think of the future': Managing educational change from students' perspectives of an undergraduate sustainable business programme. International Journal of Management Education, 15(2), 192–204. https://doi.org/10.1016/j.ijme.2017.03.010

WCED, 1987. Our Common Future, World Commission on Environment and Development. Oxford University Press, Oxford, United KingdomDevelopment. Oxford University Press, Oxford, United Kingdom

Weybrecht, G. (2017). From challenge to opportunity- Management education's crucial role in sustainability and the Sustainable Development Goals-An overview and framework. International Journal of Management Education, 15, 84–92. https://doi.org/10.1016/j.ijme.2017.02.008

Wyness, L., & Dalton, F. (2018). The value of problem-based learning in learning for sustainability: Undergraduate accounting student perspectives. Journal of Accounting Education, 45, 1–19. https://doi.org/10.1016/j.jaccedu.2018.09.001

Yuan, X., & Zuo, J. (2012). A critical assessment of the Higher Education For Sustainable Development from students' perspectives e a Chinese study. Journal of Cleaner Production, 48, 108–115. https://doi.org/http://dx.doi.org/10.1016/j.jclepro.2012.10.041

PAPER III - How important teaching Sustainable Development is for the future accounting professionals? The perspectives of students and regulators

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Abstract

Objectives: This study aims to analyze the importance of the subjects taught on Sustainable Development (SD), in Accounting and Management courses, for the performance of future professionals, accountants and auditors. It considers both the students' and the Professional regulators perspectives, seeking to investigate their contribution to integrating SD topics in the curricula of Accounting and Management courses.

Methodology: For the students' information, a questionnaire was given to those enrolled in Accounting and Management courses at Higher Education Institutions (HEI) in Portugal in the 2nd semester of the year 2019/2020. For the perspective of the regulators, interviews were conducted with the heads of the Portuguese regulatory body for the profession, Institute of Certified Accountants (OCC) and Institute of Statutory Auditors (OROC), and use was made of the content analysis of technical journals and other types of publications, training activities, videos of conferences, meetings and training sessions, available in the official websites and social networks of these entities.

Originality: This study is set in the Portuguese context, where there is a lack of research on this topic, offering the novelty of the simultaneous integration of the students' viewpoint with that of the Professional regulators. The theory of stakeholders is used to better understand the influence of internal stakeholders (students) and external stakeholders (Professional regulators) on the integration of Teaching on Sustainable Development (TSD). In addition, a comprehensive analysis of the response by the Professional regulators in recent years in integrating this topic into both the accounting and auditing profession is undertaken, using a combination of different data collection and analysis techniques.

Conclusion: This study points to the urgent need to update accounting and management education in view of the new and future demands of the accounting and auditing profession. Students consider that knowledge about the SD theme is fundamental for their professional future. The results show that there is still no interaction between the Professional regulators and HEI for the integration of the TSD; however, they have expressed a concern to create awareness in professionals on the subject. This collaboration would allow aligning curricula in order to ensure training that prepares future accountants and auditors to produce, interpret and review information from companies about their performance in the different dimensions of SD (environmental, social and economic).

Contributions: The results of this research present essential implications for the performance of HEI and Professional regulators, enhancing and contributing to the debate on improvements for the TSD in the area of Business Science and the outlining of future training processes. The study may also motivate the increased integration of TSD and may help students in their professional performance in business management, contributing to the achievement of the SDGs in general.

Keywords: Sustainable Development, Students in Accounting and Management, Professional regulators, Non-financial Reporting, Stakeholder Theory, SDGs.

1. Introduction

After several world conferences in which the role of education for Sustainability Development (SD) was clearly emphasized, there have been significant efforts to transform education as we know it into Education for Sustainable Development (ESD) (Alonso-Almeida et al., 2015). In September 2015, the United Nations (UN) adopted a global action plan for SD, which featured 17 SDGs with 169 targets to be implemented. This Agenda calls for the shared responsibility of all actors, public and private, from all UN Member States, for the challenge of achieving by 2030 the 17 SDGs in their three dimensions – environmental, social and economic – recognizing that addressing the challenges posed by the SDGs is everyone's responsibility (SDSN, 2017). The role of ESD has been clearly emphasized and the business sector has been seen as critical to the success of the SDGs (Annan-Diab and Molinari, 2017; Christ and Burritt, 2019; Weybrecht, 2017; Rosati and Faria, 2019).

Currently, companies tend to adopt different innovation strategies to achieve success (Farashahi and Tajeddin, 2018; Kelly and Alam, 2009), and it is essential that they adopt and implement a new business strategy in environmental, social, and economic terms, taking more conscious actions and thinking about future generations (Ceulemans et al., 2010; Creel and Paz, 2018). Successful implementation of the SDGs will strengthen the enabling environment for doing business, minimizing risks and adverse effects on society and the environment while creating value for businesses and all stakeholders (Rezaee, 2016; Rosati and Faria, 2019).

According to Beddewela et al. (2017), about 70% of professionals in Accounting and Management in the United Kingdom agreed that SD is important for business. However, only 35% of these professionals reported that, as students, they acquired any knowledge on this topic, but in their opinion, in any case, given the needs of the labor market, this knowledge proved to be insufficient.

The degree of success in dealing with these complex issues and promoting SD depends primarily on educational standards (Kolb et al., 2017; SDSN, 2017; Weybrecht, 2017), as it is necessary to increase the awareness and skills of future professionals in these matters, so that they and companies can adapt to the new SD challenges (Kolb et al., 2017; Trkman, 2019; Findler, 2021).

Incorporating SD into the curriculum represents a new challenge for HEI (Boulianne and Keddie, 2018). In this context, one may ask how HEI can overcome this challenge (Rieckmann, 2012). The contribution of students and Professional regulators as stakeholders is seen as a support for the integration of Teaching about Sustainable Development (TSD) in curricula. However, studies on how stakeholders can promote, and shape curricula are scarce (Franco et al., 2019; García-González et al., 2020).

In Portugal, as in other countries, HEI have not yet prioritized the implementation of SD in all study cycles (Aleixo et al., 2018). However, according to Gomes et al. (2021) and Filho et al. (2021), there is already a concern to integrate this theme in the curricula. Reforms are still needed, however, to improve teaching and prepare future professionals in these matters (Cho et al., 2020; Filho et al., 2017; Kolb et al., 2017; Wyness and Dalton, 2018).

According to Findler (2021) and Kolb et al. (2017), Business Schools have the potential for becoming an important driver for SD and helping achieve the SDGs, as they are the primary source of accounting education and form a link between knowledge generation and its transfer to companies and society (Rieckmann, 2012).

The priority mission of Accounting and Management courses is to train future professionals so that they can respond to SD challenges, through accounting, financial, administrative, management and tax functions, which are intrinsic to the proper functioning of public or private entities (Christ and Burritt, 2019).

According to Boulianne et al. (2018) and Owen (2013), Professional regulators have an important role in preparing these future professionals insofar as they may contribute to the integration of the SD theme in the curricula in their assessment of the preparation of future professionals for the labor market.

In this context, this research is important to alert HEI to the need and urgency of a change in their teaching paradigms and curriculum policy, preparing future professionals for the change towards a more sustainable present and future (Wyness and Dalton, 2018).

This study thus has two general objectives: first, it analyzes the importance attributed to the TSD subjects in Accounting and Management courses for the performance of future professionals, accountants, and auditors, considering the perspective of the students and that of the Professional regulators. Secondly, it investigates they contribution to the integration of SD topics in Accounting and Management courses, resorting to the stakeholder theory for a better understanding of the influence of internal stakeholders

(students) and external stakeholders (Professional regulators) for the integration of the TSD in HEI.

The article is divided into five sections. After this introduction, section two provides a framework on the TSD as a challenge in HEI, companies, and Professional regulators, considering the integration of the TSD in the curricula of HEI. Section three presents the methodology for the definition of the sample, data collection and data processing. In section four, the results are presented, and section five includes the discussion, conclusions, and future research clues.

2. New challenges of Sustainable Development in the training of future professionals

2.1 Teaching Sustainable Development in HEI and Business Schools

HEI occupy a privileged place in society and are considered as agents of change, playing a central role in promoting the principles of SD, contributing to the paradigm shift in future professionals, in general, towards a more sustainable present and future (Annan-Diab and Molinari, 2017; Rieckmann, 2012).

In the current context, in response to UN calls and as proposed by UNESCO, HEI should contribute to the global SD goals (Filho et al., 2019) to accelerate the capacity to implement the SDGs for all individuals and societies at large (Filho et al., 2021; UNESCO, 2017).

According to O'Brien and Sarkis (2014), in recent years, the integration of TSD in HEI has responded to a variety of social forces, contributing to a growing awareness of this issue among various stakeholders. The role HEI play in creating awareness, knowledge, skills, and values of future professionals has far-reaching implications for global efforts to respond to the change process catalyzed by the SDGs (Findler, 2021; Filho et al., 2019; Blasco et al., 2021).

According to Filho et al. (2019), so far, only a few HEI have identified the potential benefits of strategically aligning curricula with the SDGs, recognizing the benefits and impact that their educational role will have in engaging society on these matters. The SDGs represent an opportunity to transform study plans, and it is hoped that this transformation will challenge existing ways of thinking and organizing and result in benefits for a sustainable

global context (Filho et al., 2017; Blasco et al., 2021; UNESCO, 2017; Zamora-Polo et al., 2019).

It is crucial to adopt approaches that highlight the relevance of SD for different disciplines and perspectives (Annan-Diab and Molinari, 2017). HEI are responsible for preparing future professionals, and curricula represent an essential contribution to incorporating sustainable attitudes and practices in students' future professional lives (Beddewela et al., 2017; Kagawa, 2007; Rieckmann, 2012). In turn, Accounting and Management courses offer an enormous potential for ensuring the long-term sustainability of businesses and responding to SD challenges (Burritt and Schaltegger, 2010; Findler, 2021; Lacy et al., 2012; Creel and Paz, 2018; O'Brien and Sarkis, 2014).

In recent years there have been some studies on skills and knowledge in SD in business science education. The new demands and challenges of SD have further intensified the need for Business Schools to know and meet the practical needs of all stakeholders (Weybrecht, 2017).

In the areas of business studies, understanding the concept of SD, the environmental, social, and economic aspects, and integrating them into business strategy (Ceulemans et al., 2010; O'Brien and Sarkis, 2014) is crucial for future decisionmakers, entrepreneurs and leaders to lead companies and society to act responsibly and sustainably (Bebbington and Unerman, 2018; Botes et al., 2014; Filho et al., 2019; Rezaee, 2016).

Getachew (2018) found that students in Business Schools in the USA considered themselves poorly prepared for the job market, and employers reported the same. Also, Saravanamuthu (2015) found that accounting students in Australia, Canada, New Zealand, and the UK were not adequately prepared for the labor market demands.

Based on several authors (e.g., Lourenço et al., 2013; Weybrecht, 2017; Wyness and Dalton, 2018; Saravanamuthu, 2015), the accounting curriculum is still highly focused on the treatment of financial information, concentrating on profit-making, not considering the relevance and integration of the “Triple Bottom Line”[1] philosophy.

According to Boulianne et al. (2018) and Trkman (2019), despite any major changes made, teaching in Business Schools and the curricula have changed little in the last 30 years.

[1]The triple bottom line aims to measure the financial, social, and environmental performance of a company over time. https://hbr.org/2018/06/25-years-ago-i-coined-the-phrase-triple-bottom-line-heres-why-im-giving-up-on-it Accessed in 12/09/2021.

In his study, Owen (2013) highlighted that this sustainability paradigm will require changes in accounting curricula, as verified in a more current study by Boulianne and Keddie (2018).

In this sense, it will be necessary to prepare students in Business Schools for a strategic focus, a future-oriented perspective, with a greater focus on sustainability information, which again reinforces the need to adapt the curricula of Accounting and Management courses (Boulianne and Keddie, 2018; Ngwakwe, 2012).

2.2 Sustainable Development: new challenges for companies and professionals

Currently, companies play a role that goes beyond their economic aspect, assuming a social and environmental dimension. Intense market pressures on companies impel them to include environmental and social concerns in their strategy as a goal for value creation (Adomßent et al., 2014).

The creation of environmental policies, of environmental legislation and regulation in specific cases, has led to changes in the business system, so this theme assumes a prominent position in the business context, integrating management models that assist decision making and the definition of business strategies (Adomßent et al., 2014; SDSN, 2017). The strong pressures and significant developments in communication systems and technological evolution have led companies to change business strategy, which has led to the need for an adaptation of the areas of accounting and management (Farashahi and Tajeddin, 2018; Ngwakwe, 2012).

It has become evident that accounting and management professionals must be able to apply and communicate concepts and implement practices associated with the various dimensions of SD in order to develop new business strategies (Annan-Diab and Molinari, 2017; Sharma and Kelly, 2014). According to Rezaee (2017), however, companies have been criticized for focusing primarily on profit maximization and shareholder value creation, paying less attention to the impacts of their operations on society and the environment (Schaltegger and Etxeberria, 2015).

Eugénio (2011) states that companies cannot produce only strictly financial information. They are also required to have a socially responsible attitude, including disclosing social and environmental information. According to the SDSN (2017), even if the SDGs are not a legal requirement in companies, their widespread acceptance, high interest,

and the numerous initiatives, alliances and networks that have driven them represent clear evidence that SD has become a source of inspiration and influence; companies are increasingly pressured to disclose information on SD.

The UN 2030 Agenda describes in SDG 12.6 "*Encourage companies to adopt sustainable practices and integrate sustainability information into their reporting cycle and the Indicator*", which has led to an annual increase in the number of non-financial reports published by companies worldwide. However, the current legal framework does not ensure that users' needs are met, as published information is often not sufficiently reliable and comparable across companies (Proposal of Directive 2021/0104/EU).

Public scrutiny of the impact of business activities has grown in recent decades, significantly increasing the pressure for companies to be accountable for their actions at all levels (Ceulemans et al., 2010; Alonso-Almeida et al., 2015).

We are witnessing a growing development of laws and regulations that make organizations accountable for their impacts and oblige them to be more transparent in reporting non-financial information.[2]

In the European context, on 1 January 2017, the EU Accounting Directive for Non-Financial Information came into force (Directive 2014/95/EU). This directive was transposed to the Portuguese context by Decree-Law 89/2017 and requires large companies to disclose non-financial information for *"an understanding of the evolution, performance, position and impact of their activities, concerning, at least, environmental, social and workers' issues, equality between women and men, non-discrimination, respect for human rights, combating corruption and bribery attempts"*, with an external entity *"only having to certify that the same or separate report has been submitted"*.

In the current context, it is essential to provide reliable information on the responsible practices of companies, including the results and impacts achieved, both positive and negative. In short, companies find they are increasingly bound to report non-financial information in addition to financial information (KPMG, 2020).

Despite guidance from the Global Reporting Initiative (GRI)[3], following implementation of the EU Directive, the Alliance for Corporate Transparency analyzed the

[2] https://bcsdportugal.org/diretrizes-da-sustentabilidade-reporting/ Accessed in 21/07/2021

[3] The GRI Standards have been strengthened, so they deliver the highest level of transparency for impacts on the economy, environment and people, with a significant update to the very foundation of the world's most widely used sustainability reporting standards, the Universal Standards, and the introduction of the first GRI Sector Standard.

sustainability reporting of 105 European companies in 2018 and found that more than half did not provide clear and essential information.

Two years later, the US House Financial Services Committee rejected a set of reports that did not provide clear and important information, highlighting the huge gulf within reporting standards.[4]

The disclosure of financial information is part of corporate legal obligations, which is not yet the case with non-financial information, which was reported only voluntarily until recently. However, as mentioned above, this reporting is becoming more widespread, even mandatory in some situations; however, in general, it is still an incipient practice in companies.

Recently, several countries, including Australia, Austria, Canada, Denmark, France, Germany, Malaysia, the Netherlands, Sweden, Hong Kong, and the United Kingdom, have adopted mandatory reporting on sustainability information. It is expected that other countries will follow suit (Rezaee, 2017), and it is necessary and urgent that HEI prepare future professionals for this reality, with the necessary and fundamental support from Professional regulators (Christ and Burritt, 2019; Makarenko and Plastun, 2017).

The next few years will be crucial for the future of the reporting of non-financial information, and the consolidation of reporting frameworks is expected, with some organizations, such as the Sustainability Accounting Standards Board and the IIRC, having already started merger processes, which will have advantages for all stakeholders.[5] Accounting professionals have an increasingly crucial role in this scenario, promoting SD, as it represents an important component in the external reporting of companies (Botes et al., 2014).

Indeed, the accountant is responsible for collecting, analyzing, measuring and disclosing information clearly and effectively on the companies' contribution to SD (Schaltegger and Etxeberria, 2015; Bebbington and Unerman, 2018) and auditors for guaranteeing this information (KPMG, 2020).

Several authors (e.g., Boulianne et al., 2018; Filho et al., 2019; Farashahi and Tajeddin, 2018; Thomas, 2018; Williams, 2015) have argued that the lack of skills and knowledge of

[4] https://www.accountancyage.com/2019/09/03/accounting-for-sustainability/ Accessed in 26/07/2021
[5] https://bcsdportugal.org/diretrizes-da-sustentabilidade-reporting/ Accessed in 26/07/2021

practitioners on SD matters has been the main impediment to obtaining non-financial information reports that are better suited to the needs of companies and stakeholders.

To meet these challenges, practitioners must be increasingly engaged with the SD issue, particularly concerning the use of accounting information and internal control processes to verify and validate SD information. To meet these challenges, it is essential that practitioners are increasingly engaged with the SD issue, particularly regarding the use of accounting information and internal control processes to verify and validate SD information (Boulianne and Keddie, 2018).

2.3 Sustainable Development competencies of accounting and management professionals: HEI and regulators

The change in corporate behavior, from a purely economic perspective to a social and environmental one, has led to the need for a new reporting model that includes non-financial information (Non-financial Information Reporting, Integrated Reporting or Sustainability Reporting).

As was also clear from the above, entities still have a long way to go in being fully prepared for this reporting. The lack of skills is recognized, and, consequently, the importance of TSD is recognized as a starting point for integrating the Triple Bottom Line philosophy in companies. However, HEI still do not seem to be very intent on teaching these topics in the areas of accounting and management (e.g., Beddewela et al., 2017; Bebbington and Larrinaga 2014; Gomes et al., 2021; Lacy et al., 2010; Larrán et al., 2018; Ngwakwe, 2012).

As Professional regulators are a link between Business Schools, professionals, and the labor market in general, they should contribute to the integration of the TSD in the curricula according to the needs of professionals, companies, other stakeholders, and society in general (Ngwakwe, 2012). Among the various competencies of a professional accountant, in addition to the traditional ones related to financial information, IFAC (2019) defined the ability to respond to the needs of stakeholders concerning the preparation and interpretation of reports that include non-financial information.

In this regard, in 2021 the International Federation of Accountants (IFAC)[6] states that it *"will continue to work with PAOs*[7] *and through the International Panel on Accountancy Education to demonstrate that professional accountants not only have the skills and competencies needed to prepare, assure, and utilize this information, but also the expertise to build and evaluate necessary controls and processes related to sustainability. In identifying which existing foundational skills can be leveraged to meet new requirements, and in creating access to obtain new subject matter expertise, IFAC supports the positioning that professional accountants are best placed to meet the advisory, preparatory and assurance sustainability-related needs of organizations".*

IFAC, alongside other leading international organizations, launched the Sustainable Development Goals Disclosure (SDGD) Recommendations report in January 2020. *The* SDGD Recommendations "*call on organizations to consider sustainable development risks and opportunities relevant to their long-term value creation strategy and communicate the actual or potential impacts on achievement of the SDGs. This will require relevant and material disclosures about the factors that influence long-term value creation (or destruction) for the organization and society or that have an impact (positive or negative) on the achievement of the SDGs in the annual report*".[8]

In September 2020, IFAC reiterated a call to action *Enhancing Corporate Reporting: The Way Forward* requesting that the IFRS Foundation create a new board, acting in parallel with the International Accounting Standards Board.

The proposed board would meet the urgent and growing demand from investors, policymakers and Profession Regulatory bodies for a reporting system that provides consistent, comparable, reliable and relevant information for business value creation, sustainable development and evolving stakeholder expectations.[9]

In March 2021, Members of the European Parliament approved a report by the Legal Affairs Committee on accountability of EU companies. The report urges the European

[6] https://www.ifac.org/knowledge-gateway/contributing-global-economy/discussion/professional-accountants-leading-reporting-and-assurance-sustainability. Accessed in 24-07-2021

[7] *Professional Accountancy Organizations*.

[8] https://www.ifac.org/knowledge-gateway/contributing-global-economy/publications/sustainable-development-goals-disclosure-sdgd-recommendations Accessed in 26-07-2021

[9] https://cfc.org.br/noticias/ifac-responde-a-consulta-da-fundacao-ifrs-sobre-relatorios-de-sustentabilidade/ Accessed in 26-07-2021

Commission to bring forward a law obliging companies to address aspects of their value chains that may affect human rights, the environment and governance.[10]

The European Commission presented a proposal to revise the Non-Financial Disclosure Directive (2014/95/EU) in April 2021. It also proposes that general and specific standards be created, with guidelines for the preparation of the non-financial report to be disclosed by the various companies, taking into account the sector of activity and size. Currently, Directive 2014/95/EU covers around 10,000 European companies; in the future, the aim is to encompass around 50,000 companies, representing 75% of European turnover.

The adoption of all these practices leads consequently to the redefinition of the qualifications, skills, knowledge, and core competencies required for the accounting and management profession (Botes et al., 2014; Boulianne et al., 2018).

The teaching of Accounting and Management has reflected the need to adapt to the context of constant change. The Professional regulators have been analyzing the needs of professionals and future professionals to guarantee them an education in this area that prepares them for the future challenges of the profession.

The IFAC recommendations regarding the approximation of Business Schools to the business world highlight the importance of a solid acquisition of technical knowledge that allows the future professional to quickly identify the results of the learning, along with the need to acquire a set of skills that facilitate the demonstration of these same learnings (IFAC, 2019; Domingos, 2017).

According to the SDSN (2017) this collaboration to achieve the SDGs will be crucial, as described in SDG 17.16: "*Enhance the global partnership for sustainable development, complemented by multi-stakeholder partnerships that mobilize and share knowledge, expertise, technology and financial resources, to support the achievement of the sustainable development goals in all countries, in particular developing countries".*

Business Schools need to provide students with in-depth and specialized training, enabling them, as future professionals, to meet the needs of the labor market and the interests of stakeholders (Creel and Paz, 2018; Kolb et al., 2017).

[10] https://www.europarl.europa.eu/news/en/headlines/society/20210303STO99111/companies-should-be-held-accountable-for-their-actions-say-meps Accessed in 26-07-2021

Besides the importance of training students on the subject of SD, the Professional regulators, as external stakeholders of the HEI, will have an important role in answering what companies and the market need.

The mission of the Professional regulators in Portugal is to regulate and discipline the professions, seeking to improve the conditions for professional practice and to give credibility, dignity, and defend the profession's public interest and its professionals. They impose a series of requirements in terms of knowledge and skills for professional certification, which requires a better preparation of students to ensure that future professionals have adequate levels of knowledge and competence to exercise the profession of accountant or auditor.

However, an analysis of the regulations for access to the profession reveals that only the OCC, in Regulation nº. 334/2020, mentions that one of the competencies required as a result of the learning process is the interpretation of reports that include non-financial data and information. In turn, Regulation nº. 12/2017 of the OROC still makes no mention of this matter. When the Professional regulators define SD matters as access requirements to the profession, Business Schools will have a crucial role in responding to these requirements and in preparing future professionals with the integration of the TSD in the curricula.

2.4. Stakeholder theory in the context of HEI

The stakeholder theory (Freeman, 1984) suggests that an organization is considered as part of the social system, consisting of various groups that work together to achieve the system's goals. A part of this system are the interested parties (stakeholders) who interact with the organization to achieve its objectives.

Currently, stakeholders are seen as people or groups who have or claim ownership, right or interest in an organization and its past, present and future activities (Clarkson, 1995). This interaction between stakeholders and the organization arises from valuing the value creation process and, therefore, they assume the risk or are potential beneficiaries (Post et al., 2002).

There are more complex perspectives in identifying stakeholders in higher education than in companies, since this type of organization has a different nature, structure, and objectives. For Mitroff (1983), HEI stakeholders are any group or individual (internal or

external) with rights and interests who exerts power over the institution and that, in this sense, both affect and are affected by the actions, behaviors and policies.

In other words, as defined by Amaral and Magalhães (2002), HEI stakeholders are the parties, individual or collective entities, with a legitimate interest in higher education and that, as such, acquire some right of intervention. One can list as stakeholders of HEI, students, businesses, employers, Professional regulators, municipalities, governmental organizations, and society in general (Degtjarjova et al., 2018; Franco et al., 2019; Nagy and Somosi, 2020). Degtjarjova et al. (2018) explain that, for improving education, actual partnerships between all stakeholders (students, employers, HEI, Professional regulators, etc.) are needed. As Cooper et al. (2014) stated, students should be involved in revising curricula. In addition, Lambrechts et al. (2018) acknowledge it is necessary to consider the students' perspective in defining competencies and curriculum innovation.

Considering that the stakeholder theory claims organizations should fully meet stakeholders' expectations to be successful (Freeman, 2010), and students are one of the biggest and most important stakeholders of universities (Nagy and Somosi, 2020), they can shape HEI behavior, contributing to the integration of innovations in the curricula, teaching methods, etc.

According Degtjarjova et al. (2018), the quality of study programs affects students' abilities to accept contemporary challenges, respond to opportunities and limitations of the current time. Later on, these abilities are crucial in one's career and self-realization and have a long-term influence on social welfare. Students are placed at the narrowest point of the process, which highlights the need for the most efficient use of stakeholder resources to create value and satisfaction for labor market actors and for the well-being of society. This means that stakeholders have an influence on the quality of education (Degtjarjova et al., 2018).

According to Sharma and Kelly (2014), Professional regulators should help shape the curricula in accounting and management courses to provide the knowledge and skills needed in companies. Therefore, they are also one of the important stakeholders of HEI and, based on the stakeholder theory, they will play a key role in shaping the behavior of those organizations, contributing to the integration of TSD in the curricula of Accounting and Management courses (Boulianne et al., 2018; Owen, 2013). Professional regulators are seen as stakeholders in what is taught in HEI, having the mission to regulate and discipline the

professions, aiming to improve the conditions for professional practice. They impose several requirements in terms of knowledge and skills for professional certification and therefore have a crucial role in designing curricula and contributing to the integration of TSD.

In this particular study, students are considered as internal stakeholders and Professional regulators as external stakeholders. According to Franco et al. (2019) and Blasco et al. (2021), stakeholders must participate in the process of change, so when considering course contents in HEI, students and Professional regulators must be heard.

2.5 Objectives and research questions

Contextualized by the previous literature, this study the importance of the subjects taught on Sustainable Development, in Accounting and Management courses, for the performance of future professionals, accountants, and auditors. It considers both the student and the Professional regulators perspectives. It also investigates the contribution of Professional regulators to the integration of SD topics in Accounting and Management courses.

To accomplish these objectives, the following research questions are considered:

RQ1 – How important do students consider the TSD, including the SDGs, to the practice of their future profession?

RQ2 – How does this importance relate to the students' knowledge of SD subjects?

RQ3 – What is the Professional regulators perspective on the topic of SD for current and future professionals, and how do they contribute to the curricular structures of courses, namely those that allow access to the profession?

RQ4 – What is the Professional regulators perception of the training offered the future professional by HEI concerning general and specific skills for SD and non-financial reporting? What should it cover?

3. Methodological aspects

3.1 Data Collection

To carry out this study, information was collected in three ways: questionnaires, interviews, and documentary analysis.

To collect the students' perceptions, a questionnaire was used, based on a bibliographic review of empirical studies, with the systematization of information from studies carried out by various authors (e.g., Beddewela *et al*. 2017; Botes *et al*. 2014; Larrán et al., 2016; Sharma e Kelly 2014; Wyness and Dalton 2018; Zamora-Polo et al., 2019).

The survey was designed to explore the students' perception of the importance attached to the SD subjects in Accounting and Management courses, for the performance of their future profession. Students were asked to answer the following questions:

(1) Do you consider knowledge about SD important in your future profession (ICDS)?

(2) What level of importance is attributed to each of the 17 SDGs (IODS)?

(3) Different opportunities that the TSD provides for the exercise of the future profession (list of statements presented to verify the level of agreement) (OEDSP); and

(4) Agreement about the importance of the SD theme for the profession (list of statements presented to verify the level of agreement) (IDSP).

Finally, demographic and academic data on each respondent were collected.

A Likert scale with 5 categories was used to assess the degree of agreement (1-Totally disagree and 5-Totally agree) and importance (1-Not important and 5-Very important).

Table 1: Research Summary		**Research Questions**	**Source of data**	**Recipients**	**Independent and Dependent Variables* / Themes analyzed**
Objective 1	To analyze the importance attributed to the TSD subjects in Accounting and Management courses for the performance of future professionals, accountants and auditors (by the students)	Q1 - How important do students consider the TSD, including the SDGs, to the practice of their future profession?	Enquiry (370 responses)	Students	***DV (ICDS)*** Knowledge about SD within the scope of the future profession ***IV (IODS)*** Level of importance attributed to each of the SDGs ***IV (OEDSP)*** Opportunities that TSD provides for exercising the future profession ***IV (IDSP)*** Agreement on the importance of the SD theme for the profession
		Q2 - How does this importance relate to students' knowledge of SD subjects?			
Objective 2	Objective 1 (by Regulatory Authorities) + To ascertain the contribution of the Professional regulators to the integration of SD topics in Accounting and Management courses	Q3 - What is the Professional regulators perspective on the topic of SD for current and future professionals, and how do they contribute to the curricular structures of courses, namely those that allow access to the profession?	Interviews (2) + Content Analysis	President of the Portuguese Regulatory Bodies Technical magazines / Social networks / Videos	Environmental, social, and economic issues Reporting of non-financial information TSD subjects in HEI
		Q4 - What is the Professional regulators perception of the training offered by HEI concerning general and specific skills for the future professional on SD and non-financial reporting? What should it cover?			

**IV – Independent Variables DV- Dependent Variable*

The first version of the questionnaire was pre-tested on a group of 10 people. The questionnaire was applied to students at polytechnic institutes and universities in Portugal, in Accounting and Taxation and Management and Administration courses, through the students' institutional e-mails, after approval by the HEI. The entire process took place between December 2019 and May 2020.

Out of a total of 7,326 students, 661 responses were collected (about 9% response rate), which, given the size of the sample, can be assumed as acceptable. Of the total responses, 291 were considered invalid due to incomplete responses. These were eliminated, and 370 responses in total were considered valid.

At first, respondents were characterized according to gender (male or female), age group (scales) and nationality (national or foreign), as shown in Table 2.

Table 2: Characterization of the sample as to demographic data

		N	%
Gender	Female	222	60
	Male	148	40
Age	17 to 20 years old	150	40,5
	21 to 24 years old	139	37,6
	25 to 28 years old	36	9,7
	29 to 32 years old	18	4,9
	33 to 38 years old	11	3
	39 to 41 years old	6	1,6
	Over to 41 years old	10	2,7
Nationality	Other	19	5,1
	National	351	94,9
Total		370	100

Source: Prepared by the authors

As for the data on the academic profile, the sample is mainly composed of full-time students and only 27% of working students (Weybrecht, 2017). Most are enrolled in bachelor's degrees and only 15% in master's degrees, with a predominance of Management and Administration students. As for the years in which students are enrolled (Lambrechts et al., 2018; Larrán et al., 2018), in the case of undergraduate degrees, a significant number of students are in the 3rd year, whereas in the master's degrees, we find that the majority are 1st year students.

In addition, to obtain the Professional regulators perspective on the teaching and skills on SD for future professionals in Portugal, two semi-structured interviews were carried out with the President of the two professional associations related to Accounting and Management (OCC and OROC) in August and September 2021.

The interviews aimed to assess: (1) how the Professional regulators view the topic of SD in the professional life of accountants and auditors; (2) to which dimensions – environmental, economic or social - they attribute the most importance for the exercise of the profession; (3) to what extent they consider that the education of accounting and management in the HEI in Portugal allows future professionals to develop knowledge and skills on SD; (4) what the position of the Professional regulators is regarding the academic qualifications and training on SD necessary to access the profession; (5) whether TSD should be mandatory for the exercise of the profession of accountant and auditor; and if so, (6) what topics should be addressed.

Table 3: Identification of the interviewees

N.º	Organization	Position	Place	Date	Duration
E1	OROC- Institute of Statutory Auditors	President	Online	11/08/2021	45 min
E2	OCC- Institute of Certified Accountants	President	Online	09/09/2021	36 min

Source: Prepared by the authors

Finally, and to complete the previous objective, data were collected through document analysis of technical journals and other publications, training sessions, videos of conferences, meetings, and training sessions available on websites and social networks. The information was collected between 2017 (the year in which Decree-Law 89/2017 came into force in the Portuguese context) and July 2021.

This analysis sought to identify initiatives on themes such as environmental, social, and economic matters, reporting of non-financial information, and teaching on SD matters in HEI. We analyzed 78 technical journals (54 from the OCC and 24 from the OROC) and news or general information published between 2017 and 2021. We viewed 25 videos published between 2020 and 2021 (relating to conferences, meetings, and training that, due to the Covid-19 pandemic, began to be carried out in online format, recorded, and made available on the entity's official website).

3.2 Data Treatment and Analysis

Data from the questionnaires were treated using descriptive and inferential statistical techniques. In descriptive statistics, the variables, measured on a Likert scale (from 1 to 5),

were analyzed using measures such as the mean, standard deviation, minimum and maximum values observed, and the respective quartiles.

As for inferential statistics, we first used the analysis of the internal consistency of scales (Anastasis, 1990; DeVellis, 1991). Subsequently, we used the Logistic Regression (Marôco, 2018) to model the probability of an event for a dependent variable of dichotomous response that assumes the value (1-Yes, 0-No), regarding whether or not the knowledge about SD is important for the exercise of their future profession.

To study the relationship between independent variables (Level of importance of actions for SD (17 SDGs); Opportunities that the TSD provides for the exercise of the future profession, and Agreement about the importance of the SD topic for the profession and dependent variable (Importance of knowledge about SD within their future profession), Student's t-test was used (Marôco, 2018).

As for the treatment of the qualitative information gathered in the interviews, based on the respective transcription, the answers were analyzed and interpreted to meet the research questions associated with the Professional regulators.

Regarding the information collected on the websites and social networks, the content analysis technique was applied (Hsieh and Shannon, 2005), classifying the information according to subject, date, and format (news, article or online conference).

4. Results

4.1 Importance of knowledge about SD in the future profession

The results presented in this section relate to the first objective of analyzing the importance assigned to teaching SD subjects in Accounting and Management courses for the performance of future professionals, accountants, and auditors from students' perspectives. The results answer the research question Q1 - How important do students consider teaching SD subjects, including SDGs, to the exercise of their future profession? and Q2 - How does this importance relate to the students' knowledge about SD subjects?

We found that most of the surveyed students (94.6%) considered the knowledge of this theme necessary for the exercise of their future profession (ICDS). When asked about the level of importance attributed to each of the SDGs (IODS), the results show that all are

considered, on average, between very and somewhat important (levels 4 and 5 of the scale), with higher average values for SDG "13. Adopt measures to combat climate change and its impacts", followed by SDG "6. Ensure availability and sustainable management of water and sanitation", "15. Protect and restore terrestrial life", "14. Protect marine life" and "12. Ensure sustainable consumption and production patterns".

The 17 SDGs were subsequently classified into the three factors defined in theoretical and conceptual terms: Environmental, Social, and Economic. The items' internal consistency in each factor were analyzed to test the reliability of the scales built to measure each factor.[11] Based on this classification, we can see that students attach more importance to the environmental dimension.

Table 4: Descriptive analysis of the factors of the grouped SDGs

	N	M	DP	Min	Q1	Md	Q3	Max
Environmental	370	4.36	0.55	2.44	4.00	4.44	4.89	5.00
Social	370	4.15	0.67	1.60	3.70	4.20	4.70	5.00
Economic	370	4.21	0.63	1.40	3.80	4.20	4.80	5.00

Source: Prepared by the authors

A logistic regression model was used to analyze the relationship between the IODS as a function of the ICDS, with the ICDS as the Dependent Variable and the SDGs classified into the three factors "Environmental", "Social" and "Economic" as Independent Variables.[12]

The results indicate that the probability of considering knowledge about SD necessary within the future profession increases and has a significant and determining relationship for the factors of the Environmental actions. The factors of the Social and Economic actions are not significant to explain the importance of knowledge about SD in the scope of the future profession.

Table 5: Dimensions of the SDGs and importance of knowledge about SD within the future profession

				IC a 95% OR		
	B	DP	OR	LI	LS	p
Environmental	1.723	.634	5.600	1.617	19.389	** 0.007
Social	-.752	.649	.471	.132	1.681	0.246
Economic	.354	.735	1.425	.337	6.021	0.630
Constant	-2.706	1.546	.067			0.080

* p<0.05 ** p<0.01 *** p<0.001

Source: Prepared by the authors

[11] For each factor, Cronbach's alpha was 0.888, 0.892 and 0.818 respectively for the Environmental, Social, and Economic dimensions, which means that the items comprising each factor show internal consistency and adequately measure each of the dimensions associated with them.

[12] The Hosmer-Lemeshow (X27=1.571, p=0.980) and Omnibus (X23=15.218, p=0.002) tests allow us to conclude that the model fits the data adequately, Nagelkerke's R2 value of 11.7% indicates the variation in the dependent variable explained by the model.

When analyzing the level of agreement about various opportunities that the TSD offers students for their future professional life (OEDSP), the results indicate that students agree that all the identified opportunities (see Table 6) are essential, all having a mean value above the midpoint of the measurement scale.

Table 6: Importance on the various opportunities that the TSD provides for students in Business Science areas

	Not important		2		3		4		Very important	
	N	%	N	%	N	%	N	%	N	%
a) Understand how human action in one place has consequences in other parts of the world.	1	.3%	12	3.2%	47	12.7%	172	46.5%	138	37.3%
b) Consider one's values and responsibilities towards other people, the environment, and the planet.	2	.5%	6	1.6%	54	14.6%	166	44.9%	142	38.4%
c) Understand long-term global challenges, including climate change, inequality, poverty, and development.	1	.3%	8	2.2%	37	10.0%	154	41.6%	170	45.9%
d) Critically assess what governments say they are doing to meet the needs of present and future generations.	3	.8%	9	2.4%	62	16.8%	152	41.1%	144	38.9%
e) Critically assess what business and individuals say they are doing to meet the needs of present and future generations.	2	.5%	10	2.7%	62	16.8%	153	41.4%	143	38.6%
f) Take into account the needs of present and future generations in the choices that are made.	2	.5%	8	2.2%	36	9.7%	164	44.3%	160	43.2%
g) Think creatively about what individuals can do to develop a more informed society and a more sustainable future.	2	.5%	10	2.7%	47	12.7%	150	40.5%	161	43.5%
h) To discover ways of influencing others, acting as agents of change.	4	1.1%	8	2.2%	66	17.8%	153	41.4%	139	37.6%
i) Contribute to achieving the Sustainable Development Goals proposed by the United Nations (SDGs).	3	.8%	9	2.4%	60	16.2%	143	38.6%	155	41.9%
j) Improve the disclosure of non-financial information in organizations.	1	.3%	12	3.2%	66	17.8%	167	45.1%	124	33.5%

Source: Prepared by the authors

To analyze the relationship between OEDSP as a function of ICDS, the logistic regression model had as Dependent Variable "ICDS", and as Independent Variables, all opportunities "OEDSP".[13] The results in Table 7 indicate that the probability that the student considers knowledge about SD in the scope of the future profession significant increases and has a significant and determinant relationship with two statements: (e) and (g). It does not vary significantly with the agreement of the remaining statements.

Table 7: Importance of various opportunities that TSD provides vs Importance of knowledge about SD for future profession

				IC a 95% OR		
	B	DP	OR	LI	LS	p
e) Critically assess what business and individuals say they are doing to meet the needs of present and future generations.	1.110	.371	3.035	1.467	6.278	** 0.003
g) Think creatively about what individuals can do to develop a more informed society and a more sustainable future.	.597	.285	1.817	1.040	3.175	** 0.036
Constant	-.803	1.144	.448			0.483

* p<0.05 ** p<0.01 *** p<0.001

Source: Prepared by the authors

[13] The Hosmer-Lemeshow (X27=7.374, p=0.391) and Omnibus (X23=19.760, p<0.001) tests allow us to conclude that the model fits the data adequately, Nagelkerke's R2 value of 15.1% indicates the variation in the dependent variable explained by the model.

As for the level of agreement on the importance of the SD theme for the future profession (IDSP), we verified by the analysis of Table 8 that students agree with all the identified actions as they present a mean value higher than the midpoint of the measurement scale.

Table 8: Importance of the SD theme for the profession

	Totally disagree		2		3		4		Totally agree	
	N	%	N	%	N	%	N	%	N	%
a) It is important for organisations, so it could be a competitive advantage for my future work.	2	,5%	9	2,4%	51	13,8%	146	39,5%	162	**43,8%**
b) Contributes to help me implement SD practices, as companies have a fundamental role in society.	2	,5%	4	1,1%	43	11,6%	175	47,3%	146	**39,5%**
c) Allows me to contribute to the creation of environmental, social and economic skills for the various sectors and activities of society.	2	,5%	6	1,6%	59	15,9%	169	45,7%	134	36,2%
d) It allows me to contribute to the preparation of information on relevant actions for the company and its stakeholders, enabling improved decision-making.	3	,8%	10	2,7%	64	17,3%	165	44,6%	128	34,6%
e) It allows me to assist in the planning, evaluation and control of economic, social and environmental operations, recording and disseminating the measures adopted and the results achieved.	2	,5%	4	1,1%	56	15,1%	183	49,5%	125	33,8%
f) Gives me the possibility to contribute to supporting organisations in the evaluation and continuous improvement of their environmental, social and economic performance and progress.	1	,3%	8	2,2%	60	16,2%	162	43,8%	139	37,6%
g) It enables me to understand the social responsibility of the organisation as well as to integrate and communicate about social responsibility.	1	,3%	8	2,2%	60	16,2%	172	46,5%	129	34,9%
h) I may contribute towards the creation of a system of economic and non-economic incentives for social responsibility performance.	2	,5%	13	3,5%	80	21,6%	158	42,7%	117	31,6%
i) To help me draw attention to the need for accounting for sustainability.	4	1,1%	16	4,3%	97	26,2%	146	39,5%	107	28,9%
j) I can help improve the credibility of the organisation, review progress, improve performance and evaluate initiatives.	1	,3%	10	2,7%	57	15,4%	170	45,9%	132	35,7%
l) I can help promote the improvement of the data collection system regarding environmental, social and economic information.	4	1,1%	15	4,1%	84	22,7%	168	45,4%	99	26,8%
m) I can help ensure legal compliance in environmental, social and economic terms.	2	,5%	15	4,1%	67	18,1%	182	49,2%	104	28,1%
n) Help me to contribute to ethical conduct in the organisation's business and in relationships with other organisations and individuals.	3	,8%	8	2,2%	71	19,2%	171	46,2%	117	31,6%

Source: Prepared by the authors

To analyze the relationship between the IDSP, as a function of the ICDS, the logistic regression model continues to be used, with "ICDS" as the Dependent Variable and all the "IDSP" questions as Independent Variables.[14] The results (Table 9) indicate that the probability of considering knowledge about SD important in the context of the future profession, increases and has a significant and determinant relationship with the level of agreement assigned to each of the following actions: (a) could be a competitive advantage for the future work, (b) contributes to help me implement SD practices, as companies have a fundamental

[14] The Hosmer-Lemeshow (X28=2.640, p=0.955) and Omnibus (X23=60.437, p<0.001) tests allow us to conclude that the model fits the data adequately, Nagelkerke's R2 value of 43.9% indicates the variation in the dependent variable explained by the model.

role in society; and (d) allows me to contribute to the preparation of information on relevant actions for the company and its stakeholders, enabling improved decision making. It does not vary significantly with the agreement of the remaining statements.

Table 9: Importance of the SD theme for the profession vs Importance of knowledge about SD for the future profession

				IC a 95% OR		
	B	DP	OR	LI	LS	p
a) It is important for organizations, so it could be a competitive advantage for my future work.	.771	.388	2.162	1.011	4.622	* 0.047
b) Contributes to help me implement SD practices, as companies have a fundamental role in society.	1.866	.437	6.462	2.745	15.210	*** 0.000
d) It allows me to contribute to the preparation of information on relevant actions for the company and its stakeholders, enabling improved decision-making.	.894	.424	2.444	1.065	5.611	* 0.035
Constant	-6.825	1.727	.001			0.000

[a] p~0.5 * p<0.05 ** p<0.01 *** p<0.001

Source: Prepared by the authors

4.2 Position of the professional organizations (OCC and OROC)

The results presented in this section relate to the second objective of analyzing the importance attributed to the teaching of these subjects from the perspective of the Professional regulators and investigating the contribution of they to the integration of SD subjects in Accounting and Management courses. They answer the research questions:

- Q3 - What is the Professional regulators perspective on the topic of SD for current and future professionals, and how do they contribute to the curricular structures of courses, namely those that allow access to the profession?
- Q4 - What is the Professional regulators perception of the training offered by HEI concerning general and specific skills for the future professional on SD and non-financial reporting? What should it cover?

From the analysis of the interviews, one can conclude that the presidents of the Professional regulators consider the SD theme of high importance. It is assumed that, for accountants and auditors, one of the areas underlying this SD theme to be developed is the reporting of non-financial information, since the impacts of SD matters have a substantial effect on the report produced by companies.

Both stressed that, nowadays, companies are led to disclose this type of information more and more, so it is increasingly important that professionals be prepared to integrate this topic in companies. Interviewee E1 pointed out, "*Companies disclose what they consider more*

beneficial or disclose essentially for image reasons, which leads to the need for auditing this type of information."

Both interviewees consider that, although some companies disclose this type of information, they are still a minority. Interviewee E1 believes that "*this situation results from a lack of guidelines and even mandatory guidelines*", while interviewee E2 justifies this "*by the fact that the current professional is not prepared for this reality*". E2 also mentions, "*There are already several strategies with IFAC, in order to respond to the urgent need for professionals and companies to contribute to the evolution of environmental, social, and economic information reporting, that is, Non-Financial Reporting or Integrated Reporting.*"

Regarding question 2, both interviewees consider that the three dimensions of SD will be important. According to interviewee E2, "*The importance assigned to each dimension depends on the type of company and its needs, so it is essential to prepare future professionals in this comprehensive perspective. However, the environmental dimension is clearly the most explored dimension and the one that has the greatest presence in companies, due to the times we live in and, therefore, all the appeals that arise within these issues.*"

Interviewee E1 explains, *"Because it is a less addressed dimension, it will be necessary to draw attention to the social aspects of companies and to the importance of disclosing information on this dimension"*. E2 says, *"The issues related to the reporting of social concerns represent a greater difficulty, as it is a more qualitative aspect that professionals are not yet prepared for."*

As both interviewees mentioned, accounting standards also contribute to the preponderance of the environmental dimension since there is an accounting standard for financial reporting on this matter (NCRF 26 - Environmental Matters) and the fact that it is a matter for which it is easier to find indicators.

Regarding question 3, both interviewees mentioned that there is still no approach or a clear commitment to this pedagogical aspect. According to E2, *"HEI have introduced very little (in the curricula) on this topic and what is introduced is optional, as it is not yet a compulsory requirement in HEI, just as it is not compulsory for access to the profession."* Both E1 and E2 are of the opinion that, as this is an area that has recently undergone a major evolution, HEI should focus on the integration of this subject in the curricula, perhaps through a semester

course unit that addresses these aspects in depth and especially the issue of reporting, which should include mostly the non-financial reporting component.

Concerning question 4, as mentioned by E2, the training of professionals on this topic "is still far beyond what is necessary", adding, *"This situation has not yet materialized as a requirement, because in the exam for access the profession there is still no mention of this topic."*

For E1, *"[...] even with Decree-Law 89/2017, there are still few companies required to disclose this type of information. As soon as this obligation is extended to a larger number of companies, we hope that there will be cooperation between the Institute and the HEI, so that topic is introduced in the curricula, ensuring future professionals these competencies and, consequently, that topic will be introduced in the entrance exam to the profession."*

Concerning question 5, for interviewee E1, the TSD subjects for future accounting professionals should be compulsory and strategic and, therefore, should be an essential item on the agenda, both for HEI and Professional regulators, and this process should start as soon as possible. Interviewee E2, in turn, explains that it is not yet possible to create this type of teaching as an obligation, but his institution will do everything in its power to introduce this subject in the curricula and the entrance examination for the profession. Both interviewees consider that the relevance of this theme nowadays provides an opportunity to integrate TSD into the curricula to provide future professionals with the knowledge for the challenges of SD.

Finally, both interviewees consider it essential to reflect on which SD matters should be brought to the attention of future and current professionals, as this subject will undoubtedly be as relevant as financial information in the future. In general, Professional regulators will play a fundamental role in this paradigm shift and should take the initiative, both political and legislative, in preparing and framing the disclosure of non-financial information and ensuring that it is verifiable and reliable.

In addition to the interviews, the results of the content analysis of the documents and videos, available on the websites and social networks of the Professional regulators, led to the conclusion that the OCC has paid attention to these issues, although it is still at an early stage. The OROC involvement still seems to be incipient.

By analyzing 24 OROC technical journals, published between 2017 and July 2021, only references to participation in events were found. Some examples are: the CMVM (Portuguese Stock Exchange) annual conference - "Sustainable Finance: The Road Ahead" (2018); XIII Congress of the ROCs (2019) where, among the various topics addressed, the "European Commission programme on the promotion of Sustainable Finance" was highlighted; and the conference "Sustainability and Non-financial Reporting" (2021) organized jointly with the OCC and the Accounting Standards Commission (CNC).

In the case of the OCC, of the 54 technical magazines analyzed, some news about the OCC participation in events and several articles on the subject presented in table 10 were found, in addition to other information or news disseminated outside the magazine. Many actions carried out by the OCC under this theme began in 2019 with the aim of starting a process of raising awareness, support, and encouragement on the new positioning of professionals for the reporting of environmental, social, and economic issues. We were supposed to continue this process in 2020 and beyond, as mentioned by the President of the Republic: "*I believe we are on the right track, but we need to move forward in what users want and need, in a logic of sustainability and future of companies.*" Due to the Covid-19 pandemic, however, this bet was postponed due to the occupation of professionals in actions to support companies in this pandemic phase.

Table 10- Publications in the "Contabilista" magazine

Publication date	Publication format	Topic
February /17	Article	Sustainability reporting
May/17	Article	The evolution of financial reporting and the growing importance of disclosure
June /17	News	Council of Ministers Communiqué of 22 June 2017 - EU Directive - Non-financial information | STA rulings
November /17	News	XVI International Congress on Accounting and Auditing - From academia to the profession
July /18	Article	Integrated reporting: The future? An opportunity or a mirage?
September /18	News	XVIII AECA International Meeting "The certified accountant and non-financial information."
November /18	News	GECAMB- Environmental management and accounting at conference - "Accountants and the reporting of financial and non-financial information."
January/19	News	Financial and non-financial reporting
February /19	Article	The non-financial statement and corporate social responsibility
March /19	News	Non-financial Information Report: Equality as a competitive strategy for companies

Publication date	Publication format	Topic
March /19	News	Non-financial reporting
March /19	News	Conference on financial and non-financial corporate reporting
December /19	Article	How long will there be non-binding guidelines for reporting non-financial information?
February /20	Article	The challenges of GRI sustainability reports in the pursuit of sustainable development goals
February /20	Article	The globalization of accounting, the dematerialization of information and the millennial generation: is accounting education prepared for change?
July /20	Article	Accounting as an environmental information system
September /20	Article	The needs for non-financial information and the possibilities of contribution of management accounting

Source: Prepared by the authors

With the diversity of news and articles that the OCC agrees to publish on the subject, we can see that the OCC is already concerned with the dissemination of this issue among professionals.

In turn, from the analysis of the 25 videos of online training courses, conferences, and meetings, only six actions were found where the themes of Sustainability, Sustainable Development or Reporting were addressed (Table 11).

Table 11: OCC online conferences

Event Date	Theme
July/20	The training of professionals: the contribution of the academy
July/20	Accounting - The effects of the crisis on financial information and reporting
October/20	Education: Future accounting professionals
November/20	The relevance of financial reporting for the business world in Portugal
May/21	Sustainability and Non-financial Reporting
June/21	The debt market and sustainable finance

Source: Prepared by the authors

In the OCC 2020 online conferences entitled "The training of professionals: the contribution of academia" and "Teaching: The future accounting professionals", the close work that the OCC has maintained with academia and the importance of the Professional regulator’s contribution to the preparation of future professionals were highlighted.

5. Discussion and conclusion

This study analyzed this study the importance of the subjects taught on Sustainable Development in Accounting and Management courses for the performance of future professionals, accountants, and auditors. It considers both the students and the Professional regulators perspectives, seeking, regarding the latter, to investigate their contribution to the integration of SD subjects in Accounting and Management courses.

Initially, the results of a questionnaire sent to students of Accounting and Management courses in Portuguese HEI regarding the importance attributed to issues related to SD for the future profession were analyzed.

Ng and Burke (2010) showed that apparently, Business School students' interest was still very closely related to economic issues, i.e., that they would be interested only in company profit. However, and as in the Sharma and Kelly (2014) study, our results show that students understand that knowledge about SD issues is very important for their future profession, which entails making decisions not only reflecting on the economic pillar but also on the social and environmental pillar.

This interest on the part of students can have important implications for motivating them to acquire skills for accounting procedures, auditing and reporting on SD (Wyness and Dalton, 2018) and, in turn, contribute to shaping curricula not only towards an economic but also a social and environmental aspect.

Regarding the importance of the SDGs for their future profession, the results show that, although all are considered important, the following SDGs were highlighted as of greater concern by students: issues related to sustainable production and consumption patterns; sustainable water management and sanitation (Makarenko and Plastun, 2017); combating climate change and its impacts (Cho et al., 2020); and protecting and recovering terrestrial and marine life.

In turn, these results diverge from the results obtained by Zamora-Polo et al. (2019), in the case of the SDGs related to healthy living and the promotion of well-being; economic growth, employment, and decent work; building resilient infrastructure and promoting sustainable industrialization and innovation, to which students attach greater importance.

Based on the classification of the SDGs into three factors, we found that the dimension to which students attach the most importance is the environmental dimension. These results find support in several authors (e.g., Kagawa, 2007; Larrán et al., 2018; García-González et al., 2020; Aleixo et al., 2018) who also found that students tend to associate SD with environmental issues.

As Larrán et al. (2018), in this study the social dimension of the SDGs is the one to which students attach the least importance. These results reinforce the need for the valorization of this social dimension to increase awareness and skills in sustainability in these areas in future professionals (Franco et al., 2019; Owen, 2013).

By analyzing the level of agreement on the various opportunities that TSD offers students for their future professional life, as well as the importance of this subject for their future profession, we conclude that students consider the subject of SD and the teaching of subjects about SD, in general, will bring advantages both for their integration in the labor market and for the exercise of their future functions.

Accordingly, we have concluded that students are interested in subjects about SD and that HEI will have a fundamental role in contributing to their knowledge with the TSD that will allow them to respond to the challenges of SD in their future professional life.

Several factors may influence students' perceptions of SD. García-González et al. (2020) argue that the teaching in HEI influences their knowledge and actions towards SD. In general, we found that knowledge about SD topics positively influences the importance students assign to the teaching on SD that provides them with the acquisition of knowledge and skills for the exercise of their future profession.

The results showed the high interest of students in SD for their future profession. More than 94% of the respondents rated sustainability for their professional lives as extremely important. Taking into account the stakeholder theory, HEI are expected to respond to students' interests and consider these an opportunity to teach SD subjects (Nagy and Somosi, 2020). Students' preferences shape HEI behavior, contributing to the integration of the TSD in the syllabus of the curricula of Accounting and Management courses in Portuguese HEI.

In regard to the results of the interviews and the document analysis, we found that from the Professional regulators point of view, there is a great openness towards this issue,

which is considered fundamental in the profession. It was observed that a path has already been started, particularly by the OCC with the professionals. The alignment of Professional regulators with HEI on SD has taken timid steps, but there is an awareness that it is essential to prepare future professionals to deal with these matters, as concluded by Rezaee (2016), and non-financial reporting in companies, in particular (Owen, 2013).

Although it is acknowledged that there is still much to be done, the OCC concern with the issue of SD among HEI and professionals has been more visible than that of OROC. Perhaps because the work carried out by professionals starts in the accounting area with the production and interpretation of the information and later in the auditing area with the revision of this information; however, both Professional regulators recognize the importance of this topic and its contribution to the practices adopted in companies and HEI.

Based on the analysis of several publications, training actions, videos of conferences, meetings, and trainings, and confronting the results of the interviews, this information also shows that national Professional regulators have expressed concern and have tried to create environmental and social awareness for sustainability among professionals. This topic is becoming a greater reality in companies, and it is expected that, in the short term, non-financial reporting will become mandatory for a larger number of companies.

Although the close work that Professional regulators have maintained with the academia and the importance of their contribution in the preparation of future professionals are recognized in many actions, there is still a need for a more accentuated and closer collaboration with HEI. This approach would allow the alignment of curricula to guarantee training in this area, which prepares students to report and audit information on how the company acts in the different dimensions of SD.

According to several authors (e.g., Bebbington and Larrinaga, 2014; Boulianne and Keddie, 2018; Rezaee, 2016; Sharma and Kelly, 2014) there is a growing need in society and business for professionals to have knowledge and skills related to SD. So, it is urgent that the teaching of accounting and management be updated to meet the new and future demands of the profession, as current students will be the future professionals in the companies and the preparers of the non-financial report for the various stakeholders. The Professional regulators must contribute to integrating this SD theme and collaborate with HEI to reformulate the curricula of the accounting and management areas coherently to prepare future professionals.

This study shows that Portuguese Professional regulators consider it is essential for the accounting and auditing profession that future professionals are prepared for the challenges of SD, as well as for the preparation and auditing of non-financial information. As previously mentioned, they are the link between Business Schools, professionals, and the labor market in general. Accordingly, HEI teaching policies may change, considering the contribution of these stakeholders, who can help in the integration of TSD, while responding to the needs of companies and meeting the challenges of SD.

With this work we hope to contribute, in general, to a reflection on the topic of SD and the increase of studies on the subject. Specifically, it is hoped that the results of the article will help in the reflection and collaboration between HEI and Professional regulators, contributing to changes and improvements in the integration of the TSD in the curricula in Accounting and Management courses.

In the current context, considering the socio-economic damage caused by the Covid 19 pandemic, now would be the right time to make a significant start in this whole process of integrating SD subjects in the curricula towards a sustainable, inclusive and fair recovery.

The study is also expected to make a positive contribution to the future of accounting professionals and ultimately help companies get competent professionals to support their management and all stakeholders.

As HEI are considered a key element in achieving the SDGs, this study is expected to be a contribution to the achievement of the SDGs by 2030, as proposed by Franco et al. (2019).

This research enriches the study of the topic, providing contributions not only at a theoretical level, but also from a perspective of practical applicability, likewise contributing to the literature on the TSD, presenting evidence with practical contributions, both for higher education institutions that teach accounting and management courses and for the regulatory body of the profession, contributing to political and educational decision-making on this topic.

Given the national scope of the study, the results are applicable only to the Portuguese context with students in the areas of Accounting and Management at national HEI and Professional regulators. Future research may be applied in the European context and possibly make a comparison between different countries. Future research could also assess the perception of accounting and auditing professionals on the importance of non-financial reporting in companies and their contribution to this process.

Future work could develop more holistic tools to study students' perceptions (Lambrechts et al., 2018) or even analyze teachers' perceptions on this topic (Botes et al., 2014) because, as Boulianne and Keddie (2018) point out, teachers' lack of knowledge represents one of the barriers to integrating SD into curricula.

References

Adomßent, M., Fischer, D., Godemann, J., Herzig, C., Otte, I., Rieckmann, M., & Timm, J. (2014). Emerging areas in research on higher education for sustainable development – management education, sustainable consumption and perspectives from Central and Eastern Europe. Journal of Cleaner Production, 62, 1–7. https://doi.org/10.1016/j.jclepro.2013.09.045

Aleixo, A. M., Leal, S., & Azeiteiro, U. M. (2018). Conceptualization of sustainable higher education institutions, roles, barriers, and challenges for sustainability: An exploratory study in Portugal. Journal of Cleaner Production, 172, 1664–1673. https://doi.org/10.1016/j.jclepro.2016.11.010

Alonso-Almeida, M. del M., Marimon, F., Casani, F., & Rodriguez-Pomeda, J. (2015). Diffusion of sustainability reporting in universities: current situation and future perspectives. Journal of Cleaner Production, 106, 144–154. https://doi.org/10.1016/j.jclepro.2014.02.008

Amaral, A. & Magalhães, A. (2002): The emergent role of external stakeholders in European higher education governance. In: Amaral, A.; Jones, G.; Karseth, B. (EDs.): Governing higher education: National perspectives on institutional governance, (pp.1-21. Kluwer: The Netherlands.

Anastasi, A. (1990). Psychological testing. New York: McMillan.

Annan-Diab, F., & Molinari, C. (2017). Interdisciplinarity: Practical approach to advancing education for sustainability and for the Sustainable Development Goals. The International Journal of Management Education, 15, 73–83. https://doi.org/http://dx.doi.org/10.1016/j.ijme.2017.03.006

Bardin, L. (2011), Análise Conteúdos. Lisboa, Edições 70

Bebbington, J., & Larrinaga, C. (2014). Accounting and sustainable development: An exploration. Accounting, Organizations and Society, 39(6), 395–413. https://doi.org/10.1016/j.aos.2014.01.003

Bebbington, J., & Unerman, J. (2018). Achieving the United Nations Sustainable Development Goals: An enabling role for accounting research. Accounting, Auditing and Accountability Journal, 31(1), 2–24. https://doi.org/10.1108/AAAJ-05-2017-2929

Beddewela, E., Warin, C., Hesselden, F., & Coslet, A. (2017). Embedding responsible management education – Staff, student and institutional perspectives. International Journal of Management Education, 15(2), 263–279. https://doi.org/10.1016/j.ijme.2017.03.013

Blasco, N., Brusca, I., & Labrador, M. (2021). Drivers for universities' contribution to the sustainable development goals: An analysis of Spanish public universities. Sustainability (Switzerland), 13(1), 1–19. https://doi.org/10.3390/su13010089

Botes, V., Low, M., & Chapman, J. (2014). Is accounting education sufficiently sustainable? Sustainability Accounting, Management and Policy Journal, 5(1), 95–124. https://doi.org/10.1108/SAMPJ-11-2012-0041

Boulianne, E., & Keddie, L. (2018). Where Is Sustainability within the Canadian CPA Education Program Education, Regulation, Reporting and Stakeholders. Advances in Environmental Accounting & Management, 7, 71–112. https://doi.org/10.1108/S1479-359820180000007004

Boulianne, E., Keddie, L. S., & Postaire, M. (2018). (Non) coverage of sustainability within the French professional accounting education program. Sustainability Accounting, Management and Policy Journal. https://doi.org/10.1108/SAMPJ-09-2017-0119

Burritt, R. L., & Schaltegger, S. (2010). Sustainability accounting and reporting: fad or trend? Accounting, Auditing & Accountability Journal, 23(7), 829–846. https://doi.org/DOI 10.1108/09513571011080144

Ceulemans, K., Prins, M. De, Cappuyns, V., & Coninck, W. De. (2010). Integration of Sustainable Development in Higher Education´s Curricula of Applied Economics: Large Scale Assessments, Integration Strategies and Barriers. In Journal of Management and Organization: Vol. 17(5) (pp. 621–640).

Cho, C. H., Kim, A., Rodrigue, M., & Schneider, T. (2020). Towards a better understanding of sustainability accounting and management research and teaching in North America: a look at the community. Sustainability Accounting, Management and Policy Journal, 11(6), 985–1007. https://doi.org/10.1108/SAMPJ-08-2019-0311

Christ, K. L., & Burritt, R. L. (2019). Implementation of sustainable development goals: The role for business academics. Australian Journal of Management, 44(4), 571–593. https://doi.org/10.1177/0312896219870575

Clarkson, M. B. E. (1995). A Stakeholder Framework for Analyzing and Evaluating Corporate Social Performance. Academy of Management Review, 20(1), 92–117.

Cooper, S., Parkes, C., & Blewitt, J. (2014). Can accreditation help a leopard change its spots?: Social accountability and stakeholder engagement in business schools. Accounting, Auditing and Accountability Journal, 27(2), 234–258. https://doi.org/10.1108/AAAJ-07-2012-01062

Creel, T., & Paz, V. (2018). Teaching Sustainability in an Accounting Classroom. Discourse and Communication for Sustainable Education, 9(1), 79–85. https://doi.org/10.2478/dcse-2018-0006

Degtjarjova, I., Lapina, I., & Freidenfelds, D. (2018). Student as stakeholder: "voice of customer" in higher education quality development. Marketing and Management of Innovations, 2, 388–398. https://doi.org/10.21272/mmi.2018.2-30

DeVellis, R.F. (1991). Scale Development. Theory and applications. London: Sage Publications.

Domingos, A. M. C. R. (2017). As competências gerais e específicas desenvolvidas nos cursos de contabilidade do 1.o ciclo do ensino superior em Portugal: perceções dos estudantes finalistas, dos docentes de contabilidade e dos contabilistas certificados. Tese de Doutoramento Em Gestão, Universidade Lusíada de Lisboa. http://hdl.handle.net/11067/3709

Eugénio, T. (2011). Contabilidade Ambiental. Lisboa: Edições Verlag Dashofer

Farashahi, M., & Tajeddin, M. (2018). Effectiveness of teaching methods in business education: A comparison study on the learning outcomes of lectures, case studies and simulations. The International Journal of Management Education, 16, 131–142.

Filho, W. L., Wu, Y.-C. J., Brandli, L. L., Avila, L. V., Azeiteiro, U. M., Caeiro, S., & Madruga, L. R. da R. G. (2017). Identifying and overcoming obstacles to the implementation of sustainable development at universities. Journal of Integrative Environmental Sciences, 14(1), 93–108. https://doi.org/10.1080/1943815X.2017.1362007

Filho, W. L., Shiel, C., Paço, A., Mifsud, M., Ávila, L. V., Brandli, L. L., Molthan-Hill, P., Pace, P., Azeiteiro, U. M., Vargas, V. R., & Caeiro, S. (2019). Sustainable Development Goals and sustainability teaching at universities: Falling behind or getting ahead of the pack? Journal of Cleaner Production, 232, 285–294. https://doi.org/10.1016/j.jclepro.2019.05.309

Filho, W. L., Frankenberger, F., Salvia, A. L., Azeiteiro, U., Alves, F., Castro, P., Will, M., Platje, J., Lovren, V. O., Brandli, L., Price, E., Doni, F., Mifsud, M., & Ávila, L. V. (2021). A framework for the implementation of the Sustainable Development Goals in university programmes. Journal of Cleaner Production, 299, 126915. https://doi.org/10.1016/j.jclepro.2021.126915

Findler, F. (2021). Toward a sustainability assessment framework of research impacts: Contributions of a business school. Sustainable Development, June. https://doi.org/10.1002/sd.2218

Franco, I., Saito, O., Vaughter, P., Whereat, J., Kanie, N., & Takemoto, K. (2019). Higher education for sustainable development: actioning the global goals in policy, curriculum, and practice. Sustainability Science, 14(6), 1621–1642. https://doi.org/10.1007/s11625-018-0628-4

Freeman, R.E. (1984) Strategic Management: Stakeholder Approach Pitman, Boston, MA

Freeman, R. E., Harrison, J. S., Wicks, A. C., Parmar, B. L., & De Colle, S. (2010). Stakeholder theory: The state of the art. Cambridge University Press.

García-González, E., Jiménez-Fontana, R., & Goded, P. A. (2020). Approaches to teaching and learning for sustainability: Characterizing students' perceptions. Journal of Cleaner Production, 274, 122928. https://doi.org/10.1016/J.JCLEPRO.2020.12292

Getachew, T. (2018). Quantitative skill retention and curriculum integration in a typical business school in the United States A student perspective.pdf. The International Journal of Management Education, 16, 292–308. https://doi.org/10.1016/j.ijme.2018.04.004

Gomes, S.F., Jorge, S. and Eugénio, T. (2021), "Teaching sustainable development in business sciences degrees: evidence from Portugal", Sustainability Accounting, Management and Policy Journal, Vol. 12 No. 3, pp. 611-634. https://doi.org/10.1108/SAMPJ-10-2019-0365

Hsieh, H.F., & Shannon, S. E. (2005). Three Approaches to Qualitative Content Analysis. Qualitative Health Research, 15(9), 1277–1288. https://doi.org/10.1177/1049732305276687

IFAC (2019). International Education Pronouncements. New York; NY: IFAC. https://www.ifac.org/system/files/publications/files/Handbook-of-International-Education-Standards-2019.pdf

Kagawa, F. (2007). Dissonance in students' perceptions of sustainable development and sustainability. International Journal of Sustainability in Higher Education, 8(3), 317–338. https://doi.org/10.1108/14676370710817174

Kelly, M., & Alam, M. (2009). Educating Accounting Students in the Age of Sustainability. The Australasian Accounting Business & Finance Journal, 3(4), 30–45.

Kolb, M., Frohlich, L., & Schmidpeter, R. (2017). Implementing sustainability as the new normal: Responsible management education e from a private business school' s perspective. The International Journal of Management Education, 15, 280–292.

KPMG (2020) – The time has come: The KPMG of Sustainability Reporting 2020 - KPMG International. Consult. 9 junho 2020 https://assets.kpmg/content/dam/kpmg/xx/pdf/2020/11/the-time-has-come.pdf

Lacy, P., Cooper, T., Hayward, R., & Neuberger, L. (2010). A New Era of Sustainability UN Global Compact-Accenture CEO Study 2010.

Lambrechts, W., Ghijsen, P. W. T., Jacques, A., Walravens, H., Liedekerke, L. Van, & Petegem, P. Van. (2018). Sustainability segmentation of business students: Toward self- regulated development of critical and interpretational competences in a post-truth era. Journal of Cleaner Production, 202, 561–570. https://doi.org/10.1016/j.jclepro.2018.07.303

Larrán, M., Andrades, J., & Herrera, J. (2018). An examination of attitudes and perceptions of Spanish business and accounting students toward corporate social responsibility and sustainability themes. Revista de Contabilidad – Spanish Accounting Review, 21(2), 196–205.

Lourenço, F., Jones, O., & Jayawarna, D. (2013). Promoting sustainable development: The role of entrepreneurship education. International Small Business Journal, 31(8), 841–865. https://doi.org/10.1177/0266242611435825

Makarenko, I., & Plastun, A. (2017). The role of accounting in sustainable development. Accounting and Financial Control, 1(2), 4–12.

Marôco, J. (2018). Statistical Analysis with SPSS Statistics (ReportNumber (ed.); (7th Edition).

Mitroff, I. I. (1983). Stakeholders of the organizational mind. In Jossey-Bass San Francisco. https://doi.org/10.1177/0885066610366936

Nagy, S., & Somosi, M. V. (2020). Students' perceptions of sustainable universities in Hungary: An importance-performance analysis. Amfiteatru Economic, 22(54), 496–515. https://doi.org/10.24818/EA/2020/54/496

Ng, E. S., & Burke, R. J. (2010). Predictor of Business Students ' Attitudes Toward Sustainable Business Practices. Journal of Business Ethics, 95, 603–615. https://doi.org/10.1007/s10551-010-0442-0

Ngwakwe, C. C. (2012). Rethinking the Accounting Stance on Sustainable Development. Sustainable Development, 20, 28–41. https://doi.org/10.1002/sd.462

'Brien, W., & Sarkis, J. (2014). The potential of community-based sustainability projects for deep learning initiatives. Journal of Cleaner Production, 62, 48–61. https://doi.org/10.1016/j.jclepro.2013.07.001

Owen, G. (2013). Integrated Reporting: A Review of Developments and their Implications for the Accounting Curriculum. Accounting Education, 22(4), 340–356. https://doi.org/10.1080/09639284.2013.817798

Post, J. E., Preston, L. E., & Sybille Sachs. (2002). Managing the Extended Enterprise: The New Stakeholder View. California Management Review, 45(1), 6–28. https://doi.org/10.2307/41166151

Rezaee, Z. (2016). Business sustainability research: A theoretical and integrated perspective. Journal of Accounting Literature, 36, 48–64. https://doi.org/10.1016/j.acclit.2016.05.003

Rezaee, Z. (2017). Corporate Sustainability: Theoretical and Integrated Strategic Imperative and Pragmatic Approach. The Journal of Business Inquiry, 16(1), 60–87. http:www.uvu.edu/woodbury/jbi/articles

Rieckmann, M. (2012). Future-oriented higher education: Which key competencies should be fostered through university teaching and learning? Futures, 44(2), 127–135. https://doi.org/10.1016/j.futures.2011.09.005

Rosati, F., & Faria, L. G. D. (2019). Business contribution to the Sustainable Development Agenda: Organizational factors related to early adoption of SDG reporting. Corporate Social Responsibility and Environmental Management, 26(3), 588–597. https://doi.org/10.1002/csr.1705

Saravanamuthu, K. (2015). Instilling a sustainability ethos in accounting education through the Transformative Learning pedagogy: A case-study. Critical Perspectives on Accounting, 32, 1–36. https://doi.org/10.1016/j.cpa.2015.05.008

Schaltegger, S., Etxeberria, I. Á., & Ortas, E. (2017). Innovating Corporate Accounting and Reporting for Sustainability – Attributes and Challenges. Sustainable Development, 25(2), 113–122. https://doi.org/10.1002/sd.1666

SDSN. (2017). Getting started with the SDGs in universities: A guide for universities, higher education institutions, and the academic sector. Australia, New Zealand, and Pacific Edition (p. Sustainable Development Solutions Network – Austra).

Sharma, U., & Kelly, M. (2014). Students' perceptions of education for sustainable development in the accounting and business curriculum at a business school in New Zealand. Meditari Accountancy Research, 22(2), 130–148. https://doi.org/10.1108/MEDAR-12-2012-0042

Thomas, M. T. (2018). Developing a capstone course on ecological and social sustainability in business education. Business Horizons, 61(6), 949–958. https://doi.org/10.1016/j.bushor.2018.07.013

Trkman, P. (2019). Value proposition of business schools: More than meets the eye. International Journal of Management Education, 17(3), 100310. https://doi.org/10.1016/j.ijme.2019.100310

UNESCO. (2017). Education for sustainable development goals: Learning Objectives.

Weybrecht, G. (2017). From challenge to opportunity- Management education's crucial role in sustainability and the Sustainable Development Goals-An overview and framework. International Journal of Management Education, 15, 84–92. https://doi.org/10.1016/j.ijme.2017.02.008

Williams, B. R. (2015). The local Government accountants' perspective on sustainability. Sustainability Accounting, Management and Policy Journal, 6(2), 267–287. https://doi.org/10.1108/SAMPJ-07-2014-0043

Wyness, L., & Dalton, F. (2018). The value of problem-based learning in learning for sustainability: Undergraduate accounting student perspectives. Journal of Accounting Education, 45, 1–19. https://doi.org/10.1016/j.jaccedu.2018.09.001

Zamora-Polo, F., Sánchez-Martín, J., Corrales-Serrano, M., & Espejo-Antúnez, L. (2019). What do university students know about sustainable development goals? A realistic approach to the reception of this UN program amongst the youth population. Sustainability (Switzerland), 11(13), 1–19. https://doi.org/10.3390/su11133533

GENERAL CONCLUSION

The reform of courses and curricula offer an opportunity to produce the desired changes in teaching programs, providing a natural basis for reviewing existing practices and updating learning outcomes in order to achieve the world sustainable development. In response to OECD and SDG calls, this will be a process to be undertaken as soon as possible, however, integrating TSD into curricula in HEI remains a challenge.

As highlighted throughout this PhD thesis, in HEI, a new perspective of ESD and TSD has led to greater openness in their activity to society and all those around them. Reinforcing the need for HEI to know and meet the effective needs of their stakeholders, namely students, employers, and Professional regulators.

The literature proves the lack of studies that address the integration of TSD in academic curricula; studies that analyze the perception of students about SD and TSD and the contribution of students and Professional regulators to the integration of this topic in curricula, so these topics are still scarce. This thesis contributes to this gap and to understand the current state on the integration of TSD in HEI, the precession on SD, SDGs and TSD from the perspective of students and the Portuguese Professional regulators.

Thus, considering three research topics, we started by identifying the current state of the integration of the TSD in HEI in accounting and management courses in Portugal (paper 1). Then, the students' perception on sustainable development, the importance given to this topic and the teaching on these subjects (paper2). Finally paper 3 analyze the importance of this topic for students' professional life and the performance of their functions as future professionals, accountants and auditors. In this last article, we intend to analyze not only the students' perspective but also the Professional regulators perspective and understand how they can contribute to integrating these subjects in the curricula, in order to prepare future professionals for the demands of the labor market in sustainable development issues.

This general conclusion chapter summarizes the main findings of the thesis, answering the research questions established for the hole study. In addition, it also presents the core contributions and practical implications, as well as limitations and perspectives for future research.

1. Main findings

Each different paper, that composes this thesis, allow to provide different main findings that converge to a multidimensional analysis of the Portuguese context regarding to sustainable development in HEI in Business sciences.

As the UN acknowledges that education is a considerable instrument of change for adopting more integrated forms of SD, HEI is seen as crucial stakeholders in such change. Paper I aimed to analyze the current state of implementation of SD in the academic curricula of Business Sciences, in Accounting and Taxation and Management and Business Administration courses. The web pages of all public HEI with bachelor and master's degrees in Portuguese Business Sciences courses were analyzed to obtain curricula and syllabus. Content analysis was performed on each of these elements in Accounting and Taxation and Management and Business Administration courses. The study showed that despite the fact that in about 48.5% of the courses this theme is already addressed, given the need and urgency of a response to the SD challenges, there is still significant work to be developed and it would be essential to integrate this theme in more curricular units.

The degree of success in addressing SD issues and promoting SD and SDGs depends largely on educational standards. It is necessary to increase the awareness and skills of students, future accountants in these matters, helping companies and future decision-makers to adapt to the new SD challenges. Paper II aimed to apprehend about the knowledge and perception of future professionals enrolled in business science courses at Portuguese HEI, and also to evaluate to what extent the demographic or academic profile discriminates the knowledge and perception of students in relation to SD.

This study explores the views on Sustainable Development of master's and undergraduate students of Accounting and Taxation and Management and Administration courses at Public HEI in Portugal. Data were collected through a questionnaire, and descriptive and inferential statistical techniques were used to process the responses of a sample of 370 students.

Given the importance of students and knowledge of this new paradigm of SD in business and society, we analyzed their knowledge on this topic and whether it varies according to their demographic and academic profile. The main findings show that future professionals welcome significant knowledge about SD as for SDGs, and we found that they

attach more importance to the environmental dimension. Students, in general, consider SD education as an essential contribution to their personal and professional life, and only 38.6% (n=143) stated that this topic was addressed in the curricula of the HEI they attended.

The results also show that female students of Portuguese nationality, aged 32 years old or older, full-time Master's degree students in Management and Administration, attending the 1st year of the Master's degree and the 3rd year of the BSc degree, perceived to have more knowledge about SD. Based on the distribution of the 17 SDGs among the environmental, economic and social dimensions, we confirm that the women are the ones that give more importance to issues related to the environment.

The European Parliament recognized the need for companies to disclose information on sustainability, drafting the Directive 2014/95/EU of the Parliament and Council of October 22, 2014. This Directive was transported to the Portuguese context by Decree-Law No. 89/2017 of July 28, 2017, which aims to promote the disclosure of non-financial information by large companies, reducing the problems associated with comparability, credibility and effectiveness not achieved with the disclosure of non-financial information. Paper III aimed to analyze the importance of the subjects taught on Sustainable Development, in Accounting and Management courses, for the performance of future professionals, accountants and auditors. It considers both the students' and the Professional regulators´ perspectives, seeking to investigate their contribution to integrating SD topics in the curricula of Accounting and Management courses.

A questionnaire was applied to collect information from students. From the perspective of Professional regulators, interviews were conducted with the heads of the Portuguese Professional regulators. We also used content analysis to collect information from technical journals and other types of publications, training activities, videos of conferences, meetings, and training sessions, available on these entities' official websites and social networks.

The results show that students consider that knowledge about SD is fundamental for their professional future. We found that the social dimension is the dimension that students consider of least importance in the business context.

We conclude that there is still low interaction between the Professional regulators and the HEI for the integration of TSD; however, they have expressed a concern to create

awareness in professionals on the subject. This collaboration would enable the alignment of curricula to ensure training that prepares future accountants and auditors to produce, interpret and review information from companies about their performance in the different dimensions of SD (environmental, social, and economic).

In general, this study points to the urgent need for accounting and management education to be updated to meet the new and future demands of the accounting and auditing profession. Awareness-raising work is needed for future and current professionals, among preparers of non-financial information and auditors.

HEI and Professional regulators must consider that this theme should be integrated into the curriculum in the short term in an urgent perspective to prepare future professionals for the challenges of SD and achieve the SDGs by 2030.

This conclusion is in line with the recommendation of the International Accounting Education Standards Board (IAESB), future accountants should learn to: ”Analyze financial and non-financial data to provide relevant information for management decision making”; “Prepare reports to support management decision making, including reports that focus on planning and budgeting, cost management, quality control, performance measurement, and benchmarking”, and “Interpret reports that include non-financial data, for example, sustainability reports and integrated reports”[1].

The need for stakeholders to participate in the change process implies that they can contribute to this change according to their needs. In this sense, the contribution of students and professional regulators as stakeholders is seen as fundamental to shape the curricula according to their needs, contributing to the integration of TSD in the curricula of Accounting and Management courses.

2. Contributions and implications for practice

This research enriches the study of SD in business area, providing contributions at a theoretical level and practical applicability, contributing equally to the literature on the TSD.

[1] https://www.ifac.org/system/files/publications/files/IAESB-IES-2-%28Revised%29_0.pdf Acessed in 11/10/2021

This thesis is composed of a set of three research papers. By using a variety of methodologies (qualitative and quantitative), as well as the perspective of stakeholder theory in the research process, the study contributes to a better understanding of the integration of the TSD in HEI in Portugal framed from the perspective of several stakeholders, among them, students, and Professional regulators.

In accordance with the UN approach on the responsibility assigned to HEI for achieving the SDGs, the results of paper I show that TSD is increasingly important due to increasing globalization, that requires qualified professionals to assess the complex and controversial business environmental to achieve and implement the SDGs into 2030.

As found previously the Accounting and Management courses will be an important contribution to the integration of SD, not only in the lives of professionals and companies but also in society.

This study brings good implications for society while showing that sustainability content is becoming more apparent in HEI accounting and management courses. This could be used to create follow-up research on what kind of sustainability content is being included in courses and the changes that happens in students regarding this sustainability content.

The results of Paper II, contribute to the debate on improvements and strengthen the teaching on SD which gains even more relevance in the current pandemic context. It also provides valuable information for the future implementation of sustainability embedding processes in HEI and gives contributions for a better future articulation between companies and the education system that brings sustainability into the accounting language.

In line with the UN approach on the responsibility assigned to HEI for the achievement of the SDGs, these findings point to the need for curricula to be updated and adjusted to the context of ESD in the environmental, social and economic dimensions.

This study is the first to identify Portuguese students' knowledge and perception about SD and SDGs, the importance of TSD and the topics they consider that should be integrated into the curricula. Specifically for students who have already learned about these topics in their courses, topics have been integrated in the curricula of Accounting and Taxation and Management and Administration courses.

Paper III shows important implications for the performance of HEI and Professional regulators, enhancing and contributing to the debate about improvements for the TSD in the Business Sciences area and the design of future training processes.

Accounting education is a subject that is rapid changing due to the pressures of increasingly competitive and evolving global markets. A paradigm shift is imperative in companies and in the preparation of information to meet the needs of stakeholders. These changes should include the participation of Professional regulators who will play a key role in implementing this new reality in professionals and companies.

This study draws on stakeholder theory which contributes to a better understanding of the influence of internal (students) and external (Professional regulators) stakeholders on the integration of the TSD. The study may also motivate a sharper integration of the TSD and may thus help students in their professional performance in the management of companies, contributing to the achievement of the SDGs in general.

With a level of demand which is imposed current professionals in the exercise of their functions associated with accounting and management, given the challenges and needs of the global world in responding urgently to the problems and challenges of SD, the reformulation of curricula will indeed be a necessity. For this reformulation the involvement of the student's and Professional regulators will be highly relevant.

Considering the stakeholder theory, and based on the results of this study, HEI are expected to respond to students' interests and consider them as an opportunity to teach SD subjects. The students' preferences shape the HEI behavior, contributing to the integration of SD in the curricula of Accounting and Management courses in Portuguese HEI. Professional regulators are also one of the important stakeholders in HEI and, based on stakeholder theory, will play a key role in shaping the behavior of these organizations, contributing to the integration of TSD in the curricula of Accounting and Management courses.

Since HEI are considered an essential element for the achievement of SDGs, this study is expected to contribute to the achievement of SDGs by 2030 as Franco et al. (2019) calls. In the current context, taking into account the socio-economic damage caused by the Covid 19 pandemic, it will be the right time to start, in a significant way, this whole process of integration of SD subjects in the curricula towards a sustainable, inclusive and fair recovery. It

is also hoped that the study will contribute positively to the future of accounting professionals and ultimately help companies to get competent professionals to support their management and all stakeholders.

3. Limitations

During the research process some limitations appeared. For Paper I, the main constraint was the exhaustive process of data collection. The analysis of the contents of the curriculum resulted in a rigorous process because of the need to judgment in classifying the categories of information.

Other limitations include the fact that this is essentially an exploratory and descriptive study, lacking an additional analytical perspective. Also, it only covers accounting and management undergraduate and master's degrees (other areas would allow a more complete perspective on the TSD in HEI in Portugal).

For Paper II, we can point out three limitations. Once again, the main constraint was related to the exhaustive process of data collection. It was very difficult to obtain contacts for the dissemination of the questionnaires. Thus, the collection of responses to the questionnaire, besides being a demanding process because it was directed to students from HEI and specific courses, was also hampered by the Covid-19 pandemic, which limited the number of respondents and did not allow the more desired diversity of courses and institutions.

On the other hand, this is only an exploratory approach to the topic and not a longitudinal study. Also, this paper only involved students from Accounting and Management courses, which does not allow the results to be generalized to the whole higher education system in Portugal.

Paper III, there were difficulties in collecting responses to the questionnaire, as referred to paper II. Given the national scope of the study, the results only apply to the Portuguese context with students in Accounting and Management in HEI and national Professional regulators. This study is the first to identify Portuguese students' knowledge and perception about SD and SDGs, the importance of TSD and the topics they consider that should be integrated into the curricula. Specifically for students who have already learned about

these topics in their courses, topics have been integrated in the curricula of Accounting and Taxation and Management and Administration courses.

It is intended that this research work is a contribution to help HEI to design curricular profiles that align higher education in Accounting and Management with the current needs of organizations. In short, we believe that this thesis will serve as a basis and inspiration for future research, in the sense that it will increase knowledge on this important theme at a national and international level.

4. Opportunities for future research

Future research could be extended to more courses and to other European countries to make comparisons and analyze the integration of the TSD respectively in the whole national context and in the European Union.

As this study only involved the analysis of students' perceptions from Accounting and Management courses, future extensions could explore the perceptions of all students about SD in education and analyze their views on its contribution to their future professional life. Comparing the attitudes and perceptions of students from all areas of education in Portugal can provide valuable input. It could focus not only on the current situation but on the future of students in Portugal, given the new trends of companies' reorientation towards SD.

One of the elements also to be taken into account in this process will be the teachers, so as future research it would be important to also analyze their perspective and perception about TSD.

In the case of the Professional regulator’s perspectives, this study could be replicated in other countries to allow international comparisons. Such studies would help increase the global integration and harmonization of SD education and would require input from the profession's regulators.

Another suggestion could develop a more holistic tool to study students' perceptions as in Lambrechts et al. (2018) or even analyze teachers' perceptions of this topic as in Botes et al. (2014) because as Boulianne and Keddie (2018) mention teachers' lack of knowledge represents one of the obstacles to integrating SD into curricula.

References

Boulianne, E., & Keddie, L. (2018). Where Is Sustainability within the Canadian CPA Education Program Education, Regulation, Reporting and Stakeholders. Advances in Environmental Accounting & Management, 7, 71–112. https://doi.org/10.1108/S1479-359820180000007004

Botes, V., Low, M., & Chapman, J. (2014). Is accounting education sufficiently sustainable? Sustainability Accounting, Management and Policy Journal, 5(1), 95–124. https://doi.org/10.1108/SAMPJ-11-2012-0041

Lambrechts, W., Ghijsen, P. W. T., Jacques, A., Walravens, H., Liedekerke, L. Van, & Petegem, P. Van. (2018). Sustainability segmentation of business students: Toward self- regulated development of critical and interpretational competences in a post-truth era. Journal of Cleaner Production, 202, 561–570. https://doi.org/10.1016/j.jclepro.2018.07.303

APPENDIXES

Appendix 1 – Undergraduate and Master courses list - Paper 1

Curso	Ciclo	Tipo de IES	CNAEF	Incluído no Plano - SIM -1 NÃO - 0	Análise das UC- SIM -1 NÃO - 0	Ensina - SIM -1 NÃO - 0	Nome da UC - SIM -1 NÃO - 0	Nome da UC	Créditos	Capítulo - SIM -1 NÃO - 0	Tema - SIM -1 NÃO - 0	UC obri - 1 /opção - 0	ANO	SEMESTRE
Contabilidade	Licenciatura	Politécnico	Contabilidade e Fiscalidade	0	1	1	0	Contabilidade Financeira III	6	0	1	0	2	1
Contabilidade e Finanças	Mestrado	Politécnico	Contabilidade e Fiscalidade	1	1	1	1	Contabilidade da Sustentabilidade	6	1	1	0	1	2
Auditoria Empresarial e Pública	Mestrado	Politécnico	Contabilidade e Fiscalidade	1	1	1	1	Auditoria da Qualidade e Ambiente	5	1	1	1	1	2
				1	1	1	1	Auditoria de Sistemas Integrados Qualidade Ambiente e Segurança no Trabalho	5	1	1	1	2	1
Controlo de Gestão	Mestrado	Politécnico	Contabilidade e Fiscalidade	1	1	1	1	Sistemas de Controlo da Qualidade e Ambiente	5	1	1	1	2	2
Contabilidade e Finanças	Licenciatura	Politécnico	Contabilidade e Fiscalidade	0	1	1	0	Contabilidade e Relato Financeiro II	6	0	1	1	1	2
				0	1	1	0	Contabilidade e Relato Financeiro V	4	0	1	1	3	2
Controlo de Gestão	Mestrado	Politécnico	Contabilidade e Fiscalidade	0	1	1	0	Auditoria Estratégica	5	1	1	1	1	2
Contabilidade e Administração	Licenciatura	Politécnico	Contabilidade e Fiscalidade	1	0	1	1	Sustentabilidade e Contabilidade Geracional	3	1	1	0	3	2
Auditoria	Mestrado	Politécnico	Contabilidade e Fiscalidade	1	1	1	1	Auditoria a Relatórios de Sustentabilidade	3	1	1	0	1	2
Contabilidade e Gestão das Instituições Financeiras	Mestrado	Politécnico	Contabilidade e Fiscalidade	0	1	1	0	Gestão Estratégica de Recursos Humanos	4	1	1	0	1	1
Controlo de Gestão e dos Negócios	Mestrado	Politécnico	Contabilidade e Fiscalidade	0	1	1	0	Logística e Operações na Cadeia de Abastecimento	5	1	1	1	1	2
Fiscalidade	Mestrado	Politécnico	Contabilidade e Fiscalidade	1	0	1	1	Fiscalidade Ambiental	3	1	1	1	1	2
Contabilidade e Finanças	Mestrado	Politécnico	Contabilidade e Fiscalidade	0	1	1	0	Tendências Atuais da Contabilidade	6	1	1	1	2	1
				0	1	1	0	Complementos de Contabilidade Financeira	6	1	1	1	1	1
Contabilidade e Fiscalidade	Licenciatura	Politécnico	Contabilidade e Fiscalidade	1	1	1	1	Relato Contabilístico e Sustentabilidade	4	1	1	1	3	2
Contabilidade e Finanças	Licenciatura	Politécnico	Contabilidade e Fiscalidade	0	1	1	0	Relato Financeiro I	6	0	1	1	2	2
Contabilidade e Finanças	Mestrado	Politécnico	Contabilidade e Fiscalidade	1	1	1	1	Responsabilidade Social e ética empresarial	2	1	1	1	1	2
Contabilidade e Finanças	Mestrado	Politécnico	Contabilidade e Fiscalidade	1	1	1	1	Contabilidade da Sustentabilidade	6	1	1	0	1	2
Contabilidade e Auditoria	Licenciatura	Politécnico	Contabilidade e Fiscalidade	0	1	1	0	Gestão e Organização de Empresas	6	0	1	1	1	1
Contabilidade	Licenciatura	Politécnico	Contabilidade e Fiscalidade	0	1	1	0	Contabilidade Financeira II	7	0	1	1	2	1
Contabilidade	Licenciatura	Politécnico	Contabilidade e Fiscalidade	0	1	1	0	Fundamentos de Gestão	6	0	1	1	1	1
Auditoria	Mestrado	Politécnico	Contabilidade e Fiscalidade	1	1	1	1	Ética, Deontologia e Responsabilidade Social	5	1	1	0	1	1 e 2

Curso	Ciclo	Tipo de IES	CNAEF	Incluído no Plano - SIM -1 NÃO - 0	Análise das UC- SIM -1 NÃO - 0	Ensina - SIM -1 NÃO - 0	Nome da UC - SIM -1 NÃO - 0	Nome da UC	Créditos	Capítulo - SIM -1 NÃO - 0	Tema - SIM -1 NÃO - 0	UC obri - 1 /opção - 0	ANO	SEMESTRE
				1	1	1	1	Auditoria da Sustentabilidade	5	1	1	0	1	1 e 2
Contabilidade e Finanças	Mestrado	Politécnico	Contabilidade e Fiscalidade	1	1	1	1	Contabilidade da Sustentabilidade	6	1	1	0	1	2
Fiscalidade	Mestrado	Politécnico	Contabilidade e Fiscalidade	0	1	1	0	Tópicos de Contabilidade Financeira	3	0	1	1	1	1
Contabilidade	Mestrado	Politécnico	Contabilidade e Fiscalidade	0	1	1	0	Contabilidade Avançada	8	0	1	1	1	1
Gestão	Licenciatura	Politécnico	Gestão e Administração	1	1	1	1	Ética e Responsabilidade Social	4	1	1	0	2	2
Gestão de Recursos Humanos	Licenciatura	Politécnico	Gestão e Administração	1	1	1	1	Responsabilidade Social e Voluntariado	3	1	1	0	1	2
Gestao de Negocios	Mestrado	Politécnico	Gestão e Administração	0	1	1	0	Contabilidade e Relato Financeiro	5	0	1	1	1	1
Administração Autárquica	Mestrado	Politécnico	Gestão e Administração	0	1	1	0	Ordenamento e Urbanismo	6	1	1	1	1	1
Gestão de Negócios Internacionais (Curso Europeu)	Licenciatura	Politécnico	Gestão e Administração	0	1	1	0	Fundamentos de Gestão Estratégica e Estratégica Internacional	6	0	1	1	2	2
				0	1	1	0	Gestão da Qualidade em Empresas Internacionais	3	0	1	0	3	1
Gestão Empresarial	Mestrado	Politécnico	Gestão e Administração	0	1	1	0	Contabilidade Financeira Avançada	5	0	1	1	1	1
				0	1	1	0	Contabilidade de Gestão Avançada	5	1	1	1	1	1
Administração Pública	Licenciatura	Politécnico	Gestão e Administração	1	1	1	0	Introdução ao Estudos das Organizações	6	1	1	1	1	2
Gestão	Licenciatura	Politécnico	Gestão e Administração	1	1	1	0	Seminário II	1	1	1	1	3	2
Gestão	Mestrado	Politécnico	Gestão e Administração	0	1	1	0	Seminários de Gestão II	6	1	1	1	1	2
				0	1	1	0	Estratégia e Competitividade	6	1	1	1	1	1
Gestão	Licenciatura	Politécnico	Gestão e Administração	0	1	1	0	Gestão Estratégica	6	0	1	1	3	1
Gestão e Empreendedorismo	Mestrado	Politécnico	Gestão e Administração	1	1	1	1	Governação e Responsabilidade Social das Empresas	5	1	1	1	1	1
Gestão	Licenciatura	Politécnico	Gestão e Administração	0	1	1	0	Contabilidade Financeira Avançada	6	1	1	1	3	1
Gestão de Empresas	Licenciatura	Politécnico	Gestão e Administração	0	1	1	0	Comportamento Organizacional	4,5	0	1	1	2	2
Gestão de Organizações de Economia Social	Mestrado	Politécnico	Gestão e Administração	1	1	1	1	Responsabilidade Social nas Organizações de Economia Social	4	1	1	1	1	1
Gestão da Distribuição e da Logística	Licenciatura	Politécnico	Gestão e Administração	0	1	1	0	Documentação e Certificação Logística	5	0	1	1	2	1
				0	1	1	0	Logística e Gestão da Cadeia de Abastecimento	5	0	1	1	2	1
Gestão de Recursos Humanos e Comportamento Organizacional	Licenciatura	Politécnico	Gestão e Administração	1	1	1	1	Ética, Deontologia e Responsabilidade Social	3	1	1	1	3	1

Curso	Ciclo	Tipo de IES	CNAEF	Incluído no Plano - SIM -1 NÃO - 0	Análise das UC- SIM -1 NÃO - 0	Ensina - SIM -1 NÃO - 0	Nome da UC - SIM -1 NÃO - 0	Nome da UC	Créditos	Capítulo - SIM -1 NÃO - 0	Tema - SIM -1 NÃO - 0	UC obri - 1 /opção - 0	ANO	SEMESTRE
Gestão	Licenciatura	Politécnico	Gestão e Administração	0	1	1	0	Relato Financeiro	5	1	1	1	2	2
Gestão e Informática	Licenciatura	Politécnico	Gestão e Administração	0	1	1	0	Gestão das Operações	5	1	1	1	3	2
				0	1	1	0	Gestão e Organização de Empresas	6	0	1	1	1	1
Gestão de Organizações Sociais	Mestrado	Politécnico	Gestão e Administração	1	1	1	1	Ética e Responsabilidade Social	6	1	1	1	1	2
Gestão do Património Cultural e Desenvolvimento Local	Mestrado	Politécnico	Gestão e Administração	1	0	1	1	Património Cultural e Desenvolvimento Sustentado	6	1	1	1	1	1
Gestão de Empresas	Licenciatura	Politécnico	Gestão e Administração	0	1	1	0	Complementos de Contabilidade Financeira	5	1	1	1	2	1
Gestão de Empresas	Licenciatura	Politécnico	Gestão e Administração	0	1	1	0	Fundamentos de Gestão	6	0	1	1	1	1
Gestão Pública	Licenciatura	Politécnico	Gestão e Administração	1	1	1	1	Direito do Ambiente e do Desenvolvimento Sustentável	4,5	1	1	1	3	1
Gestão Pública				1	1	1	0	Gestão Autárquica	5	0	1	1	1	1
Gestão Autárquica	Mestrado	Politécnico	Gestão e Administração	1	1	1	1	Contabilidade Social e Ambiental	3,5	1	1	0	1	2
				1	1	1	1	Direito do Ambiente e Urbanismo	5,5	1	1	1	1	2
Ciências Empresariais	Licenciatura	Politécnico	Gestão e Administração	1	0	1	1	Gestão da Qualidade e Gestão Ambiental	9	1	1	0	2	1
Gestão de Projetos	Mestrado	Politécnico	Gestão e Administração	1	0	1	1	Ética e Responsabilidade Social	4	1	1	0	1	2
Criatividade e Inovação Empresarial	Licenciatura	Politécnico	Gestão e Administração	1	0	1	1	Responsabilidade Social Corporativa	4	1	1	0	1	2
Logística	Mestrado	Politécnico	Gestão e Administração	0	1	1	0	Gestão de Transportes e Manutenção	6	1	1	1	1	2
Logística				0	1	1	0	Gestão da Cadeia de Abastecimento	6	1	1	1	1	2
Logística	Mestrado	Politécnico	Gestão e Administração	0	1	1	0	Gestão de Transportes e Manutenção	6	1	1	1	1	2
Logística				0	1	1	0	Gestão da Cadeia de Abastecimento	6	1	1	1	1	2
Gestão da Qualidade	Licenciatura	Politécnico	Gestão e Administração	1	1	1	1	Gestão Ambiental Nas Organizações	6	1	1	1	3	1
Gestão Pública e Autárquica	Licenciatura	Politécnico	Gestão e Administração	1	1	1	1	Gestão Ambiental	6	1	1	0	3	1
Gestão de Recursos Humanos	Mestrado	Politécnico	Gestão e Administração	1	1	1	1	Ética e Responsabilidade Social	5	1	1	1	1	1
Contabilidade	Mestrado	Universidade	Contabilidade e Fiscalidade	0	1	1	0	Reporte empresarial	6	1	1	1	1	1
				1	1	1	1	Ambiente, Energia e Sustentabilidade	6	1	1	0	1	2
				1	1	1	1	Políticas de Gestão para A Sustentabilidade	6	1	1	0	1	2

Curso	Ciclo	Tipo de IES	CNAEF	Incluído no Plano - SIM -1 NÃO - 0	Análise das UC- SIM -1 NÃO - 0	Ensina - SIM -1 NÃO - 0	Nome da UC - SIM -1 NÃO - 0	Nome da UC	Créditos	Capítulo - SIM -1 NÃO - 0	Tema - SIM -1 NÃO - 0	UC obri - 1 /opção - 0	ANO	SEMESTRE
				1	1	1	1	Governação Corporativa Internacional	6	1	1	0	1	2
Gestão	Licenciatura	Universidade	Gestão e Administração	0	1	1	0	Economia Social e Solidária	5	1	1	0	3	2
Gestão Internacional	Mestrado	Universidade	Gestão e Administração	1	1	1	1	Gestão Internacional, Ética e Responsabilidade Social	3	1	1	1	1	1
				0	1	1	0	Políticas de Gestão para A Sustentabilidade	5	1	1	0	1	2
Gestão de Empresas	Mestrado	Universidade	Gestão e Administração	1	1	1	1	Ética, Responsabilidade Corporativa e Sustentabilidade	3	1	1	0	1	1
Gestão de Serviços e da Tecnologia	Mestrado	Universidade	Gestão e Administração	1	1	1	1	Políticas de Gestão para a Sustentabilidade	6	1	1	0	1	2
				1	1	1	0	Certificações TCO	6	1	1	0	1	2
				1	1	1	0	Governança Corporativa Internacional	3	1	1	0	1	2
Gestão de Recursos Humanos e Consultadoria Organizacional	Mestrado	Universidade	Gestão e Administração	1	1	1	1	Meio Ambiente, Energia e Sustentabilidade	6	1	1	0	1	2
				1	1	1	1	Governança Corporativa e Responsabilidade Social	6	1	1	0	1	2
				1	1	1	1	Políticas de Gestão para a Sustentabilidade	6	1	1	0	1	2
Gestão	Licenciatura	Universidade	Gestão e Administração	1	1	1	1	Princípios de Gestão	6	1	1	1	1	1
				0	1	1	0	Gestão Estratégica	6	1	1	1	2	2
Administração e Gestão Educacional	Mestrado	Universidade	Gestão e Administração	1	1	1	0	Problemáticas Educativas Contemporâneas	7	1	1	1	1	1
Contabilidade e Finanças	Mestrado	Universidade	Contabilidade e Fiscalidade	0	1	1	0	Contabilidade Financeira	6	0	1	1	1	1
				1	1	1	1	Ética e Responsabilidade Social	6	1	1	0	1	2
Gestão	Licenciatura	Universidade	Gestão e Administração	1	1	1	1	Corporate Social Responsability and Business Ethics	6	1	1	0	3	1
				1	1	1	1	Economia do Ambiente	6	1	1	0	3	1
				1	1	1	1	Ética e Responsabilidade Social	6	1	1	0	3	1
				0	1	1	0	Controvérsias na Economia	6	1	1	0	3	2
Administração Público-Privada	Licenciatura	Universidade	Gestão e Administração	0	1	1	0	Planeamento Regional e Urbano	4	1	1	0	3	2
Administração Público-Privada	Mestrado	Universidade	Gestão e Administração	0	1	1	0	Gestão Urbanística e Ambiental	6	1	1	0	1	2
				0	1	1	0	Inovação e Gestão da Mudança	6	0	1	0	1	2
Administração Educacional	Mestrado	Universidade	Gestão e Administração	0	1	1	0	Educação, Municípios e Desenvolvimento Local	6	0	1	1	1	2
Gestão	Mestrado	Universidade	Gestão e Administração	1	1	1	1	Relato Financeiro e de Sustentabilidade	6	1	1	0	1	1

Curso	Ciclo	Tipo de IES	CNAEF	Incluído no Plano - SIM -1 NÃO - 0	Análise das UC- SIM -1 NÃO - 0	Ensina - SIM -1 NÃO - 0	Nome da UC - SIM -1 NÃO - 0	Nome da UC	Créditos	Capítulo - SIM -1 NÃO - 0	Tema - SIM -1 NÃO - 0	UC obri - 1 /opção - 0	ANO	SEMESTRE
				1	1	1	1	Gestão Ética e Responsabilidade Social das Organizações	6	1	1	1	1	2
Gestão	Licenciatura	Universidade	Gestão e Administração	0	1	1	0	Introdução às Ciências Sociais	6	0	1	0	1	2
				0	1	1	0	Cultura e Ética Organizacional	3	0	1	1	2	2
				1	1	1	1	Gestão da Qualidade e Ambiente	6	1	1	0	3	2
				1	1	1	1	Análise de Investimentos	6	1	1	1	3	2
				1	1	1	1	Gestão da Qualidade e Ambiente	6	1	1	0	3	2
Gestão do Desporto	Licenciatura	Universidade	Gestão e Administração	0	1	1	0	Gestão de Equipamentos Desportivos	9	0	1	1	3	2
Gestão do Desporto	Mestrado	Universidade	Gestão e Administração	1	1	1	1	Desporto, Ambiente e Turismo	6	1	1	1	2	1
Administração Pública e Políticas do Território	Licenciatura	Universidade	Gestão e Administração	0	1	1	0	Políticas Públicas Territoriais e Urbanas	5	1	1	1	3	1
				1	1	1	1	Seminário de Desenvolvimento Sustentável	5	1	1	1	2	2
Gestão	Licenciatura	Universidade	Gestão e Administração	1	1	1	1	Sustentabilidade ambiental para empresas	4	1	1	0	3	1
				1	1	1	1	Social Responsibility and Ethics	4	1	1	0	3	1
				0	1	1	0	Gestão da Produção e Operações	6	1	1	1	3	2
Gestão e Estratégia Industrial	Mestrado	Universidade	Gestão e Administração	0	1	1	0	Gestão Estratégica	6	0	1	1	1	1
Direção e Gestão Hoteleira	Licenciatura	Universidade	Gestão e Administração	0	1	1	0	Introdução ao Turismo	4	1	1	1	1	1
Administração Pública	Licenciatura	Universidade	Gestão e Administração	1	1	1	0	Economia Regional e Urbana	6	1	1	1	3	1
				1	1	1	0	Problemas Sociais Contemporâneos	6	1	1	1	2	2
				1	1	1	1	Sustentabilidade Ambiental	6	1	1	0	3	2
				1	1	1	1	Direito do Urbanismo e Ambiente	6	1	1	0	3	2
Administração e Gestão Pública	Mestrado	Universidade	Gestão e Administração	1	1	1	1	Sociologia e Economia do Desenvolvimento Sustentável	6	1	1	0	1	1
				1	1	1	1	Ambiente e Estratégias de Desenvolvimento	6	1	1	0	1	2
Gestão	Mestrado	Universidade	Gestão e Administração	0	1	1	0	Estratégia e Competitividade	6	1	1	1	1	1
Contabilidade	Mestrado	Universidade	Contabilidade e Fiscalidade	1	1	1	1	Política do Ambiente	7,5	0	1	0	1	2
Gestão- Agrária e Agro-Alimentar	Mestrado	Universidade	Gestão e Administração	1	0	1	1	Responsabilidade Social nas Organizações	3	1	1	1	1	1
Gestão- Empresarial	Mestrado	Universidade	Gestão e Administração	1	0	1	1	Responsabilidade Social nas Organizações	3	1	1	1	1	1

Curso	Ciclo	Tipo de IES	CNAEF	Incluído no Plano - SIM -1 NÃO - 0	Análise das UC- SIM -1 NÃO - 0	Ensina - SIM -1 NÃO - 0	Nome da UC - SIM -1 NÃO - 0	Nome da UC	Créditos	Capítulo - SIM -1 NÃO - 0	Tema - SIM -1 NÃO - 0	UC obri - 1 /opção - 0	ANO	SEMESTRE
Gestão Pública	Mestrado	Universidade	Gestão e Administração	1	0	1	1	Responsabilidade Social nas Organizações	3	1	1	1	1	1
Administração Pública	Licenciatura	Universidade	Gestão e Administração	1	1	1	1	Ambiente e Energia	6	1	1	0	3	2
Gestão	Licenciatura	Universidade	Gestão e Administração	1	1	1	1	Ética e Responsabilidade Social	6	1	1	1	3	1
				0	1	1	0	Gestão Estratégica	6	1	1	1	3	1
				0	1	1	0	Economia do Ambiente	6	1	1	0	3	1
Administração Pública	Mestrado	Universidade	Gestão e Administração	1	1	1	1	Ética e Responsabilidade Social na Gestão	7,5	1	1	0	1	2
Estudos de Gestão	Mestrado	Universidade	Gestão e Administração	1	1	1	1	Ética e Responsabilidade Social na Gestão	7,5	1	1	0	1	2
				1	1	1	1	Política do Ambiente	7,5	0	1	0	1	2
Gestão de Recursos Humanos	Mestrado	Universidade	Gestão e Administração	1	1	1	1	Ética e Responsabilidade Social na Gestão	7,5	1	1	0	1	2
Gestão de Unidades de Saúde	Mestrado	Universidade	Gestão e Administração	1	1	1	1	Política do Ambiente	7,5	0	1	0	1	2
Gestão	Licenciatura	Universidade	Gestão e Administração	1	1	1	0	Estratégia Empresarial	6	1	1	1	3	2
				1	1	1	1	Ética e Responsabilidade Social	3	1	1	1	3	2
Economia e Administração de Empresas	Mestrado	Universidade	Gestão e Administração	0	1	1	0	Gestão de Recursos Humanos	4	0	1	1	1	2
Gestão e Curadoria de Informação	Mestrado	Universidade	Gestão e Administração	1	1	1	1	Avaliação de desempenho e sustentabilidade dos serviços de informação	6	1	1	0	1	2
				0	1	1	0	Direito e Ética da Informação	6	1	1	0	1	2
Gestão	Mestrado	Universidade	Gestão e Administração	1	0	1	1	Modelos de negócios para sustentabilidade	3,5	1	1	0	2	1
Gestão	Mestrado	Universidade	Gestão e Administração	1	0	1	1	Responsabilidade social corporativa	3,5	1	1	0	2	1
Gestão	Mestrado	Universidade	Gestão e Administração	1	0	1	1	Negócios Internacionais Sustentáveis	3,5	1	1	0	2	1

Appendix 2 – Complete Questionnaire (in Portuguese) – Papers 2 and 3

Ensino sobre Desenvolvimento Sustentável (TSD) em cursos de Ciências Empresariais

Este inquérito tem como objetivo, recolher informação para a realização de um trabalho de investigação no âmbito do doutoramento de Gestão de Empresas na Faculdade de Economia da Universidade de Coimbra. É composto por um conjunto de questões diretas, relacionadas entre si, e visa explorar o conhecimento e perceção dos estudantes sobre desenvolvimento sustentável, e sobre o seu ensino nos cursos de ciências empresariais nas Instituições de Ensino Superior (IES) em Portugal. Procura também verificar se, na perspetiva dos estudantes, esta é uma temática importante para o desempenho das suas profissões do futuro.

As respostas ao presente questionário são anónimas e muito importantes para o sucesso deste estudo.

Agradecemos desde já a sua participação.

Grupo I – Conhecimento sobre Desenvolvimento Sustentável

1.1 – Numa escala de 1 a 5, em que 1 é *Nenhum conhecimento* e 5 é *Conhecimento total:* *

Por favor, selecione uma resposta apropriada para cada item:

	1	2	3	4	5
Classifique o seu conhecimento sobre Desenvolvimento Sustentável	○	○	○	○	○

1.2 – Numa escala de 1 a 5, em que 1 é *Discordo totalmente* e 5 é *Concordo totalmente*, indique qual o seu nível de concordância com as seguintes afirmações sobre o Desenvolvimento Sustentável: *

Por favor, selecione uma resposta apropriada para cada item:

	1	2	3	4	5
Assenta em três dimensões, ambiental, social e económica.	○	○	○	○	○
Assenta apenas na dimensão ambiental.	○	○	○	○	○
Assenta apenas na dimensão social.	○	○	○	○	○
Assenta apenas na dimensão económica.	○	○	○	○	○
Refere-se ao modo de desenvolvimento global, capaz de responder às necessidades do presente sem comprometer as gerações futuras.	○	○	○	○	○

1.3 – Numa escala de 1 a 5, em que 1 é *Nada importante* e 5 é *Muito importante*, indique qual o nível de importância que atribui às seguintes ações para o Desenvolvimento Sustentável: *

Por favor, selecione uma resposta apropriada para cada item:

	1	2	3	4	5
Acabar com a pobreza.	○	○	○	○	○
Acabar com a fome e promover a agricultura sustentável.	○	○	○	○	○
Garantir uma vida saudável e promover o bem-estar.	○	○	○	○	○
Garantir uma educação de qualidade e combater a alnafabetização.	○	○	○	○	○
Alcançar a igualdade de género.	○	○	○	○	○
Garantir a disponibilidade e a gestão sustentável da água e saneamento.	○	○	○	○	○
Garantir o acesso à energia sustentável, moderna e a preço acessível.	○	○	○	○	○
Promover o crescimento económico, o emprego e o trabalho digno.	○	○	○	○	○
Construir infraestruturas resilientes, promover a industrialização sustentável e apoiar a inovação.	○	○	○	○	○
Reduzir a desigualdade promovendo a inclusão social, económica e política.	○	○	○	○	○
Tornar as cidades e comunidades sustentáveis.	○	○	○	○	○
Garantir padrões de produção e de consumo sustentáveis.	○	○	○	○	○
Adotar medidas para combater as alterações climáticas e os seus impactos.	○	○	○	○	○
Proteger a vida marinha.	○	○	○	○	○
Proteger e recuperar a vida terrestre.	○	○	○	○	○
Promover sociedades pacíficas e inclusivas, proporcionando o acesso à justiça.	○	○	○	○	○
Fortalecer os meios de implementação e revitalizar a parceria global para o desenvolvimento sustentável.	○	○	○	○	○

1.4– Numa escala de 1 a 5, em que 1 é *Discordo totalmente* e 5 é *Concordo totalmente*, indique qual o seu nível de concordância com as seguintes afirmações: *

Por favor, selecione uma resposta apropriada para cada item:

	1	2	3	4	5
A adoção de práticas sustentáveis no dia-a-dia é imprescindível para a mudança de comportamentos na sociedade.	○	○	○	○	○
Os benefícios da tecnologia são maiores do que os seus efeitos nocivos.	○	○	○	○	○
As fontes naturais de energia, como o sol, o vento e a água, nunca se esgotam, pelo que a energia nunca irá ser escassa.	○	○	○	○	○
A humanidade tem uma grande capacidade de adaptação, logo não há necessidade de se preocupar com a sobrevivência num ambiente poluído.	○	○	○	○	○
A proteção ambiental é da responsabilidade do governo.	○	○	○	○	○
Confio no governo para resolver os problemas sobre o DS.	○	○	○	○	○
A temática do DS será um problema apenas nos países desenvolvidos.	○	○	○	○	○
O aumento da globalização exige que os profissionais do futuro analisem as questões relacionadas ao DS.	○	○	○	○	○
Os problemas ambientais sempre existiram, pelo que não há necessidade de preocupação, pois a natureza equilibra-se ao longo dos anos.	○	○	○	○	○

Grupo II - Ensino sobre Desenvolvimento Sustentável

2.1 – Numa escala de 1 a 5, em que 1 é *Nada importante* e 5 é *Muito importante;* *

Por favor, selecione uma resposta apropriada para cada item:

	1	2	3	4	5
Qual a importância que atribui ao ensino sobre o Desenvolvimento Sustentável nos cursos de Ciências Empresariais	○	○	○	○	○

2.2 – Numa escala de 1 a 5, em que 1 é *Nada importante* e 5 é *Muito importante*, qual a importância que atribui a cada uma das seguintes afirmações sobre as oportunidades que o ensino do Desenvolvimento Sustentável oferece aos estudantes das áreas de Ciência Empresariais: *

Por favor, selecione uma resposta apropriada para cada item:

	1	2	3	4	5
Compreender como a ação humana num lugar tem consequências noutras partes do mundo.	○	○	○	○	○
Considerar os valores e responsabilidades de cada um, em relação a outras pessoas, ao ambiente e ao planeta.	○	○	○	○	○
Compreender os desafios globais a longo prazo, incluindo as alterações climáticas, as desigualdades, a pobreza e o desenvolvimento.	○	○	○	○	○
Avaliar criticamente o que os governos dizem estar a fazer para satisfazer as necessidades das gerações presentes e vindouras.	○	○	○	○	○
Avaliar criticamente o que as empresas e os indivíduos dizem estar a fazer para satisfazer as necessidades das gerações presentes e vindouras.	○	○	○	○	○
Ter em consideração as necessidades das gerações atuais e futuras nas escolhas que se realizam.	○	○	○	○	○
Pensar, de forma criativa, o que os indivíduos podem fazer para desenvolver uma sociedade mais informada e um futuro mais sustentável.	○	○	○	○	○
Descobrir modos de influenciar os outros, agindo como agentes da mudança.	○	○	○	○	○
Contribuir para alcançar os Objetivos do Desenvolvimento Sustentável propostos pelas Nações Unidas (ODS).	○	○	○	○	○
Melhorar a divulgação da informação não financeira nas organizações.	○	○	○	○	○

2.3 – Numa escala de 1 a 5, em que 1 é *Nada importante* e 5 é *Muito importante*, que temas associados ao Desenvolvimento Sustentável considera importantes serem ensinados no curso que frequenta:
*

Por favor, selecione uma resposta apropriada para cada item:

	1	2	3	4	5
Relato Integrado e Relato social e ambiental	○	○	○	○	○
Contabilidade para a sustentabilidade	○	○	○	○	○
Contabilização de gastos ambientais	○	○	○	○	○
Balanço social como demonstração da responsabilidade social corporativa	○	○	○	○	○
Contabilidade de gestão ambiental	○	○	○	○	○
Responsabilidade social e ética	○	○	○	○	○
Património e desenvolvimento sustentado	○	○	○	○	○
Instrumentos jurídicos do direito do ambiente	○	○	○	○	○
Educação para o desenvolvimento sustentável	○	○	○	○	○
Desporto, ambiente e turismo	○	○	○	○	○
Turismo e sustentabilidade	○	○	○	○	○
Desempenho económico, social e ambiental	○	○	○	○	○
Alterações climáticas	○	○	○	○	○
Agenda 21 – Agência Portuguesa do Ambiente	○	○	○	○	○
GRI - Global Reporting Initiative - Normas para o relatório de sustentabilidade	○	○	○	○	○
Auditoria social e ambiental	○	○	○	○	○
Sistemas de Gestão de ambiental (ISO 14001, EMAS,...)	○	○	○	○	○
Avaliação do desempenho e indicadores de sustentabilidade	○	○	○	○	○
Norma contabilística de relato financeiro (NCRF) 26 – Matérias ambientais	○	○	○	○	○
Implementação de estratégias de desenvolvimento sustentável	○	○	○	○	○
Fiscalidade verde	○	○	○	○	○
Economia circular	○	○	○	○	○
Objetivos do Desenvolvimento Sustentável (ODS)	○	○	○	○	○

2.4 – Frequentou ou frequenta alguma unidade curricular que aborde esta temática?
*

Por favor, selecione **apenas uma** das seguintes opções:

○ Sim

○ Não

2.5 – Da lista abaixo selecione os temas que já abordou na UC sobre Desenvolvimento Sustentável.
*

Responda a esta pergunta apenas se as seguintes condições são verdadeiras:
A resposta for 'Sim' na pergunta '8 [IV]' (2.4 – Frequentou ou frequenta alguma unidade curricular que aborde esta temática?)

Por favor, selecione uma resposta apropriada para cada item:

	Sim	Não
Relato integrado ou Relato social e ambiental	○	○
Contabilização de gastos ambientais	○	○
Balanço social como demonstração da responsabilidade social corporativa	○	○
Contabilidade de gestão ambiental ou contabilidade para a sustentabilidade	○	○
Responsabilidade social e ética	○	○
Património e desenvolvimento sustentado	○	○
Instrumentos jurídicos do direito do ambiente	○	○
Educação para o desenvolvimento sustentável	○	○
Desporto, ambiente e turismo	○	○
Turismo e sustentabilidade	○	○
Desempenho económico, social e ambiental	○	○
Auditoria social e ambiental	○	○
Sistemas de gestão ambiental (ISO 14001, EMAS)	○	○
Avaliação do desempenho e indicadores de sustentabilidade	○	○
Norma contabilística de relato financeiro (NCRF) 26 – Matérias ambientais	○	○

Grupo III – Desenvolvimento Sustentável no âmbito profissional

3.1 – Considera importante o conhecimento sobre Desenvolvimento Sustentável no âmbito da sua futura profissão? *

Por favor, selecione **apenas uma** das seguintes opções:

- ○ Sim
- ○ Não

3.2 – Numa escala de 1 a 5, em que 1 é *Discordo totalmente* e 5 é *Concordo totalmente*, indique qual o nível de concordância com as seguintes afirmações sobre a importância da temática do Desenvolvimento Sustentável na sua futura profissão: *

Por favor, selecione uma resposta apropriada para cada item:

	1	2	3	4	5
É importante para as organizações, pelo que poderá ser uma vantagem competitiva para o meu futuro trabalho.	○	○	○	○	○
Contribui para me ajudar na implementação de práticas de DS, pois as empresas têm um papel fundamental na sociedade.	○	○	○	○	○
Permite que eu contribua para a criação de competências no âmbito ambiental, social e económico para os diversos setores e atividades da sociedade.	○	○	○	○	○
Permite-me contribuir para a preparação de informação sobre ações relevantes para a empresa e seus stakeholders, permitindo melhorar a tomada de decisões.	○	○	○	○	○
Permite-me ajudar no planeamento, avaliação e controlo das operações económicas, sociais e ambientais, registando e divulgando as medidas adotadas e os resultados alcançados.	○	○	○	○	○
Dá-me a possibilidade de contribuir para apoiar as organizações na avaliação e melhoria contínua do seu desempenho e progresso ambiental, social e económico.	○	○	○	○	○
Possibilita-me compreender a responsabilidade social da organização, bem como integrar e comunicar sobre responsabilidade social.	○	○	○	○	○
Posso vir a contribuir para a criação de um sistema de incentivos económicos e não económicos, relativos ao desempenho em responsabilidade social.	○	○	○	○	○
Contribuir para que eu consiga chamar a atenção para a necessidade da contabilidade para a sustentabilidade.	○	○	○	○	○
Posso ajudar a melhorar a credibilidade da organização, analisar o progresso, melhorar o desempenho e avaliar iniciativas.	○	○	○	○	○
Ajuda-me a promover o aperfeiçoamento do sistema de coleta de dados relativos a informação ambiental, social e económica.	○	○	○	○	○
Posso ajudar a garantir o cumprimento legal em termos ambientais, sociais e económicos.	○	○	○	○	○
Ajuda-me a contribui para a conduta ética nos negócios da organização e no relacionamento com outras organizações e indivíduos.	○	○	○	○	○

Grupo IV– Características do Respondente

Género *

Por favor, selecione **apenas uma** das seguintes opções:

- ○ Feminino
- ○ Masculino

Idade *

Por favor, selecione **apenas uma** das seguintes opções:

- ○ [17-20]
- ○ [21-24]
- ○ [25-28]
- ○ [29-32]
- ○ [33-38]
- ○ [37-41]
- ○ + 41

Nacionalidade *

Se selecionar a opção 'Outros Qual?', por favor especifique a sua escolha utilizando o respetivo campo de texto.

Por favor, selecione **apenas uma** das seguintes opções:

- ○ Portuguesa
- ○ Outros Qual? [ ]

Regime *

Por favor, selecione **apenas uma** das seguintes opções:

- ○ Estudante
- ○ Trabalhador Estudante

Instituição de ensino superior que frequenta

Por favor, selecione **apenas uma** das seguintes opções:

- ○ Instituto Superior de Contabilidade e Administração do Porto - Instituto Politécnico do Porto
- ○ Instituto Superior de Ciências do Trabalho e da Empresa - Instituto Universitário de Lisboa
- ○ Faculdade de Economia - Universidade de Coimbra
- ○ Escola de Ciências Sociais - Universidade de Évora
- ○ Faculdade de Motricidade Humana - Universidade de Lisboa
- ○ Instituto Superior de Ciências Sociais e Políticas - Universidade de Lisboa
- ○ Instituto Superior de Economia e Gestão - Universidade de Lisboa
- ○ Instituto Superior de Estatística e Gestão de Informação - Universidade Nova de Lisboa
- ○ Faculdade de Economia - Universidade do Porto
- ○ Escola Superior de Tecnologia e Gestão - Instituto Politécnico de Bragança
- ○ Instituto Superior de Contabilidade e Administração de Lisboa - Instituto Politécnico de Lisboa
- ○ Instituto Superior de Contabilidade e Administração de Coimbra - Instituto Politécnico de Coimbra
- ○ Escola Superior de Ciências Empresariais - Instituto Politécnico de Setúbal
- ○ Escola Superior de Tecnologia e Gestão - Instituto Politécnico de Leiria
- ○ Escola Superior de Tecnologia e Gestão de Viseu - Instituto Politécnico de Viseu
- ○ Escola Superior de Gestão, Hotelaria e Turismo - Universidade do Algarve
- ○ Universidade Aberta
- ○ Faculdade de Economia - Universidade Nova de Lisboa
- ○ Instituto Politécnico do Cávado e do Ave - Escola Superior de Gestão
- ○ Outro

Ciclo de Estudos *

Por favor, selecione **apenas uma** das seguintes opções:

- ○ Licenciatura
- ○ Mestrado

Curso que frequenta *

Por favor, selecione **apenas uma** das seguintes opções:

- ○ Contabilidade e Auditoria
- ○ Contabilidade e Administração
- ○ Contabilidade e Finanças
- ○ Gestão de Empresas
- ○ Administração Pública
- ○ Gestão
- ○ Auditoria
- ○ Gestão das Organizações
- ○ Gestão de Recursos Humanos e Consultadoria Organizacional
- ○ Gestão do Desporto
- ○ Ciências Empresariais
- ○ Gestão de Recursos Humanos
- ○ Gestão e Estratégia Industrial
- ○ Economia e Administração de Empresas
- ○ Gestão de Informação
- ○ Outro [ ]

Ano curricular em que está matriculado *

Por favor, selecione **apenas uma** das seguintes opções:

- ○ 1º Ano
- ○ 2º Ano
- ○ 3º Ano

Appendix 3 – Professional Regulators Interview Guide - Paper 3

Preâmbulo de orientação:

Enquadramento

Esta entrevista enquadra-se na investigação científica conducente à obtenção do grau de doutor em Gestão de Empresas pela Faculdade de Economia da Universidade de Coimbra, subordinada ao tema "Ensino sobre Desenvolvimento Sustentável nas Instituições Públicas de Ensino Superior: uma perspetiva integrada."

Tal como o papel da educação para o Desenvolvimento Sustentável (DS) foi claramente enfatizado, o setor empresarial também foi considerado como fundamental para o sucesso dos Objetivos de Desenvolvimento Sustentável. Atualmente, as empresas tendem a adotar diferentes estratégias de inovação para alcançarem o sucesso, sendo fundamental que adotem e coloquem em prática o conceito de DS em termos económicos, ambientais e sociais, implementando ações mais conscientes e pensando nas gerações futuras.
Várias organizações internacionais, tais como a International Federation of Accountants (IFAC), International Financial Reporting Standards Foundation (IFRS), Association of Chartered Certified Accountants (ACCA), e o International Integrated Reporting Council (IIRC), apelam à importância da temática do DS na profissão de contabilidade.

Neste sentido, dado o papel que desempenha e a organização profissional que representa, consideramos que a sua perspetiva será da maior importância para conhecer qual o contributo da sua organização para a mudança curricular e preparação de futuros profissionais da Contabilidade e áreas afins.

A transcrição da entrevista, nomeadamente o que será citado no trabalho, ser-lhe-á enviado, para efeitos de validação, antes de ser considerado, e será usado única e exclusivamente para fins desta investigação.

Duração expectável da entrevista: 30 min

Desde já agradeço a sua atenção e disponibilidade.

_____

Entrevista n.º

Nome do entrevistado:

Local:

Data da realização da entrevista:

Hora de início: Hora do fim:

Guião

1. A sociedade atual, o país e as organizações de hoje em dia, estão constantemente em mudança. As temáticas do Desenvolvimento Sustentável são cada vez mais presentes na realidade atual da vida empresarial e dos indivíduos. Como encara o tema Desenvolvimento Sustentável na vida Profissional dos contabilistas certificados / auditor?

2. Compreender o conceito de Desenvolvimento Sustentável e os aspetos sociais, ambientais e económicos, é crucial para as empresas atuarem de modo responsável e sustentável. Para o exercício da profissão, a que dimensões – ambiental, económica ou social, considera mais importantes e a qual(is) a Ordem atribui mais enfâse? Porquê?

3. Considera que o ensino superior da Contabilidade e áreas afins na IES em Portugal, permite ao futuro profissional desenvolver as competências gerais e específicas sobre Desenvolvimento Sustentável, necessárias às atuais exigências que mercado de trabalho lhe faz? Porquê? Como? A partir de que disciplinas em concreto?

4. A Ordem tem como primordial missão regular e disciplinar o exercício da profissão, para além de desenvolver as ações conducentes a uma maior credibilização e dignificação da profissão. Qual a posição da Ordem, quanto às habilitação e formação sobre Desenvolvimento Sustentável necessárias para o acesso à profissão?

5. Na sua opinião, o ensino sobre Desenvolvimento Sustentável deveria ser obrigatório para o exercício da profissão de contabilista certificados / auditor? Porquê?

6. Em caso afirmativo (questão 5) que temas deveriam ser abordados?