

## A STUDY ON HOW PORTUGUESE PUBLIC HIGHER EDUCATION INSTITUTIONS INTEGRATE SUSTAINABILITY IN THEIR CURRICULA\*

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### Abstract

Higher education institutions (HEI) have a key role to play in the education of leaders knowledge about the significance of the Sustainable Development Goals (SDG), empowering them with the methodologies, techniques, and tools necessary to define, implement, and manage sustainability strategies. Our **study contributes** to Education for Sustainable Development (ESD) strategic planning and implementation, by comparing the strategic plans of Portuguese HEI governance with the self-report of practices already in place. The research question is: **To what extent are the strategic plans of the Portuguese public HEI, namely Universities and Polytechnics, aligned with their perception of the integration of sustainability in education and curricula?** To answer this question, two research objectives were formulated: i) To quantify the HEI incorporation of sustainability into their strategic plans, considering the context (research, education, and extension) and sustainability dimensions (environmental, social, and economic); ii) To describe the perception of HEI about the integration of sustainability in education and curricula (E&C).

The **population** of our study is 34 Portuguese public HEI, of which 14 are Universities (41%) and 20 are Polytechnics (59%). To identify the participants for gathering information on strategic plans, the criteria were it being available and including the year 2020. Twenty-eight HEI were selected (82% of the population). The online questionnaire was elaborated for a larger study (Madeira et al., 2022); we used section A that characterizes the participants and section C that asked about to the integration of sustainability in E&C (e.g., review and improvement of courses, courses dedicated to sustainability, support to teachers to promote sustainability competencies, promotion of specific pedagogical practices). This questionnaire was answered by 44% of the population.

The HEI's Rectors/Presidents were invited by email to participate in questionnaire data collection, and their answers were collected from January to December 2021. The strategic plans, on the other hand, were searched online in public repositories or directly requested to the HEI, from December 2020 to February 2021. From these plans we gathered excerpts related to sustainability, particularly using the keywords “sustain\*”, “SDG” and “2030 Agenda”. The analysis categories were: three related to the context (research, education, and extension); three for sustainability dimensions (environmental, social, and economic); one for “Sustainable Development Goals” or “SDG” and “2030 Agenda”. Frequencies of occurrence were computed to (i) find the keywords in the selected excerpts, and (ii) classify the excerpts in the categories. As for section C of the questionnaire, the answers were converted into a numeric scale (1” to “yes”, and “0” to “no”). To analyse the pattern of association between variables, we used Spearman's rank-order (rs) correlation between the frequency occurrences values and the binomial values from questionnaire. As for the evidence for rejecting the null hypothesis, we used a probability value (p-value) between 0.05 and 0.01. Analytical steps included the calculation of the T statistics and a p-value of 0.05 as the threshold of significance.

The results of the whole study can be found in (Duarte, 2023). Here we focus on the pedagogical practices that can be used to promote strategies for sustainability (contributing to the conference subtopic *Estratégias para a sustentabilidade*). 67% answered positively about the use of specific pedagogical practices promoted for the teaching of sustainability, namely 50% of the Polytechnics and 86% of the Universities. Almost half (47%) reported doing it with transdisciplinary studies and with the resolution of problems, while 40% mentioned study cases and experimental practices. Some HEI (33%) used participative teaching and games (13%). Also, Universities have a more diversified (or even more complete) approach than Polytechnics.

Universities and Polytechnics, despite no apparent strategy from top governance, are increasing their engagement and evolution on implementing E&C, from developing courses dedicated to sustainability, using different pedagogical practices, developing sustainability skills in the students, and conducting extracurricular activities. Universities appear to be slightly ahead. **Strategic plans seem poorly aligned with self-assessment integration of sustainability in E&C**, where several practices are being reported. In summary, the **major highlights** include: no consistent integration of sustainability in E&C; focus on environmental and social dimensions; extension actions are the most frequent, followed by education and research; formal and lifelong learning courses dedicated to sustainability are needed; lack of higher-level recommendations; bottom-up initiatives towards ESD; raise awareness across society and integrate sustainability knowledge in E&C is still needed.

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