

Analysing the incorporation of Sustainable Development into European Higher Education Institutions' curricula

Dr. Maria Barreiro-Gen (maria.barreiro@hig.se)

Prof. Rodrigo Lozano (rodrigo.lozano@hig.se)

University of Gävle, Sweden

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Introduction

- Integrating SD into curricula has been recognised to be instrumental in **providing students with the skills and insights** to help societies become more sustainable (R. Lozano, 2010) and provide companies with graduates who are **sustainability literate** (as highlighted by the WBCSD, 2010)
- **Curricula assessment** can provide an overview on how courses and programmes incorporate SD (Lozano, 2010; Lozano & Peattie, 2011; Stough, Ceulemans, Lambrechts, & Cappuyns, 2018)



STAUNCH®

- STAUNCH® was developed with the aim of **assessing holistically and systematically** how a university's curricula contributes to SD (*i.e.* the SD issues' coverage, depth and breadth) (R. Lozano, 2010; R. Lozano & Peattie, 2011)
- STAUNCH® is based on **two combined equilibria**: firstly, cross-cutting theme issues, which integrate economic, environmental, and social dimensions; and secondly, the SD contribution, which is calculated using formulae that look for the balance among the four dimensions, taking into consideration their strengths
- These are assessed using the following levels:
 - 0, when an issue is not mentioned
 - 1, the issue is mentioned but there is no further explanation given on how it is addressed
 - 2, the issue is mentioned and there is a brief description of how it is addressed
 - 3, there is a comprehensive and extensive explanation on how the issue is addressed



Economic	Environmental	Social
<ul style="list-style-type: none"> • GNP, Productivity • Resource use, exhaustion (materials, energy, water) • Finances and SD • Production, consumption patterns • Developmental economics 	<ul style="list-style-type: none"> • Policy/Administration • Products and services (inc. transport) • Pollution/Accumulation of toxic waste/Effluents • Biodiversity • Resource efficiency and eco-efficiency • Global warming, Emissions, Acid rain, Climate change • Resources (depletion, conservation) (materials, energy, water) • Desertification, deforestation, land use • Ozone depletion • Alternatives 	<ul style="list-style-type: none"> • Demography, Population • Employment, Unemployment • Poverty • Bribery, corruption • Equity, Justice • Health • Social cohesion • Education • Diversity • Cultural diversity (own and others) • Labour, Human rights

Cross-cutting themes

- **People as part of nature/Limits to growth**
 - **Systems thinking/application**
 - **Responsibility**
 - **Governance**
 - **Holistic thinking**
 - **Long term thinking**
 - **Communication/Reporting**
 - **SD statement**
 - **Disciplinarity**
 - **Ethics/Philosophy**

Methods (1)

- A survey was developed to investigate teaching SD competences in European Higher Education Institutions. The survey consisted of six sections:
 1. **Background questions about the respondent's HEIs, the respondent characteristic, and her/his teaching (in general and SD)**
 2. **Self-assessment of SD criteria taught, based on the STAUNCH® criteria, and on a four scale (not covered, mentioned, described, and discussed)**
 3. Pedagogical approaches used, on a five scale (never, seldom, from time to time, often, and all the time)
 4. Competences covered in the course, on a five scale (not at all, mentioned, discussed, complementary to the course, and integral to the course)
 5. Types of learning, on a five scale (never, seldom, from time to time, often, and all the time)
 6. Open ended questions about the incorporation of SD in courses

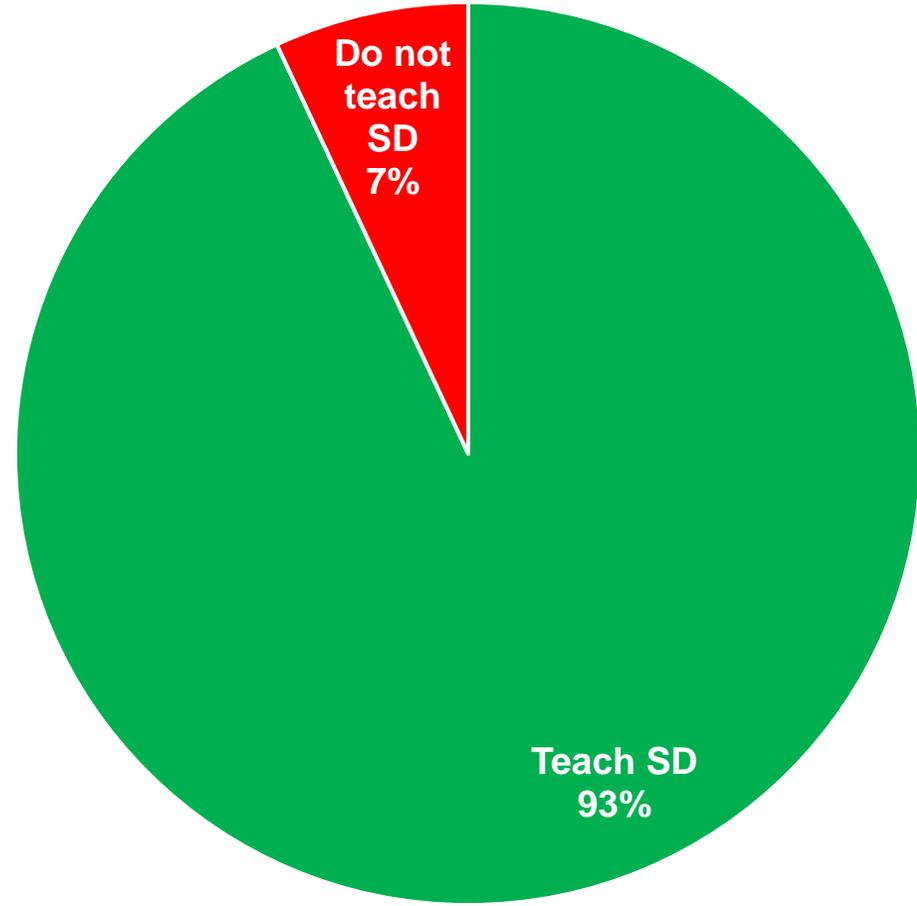
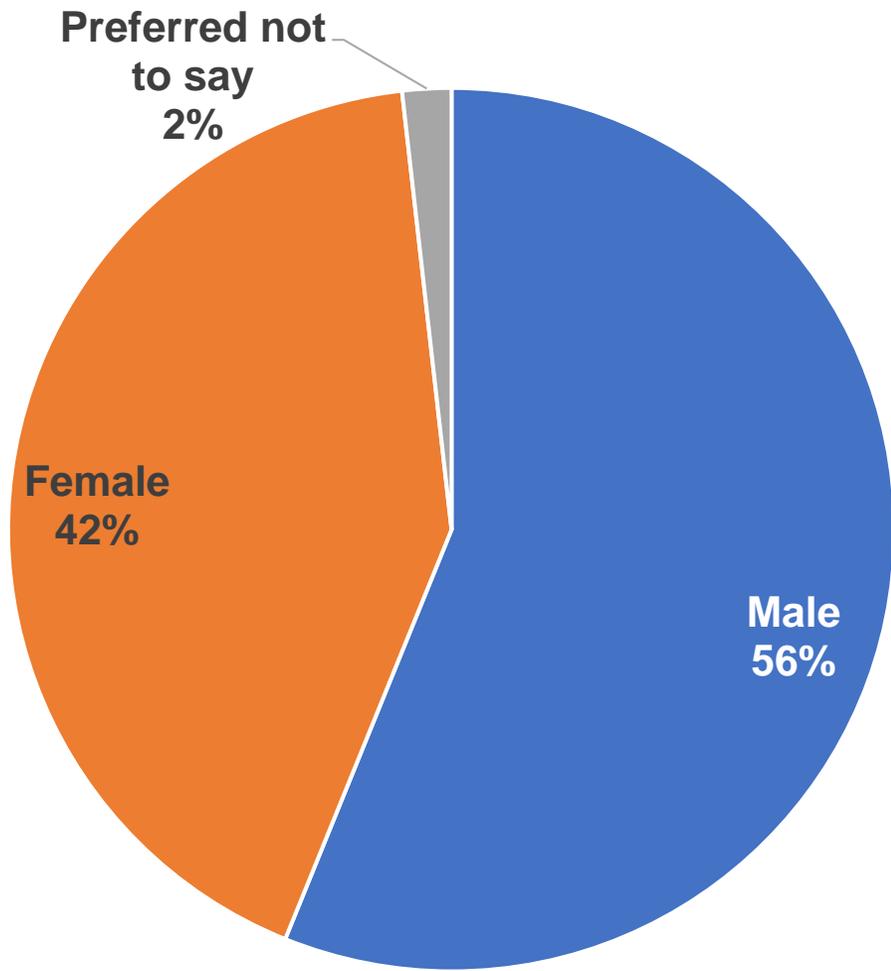


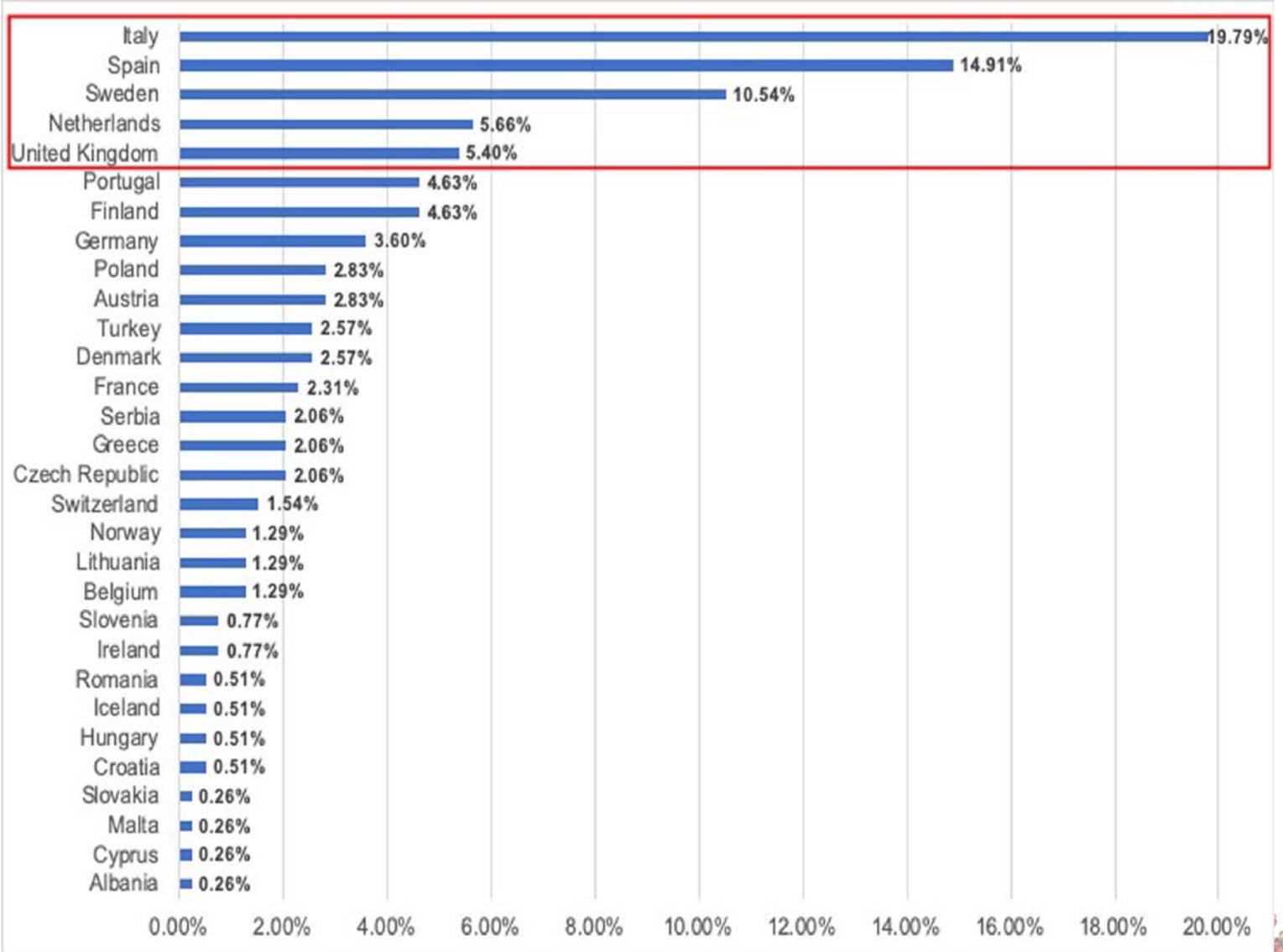
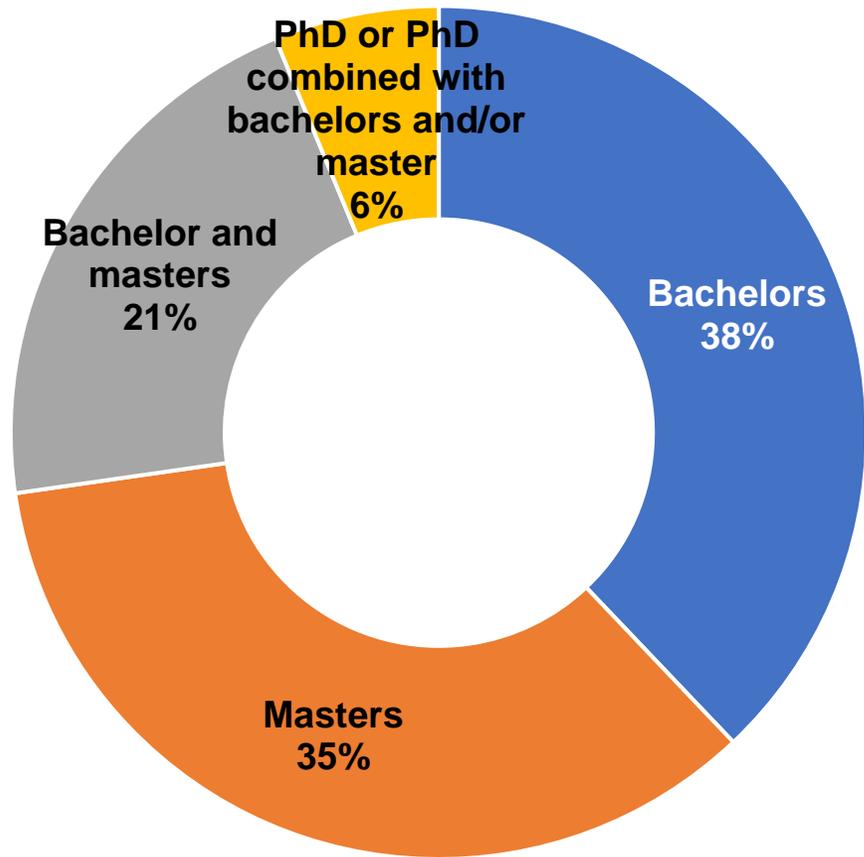
Methods (2)

- The survey was applied using the online survey tool SurveyMonkey (2019) and open for **three months** from September to December 2018
- The survey was sent to a database of **4,099 contacts in Europe**
- From these, **392** total responses were obtained (**9.85%**) for the self-assessment of SD part
- The responses were analysed using **descriptive statistics, t-test, and ANOVA** (see Jupp, 2006)



Results



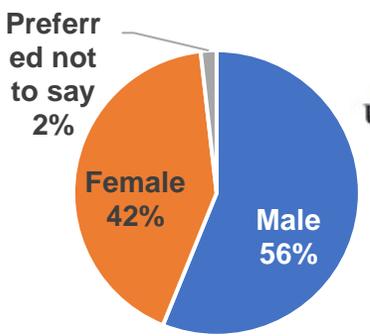


STAUNCH[®] results

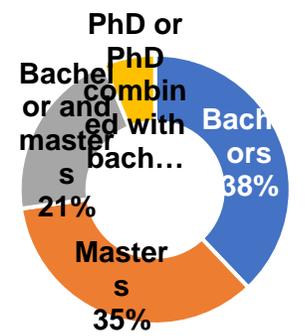
- The **contribution to sustainability** was on average 5.84, a standard deviation of 7.24, a maximum of 69.89, and a minimum of 0.67
- The **average strength** was 1.88 with a standard deviation of 0.41
- The **social dimension** was the least addressed with 18%, while the other dimensions (economic, environmental, and cross-cutting) were addressed almost equally at between 27% and 28%.



Indicator	Dimension	Gender	Mean	t	Sig.	Means difference
Holistic thinking	Cross-cutting themes	Female	1.927	2.896	0.004	0.332
		Male	1.595			
People as part of nature/Limits to growth	Cross-cutting themes	Female	1.758	2.965	0.003	0.330
		Male	1.427			
Responsibility	Cross-cutting themes	Female	1.994	2.606	0.010	0.271
		Male	1.723			
Cultural diversity (own and others)	Social	Female	1.115	2.741	0.006	0.270
		Male	0.845			
Poverty	Social	Female	1.279	2.512	0.012	0.265
		Male	1.014			
Communication/Reporting	Cross-cutting themes	Female	1.800	2.354	0.019	0.264
		Male	1.536			
Biodiversity	Environmental	Female	1.315	2.324	0.021	0.233
		Male	1.082			
Health	Social	Female	1.321	2.180	0.030	0.221
		Male	1.100			
Employment. Unemployment	Social	Female	1.176	2.101	0.036	0.212
		Male	0.964			

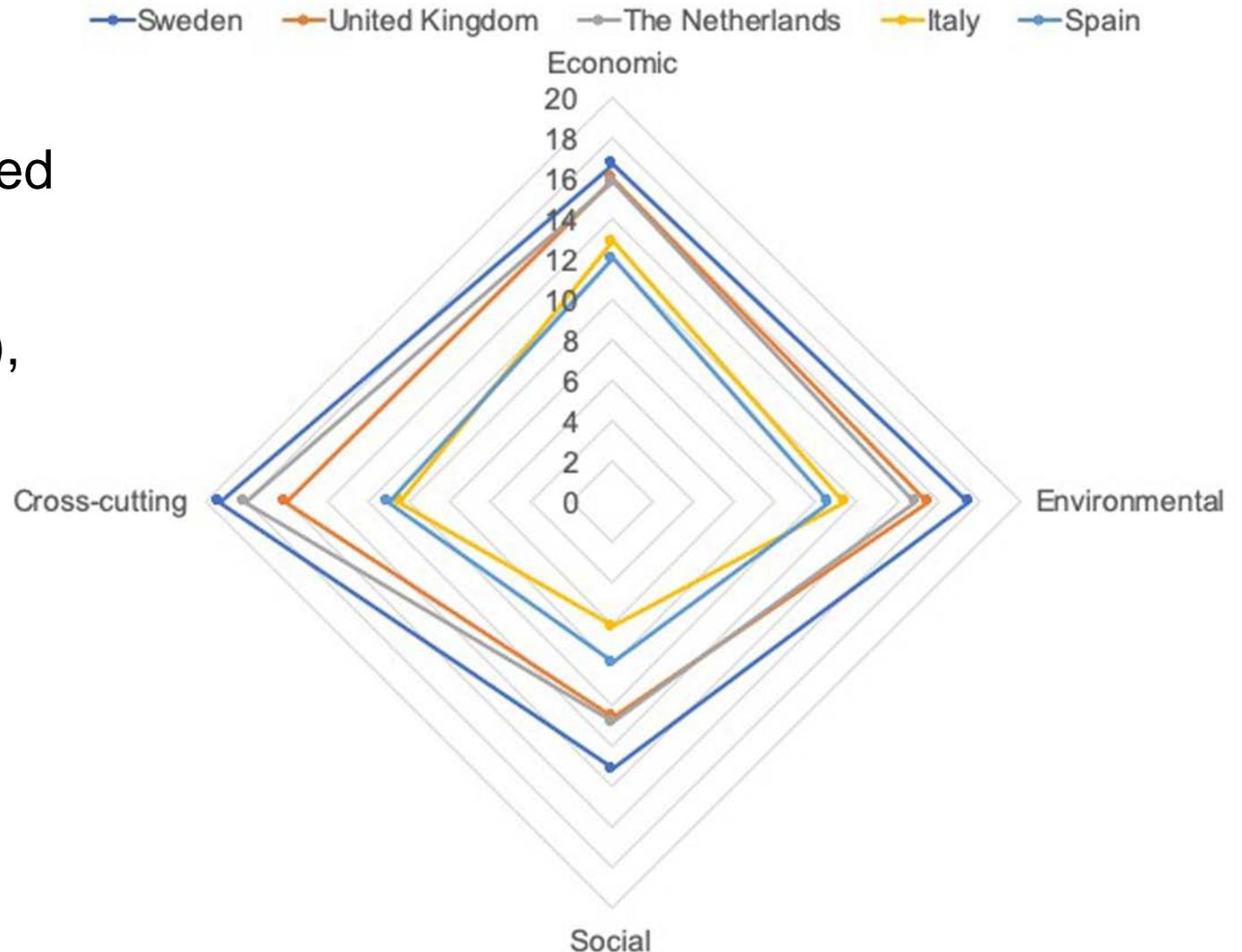


Variables	Education level	Mean	F	Sig.
Strength	Bachelors	1.781	5.239	0.001
	Bachelors and Masters	1.956		
	PhD or PhD and another level	2.046		
	Masters	1.900		
Economic	Bachelors	13.218	3.399	0.018
	Bachelors and Masters	15.800		
	PhD or PhD and another level	15.375		
	Masters	14.536		
Environmental	Bachelors	12.143	10202	0.000
	Bachelors and Masters	16.433		
	PhD or PhD and another level	17.550		
	Masters	14.801		
Social	Bachelors	7.931	3369	0.019
	Bachelors and Masters	10.535		
	PhD or PhD and another level	10.807		
	Masters	9.829		
Cross-cutting themes	Bachelors	12.472	8154	0.000
	Bachelors and Masters	16.833		
	PhD or PhD and another level	15.713		
	Masters	15.294		



Means differences in countries (ANOVA)

- The contribution level showed that the mean was higher in the Netherlands (8.624), followed by Sweden (8.512), United Kingdom (5.855), Spain (4.440), and Italy (3.476). The SD strength differences were: Sweden (2.083), United Kingdom (1.919), the Netherlands (1.980), Spain (1.691), and Italy (1.724)



Correlation analysis

- The results were between **0 and 0.843**
- In order to systematize the correlation results, these were divided in **very low, low, medium** and **high correlation**
- The analysis shows that the **social dimension** had the highest correlation to contribution (0.843) followed by cross-cutting themes (0.641), economic dimension (0.556), and environmental dimension (0.498)
- There were correlations between the **four dimensions**



Discussion

1. The analyses showed that teaching in European courses **covers many issues of sustainability in a fairly good balance**, with the exception of social issues
2. **Females** tend to teach SD in a more balanced way than men
3. The **HEIs types does not** have any influence on how SD is being taught, but the **education level has**. In general, Bachelors courses tend to contribute less to SD, followed by Masters and then by teaching in combination of levels
4. **Some countries**, in the case of this research Italy and Spain, may show more interest, yet their means tended to be lower than those others, in this research Sweden, United Kingdom, and the Netherlands



Conclusions

- The paper presents **one of the first analyses of SD teaching** in European HEIs
- SD teaching **has increased** in the last two decades
- SD has to be **addressed holistically**
- Educators should **share their experiences** teaching it, so it can be delivered more efficiently to their students. This **should be done across** disciplines, gender, education levels, and countries



Curricula assessment showcases how **SD is being incorporated into courses and programmes**, and lead to more literate students who are better prepared for the **sustainability job market** and in making **societies more sustainable.**



Thank you!

Moitas grazas!

Muchas gracias!

Dr. Maria Barreiro-Gen (maria.barreiro@hig.se)

Prof. Rodrigo Lozano (Rodrigo.lozano@hig.se)

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