

**EDUCATING ACCOUNTANTS WITH A SUSTAINABILITY-ORIENTED  
PROFESSIONAL IDENTITY IN CENTRAL AND EASTERN EUROPE**

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**Abstract**

This paper has investigated the role that universities may play in shaping a sustainability-oriented professional identity of accountants, which represents an essential contribution of the paper. A sample of 713 answers collected via an online questionnaire-based survey from prospective accountants in nine countries in Central and Eastern Europe was statistically analysed. This geographical area is largely ignored in the literature. By applying principal component analysis and cluster analysis, the paper documented that universities play a significant role in raising the interest of future accountants in sustainability matters, alongside other stakeholders and the societal and institutional factors. Exposure to sustainability-related activities also helps shape this new identity of future accountants, in conjunction with other education enablers, which should encourage universities to open their curriculum to such matters.

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## **Introduction**

Sustainability has become a major concern for businesses worldwide, occupying an increasingly important place in the modern corporate reporting landscape. This phenomenon has been accentuated as the number of initiatives to regulate sustainability reporting at the European and international levels has increased. Due to intensifying demand for sustainability reporting that is transparent and relevant to various stakeholder groups, sustainability accounting has become a core component of corporate reporting (Ayinla et al., 2024). The role of accountants has expanded to incorporate sustainability considerations alongside traditional financial expertise, a change that is expected to influence their professional identity (Brouard et al., 2017).

The topic of accountants' professional identity formation is of interest in education literature (Reissner and Armitage-Chan, 2024). Thus, the role of factors such as professional associations, firms, governments, and societal stakeholders in shaping the professional identity of accountants has been addressed (Brouard et al., 2017). In addition to these factors, the professional identity of accountants is also constructed in universities, through lifelong learning, professional training, and continuing development programmes. This process requires overcoming structural challenges, such as the limited financial resources allocated to training faculty and the development of teaching materials on sustainability.

The integration of sustainability aspects into accounting education is considered insufficient (Jorge, Peña and de los Reyes, 2017; Othman and Ameer, 2024), but necessary (Khan, 2013) and potentially transformative, as it equips students with the skills needed to address complex social, environmental, and economic challenges (Cho and Costa, 2024). There is an expertise gap in this respect (Dumitru et al., 2017; Krasodomska, Michalak and Świetla, 2020), which highlights the need to diversify accountants' professional skills. In this regard, universities are expected to integrate sustainability into their curricula (Khan, 2013), and accounting programmes are directly concerned by this development (Gray and Collison, 2002; Thomson and Bebbington, 2004).

Despite an emerging literature on accountants' involvement in sustainability-related activities, the role of universities in shaping the professional identity of accountants in relation to sustainability is still insufficiently explored. Thus, the objective of this paper is to provide evidence on the role of universities and other factors in shaping the sustainability-oriented professional identity of accountants in Central and Eastern European (CEE) countries. A questionnaire-based survey was administered to students enrolled in accounting and accounting-related programmes in 11 universities across nine CEE countries. This comparative survey gives a wider perspective on the matters under investigation than single-country studies (in line with Albu et al., 2024). A number of 713 responses were statistically analysed, and universities were perceived to play an equally important role in shaping the sustainability-related professional identity of prospective accountants as societal and professional stakeholders. The paper also addresses the enabling factors and barriers to

incorporating more sustainability topics into accounting education. Finally, the creation of a sustainability-related professional identity for accountants and its drivers were addressed.

The article is structured as follows: the first section is a literature review on the bidirectional relationship between accounting education and sustainability, and the professional identity of accountants in relation to sustainability, and the role of various stakeholders in creating this identity. The second section outlines the research methodology, describing the data collection process and the instruments that were used. The third section discusses the paper's findings. The last section presents the conclusions of the study, the research limitations, and some directions for future research.

## **1. Literature review**

### **1.1. Professional identity of accountants around sustainability issues**

Recent research on sustainability accounting highlights its crucial role in modern corporate reporting, emphasising the integration of sustainability accounting into traditional financial practices. This shift reflects the growing recognition that businesses must account for their broader environmental, social, and governance impacts to ensure long-term sustainability and stakeholder trust. The adoption of comprehensive sustainability reporting frameworks was linked to improved corporate reputation, operational efficiency, and stakeholder engagement (Herremans, Nazari and Mahmoudian, 2016).

The growing prominence of sustainability accounting reflects increasing investor, consumer, and regulatory demands for transparent non-financial reporting, yet the lack of standardised measurement and reporting methods poses a challenge for both businesses and stakeholders (Fagerström, Hartwig and Cunningham, 2017; Gil-Marín et al., 2022). Thus, accounting has transitioned from transaction recording to a key role in sustainability, with reporting now central to business strategy (Bebbington et al., 2021). This transformation not only redefines reporting frameworks, but also influences the skills and responsibilities of accountants. As accountants integrate financial and non-financial data, this shift is expected to influence their professional identity (Brouard et al., 2017). Their role is expanding to incorporate sustainability considerations along with traditional financial expertise. Accountants need advanced cognitive, emotional, social, digital, and moral intelligence to navigate the complexities of non-financial reporting and sustainable development (Ott, 2023).

This expanded role highlights the accounting profession's responsibility in fostering sustainable business practices while maintaining accountability and trust. This direction is promoted by some Professional Accountancy Organizations (PAOs) (e.g., ACCA, 2024), that underscore accountants' vital role in non-financial reporting. As accountants' roles expand, PAOs play a crucial role in defining their identity through education, certification, and the regulation of training and ethics coverage. Besides the societal expectations and PAOs' support, the professional accountants' identity is influenced by universities, which is particularly the case of prospective accountants, being educated in an environment acknowledging the importance of sustainability. However, outdated curricula in accounting education, inconsistencies in sustainability standards across jurisdictions, and resistance from traditional accounting firms might create barriers to effective integration of sustainability issues. This raises the question of whether sustainability is being meaningfully integrated into

accountants' professional identity or if traditional financial expertise continues to dominate (Warren and Parker, 2009).

### **1.2. Role of stakeholders in identity formation**

Professional identity formation is a complex endeavor, subject to multiple influences. Brouard et al. (2017) propose a comprehensive framework for accountants' identity formation, highlighting the influence of PAOs, firms, governments, and societal stakeholders. According to this framework, governments play a key role in shaping identity through regulation and exclusive practice rights. Moreover, PAOs contribute to the development of the accountants' professional identity by setting ethical standards (Davenport and Dellaportas, 2009) and supporting continuing professional development (Duff, Hancock and Marriott, 2020). They also play an important role in cross-national regulation and policy (Suddaby, Cooper and Greenwood, 2007), promote the globalisation of the profession, initiate the socialisation of future accountants, and engage with society to reinforce professional values (Picard, Durocher and Gendron, 2014; Neal et al., 2024). Accounting firms serve as an important anticipatory socialisation mechanism in identity formation (Kornberger, Justesen and Mouritsen, 2011), where accounting standards are applied and put into practice, and professional identities are both formed and transformed. Employers also influence accountants' identities through workplace experiences, organisational culture and training (Hamilton, 2013), as well as interactions with different clients and professional networks and practices (Kornberger, Justesen and Mouritsen, 2011; Murphy, 2017). Other professions can also redefine the identity of accountants, as they can bring more commercial values to the profession that can move them from accounting in a narrow sense to business advisory services (Malsch and Gendron, 2013).

Universities, although overlooked in Brouard et al.'s (2017) framework, play a fundamental role in accountants' identity formation by providing technical accounting skills for employment in accounting (De Lange, Jackling and Gut, 2006; Jackling and De Lange, 2009) and by developing their social identity, as well as professional character and adaptability (Sebele-Mpofu, 2024). Beyond universities, identity development continues through lifelong learning, professional training, and continuous development programmes (Hamilton, 2013; Murphy, 2017), which are essential for accountants to remain relevant in an ever-evolving profession. As societal aspects (images and stereotypes) change, the profession responds by addressing these perceptions and ensuring that it is in line with current business and societal needs (Brouard et al., 2017). Consequently, social aspects influence accountants' identity and their interactions with society.

### **1.3 Sustainability in accounting education**

The integration of sustainability into accounting education has gained momentum, particularly following the United Nations Decade of Education for Sustainable Development (2005-2014), which emphasised embedding sustainability principles across all levels of education (United Nations Educational, Scientific and Cultural Organization, 2014). Universities, as key institutions, are expected to incorporate sustainability into their curricula (Segovia and Galang, 2002; Khan, 2013; De Silva and Nilipour, 2024). Sustainability accounting education is transformative, equipping students with the skills to address complex social, environmental, and economic challenges (Cho and Costa, 2024). Yet, and despite growing recognition, the integration of sustainability into accounting education remains

inconsistent and often superficial (Jorge, Peña and de los Reyes, 2017; De Silva and Nilipour, 2024). Many accounting programmes focus narrowly on technical aspects such as financial reporting, neglecting broader sustainability concepts such as ecological systems, business ethics, and values (Gray and Collison, 2002; Othman and Ameer, 2024). This discrepancy has been observed even in some settings where sustainability reporting is required, but accounting education lacks comprehensive coverage of sustainability topics (Boulianne, Keddie and Postaire, 2018).

To address these gaps, scholars advocate revising accounting curricula to include sustainability-related competencies, such as ethical reasoning, stakeholder engagement, and environmental impact assessment (Gray and Collison, 2002; Thomson and Bebbington, 2004; Lungu, Caraiani and Dascălu, 2014). This requires a shift from conventional instructional methodologies toward more interdisciplinary and experiential approaches, such as real-life case studies and group activities, which promote critical thinking and the practical application of sustainability concepts (McPhail, 2001). Nevertheless, sustainability education is frequently regarded as an elective or supplementary component of the curriculum, rather than being incorporated as a fundamental element (Owen, 2007; Jorge, Peña and de los Reyes, 2017). This underscores the need for a more systematic approach to curriculum development, aligning with global sustainability goals, and preparing students for the changing demands of the profession (Bebbington and Thomson, 1996; Franco et al., 2019).

Personal values act as a motivator of students' engagement in sustainability-related activities (Imbrișcă and Toma, 2020). Students who see the importance of these activities are more likely to embrace sustainability education and apply it professionally (Chulián, 2011; Shephard and Furnari, 2012; Rangarajan and Joshi, 2019; Lohberger and Braun, 2022; Hyytinen et al., 2023). However, a disconnect between education and industry needs persists, as accountants often prioritise financial concerns over sustainability, especially in small and medium-sized enterprises (De Silva and Nilipour, 2024; Krasodomska, Zarzycka and Zieniuk, 2024). Universities must address this gap by integrating sustainability metrics, stakeholder engagement, and materiality assessments into curricula (Cho and Costa, 2024).

However, challenges continue to persist, despite the regulatory and business expectations of universities to incorporate sustainability in education. The limited financial resources hinder investments in faculty training, course development, and teaching materials focused on sustainability (Chulián, 2011; Brouard et al., 2017; Boulianne, Keddie and Postaire, 2018). The lack of comprehensive instructional materials, such as textbooks and case studies, further complicates the effective teaching of sustainability topics (Khan, 2013; Botes, Low and Chapman, 2014). Moreover, overcrowded curricula, with a strong focus on traditional accounting topics, leave little room for sustainability courses (Owen, 2007; Jorge, Peña and de los Reyes, 2017). These challenges are compounded by the perception that sustainability is a niche area rather than a core competency for accountants (Owen, 2007; Boulianne, Keddie and Postaire, 2018).

To conclude, the literature on sustainability education and integration of sustainability into accountants' work is emerging, but the results remain rather disconnected. Moreover, studies generally cover one country and, in many cases, developed countries, making understanding of the accounting profession incomplete. In this context, this study is exploratory, and addresses the following research questions: Does the professional identity of prospective accountants integrate sustainability issues? What is the role of universities in relation to the other relevant stakeholders in the formation of sustainability-oriented accountants?

professional identity? To what extent is sustainability included in university education, and what are the enablers of and barriers to this integration?

## **2. Research methodology**

For this paper, data has been collected by administering a questionnaire-based survey, an appropriate method to investigate professional identity and to elicit the students' views on sustainability-related matters (e.g., Hamilton, 2013; Krasodomska, Michalak and Świetla, 2020). The survey has the advantage of allowing for a broader analysis across a wider geographical area, while it may be subject to inattentiveness risk. Therefore, following Gummer, Roßmann and Silber (2021), an instructed response item to deal with inattentiveness bias was included in the survey, as a robustness test. Similar to most studies in accounting and on accounting students and professionals, the questionnaire is convenience-based (and therefore it is rather an opinion survey).

Respondents are students enrolled in the bachelor, graduate, and PhD cycles in accounting and accounting-related programs (i.e., financial management, financial analysis, business with a focus on accounting, auditing, etc.) of 11 universities located in nine countries in CEE (listed in alphabetical order): Bosnia and Herzegovina, Croatia, Montenegro, North Macedonia, Poland, Romania, Serbia, Slovenia, and Turkey. The first eight countries are generally included in the CEE region, while Turkey was added for its close geographical proximity and regional importance. The survey was pretested on 10 students enrolled in final years of their studies at the Bucharest University of Economic Studies, which resulted in minor adjustments to the questions.

The survey was administered in both each of the national languages of the nine countries and in English only for international students studying in the targeted universities. Only 19 answers were received in English, and they were integrated with the answers obtained in national languages for the analyses. The questionnaire comprised 13 closed-ended questions (including demographic ones) and one open question inviting respondents to indicate aspects that could have been overlooked in the survey. The questions addressed the following topics: features pertaining to accountants' professional identity; factors influencing this identity; extent, importance, enablers and barriers for sustainability education in universities.

The survey was administered online via Google Forms between 17 December 2024 and 7 February 2025, to allow for different academic year structures among the targeted institutions. No significant statistical difference was observed between the first and last 10 responses received for each country (the last 10 being used as a proxy for non-respondents). While there is a low risk of non-response bias, the results pertain to the universities that were targeted, and generalisability across the entire student population is not claimed. These universities are, nevertheless, highly ranked in their fields and their countries, and can be assumed to be de facto representative of the CEE situation. A total number of 838 complete answers were received across the entire sample of countries. However, 125 answers (approx. 15% of responses) provided by respondents who failed the inattentiveness test have been removed. Table no. 1 describes the final sample that was analysed.

**Table no. 1. Demographic data on respondents**

Country	No. of obs.	Gender		Educational Level		Experience			
		Female	Male	Undergraduate	Graduate /PhD	None	Short	Medium	Long
Bosnia and Herzegovina	87	61	26	19	68	7	28	9	43
Croatia	108	93	15	29	79	43	21	23	21
Montenegro	52	42	10	3	49	12	12	7	21
North Macedonia	61	48	13	54	7	29	21	5	6
Poland	99	73	26	58	41	41	18	15	25
Romania	82	56	26	50	32	19	23	13	27
Serbia	83	61	22	18	65	23	22	11	27
Slovenia	50	39	11	17	33	16	7	21	6
Turkey	91	51	40	48	43	40	26	14	11
<b>Total</b>	<b>713</b>	<b>524</b>	<b>189</b>	<b>296</b>	<b>417</b>	<b>230</b>	<b>178</b>	<b>118</b>	<b>187</b>

The number of respondents per country ranged from 50 (Slovenia) to 108 (Croatia), with an average number of 80 responses per country. Up to 60% of the respondents are graduate students enrolled in master’s and PhD programs, whereas the rest of up to 40% are enrolled in bachelor programs. This distribution of the educational level might also explain their experience level in accounting practice, with 2/3 of the sample having some sort of work experience in accounting, of which approximately 43% have a medium (part-time employment) to long (full-time employment) engagement, and the rest of approximately 25% being involved in school-mandated internships; only a third of the respondents had no work experience in accounting practice whatsoever.

Preliminary tests were conducted to check for potential bias introduced in the answers by some countries (e.g., large ones). No significant bias was identified. Principal Component Analysis (PCA), cluster analysis, and Mann-Whitney U test were subsequently applied, among others, to statistically analyse the data.

**3. Results and discussion**

**3.1. Differences in professional identity of accountants**

To explore the differences in professional identity, and the extent to which professional identity incorporates sustainability, cluster analysis was conducted on responses when participants were asked to assess agreement on eight statements related to the impact of sustainability on the accounting profession. Agglomerative Hierarchical Clustering (AHC) was applied, as the number of clusters is not pre-specified. Based on the values for the Silhouette and the Hartigan index, two clusters were retained (corresponding to the highest values for the indexes). Results are reported in table no. 2.

Table no. 2. Types of professional identity of prospective accountants

Items	Mean for the overall sample (St. dev.)	Types of professional identity		Univariate test of equality means across clusters	
		Sustainability-oriented	Traditional	F-statistic	p-value
Accountants can positively contribute to organisational sustainability agendas.	4.119 (0.863)	4.444	3.559	209.102	<0.0001
The current state of the planet and society increases the interest in, and demand for sustainability accounting.	4.053 (0.954)	4.390	3.515	176.973	<0.0001
Sustainability accounting, reporting and assurance can improve corporate reporting.	4.221 (0.802)	4.599	3.668	333.142	<0.0001
Sustainability accounting, reporting and assurance can improve accountants' overall standing in society.	3.982 (0.971)	4.346	3.398	210.212	<0.0001
There are increasing job opportunities in sustainability accounting.	3.540 (1.042)	3.872	3.007	138.793	<0.0001
Sustainability reporting enriches accountants' career choices.	3.725 (1.048)	4.164	3.022	278.374	<0.0001
Incorporating sustainability into the accounting profession is a necessary step in the evolution of the profession.	3.971 (0.979)	4.506	3.113	654.806	<0.0001
Sustainability accounting and reporting should be inherent to the accounting profession.	3.923 (1.031)	4.478	3.033	619.998	<0.0001
Number of observations	713	439	274		

Note: Table no. 2 reports on the respondents' professional identity characteristics (assessed using a 5-point Likert scale, where 1 = strongly disagree and 5 = strongly agree). Moreover, the mean values for the two clusters identified through AHC and the univariate test of equality means across clusters are reported.

Based on the mean values obtained for each item, the clusters were named sustainability-oriented professional identity (439 respondents, 61.57%) and traditional professional identity (274 respondents, 38.43%), respectively. Accordingly, results show how a significant group of students exhibits an interest toward integrating sustainability issues in their identity, alongside traditional financial expertise, as is expected in the current environment (Ott, 2023).

An interesting observation is that, regardless of the inclusion in any of the two clusters, respondents awarded the highest score to the belief that sustainability accounting, reporting and assurance can improve corporate reporting (the statement scored overall the highest mean value of 4.221, with 4.599 for sustainability-oriented professional identity and 3.668 for traditional professional identity, respectively). These findings are consistent with studies documenting the increased importance of sustainability accounting and reporting considering

its impact on improving corporate reputation and efficiency (Herremans, Nazari and Mahmoudian, 2016), as well as on the decision-making process (Ayinla et al., 2024).

Respondents classified as having a sustainability-oriented professional identity consider that the inclusion of sustainability into the accounting profession is a necessary step in the evolution of the profession (mean value of 4.506) and that sustainability accounting should be inherent to the accounting profession (mean value of 4.478). On the other hand, the respondents classified as having a traditional professional identity consider that accountants can positively contribute to achieving organisational sustainability goals (mean value of 3.559), and that the increase of the interest in, and demand for, sustainability accounting comes as a response to the current state of the planet and global society (mean value of 3.515).

The cross-country analysis (not reported) indicates significant diversity in the classification of respondents by cluster. Most countries (Bosnia and Herzegovina, Montenegro, North Macedonia, Serbia, Turkey) have a high proportion of respondents placed in the sustainability-oriented cluster (70 to 75% of respondents), while some (Croatia and Romania) have a medium proportion (56% and 63% of respondents), and the others (Slovenia and Poland) have a low proportion (between 30 and 40%).

**3.2. Factors influencing the accountant’s professional identity**

In terms of the factors contributing to the formation of accountants’ professional identity, the respondents estimated the importance of eight items on which PCA using varimax rotation was further conducted to identify a smaller number of factors influencing professional identity, to investigate how the various stakeholders (items) group together to influence professional identity. The analysed data met the necessary assumptions, as confirmed by Bartlett's Test of Sphericity ( $p < 0.01$ ) and the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy ( $KMO > 0.60$ ). Two factors with Eigenvalues greater than 1 were extracted, explaining 58.219% of the total variance. Factor loadings higher than 0.4 are reported in Table 3.

**Table no. 3. Descriptive statistics and factor loadings for professional identity influences**

Items	Descriptive statistics		Cluster 1	Cluster 2	PCA results (factor loadings)	
	Mean	Std. Dev.			Institutional influences	Competitive influences
Societal aspects (image and stereotypes)	3.809***	1.010	3.806	3.814	0.583	0.435
Employers	4.175	0.813	4.153	4.212	0.692	
Regulations (governmental actions)	4.223	0.891	4.232	4.215	0.704	
Accounting firms	4.205	0.804	4.214	4.190	0.752	
PAOs	4.191	0.830	4.173	4.219	0.728	
Universities	4.177	0.888	4.252**	4.056	0.667	

Items	Descriptive statistics		Cluster 1	Cluster 2	PCA results (factor loadings)	
	Mean	Std. Dev.			Institutional influences	Competitive influences
Independent long-life learning	4.129	0.906	4.175*	4.057	0.651	
Competition from other professions	3.712***	0.983	3.746	3.658	0.600	0.560
Eigenvalues					3.636	1.022
Variance					45.446%	12.773%

Note: Table no. 3 reports the importance of the eight items in shaping the professional identity of accountants, assessed using a 5-point Likert scale, where 1 = not important at all; 5 = very important and the factor loadings resulting from the PCA. Statistical significance at 1% is reported as \*\*\* to reflect the difference between items and between clusters

The first factor (named institutional influences), explaining 45.446% of the variance, includes all items comprised in the analysis. The second factor (named competitive influences), which accounts for 12.773% of the variance, is characterised as competition from other professions and societal aspects and underscores the impact of societal perceptions and cultural contexts on professional identity. The two clusters share many similarities in the importance attached to various factors influence professional identity (thus implying that the difference relies on how respondents perceive the impact), the only differences being for the role of universities and independent long-life learning, with a higher importance attached by respondents with a sustainability-oriented identity.

Results show that six of the eight items analysed are considered important for the formation of professional identity (mean values exceeding 4 = important and factor loadings higher than 0.600), whereas societal aspects and competition from other professions are classified by respondents as slightly less important (3.809 and 3.712, respectively; where 3 = moderately important). Amongst these items, accounting firms (factor loading 0.752), PAOs (factor loading 0.728), and governmental actions in terms of regulations (factor loading 0.704) are important factors impacting accounting professionals' identity (also corroborated with the highest mean values obtained for these institutional influences). These findings support previous studies underlining that accounting firms consist of an important mechanism of anticipatory socialisation in identity formation (Kornberger, Justesen and Mouritsen, 2011), PAOs contribute as ethical standard setters (Davenport and Dellaportas, 2009) and providing continuous support for professional development (Duff, Hancock and Marriott, 2020), while governments play a key role through regulations (Brouard et al., 2017).

Universities (mean value of 4.177) and employers (mean value of 4.175) also report mean values that are very close to that of PAOs (mean value 4.191), underlining their similar contribution to forming the professional identity of accounting practitioners. A Paired Samples Test revealed that there were no statistically significant differences between the perceived importance of universities and other important items (regulations, accounting firms, and professional associations) in shaping professional identity. This suggests that universities play an equally important role in professional identity formation (De Lange, Jackling and Gut, 2006; Jackling and De Lange, 2009).

Moreover, additional analyses (not reported) bring to light some differences in how students in different countries perceive the role of some institutional factors in shaping professional identity. For example, the influence of accounting firms and PAOs on professional identity varies significantly across countries, with respondents from Montenegro rating both accounting firms and professional associations as significantly less influential compared to other countries, such as Bosnia and Herzegovina, Croatia, and Serbia. Furthermore, respondents from Montenegro rated the role of universities as less important relative to other countries, while respondents from Bosnia and Herzegovina, Croatia, Poland, Romania, and Serbia placed greater emphasis on universities, underscoring their strong role in shaping professional identity. Serbia stood out for its emphasis on PAOs, highlighting that these organisations play a significant role in shaping professional identity in this country. These findings underline the importance of cultural and institutional contexts in influencing how professional identity is formed across different countries (Brouard et al., 2017).

**3.3. Role, enablers of, and barriers to, sustainability accounting education**

The role of accounting education is analysed next, based on the answers related to the coverage of sustainability accounting in academic curricula (Segovia and Galang, 2002; Khan, 2013) and the perceived relevance of sustainability accounting for a future accounting-related career (Chulián, 2011; Shephard and Furnari, 2012; Rangarajan and Joshi, 2019; Lohberger and Braun, 2022; Hyytinen et al., 2023) (see Table no. 4).

**Table no. 4. Role of sustainability education**

Category	Separate course	Included in courses	Guest lectures	Not covered	Number of obs.	Mean value for	
						Education intensity	Relevance for future
<b>Overall sample - no. (%)</b>	32 (4.48%)	371 (52.03%)	185 (25.95%)	199 (27.91%)	713	1.435	3.819
<b>Cluster 1</b>	22 (5.01%)	282 (64.24%)	111 (25.28%)	144 (32.81%)	439	1.687***	4.025***
<b>Cluster 2</b>	10 (3.65%)	89 (34.48%)	74 (27.00%)	55 (20.07%)	274	1.029	3.489
<b>By country</b>							
Bosnia and Herzegovina	8.05%	62.07%	15.11%	27.71%	87	1.632	4.218
Croatia	11.11%	47.22%	37.96%	21.30%	108	1.657	3.620
Montenegro	1.90%	40.38%	42.31%	26.92%	52	1.288	3.308
North Macedonia	1.63%	34.43%	39.34%	32.79%	61	1.131	3.902
Poland	2.02%	58.58%	21.21%	31.31%	99	1.444	3.939
Romania	4.88%	59.76%	15.85%	19.51%	82	1.500	4.159
Serbia	2.41%	71.08%	24.09%	16.87%	83	1.735	3.964
Slovenia	2.00%	34.00%	10.00%	54.00%	50	0.840	3.760
Turkey	2.20%	45.05%	28.57%	34.07%	91	1.253	3.374
<b>By type of accreditation</b>							
International academic (e.g., AACSB)	7.60%	49.42%	31.94%	25.09%	263	1.536	3.779
International professional (e.g., ACCA)	9.09%	52.73%	30.45%	22.73%	220	1.632	3.791
National professional	9.52%	53.81%	29.52%	22.38%	210	1.657	3.843

*Note:* Table no. 4 reports how sustainability education is delivered, in terms of intensity of education – a score is computed based on forms of inclusion (e.g., separate sustainability courses – score of 3, sustainability topics included in other courses – score of 2, guest lectures on sustainability topics – score of 1, or not covered at all – score of 0). Since all options were available to be selected, the intensity score may range from 0 (no inclusion) to 6 (where students experience all forms of inclusion). The perceived relevance of sustainability education for the future career (assessed using a 5-point Likert scale, where 1 = not relevant at all; 5 = very relevant) was also provided.

The results suggest that sustainability topics are included in some accounting and auditing courses for around half of the analysed cases, whereas guest lectures on these topics are frequent for approximately one quarter of the cases. Despite the growing worldwide recognition and importance of sustainability issues, organising separate courses of sustainability accounting is still very rare in the universities in the CEE region, occurring in less than 5% of the cases. These findings confirm previous studies that highlight inconsistency and even a superficial approach when it comes to the matter of integrating sustainability into accounting education (Jorge, Peña and de los Reyes, 2017).

The cross-country analysis reveals that sustainability education is considered the most relevant for future accounting career in Bosnia and Herzegovina and Romania (the only countries with mean values between 4 = relevant and 5 = very relevant). These results could also justify the increased interest shown in Bosnia and Herzegovina in incorporating sustainability topics into existing accounting courses (second with 62.07%, after Serbia and closely followed by Romania and Poland), but also to provide separate sustainability accounting courses (ranking second with 8.05%, after Croatia, and significantly above the overall average of 4.48%). On the opposite side, the two countries that assessed sustainability accounting as less relevant for developing a career in accounting are Montenegro and Turkey (with mean values significantly below the overall average of 3.819). However, Montenegro ranks first in terms of organising guest lectures covering sustainability accounting topics (with 42.31%), followed closely by North Macedonia and Croatia, all these countries showing involvement in such activities significantly above the overall average (25.95%). Despite these ongoing efforts to raise awareness of sustainability topics and include them in the accounting education of future practitioners, results show that much work remains to be done. Almost a third of responses report that sustainability aspects are not covered at all by universities' curricula. Such countries are Slovenia (54%), followed by Turkey, North Macedonia, and Poland (all between 30 to 35%).

Findings also suggest that accreditations have some, but quite modest (still significant at 10%, 5%, and 1%, respectively), influence on how universities address sustainability education. An increase in the separate sustainability courses and more guest lecturers in university accredited programmes is observed, as well as a slightly lower percentage of students reporting noncoverage of sustainability.

The role of sustainability education is visible as well, as respondents with a sustainability-oriented professional identity were exposed more intensively to sustainability accounting education. Also, these respondents consider that sustainability education is more relevant for their future career, relative to respondents with a traditional professional identity.

The enablers and barriers to the inclusion of sustainability topics in accounting education are analysed next. Respondents indicated their perception of the importance of eight enablers and seven barriers, with results reported in tables no. 5 and 6.

**Table no. 5. Enablers of sustainability accounting education**

Items	Mean	Standard deviation
The need for accountants to strengthen relevance and credibility of reporting	4.205	0.833
Expectations from organisations to promote socially responsible behaviour	4.210	0.876
Expectations from universities to promote socially responsible behaviour	4.216	0.906
Expectations from organisations to promote responsible corporate principles	4.209	0.845
Expectations from universities to promote responsible corporate governance principles	4.115	0.900
Expectations from universities to prepare students for sustainability accounting	4.177	0.869
General societal trend towards sustainability and sustainability accounting	4.003	0.882
Sustainability reporting regulations	4.171	0.891

Note: Table no. 5 reports on how participants rated the enablers of sustainability accounting education (assessed using a 5-point Likert scale, where 1 = not important at all; and 5 = very important).

The mean values obtained for all institutional enablers included in the analysis (higher than 4 = important) show that respondents assessed these factors as highly important in enabling the development of sustainability accounting education. Accordingly, universities are expected to promote socially responsible behaviour, responsible corporate governance principles, as well as to prepare students for sustainability accounting (these institutional enablers scoring the top three greatest factor loadings amongst all analysed enablers). These findings are consistent with studies suggesting that universities should integrate sustainability metrics and related topics into curricula (Cho and Costa, 2024), aligning their programmes with global sustainability goals to prepare students for the evolving demands of the profession (Bebbington and Thomson, 1996; Franco et al., 2019). Furthermore, societal and regulatory enablers analysed in terms of the general societal trend towards sustainability and regulations for sustainability reporting (Brouard et al., 2017) are also found to exert an important influence on encouraging the education of accounting practitioners in the field of sustainability topics.

**Table no. 6. Barriers to sustainability accounting education**

Items	Mean	Std. Dev.
Lack of financial resources in universities	3.869	0.991
Lack of instructional materials including textbooks	4.007	0.995
Limited job opportunities related to sustainability accounting	4.071	0.866
Too many courses in the curriculum	3.740	1.075
Lack of student interest in sustainability topics	3.911	0.991
Inconsistencies with, and the need for, traditional profit-oriented education	3.920	0.943
Lack of importance of sustainability for the accounting profession	3.906	0.993

Note: Table no. 6 reports how participants rated the factors preventing sustainability accounting education from developing (assessed using a 5-point Likert scale, where 1 = not important at all; and 5 = very important).

Results indicate that the most important barriers are the limited job opportunities related to sustainability accounting, lack of instructional materials, and the inconsistencies with, and the need for, traditional profit-oriented education. These findings highlight the need to raise awareness on the importance of sustainability-related topics, and of increasing their visibility, especially among future accounting practitioners. This outcome is also in line with studies

underlining that students who are aware of its importance are more inclined to embrace sustainability education and apply it in their future careers (Chulián, 2011; Shephard and Furnari, 2012; Rangarajan and Joshi, 2019; Lohberger and Braun, 2022; Hyytinen et al., 2023). Results also show that universities falling short of financial resources and instructional materials are negatively influencing the development of sustainability education, by hindering investments (Chulián, 2011; Brouard et al., 2017; Boulianne, Keddie and Postaire, 2018) and affecting the effectiveness of teaching sustainability topics (Khan, 2013; Botes, Low, and Chapman, 2014).

## **Conclusions**

This article contributes to the literature in several ways. First, it adds to the accounting sustainability literature in CEE by providing comparative results on the professional identity of prospective accountants and the role of universities in shaping this identity. The results indicate that more than 60% of respondents possess a professional identity incorporating sustainability, and those doing so were exposed to more intensive sustainability-oriented education and consider that universities play an important role in forming the profession.

Secondly, this result brings a theoretical contribution to the framework by Brouard et al. (2017), by studying the role played by universities in promoting the sustainability agenda in the accounting profession. The Brouard et al. (2017) framework discussed the critical role of society and the accounting profession at large in shaping the professional identity of accountants; this research contributes another very relevant stakeholder to this framework and extends prior literature for the use of future research.

Thirdly, this paper adds to the sustainability literature addressing the education of the accounting profession in general and from CEE in particular. The results of this paper bring evidence of sustainability education, and its enablers and barriers. As such, universities are expected to promote socially responsible behaviour, responsible corporate governance principles, and prepare graduates for sustainability accounting. These efforts are doubled by societal and regulatory enablers (a general societal trend towards sustainability and regulations for sustainability reporting). The most important barriers to sustainability education in accounting programmes are related to limited opportunities perceived in the profession and lack of educational resources. With sustainability increasingly becoming a topical business issue, the results of this study further emphasise the need to raise awareness of such topics within the accounting profession.

The paper is not without limitations. First, the usual limitations of questionnaire-based surveys apply. However, the inclusion of the instructed response item was intended to deal with inattentiveness bias. Second, not all the countries geographically located in CEE are represented in the survey; however, the largest countries in the region were included (i.e., Poland and Romania), along with some smaller countries. Instead, Turkey was added for its geographical position and similarities with the European countries that are represented. Finally, while the analysis benefits from being conducted at a regional level (with details at country level provided when possible), some differences between countries remain silent.

Additional research is needed to shed light on the role of universities in shaping a sustainability-oriented accounting profession. Future research may include other countries in the region, or in comparable regions, or may focus on topics where this research did not

provide significant results. For example, while the coauthors of this paper have provided information on the accreditation status of the programmes enrolling the students who answered this survey, the analyses did not carry in-depth explanations on the role of obtaining such accreditation status. Besides accreditation by national agencies, obtaining accreditation from international or national PAOs is very important, at least in some of the countries in the CEE region, and understanding more about the importance of this process on the formation of the accountants' professional identity would prove important.

This research can be further extended to investigate specific cases of universities and programmes that have increased the proportion of sustainability-related courses and actions and the impact of such measures on the interests of accountants in such topics, or in-depth investigations of how prospective accountants deal with sustainability issues.

Another potentially interesting avenue for further research is to explore the cross-country differences that manifest in the data. For example, it would be interesting to explore the high variation that was obtained between countries in respect of the professional identity of prospective accountants (between 30% and 75% of the respondents exhibit a sustainability-related professional identity). The impact of national measures, perceptions of sustainability, and institutional factors could be further explored.

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