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Article

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Modelling the Influences of Universities Culture on Sustainable Development

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Abstract: Sustainable development is not exactly a new topic, but seen in the light of recent events, there is a growing need to identify new ways of putting sustainable development principles into practice. The present paper aims to analyze the influence that elements of organizational culture have on sustainable development to increase the efficiency and effectiveness of implementing sustainable development management in Romanian higher education institutions. Since organizational culture influences organizational strategies, the article proposes a conceptual model for determining the influence of organizational culture on the implementation of sustainable development management. An argument for carrying out this study is the need to increase sustainable development practices in the Romanian labour market, starting from the changes in the educational system. As a result, we mention a model that can facilitate changes in the university culture, with influences on the integration of modern and topical theories and practices, such as sustainable development. The obtained results indicate a low correlation between university culture and sustainability, which opens another perspective on the need for a change of mentality in the Romanian university environment. The change concerns both vertical and horizontal integration, with micro and macro effects. The results are important for the Romanian university environment, first of all, to identify good practices or at least to see the need to transform the existing organizational culture. For university decision-makers, it helps to base development trends on existing realities. Last but not least, it may raise the question of extending the usefulness and importance of the study to the level of triple helix models in which universities should be much more active.

Keywords: organizational culture; sustainable development; universities; change management; model.

Introduction

Education, as a driving element of change and transformation in society (Oprean & Stan, 2015), has the power to help societies (Vaiciukevičiūtė et al., 2019) and the world at large change for the better (Chatterton, 2000), helping members of a society learn from the mistakes of the past (Prasad & Gupta, 2020). The transformative role of higher education institutions in achieving society-wide development goals is well known (Zaidan et al., 2023). The state and the whole civil society should play a crucial role in enacting education for sustainable development (Pulis et al., 2018), education that requires an integrated vision of learning (Holst, 2022). In order to improve environmental innovation, decentralized decision-making solutions have been encouraged at the level of public institutions (Feng et al., 2020), and at the university level, a link between innovation and organizational culture has been created (Gorzelany et al., 2021).

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Also, reconsidering the values of organizational culture in public institutions (Onyango & Ondiek, 2021), specifically in universities, is the first step in the process of societal change (Gogoescu, 2014). Continuity would be implementing sustainable development through the Triple Helix concept, with universities adding industry and government support for a more sustainable consolidation of the process (Vladi, 2016). Universities should be able to produce a workforce that meets the demand for competent actors and contribute to the successful implementation of the Sustainable Development Goals (SDGs) by integrating education for sustainable development and sustainability principles into their institutional strategy and organizational culture (Al-Nuaimi & Al-Ghamdi, 2022). It has been shown that intellectual capital in universities plays an important role in influencing the effectiveness of teaching and research (Lu, 2012). Consequently, it can impact sustainability growth.

Also, just as embedding entrepreneurial practices in universities has facilitated entrepreneurial education in the private sector, embedding sustainable development practices in higher education increases the chances of building a sustainable society (Bamber & Elezi, 2020). Higher education leaders can enact change (Prasad & Gupta, 2020); moreover, they can propagate it further by generating change in all state systems. A turning point in university culture was the Covid-19 crisis, when the need to improve sustainable digital development in higher education teaching arose (Davidovitch & Eckhaus, 2024), which involved a reshaping of higher education through the implementation, development and dissemination of digital technologies among teachers and students (Sá & Serpa, 2020). The COVID-19 pandemic has also raised expectations of a "green recovery", where understanding the role of pollution will promote cleaner technologies (Goenka et al., 2021) and pave the way for sustainable practices in a post-pandemic era (Chun et al., 2024). The prerequisites for creating and developing innovative technology for sustainable human resource development in universities for the benefit of students emerged before the pandemic crisis (Tripon, 2014), which is also motivated by the fact that members of Generation Z, the so-called digital natives, have slowly begun to penetrate the ranks of students (Bucovețchi et al., 2019).

The article answers the question: How is university culture related to the concept of sustainable development? Are the practices and theory of sustainable culture embedded in elements of culture or is a change needed? Higher education institutions are considered to have the vision, knowledge and capacity to lead this transition (Casado da Rocha, 2019) and to induce change towards sustainable development (Ramísio et al., 2019). However, implementing the sustainable development goals the institution assumes depends on aspects related to organizational culture (Bauer et al., 2020), although it is not yet known what characteristics such a culture should have (Ketprapakorn & Kantabutra, 2022). Organizational culture is a very powerful integrator (Brătianu, 2011) and that's why a harmonious organizational culture contributes to the promotion of a harmonious society, with an emphasis on a shared organizational vision and the integration of sustainable development practices (Tang, 2008) that contribute to the improvement of countries' environmental performance (Ozcan et al., 2020). The context that can integrate these directions is social globalization, which comes with a greater exchange of ideas and information, as well as cultural integration, which can make people more aware and receptive to change (Mukherjee & Dutta, 2018).

Specifically, this approach's originality is enhanced by including military universities in the study, which particularly enhances the importance of the academic and local public administration environment at the local level. As presented before, the article starts with a brief introduction to the main lines of work and the actuality of the research. This is followed by a component reviewing some bibliographical references on sustainable development and the need to address sustainability in the university environment. After the methodological considerations, the research part highlights the conceptual working model and correlation analysis between the established organizational variables. These are, in fact, the main sections on which the conclusions and discussions in the final part are based and favoured.

Literature review

Education managers can use culture as a social control system for adopting sustainability practices (Butt et al., 2024). The role of culture as a practical tool for managing organizational processes aimed at managing strategic change has been recognized since the 1990s (Morgan, 1993), as well as human resources, which play a vital role in successfully managing strategic cultural change (Burack, 1991). These directions of change should be placed in a broader, macro-level cultural context, which puts its imprint on micro-level culture (Prashantham & Eranova, 2020). The literature notes studies that have positively associated students' entrepreneurial attitude, part of the culture, and their entrepreneurial intentions in sustainability directions (Bharti et al., 2024), and the role of culture as a predictor for the effective performance of educational institutions are recognised (Yousaf et al., 2022). In fact, the need for this study to analyze the relationship between culture and sustainability in universities also stems from the need to train students in sustainable entrepreneurial skills (Naderi et al., 2022) and to facilitate the transition from education to work for graduates (Herbert et al., 2020). Concerns for students' well-being during their studies can also contribute to the creation of a sustainable university culture, impacting budding specialists (Khatri et al., 2024).

In order to build a sustainable culture at the societal level and to improve the population's response rate to global environmental measures, we need to start with education (Yadav & Prakash, 2022). The literature cites the importance of schools, which, through education, are in a unique position to influence global mindsets and actions (Cicmil et al., 2017); the relationship between education and societal development is undeniable (Carvalho, 2024). The link between education and sustainable development at all levels of education is captured in the literature (Adnyana et al., 2023), with an emphasis on its importance in addressing current and future sustainability issues (Sass et al., 2023). Publications in this direction also include studies analyzing the obstacles that have stood in the way of achieving responsible education (Ramboarisata & Gendron, 2019).

The concept of sustainable development, launched in the World Conservation Strategy (1980), taken up in the Brundtland Report – Our Common Future (1987) and subsequently in United Nations documents, has become the target of global concern. Since sustainability has been recognized as a challenge or issue requiring a global response, all societal actors need to be involved in achieving the goals at local, national, regional and international levels (Weybrecht, 2017). With the Millennium Development Goals adopted in 2000 at the Millennium Summit (Millennium Summit, 2000) as a starting point, the 2030 Agenda for Sustainable Development was adopted in 2015 (European Commission, 2015), which sets out a global framework for eradicating poverty and achieving sustainable development. The agenda is considered to have the potential to streamline the process of engaging new higher education institutions in the field of responsible education and enable education to contribute more to social good. (Storey et al., 2017) The imperative of integrating sustainable development goals into universities is coupled with the need to develop inter-institutional assessment tools tailored to different aspects of sustainability, (Basheer et al., 2024) as well as to design a set of indicators to measure the social impact (Compan et al., 2024) of using these tools.

Sustainability can be understood, both through the prism of climate change, which should be realized by all students, but especially those directly involved, such as agronomy students (Cornejo et al., 2024), and through the prism of physical and social sustainability involving different educational agents (Luchoro-Parrilla et al., 2024). Another direction for the application of sustainability in the university environment is indicated by a study showing that Spanish universities have the potential to contribute to the reduction of CO_2 emissions by implementing sustainability practices on their websites. The aim of the research was to raise awareness about the use of technology and its impact on the environment, promoting the adoption of green and sustainable approaches (Sanchez-Cuadrado & Morato, 2024).

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The number of publications investigating the level of knowledge and applicability of sustainability in universities has increased. Thus, a study conducted in Portugal demonstrated a lack of knowledge among students on the application of water efficiency measures in universities (Barreiros, 2024). But for knowledge management such as sustainability knowledge to be successful, it needs to be strategically designed, culturally supported, technologically enabled and integrated into existing processes (Santos et al., 2024), facilitating the transition to concepts such as sustainable design and green architecture (Bradecki et al., 2024).

Although the literature demonstrates that there is an initiative to implement sustainability at the university level, there are studies that have shown that developing students' practical skills by implementing sustainability knowledge in formal education takes time and highlights the need for longitudinal research studies in the field of sustainability (Olsson et al., 2022). Encouraging is the common denominator of sustainability education literature, which treats sustainability as a basic paradigm of quality education (Holst, 2023), with teachers integrating sustainability topics into their teaching at the level of awareness of the topic (Idoiaga et al., 2023).

Methodology

The proposed conceptual model starts from the idea that *organizational culture has an impact on the implementation of sustainable development management* and is based on Denison's (Denison & Mishra, 1995) and Bass and Avolio's (1992) models of organizational culture, which provide several important insights for understanding the influences acting on organizational culture and, automatically, on sustainable development management (Mobley et al., 2005). Data collection based on which the model was built was done by means of selective research, which had as its main purpose the analysis of the influence that organizational culture has on organizational behavior in sustainable development management, to improve and adapt them to increase efficiency and effectiveness in the implementation of sustainable development management in higher education institutions in Romania.

The statistical collectivity of our scientific approach, hereafter referred to as respondents, was represented by academics from state and private higher education institutions in Romania. The research carried out was descriptive, simple, cross-sectional and involved collecting information about the investigated problem by conducting the research once on a sample of respondents. Given the specificity of this quantitative selective online research and the willingness of respondents to be part of the research and to provide the necessary information, non-probability sampling was chosen using the *snowball method*. The study's authors collected the information through an online questionnaire administered through the Google Forms platform between February and June 2020. From the total number of responses received (197), the answers of 174 academics from military and civilian higher education institutions in Romania were validated (Halmaghi et al., 2023). Of the total number of respondents, 51% were female and 49% male. By age group, respondents were categorised as follows: 25-35 years - 10%; 36-45 years - 35%; 46-55 years - 37%; 56-65 years - 15%; and over 65 years - 3%. It should be noted that 87% of the respondents were civilian teachers, and 13% were military teachers. Also, of the total number of respondents, 34% work in military higher education institutions and 66% in civilian higher education institutions. Thus, the analysis joins studies building social trust in environmental performance (Shahab et al., 2023).

Over time, certain issues of interest have been published based on the respective research. One such approach, demonstrating the authors' interest in the topic, is the one mentioned in the source published in 2023. The intention is to repeat the application of the questionnaire to investigate how the perception of the investigated topic has changed post-pandemic and correlated with the war in Ukraine, two major events that substantially impact the management of organizational knowledge.

Modelling the influences of organizational culture on the implementation of sustainable development management

The proposed conceptual model

The proposed conceptual model entitled "*Model of the Influences of Organizational Culture on the Implementation of Sustainable Development Management - MIOC-SDM*" consists of the following major components: a) the core element: organizational culture; b) internal and external factors acting on organizational culture: university management, elements of organizational culture (mission, principles, values, etc.), elements of the external environment (legislation, economic environment, national culture, etc.); c) the ways in which organizational culture is manifested: symbols, norms, rituals, structures and roles, etc.; d) elements relating to the behavior of teachers and students in relation to the concepts of "organizational culture" and "sustainable development management".

The next step was to codify the influencing factors (Table 1). Coding the influencing factors helped us to put the proposed conceptual model in graphic form more easily (Figure 1).

Table 1. Coding factors influencing organizational culture

Component	Coding	Component	Coding
Organizational Symbols	OS	Tradition and Past of the University	TPU
Organizational Behavioral Norms	OBN	Sustainability of Values and Concepts	SVC
Rituals and Ceremonies	RC	The size of the University	SU
Staff Statuses and Roles	SSR	Financial Situation of the University	FSU
Organizational Stories and Myths	OSM	Leadership Style	LS
The University Rector	UR	Quality of Teaching	QT
University Vice-Rectors	UVR	Educational Offer	EO
Deans & Vice-Deans	DV	National Legislation	NL
University Mission	UM	Economic Environment	EE
University Objectives	UO	National Culture	NC

Source: own processing

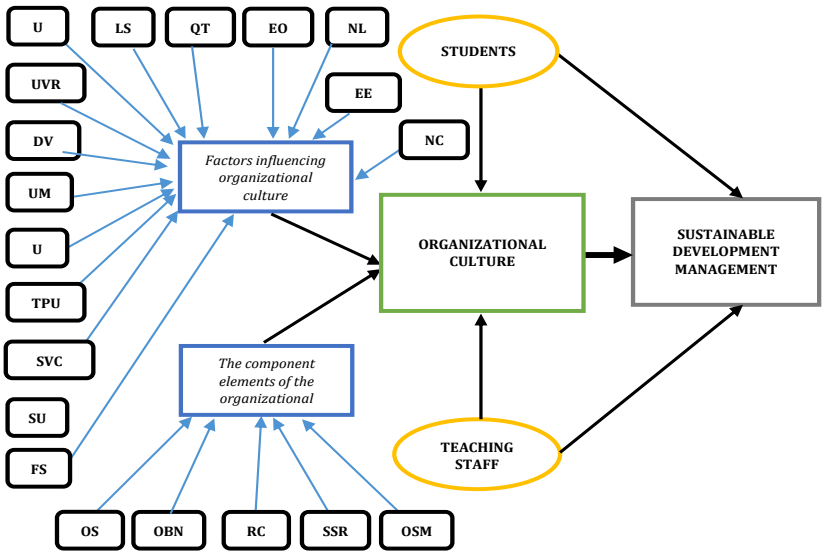

Figure 1. Proposed conceptual model for determining the influence of organizational culture on sustainable development management

Source: own processing

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Testing and validating the proposed conceptual model

The work of testing and validating the proposed conceptual model is a complex activity, involving several important steps in the modelling process. Figure 1 schematizes the proposed conceptual model for determining the influence of organizational culture on the implementation of sustainable development management. For this purpose, it was decided to carry out the following analysis activities: determination of the accuracy of the measurements by Cronbach Alpha coefficient, analysis of the correlations between the variables under investigation and the organizational culture component and exploratory factor analysis.

a) Determination of measurement accuracy by Cronbach's Alpha coefficient

In order to achieve a clear analysis of the data, it was considered necessary to carefully analyze the measurement process and its accuracy as well as the internal consistency of the latent variables in the research (Table 2). Thus, the statistical analysis software SPSS v. 20 was used to calculate the Cronbach Alpha coefficient. This coefficient takes values between 0 and 1 (Cătoiu, 2009), and to ensure that the items analyzed significantly influence the latent variables, the value of the Cronbach Alpha coefficient must be at least 0.700 (Tavakol & Dennick, 2011).

Table 2. Overall Cronbach's Alpha coefficient reliability statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	Number of Items
0.898	0.900	15

Source: own processing in SPSS software

Following the statistical calculations, the overall Cronbach Alpha coefficient is 0.898, which means that the items analyzed significantly influence the latent variables. The Cronbach Alpha coefficient was analyzed for a more detailed analysis of each item (Table 3).

Table 3. Cronbach's Alpha coefficient specific to the variables analyzed

Calculated variables	Coding	Cronbach Alpha Coefficient
The University Rector	UR	0.891
University Vice-Rectors	UVR	0.890
Deans & Vice-Deans	DV	0.891
University Mission	UM	0.892
University Objectives	UO	0.891
Tradition and Past of the University	TPU	0.893
Sustainability of Values and Concepts	SVC	0.890
The Size of the University	SU	0.895
Financial Situation of the University	FSU	0.896
Leadership Style	LS	0.894
Quality of Teaching	QT	0.894
Educational Offer	EO	0.891
National Legislation	NL	0.892
Economic Environment	EE	0.892
National Culture	NC	0.892

Source: own processing in SPSS software

Table 3 shows that the values recorded by the variables analyzed using the statistical analysis of Cronbach Alpha coefficient take values between 0.890 and 0.896, which means that the calculated variables significantly influence the latent variables and exceed the significance threshold of 0.700. At the same time, these coefficients demonstrate the

accuracy of the measurement process as well as the internal consistency of the latent variables in the research.

The components of the organizational culture were also analysed to ensure the accuracy of the measurements. According to the statistical analysis, a Cronbach Alpha coefficient value of 0.861 was obtained (Table 4), representing a high degree of accuracy of the measurements (the minimum value is 0.700).

Table 4. Overall Cronbach's Alpha coefficient for the components of the organizational culture reliability statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	Number of Items
0.861	0.862	5

Source: own processing in SPSS software

The individual Cronbach Alpha coefficients for the five components of organizational culture range from 0.814 to 0.848, which again shows a high degree of measurement accuracy, as shown in Table 5.

Table 5. Cronbach's Alpha coefficient specific for the components of organizational culture

Calculated variables	Coding	Cronbach Alpha Coefficient
Organizational Symbols	OS	0.830
Organizational Behavioral Norms	OBN	0.848
Rituals and Ceremonies	RC	0.814
Staff Statuses and Roles	SSR	0.835
Organizational Stories and Myths	OSM	0.829

Source: own processing in SPSS software

b) Analysis of correlations between the variables investigated and organizational culture

Before proceeding to the correlation analysis, a homogeneity test was performed on the data related to the variables to be taken into the Pearson correlation coefficient analysis. Thus, the coefficient of variation, which takes values between [0 and 100], was calculated. The homogeneity analysis of the data is shown in Table 6.

Table 6. Coefficient of variation and data homogeneity

Calculated variables	Coding	Average	Standard deviation	The coefficient of variation	Coefficient of variation (%)
The University Rector	UR	4.46	0.703	0.157623318	15.76
University Vice-Rectors	UVR	4.236	0.8022	0.189376771	18.94
Deans & Vice-Deans	DV	4.25	0.781	0.183764706	18.38
University Mission	UM	3.989	0.8397	0.210503886	21.05
University Objectives	UO	4.11	0.803	0.195377129	19.54
Tradition and Past of the University	TPU	3.586	0.9066	0.252816509	25.28
Sustainability of Values and Concepts	SVC	3.937	0.7985	0.202819406	20.28
The Size of the University	SU	3.362	0.823	0.244794765	24.48
Financial Situation of the University	FSU	4.178	0.8027	0.192125419	19.21
Leadership Style	LS	4.471	0.6240	0.139566093	13.96
Quality of Teaching	QT	3.931	0.9223	0.234622234	23.46
Educational Offer	EO	3.586	0.9860	0.274958171	27.50

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Calculated variables	Coding	Average	Standard deviation	The coefficient of variation	Coefficient of variation (%)
National Legislation	NL	4.190	0.8491	0.202649165	20.26
Economic Environment	EE	4.023	0.8394	0.208650261	20.87
National Culture	NC	4.155	0.9149	0.220192539	22.02
Organizational Symbols	OS	3.506	0.8784	0.250541928	25.05
Organizational Behavioral Norms	OBN	3.989	0.7900	0.198044623	19.80
Rituals and Ceremonies	RC	3.362	0.9562	0.284414039	28.44
Staff Statuses and Roles	SSR	3.874	0.8090	0.208828085	20.88
Organizational Stories and Myths	OSM	3.293	1.0202	0.309808685	30.98

Source: own processing in SPSS software

As shown in Table 6, the coefficient of variation takes values from 0.13956 (13.96%) to 0.30980 (30.98%). According to the theory, the data set is considered homogeneous if it does not exceed 35%. In our case, no variables exceed 35%, which means that the data obtained have a high degree of homogeneity. In this sub-item, we wanted to highlight, by means of the Pearson Correlation Coefficient, the existence of a link between the variables under investigation, the degree of intensity of the link, as well as the direction and shape of the link. The Pearson Correlation Coefficient takes values between $-1 \leq p \geq +1$. If $p = 0$, there is no link between the variables under investigation. The link is stronger if p has a value closer to +1 or -1. If the value of p is positive, then the link is positive, and if the value of p is negative, then the link between the variables is negative. This step checks the correlations between the variables calculated by the questionnaire and the resulting latent variables. The results obtained from analyzing the data using SPSS are shown in Tables 7, 8, 9, 10, 11, and 12.

Table 7. Correlation between university leadership and organizational culture variable

Variables		The University Rector	University Vice-Rectors	Deans & Vice-Deans	Leadership Style	Organizational Culture
The University Rector	Pearson Correlation	1	0.740**	0.633**	0.543**	0.341**
	Sig. (2-tailed)		0.000	0.000	0.000	0.000
	N	173	173	172	173	173
University Vice-Rectors	Pearson Correlation	0.740**	1	0.815**	0.470**	0.291**
	Sig. (2-tailed)	0.000		0.000	0.000	0.000
	N	173	174	173	174	174
Deans & Vice-Deans	Pearson Correlation	0.633**	0.815**	1	0.410**	0.315**
	Sig. (2-tailed)	0.000	0.000		0.000	0.000
	N	172	173	173	173	173
Leadership Style	Pearson Correlation	0.543**	0.470**	0.410**	1	0.299**
	Sig. (2-tailed)	0.000	0.000	0.000		0.000
	N	173	174	173	174	174
Organizational Culture	Pearson Correlation	0.341**	0.291**	0.315**	0.299**	1
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	
	N	173	174	173	174	174

** Correlation is significant at the 0.01 level (2-tailed)

Source: own processing in SPSS software

Analysing Table 7, we can conclude that the rector has the strongest link with the organizational culture, followed by the deans and pro-deans, who are responsible for the working environment in the faculties. The leadership style practised by management also influences the culture, with a moderate correlation between the two variables.

Table 8. The correlation between aspects of mission, principles, values an organizational culture variable

Variables		University Mission	University Objectives	Tradition and Past of the University	Sustainability of Values and Concepts	Organizational Culture
University Mission	Pearson Correlation	1	0.814**	0.464**	0.464**	0.291**
	Sig. (2-tailed)		0.000	0.000	0.000	0.000
	N	174	173	174	174	174
University Objectives	Pearson Correlation	0.814**	1	0.422**	0.463**	0.310**
	Sig. (2-tailed)	0.000		0.000	0.000	0.000
	N	173	173	173	173	173
Tradition and Past of the University	Pearson Correlation	0.464**	0.422**	1	0.642**	0.290**
	Sig. (2-tailed)	0.000	0.000		0.000	0.000
	N	174	173	174	174	174
Sustainability of Values and Concepts	Pearson Correlation	0.464**	0.463**	0.642**	1	0.218**
	Sig. (2-tailed)	0.000	0.000	0.000		0.004
	N	174	173	174	174	174
Organizational culture	Pearson Correlation	0.291**	0.310**	0.290**	0.218**	1
	Sig. (2-tailed)	0.000	0.000	0.000	0.004	
	N	174	173	174	174	174

** Correlation is significant at the 0.01 level (2-tailed)

Source: own processing in SPSS software

The university's organizational goals and mission demonstrate a positive relationship with culture but have little influence in shaping organizational culture (Table 8). A higher education institution that implements research and educational goals will, over time, develop a hierarchical culture dominated by a certain degree of formalism, oriented towards competence and efficiency but also with a certain degree of flexibility. Universities have become increasingly closely associated with communities, with many embracing sustainable development as part of their mission (Compan et al., 2024).

Table 9. The correlation between aspects of size, offer, financial and organizational culture variable

Variables		The Size of the University	Financial Situation of the University	Quality of Teaching	Educational Offer	Organizational Culture
The Size of the University	Pearson Correlation	1	0.462**	0.326**	0.516**	0.321**
	Sig. (2-tailed)		0.000	0.000	0.000	0.000
	N	174	174	174	174	174
Financial Situation of the University	Pearson Correlation	0.462**	1	0.165*	0.298**	0.204**
	Sig. (2-tailed)	0.000		0.030	0.000	0.007
	N	174	174	174	174	174
Quality of Teaching	Pearson Correlation	0.326**	0.165*	1	0.585**	0.219**
	Sig. (2-tailed)	0.000	0.030		0.000	0.004

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Variables		The Size of the University	Financial Situation of the University	Quality of Teaching	Educational Offer	Organizational Culture
	N	174	174	174	174	174
Educational Offer	Pearson Correlation	0.516**	0.298**	0.585**	1	0.285**
	Sig. (2-tailed)	0.000	0.000	0.000		0.000
	N	174	174	174	174	174
Organizational Culture	Pearson Correlation	0.321**	0.204**	0.219**	0.285**	1
	Sig. (2-tailed)	0.000	0.007	0.004	0.000	
	N	174	174	174	174	174

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).
Source: own processing in SPSS software

According to the data in Table 9, the size of the organization creates a relationship with culture variables, with employee attitudes and behaviors leaving an imprint on organizational philosophy. The link is not very strong, however, because the cultures of public institutions are not very rigid and new entrants are easily assimilated and share existing values very quickly. Operating in a dynamic and ever-changing world under the pressure of continuous innovation, universities have developed a culture of learning (Gedifew & Muluneh, 2022).

Table 10. Correlation between external environmental aspects and organizational culture variable

Variables		National Legislation	Economic Environment	National Culture	Organizational Culture
National Legislation	Pearson Correlation	1	0.561**	0.587**	0.362**
	Sig. (2-tailed)		0.000	0.000	0.000
	N	174	174	174	174
Economic Environment	Pearson Correlation	0.561**	1	0.485**	0.160*
	Sig. (2-tailed)	0.000		0.000	0.035
	N	174	174	174	174
National Culture	Pearson Correlation	0.587**	0.485**	1	0.377**
	Sig. (2-tailed)	0.000	0.000		0.000
	N	174	174	174	174
Organizational Culture	Pearson Correlation	0.362**	0.160*	0.377**	1
	Sig. (2-tailed)	0.000	0.035	0.000	
	N	174	174	174	174

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).
Source: own processing in SPSS software

The values of national culture, deeply rooted in the consciousness of the Romanian people, significantly influence culture at the institutional level, in terms of the culture embraced (Henderson et al., 2024). Moreover, some dimensions of national culture influence environmental innovation, hence sustainable development (Ullah et al., 2022). The analysis in Table 10 shows a positive but rather weak link between university culture and national culture. National culture patterns can have positive or negative effects on organizational performance (Halkos & Tzeremes, 2011). A very weak link between university culture and the economic environment should be mentioned here,

demonstrating a 'disconnect' between practice and theory, between the one who instructs and the labour market.

Table 11. Correlation between modes of manifestation and organizational culture variable

Variables		Organizational Symbols	Organizational Behavioral Norms	Rituals and Ceremonies	Staff Statuses and Roles	Organizational Stories and Myths	Organizational Culture
Organizational Symbols	Pearson Correlation	1	0.600**	0.600**	0.481**	0.562**	0.404**
	Sig. (2-tailed)		0.000	0.000	0.000	0.000	0.000
	N	174	174	174	174	174	174
Organizational Behavioral Norms	Pearson Correlation	0.600**	1	0.449**	0.613**	0.406**	0.404**
	Sig. (2-tailed)	0.000		0.000	0.000	0.000	0.000
	N	174	174	174	174	174	174
Rituals and Ceremonies	Pearson Correlation	0.600**	0.449**	1	0.575**	0.738**	0.229**
	Sig. (2-tailed)	0.000	0.000		0.000	0.000	0.002
	N	174	174	174	174	174	174
Staff Statuses and Roles	Pearson Correlation	0.481**	0.613**	0.575**	1	0.535**	0.335**
	Sig. (2-tailed)	0.000	0.000	0.000		0.000	0.000
	N	174	174	174	174	174	174
Organizational Stories and Myths	Pearson Correlation	0.562**	0.406**	0.738**	0.535**	1	0.265**
	Sig. (2-tailed)	0.000	0.000	0.000	0.000		0.000
	N	174	174	174	174	174	174
Organizational culture	Pearson Correlation	0.404**	0.404**	0.229**	0.335**	0.265**	1
	Sig. (2-tailed)	0.000	0.000	0.002	0.000	0.000	
	N	174	174	174	174	174	174

Source: own processing in SPSS software

The results of the correlation analysis in Table 11 allow us to make a hierarchical analysis of the ways in which culture manifests itself based on the intensity of the link it has with organizational culture. Thus, the organization's symbols, together with rituals and ceremonies, are the observable elements that correlate most closely with culture. Myths and histories also create a moderate to strong link, largely influencing new entrants.

Table 12. Correlation between the factor's university teachers and students and the variables organizational culture and sustainable development management

Variables		Students	University Teachers	Organizational Culture	Sustainable Development Management
Students	Pearson Correlation	1	0.551**	0.481**	0.402**
	Sig. (2-tailed)		0.000	0.000	0.000
	N	174	174	174	174
University Teachers	Pearson Correlation	0.551**	1	0.504**	0.328**
	Sig. (2-tailed)	0.000		0.000	0.000
	N	174	174	174	174
Organizational Culture	Pearson Correlation	0.481**	0.504**	1	0.404**
	Sig. (2-tailed)	0.000	0.000		0.000

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	N	174	174	174	174
Sustainable Development Management	Pearson Correlation	0.402**	0.328**	0.404**	1
	Sig. (2-tailed)	0.000	0.000	0.000	
	N	174	174	174	174

Source: authors' computations in SPSS software

The results summarised in Table 12 are very interesting. Teachers generated a stronger connection with the university culture than students. In terms of sustainability, students seem to be more oriented towards new trends than teachers, who show less adaptability, generating a weaker link with sustainability. This table also shows that the link between sustainability management and university culture is moderate. Scientific publications in the field of sustainability are also an indicator of teachers' concerns towards this field. In this case, Romania should follow the example of Great Britain, Germany, or the United States, which were the most scientifically productive countries, emphasising interdisciplinarity. (Dönmez, 2024) The university-industry collaboration model impacting firms' innovation efficiency (Shi et al., 2020) can be taken up and adapted towards a university-society collaboration with positive effects on sustainable development. Figure 2 contains a proposed model to highlight the correlation between the factors, components and variables of organizational culture and sustainable development management.

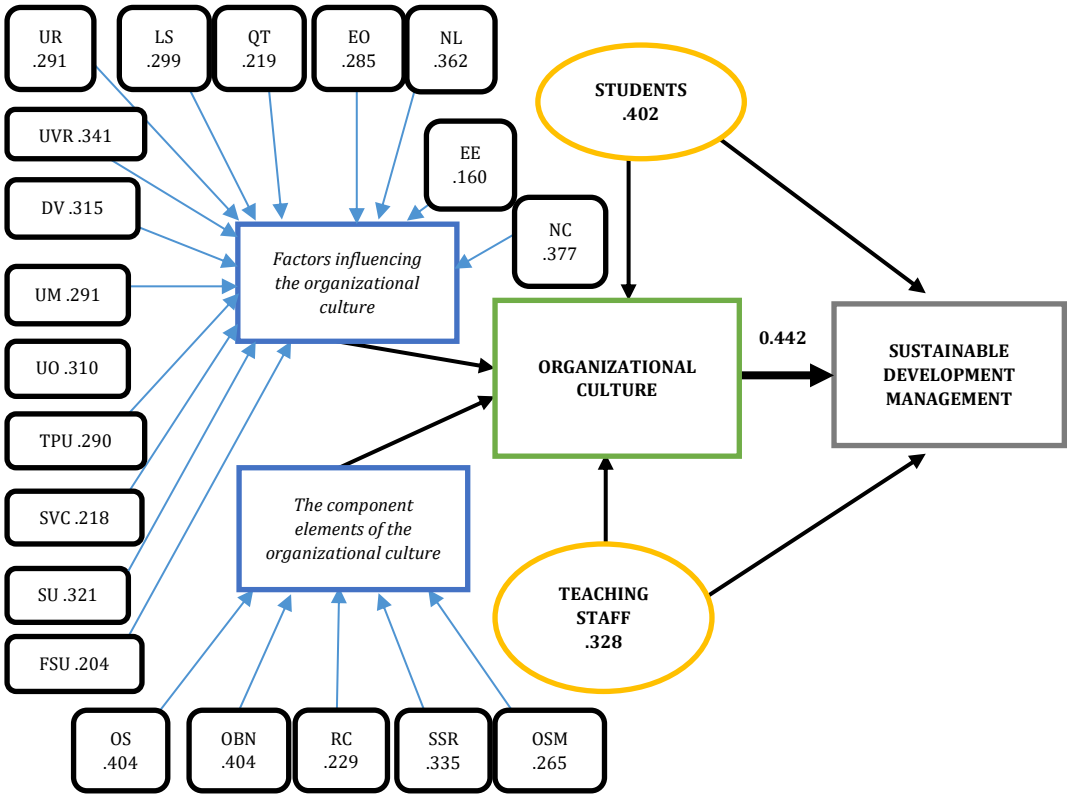

Figure 2. Proposed conceptual model for the correlation between factors, components and variables of organizational culture and sustainable development management

Source: own processing

Following the application of the linear regression analysis, for organizational culture and sustainable development management, a coefficient of determination $R^2 = 0.441$ (44.2%) was calculated, which shows that if Sustainable Development Management were implemented in military and civilian higher education institutions, it would be influenced by the organizational culture to the extent of 44.2%.

Discussion and conclusions

Following the review of the previously presented statistical data and their significance, the conclusion is that the *„Model of the Influence of Organizational Culture on the Implementation of Sustainable Development Management - MIOC-SDM"* is validated by the research results. The organizational culture of military and civilian higher education institutions influences the activities and processes that take place within them and is, in turn, influenced by internal and external factors.

The influence of these factors on the "personality" of higher education institutions is different: while in the case of internal factors, this influence is visible, in the case of external factors, the influence discretely manifests itself. As there is no rigorous and comprehensive approach to these factors, identifying the extent to which these factors influence organizational culture is one of the problems facing rectors. Organizational culture is an important component of academia and can determine the success or failure of institutions. Success is determined by the existence of an increased alignment between the demands of the environment and the values, rules, practices, behavioral patterns and core beliefs of its members.

Knowledge and understanding of organizational culture are essential for mission design and implementation of university-wide goals. Knowledge of organizational culture is necessary because it is an element that can anticipate, in the long term, the direction in which the institution is developing. It is imperative to mention the need to integrate the concept of education for sustainability into Romanian university culture. Although the resulting correlations between culture and sustainable development are positive, they demonstrate a link that is too weak to achieve ambitious objectives such as educating a society in the field of sustainable development through higher education.

The proposed research's objective was to explore how elements of organizational culture influence sustainability in universities. Thus, it contributes to an updated organizational profiling in relation to the meaning of sustainability. In the Web of Science Core Collection, the database used for the article, no articles were found in which the three concepts, *organizational culture*, *sustainability*, and *higher education institutions*, were addressed simultaneously. In the above search, the same applies if you replace *higher education institutions* with *military academies*. An interesting approach is that of a higher education institution in Brazil, which has involved students in actions that contribute to their formation as human beings so that they can identify their role in society in line with the objectives of sustainable development. (Cavalcanti-Bandos & Paucar-Caceres, 2023). Other studies that have looked at ways of implementing sustainable development in universities start with how university leaders impose their own understanding of science, the university and sustainability on others while conceptualising sustainability (Bien & Sassen, 2020).

Research has shown that integrating sustainability objectives into higher education institutions, together with the reorientation of university education towards sustainability, could lead to transforming universities into "sustainable learning organizations" and community support for sustainable development. The results of implementing sustainable development management and education for sustainable development approach to education will be seen over time in changes on university campuses, in the topics taught in courses, but most of all in the way today's students, tomorrow's professionals, will apply the knowledge they have acquired during their studies in the workplace and in society.

The article has a significant contribution in practice by validating the *"Model of the Influence of Organizational Culture on the Implementation of Sustainable Development Management - MIOC-SDM"*. The realization of the linear regression analysis, for the organizational culture and sustainable development management, allowed the calculation of a coefficient of determination $R^2 = 0.441$ (44.2%), which leads us to an important

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conclusion, namely that the implementation of sustainable development management in universities would influence the culture organizational in the proportion of 44.2%. The model we proposed confirmed the results obtained from the use of quantitative selective analysis by applying the questionnaire, which was the basis for the development of this model. Results supporting the model validation were also disseminated by (Ranf et al., 2024); the fundamental approach in this paper is centred on factor analysis. We also mention that qualitative aspects of the model validation were observed, post questionnaire application and analysis, through the daily work in two universities in Sibiu ("Nicolae Bălcescu" Land Forces Academy and "Lucian Blaga" University, between the two universities also operating a strategic partnership).

The conclusion is that among the components of organizational culture, organizational symbols and behavioral norms have the greatest influence on developing a sustainable development management strategy. The institution's mission, development goals, university leadership, and organizational histories and myths are distinguished as influencing factors. Thus, for sustainable development to be part of the future, it must first become part of the organization's past, creating good practices to follow and stories to tell.

A positive indicator of change that can be implemented is the openness of the younger generation, particularly students, to sustainability theory and practice. The reluctance to change of decision-makers and teachers in Romanian higher education should be mentioned here as a cause of the weak links in culture and sustainability. The direct beneficiaries of this strategic change are universities, which can increase their performance on education and research indicators by building a sustainable culture. The indirect beneficiaries are the employers of university graduates, who will transfer the knowledge and good practices learned on sustainability to the private and public labour market.

The limitations of this scientific approach are related to a) the relatively small number of respondents who participated in the research on which the model was subsequently built; b) the fact that the study is a cross-sectional study and covers a specific point in time; c) the fact that any change in the organizational and/or systemic circumstances of the universities in which the respondents work leads, in the case of a repeat survey, to different responses. Despite the limitations, the model proposed in this scientific work can be a step forward in understanding how organizational culture can influence the implementation of sustainable development management in military and civilian higher education institutions. At the same time, the model provides both a clear picture of the factors that have a stronger or weaker influence on organizational culture and the fact that the main actors in this process are academics.

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