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FROM THE EDITORIAL COMMITTEE

We are giving you the next 33rd 2 (2026) issue of the scientific journal of the Faculty of Management at the Rzeszów University of Technology entitled „Humanities and Social Sciences".

Our aim is to raise the merits and the international position of the journal published by the Faculty of Management, that is why we are still developing the cooperation with foreign team of reviewers, as well as an international Scientific Board. The Editors have also attempted to apply for international databases; currently the HSS journal is indexed in **The Central European Journal of Social Sciences and Humanities (CEJSH), ERIH PLUS, DOAJ and EBSCO**.

The journal „Humanities and Social Sciences" participated in the „Support for scientific journals" program in 2019-2020, and in the „Development of scientific journals" program in 2023-2024, organized by the Ministry of Science and Higher Education.

The articles published in this publication are devoted to the broader issues of the humanities and social sciences. They are the result both of theoretical and empirical research. The subjects covered vary considerably and reflect the interdisciplinary nature of the journal. We do hope that the papers published will meet your kind interest and will be an inspiration to further research and discussions.

On behalf of the Editorial Board of „Humanities and Social Sciences" we would like to thank the Authors for sending the outcomes of their research. We would like to express particular gratitude to the Reviewers for their valuable feedback that greatly contributed to increasing values of the scientific publications.

With compliments
Editorial Committee

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HUMANISTIC HUMAN RESOURCE MANAGEMENT IN POLISH COMPANIES: EMPIRICAL RESEARCH

The article aims to determine the humanistic HRM status in Polish companies. The analysis is based on evaluating the humanistic management application in the surveyed companies by management staff and lower-level managers. The research method involves a diagnostic survey using a tool of a proprietary survey questionnaire directed to the management of enterprises representing various industries operating across Poland. The questionnaire includes questions from three management areas recognized as humanistic corporate responsibility operatives. These are a humanistic approach to the employee and his needs, the formation of socially responsible behavior, and the formation of relationships in the workplace. The results do not confirm the differentiation of humanistic management ratings in the surveyed enterprises by their size or the industry they represent. Instead, they indicate two other variables that significantly differentiate respondents' evaluations. These are the respondent's position and age. The survey's practical implications relate to identifying opportunities to improve activities characteristic of humanistic management in Polish enterprises.

Keywords: humanistic management, corporate humanistic responsibility, Polish enterprises.

1. INTRODUCTION

Humanistic management is anthropocentric in nature. It is characterized by three dimensions, the first of which refers to the human being as the starting point, the second to the path, and the third to management processes as the goal (Batko, 2012). In these three perspectives, the human being is at the center of the research process. He is also the subject of humanistic management research.

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Previous research on humanistic management has been mostly theoretical and conceptual. There is a noticeable lack of empirical research in this area (Acevedo, 2018). One reason for this is the difficulty of operationalizing the humanistic management concept and the difficulty of building an appropriate research tool. Therefore, it should be recognized that to undertake empirical research in the humanistic management field, it is necessary to operationalize this concept and create a tool based on it to measure its level. The operationalization was done by S. Arnaud and D. Wasieleski (2014). They concluded that the appropriate way to operationalize the humanistic management concept is the category of corporate humanistic responsibility (CHR) founded on such instruments as participation, development, mutual respect, self-determination, mentoring and coaching, and integrity. The assignment of building a research tool was undertaken by V-Y. Koon and Y. Fujimoto (2024), who decomposed CHR into five dimensions including: employee-centered workplaces, healthy internal communication, holistic compensation, CSR-engaged behavior, and holistic training and development. These dimensions were used to assess the humanistic commitment of Malaysian enterprises by employees.

2. LITERATURE REVIEW

2.1. The main principles of humanistic thinking and their evolution

Increasingly, management researchers are turning to the humanities in search of answers to the questions plaguing the modern organizational world (Nierenberg, 2014). The very concept of humanism has many definitions. One of them assumes that humanism emphasizes the prosperity and dignity of human beings, looking with optimism at their cognitive capabilities (Blackburn, 2004).

Although humanism's roots date back to ancient times, the term humanism, understood as the development of human nature, has emerged relatively recently. This modern understanding has deep roots in the ancient paideia, which regarded education as a process of forming man's higher nature, preparing him for life in society through intellectual and moral development (Woleński, 2019).

During the Renaissance, humanistic thinking began to develop through Petrarca, Erasmus of Rotterdam, Pico de la Mirandola, and other prominent European thinkers of the period. In their view, we are not born human beings, but become them, thanks to education, knowledge acquisition, and development of the ability to properly use freedom and distinguish right from wrong (Arnaud, 2011). As understood by humanists of the period, human capacity means understanding moral autonomy, the exercise of freedom, and the ability to self-create, while humanist principles are autonomy, freedom, dignity, human equality, and the right to develop human capabilities. After the Renaissance, humanistic thinking began to infiltrate other philosophical systems. During the Enlightenment period, I. Kant focused on the concept of moral autonomy, introducing his categorical imperative - always treat others as an end and never only as a means (Kant, 2001).

The humanistic themes continued into the 20th century can be found in E. Mounier's personalist philosophy. Personalism, according to Mounier (1965), is based on the assumption of free and creative persons' existence. This philosophy proclaims that man, unlike animals, has a sphere of freedom, the capacity for self-determination and the will to give meaning to his life (Leroux, 1999). According to Bergson (2014), we do not exist without others. The essence of man is material and moral creation - both thing creation and self-creation. In personalism terms, we become human by developing our talents and potential, bringing out the best of our personality, moral autonomy, and self-determination. To become a person and develop humanity, we must be involved in the self-creation process. This development requires autonomy, and support from the environment in providing the right conditions. Each person has the autonomy to exercise his freedom, encountering challenges that stimulate the development of his talents, surrounding himself with people he can trust to feel recognized and accepted, and treated as a goal, not just a means (Kant, 2001).

2.2. Humanistic principles of HRM

At the center of the humanistic management paradigm is man and his work. To avoid dehumanizing work, it must meet the conditions necessary for the worker to realize the principles of self-determination. If HRM is based on assumptions of humanist philosophy, it can be classified as humanist-oriented. The humanistic orientation in management assumes the following:

- work must be accompanied by an autonomy area, allowing the employee to express his personality and experience freedom. On the one hand, this means that the employee must be able to personalize the activity, adapt it to himself, and contribute his personality to it. On the other hand, he must be able to take initiative and make choices to feel responsible for his task. This amounts to realizing one's will, to engage in work. This can be achieved by participation and authority delegation methods,
- work should enable an employee to express their talents, undertake stimulating challenges, and validate and develop their skills. Job enrichment, internal rotation, continuing education, etc. can contribute to this goal, as can internal promotion and career management. Work must also provide satisfaction, giving the employee a sense of realizing personal potential,
- work situation should enable an employee to feel appreciated by others. Trusting relationships have an important role in this; regular dialogue between employees and their superiors, honest performance evaluations, a fair compensation system, and constructive feedback on skills and assigned duties. Also important are measures that emphasize the importance of the role performed by the employee, allowing them to feel appreciated and noticed (Peretti, Alis, 2005).

In conclusion, when work is accompanied by recognition, appreciation, skill stimulation, autonomy, and empowerment, it allows people to develop by realizing their potential and abilities. Creativity, innovation, and commitment to the task seem to be the logical consequences of postulating humanistic management effectiveness.

3. METHODOLOGY

3.1. Research objective and questions

The article aims to assess the state of humanistic human resource management (HRM) in Polish enterprises. Given the lack of previous empirical research in this area, an exploratory formula was adopted, resulting in a limitation to posing research questions, without formulating hypotheses. Two research questions were formulated:

Which independent variables (industry, company size, respondents' gender, age, seniority, position) have a significant impact on each dimension of the CHR model?

Which predictors most explain the variation in each dimension of the CHR model?

3.2. Research tool

The tool used in the research was based on the questionnaire for measuring CHR by V-Y. Koon and Y. Fujimoto (2024), which was translated into Polish and adapted to Polish realities. The questionnaire consists of 32 questions, and answers were given on a 7-point Likert scale. Respondents used it to assess the extent to which their employers, supervisors and organizations are implementing humanistic practices.

In the adaptation process of the tool, an exploratory factor analysis (EFA) was applied, which showed that the original five-scale model (healthy internal communication, CSR engagement, employee-oriented workplace, holistic training and development, holistic compensation) was not optimal in the Polish context (Mazur, Walczyna, Cichorzewska, 2024). Confirmatory factor analysis (CFA) was then conducted, showing that the three-factor model best reflects the reality under study. The identified factors were identified as: a humanistic approach to the employee and their needs (HAtEatN), formation of socially responsible behavior (FoSCB), and formation of workplace relationships (FoWR). The first factor refers to the organization's humanistic approach to employees, which includes considering employees' needs, respecting their private lives, valuing achievements, and investing in their development. The FoSCB factor refers to the organization's involvement in social responsibility activities, such as environmental initiatives or community support. The FoWR factor, on the other hand, focuses on interpersonal relations at work, including respect between employees, cooperation and openness to diversity. The model was used to analyze the variables affecting humanistic corporate responsibility perceptions.

To evaluate the tool's quality, an analysis of its relevance and reliability was conducted. Cronbach's alpha coefficient, calculated for each subscale, ranged from 0.92 to 0.95, indicating high internal consistency.

3.3. Selection and application of statistical methods

Descriptive statistics were used to characterize the independent and dependent variables (CHR dimensions). Linear regression analyses were then conducted to model the effect of independent variables on dependent variables. Predictors such as industry, enterprise size, gender of respondents, age, seniority, and position were included in the analyses. For each CHR dimension, a separate regression model was developed to assess the statistical significance of individual explanatory variables (Kline, 1986). The models' fit to the data was verified using the R^2 value.

3.4. Respondents' characteristics

To answer the research questions posed, an empirical study was conducted on a nationwide sample of executives at various levels of Polish enterprises. Detailed respondents' characteristics, including characteristics such as gender, age, industry, seniority, position, and enterprise size, are presented in Table 1.

The gender distribution of the survey sample is relatively even - women constitute 54% and men 46%. These differences do not show statistical significance. Regarding age, the largest group is comprised of those in the 25-44 age range (60%), while the smallest group is comprised of respondents aged 18-24 (3.9%). The age distribution indicates a slight right-sided asymmetry, suggesting a predominance of younger people compared to the average age of 41.09 years. In terms of positions, the largest group is composed of managers and executives (43.3%), and the smallest group is composed of people in independent positions (8.8%). As for the seniority in the company where the respondents work, those with experience of 1 to 5 years dominate (38.7%), and the smallest share is held by employees employed for less than a year (5.6%). The majority of respondents represent the service sector (57%), while the smallest portion is associated with business sectors defined as other (7.4%). Regarding the enterprise size, employees of small companies predominate (55.3%), and those employed in large companies account for 19%.

Table 1. Research sample characteristics

Variable		**Number**	**Percent**
Gender	Female	153	54
	Male	131	46
Age (in years)	18-24	11	3,9
	25-34	83	29
	35-44	87	31
	45-54	63	22
	55 and over	40	14
Position	Chairman	62	21.8
	Board Member	32	11.3
	Director, Vice Director	42	14.8
	Manager	123	43.3
	Other independent	25	8.8
Seniority (in years)	Up to a year	16	5.6
	1-5	110	38.7
	6-10	62	21.8
	Over 10	96	33.8
Industry	Production	48	16.9
	Trade	53	18.7
	Services	162	57
	Other	21	7.4
Enterprise size	Small	157	55.3
	Medium	73	25.7
	Large	54	19

Source: own elaboration.

Table 2 presents the basic descriptive statistics of the dependent variables.

Table 2. Descriptive statistics of dependent variables

Variable	**N**	**Min**	**Mean**	**Median**	**Max**	**SD**
HAtEatN	284	1	4.945	5.000	7	1.035
FoSCB	284	1	4.673	4.667	7	1.085
FoWR	284	1	5.200	5.250	7	1.083

Source: own elaboration.

Half of the respondents rate the HAtEatN factor at least 5 with moderate variation in opinion (SD 1.035). The average score for the FoSCB dimension (M = 4.673) is slightly lower than for HAtEatN, possibly suggesting that respondents perceive these activities as less supported by organizations. The median (4.667) indicates a nearly symmetrical distribution, while the higher standard deviation (SD = 1.085) reflects greater variation in opinion. The mean score on the FoWR factor (M = 5.200) suggests that respondents perceive workplace relationships as relatively positive. The median (5.250) is slightly higher than the average, which may indicate a slightly right-skewed distribution. The variability of respondents' opinions in this case is similar to the FoSCB dimension.

4. RESULTS

In the next step, a separate linear regression model was built for each dependent variable (HAtEatN, FoSCB, FoWR) showing the impact of industry and enterprise size adjusted for covariates. Each time, the model was fitted to the data to predict the value of the dependent variable based on explanatory variables such as industry, enterprise size, gender, age, seniority, and position. The position variable could take the following categories: chairman, board member, director, manager and other independent. To avoid the problems associated with the small size of each category, the chairman and board member categories were combined into a single group called the board, and the remaining three categories were merged into a group referred to as management staff. The reference group in the construction of each model was: trade industry, large enterprise, female, age = 0, seniority up to 1 year, management staff. The results obtained are presented in Tables 3-5.

Table 3. Linear regression: analysis results for HAtEatN

Predictors	Estimates	Statistic	p
(Intercept)	4.46	11.13	<0.001
Industry [Other]	-0.28	-1.04	0.300
Industry [Production]	-0.19	-0.90	0.369
Industry [Services]	0.10	0.63	0.530
Enterprise size [small]	-0.13	-0.75	0.455
Enterprise size [medium]	0.08	0.42	0.678
Gender [Male]	0.11	0.89	0.373
Age	0.01	1.57	0.117
Seniority [1 to 5 years]	-0.17	-0.59	0.555
Seniority [6 to 10 years]	0.17	0.57	0.569
Seniority [more than 10 years]	-0.17	-0.59	0.557
Position [board]	0.44	3.23	0.001
Observations	284		
R2 / R2 adjusted	0.074 / 0.037		

Source: own elaboration.

Table 4. Linear regression: analysis results for FoSCB

Predictors	Estimates	Statistic	p
(Intercept)	3.79	9.19	<0.001
Industry [Other]	-0.35	-1.24	0.216
Industry [Production]	-0.07	-0.34	0.735
Industry [Services]	-0.01	-0.05	0.958
Enterprise size [small]	-0.18	-1.02	0.307
Enterprise size [medium]	0.21	1.06	0.288
Gender [Male]	0.19	1.43	0.155
Age	0.02	2.37	0.019
Seniority [1 to 5 years]	0.02	0.07	0.942
Seniority [6 to 10 years]	0.39	1.26	0.208
Seniority [more than 10 years]	-0.05	-0.17	0.863
Position [board]	0.48	3.47	0.001
Observations	284		
R2 / R2 adjusted	0.107 / 0.070		

Source: own elaboration.

Table 5. Linear regression: analysis results for FoWR

Predictors	Estimates	Statistic	p
(Intercept)	4.50	10.87	<0.001
Industry [Other]	0.12	0.43	0.668
Industry [Production]	-0.22	-1.05	0.296
Industry [Services]	0.14	0.85	0.396
Enterprise size [small]	-0.07	-0.39	0.698
Enterprise size [medium]	-0.05	-0.24	0.810
Gender [Male]	0.10	0.75	0.455
Age	0.02	3.06	0.002
Seniority [1 to 5 years]	-0.36	-1.24	0.217
Seniority [6 to 10 years]	-0.16	-0.52	0.604
Seniority [more than 10 years]	-0.56	-1.85	0.066
Position [board]	0.53	3.80	<0.001
Observations	284		
R2 / R2 adjusted	0.097 / 0.061		

Source: own elaboration.

Analysis results for HAtEatN

The linear regression model for the HAtEatN variable explains 7% of the variation in ratings ($R^2 = 0.074$, R^2 adjusted = 0.037), indicating the low explanatory capacity of the explanatory variables. The results presented in Table 3 indicate that:

- position (board member) is the only statistically significant predictor (beta = 0.44, $p = 0.001$). Board members rate the humanistic approach higher than management staff,
- other variables (industry, enterprise size, gender, age, and seniority) show no significant effect on HAtEatN ratings ($p > 0.05$).

The predicted HAtEatN value for the reference group is 4.46, which is the intercept of the model.

Analysis results for FoSCB

The regression model for the FoSCB variable explains a slightly larger portion of the variation than for HAtEatN ($R^2 = 0.107$, R^2 adjusted = 0.070), but still shows limited explanatory capacity. The results presented in Table 4 indicate that:

- age (beta = 0.02, $p = 0.019$) has a significant, though small, positive effect on FoSCB. Older employees rated social responsibility activities higher,
- position (board member) also shows a significant positive impact (beta = 0.48, $p < 0.001$), suggesting that those in management positions have a more positive perception of such activities,
- the other variables (industry, enterprise size, gender, seniority) have no significant effect on FoSCB ($p > 0.05$).

The predicted FoSCB value for the reference group is 3.79.

Analysis results for FoWR

The regression model for FoWR explains a similar proportion of the variation as the FoSCB model ($R^2 = 0.097$, R^2 adjusted = 0.061), implying little predictive ability of the explanatory variables. Table 5 indicates that:

- age (beta = 0.02, $p = 0.002$) has a significant positive effect on FoWR, suggesting that older employees have a better appreciation of the company's efforts to create relationships in the workplace,
- position (board member) is also a significant predictor (beta = 0.53, $p < 0.001$). Board members rate activities in this area higher than managers,
- The variables industry, enterprise size, gender, and seniority, show no significant effect ($p > 0.05$) on the evaluation of the company's FoWR activities.

The predicted FoWR for the reference group is 4.50.

In summary, the variables showing a statistically significant effect on the evaluation of the enterprise's CHR activities proved to be position and age. Position (board member) is a significant predictor in each of the models analyzed, suggesting that holding a management position is associated with a more positive assessment of an enterprise's CHR activities. Age shows a significant effect for two dimensions – FoSCB and FoWR. Industry, enterprise size, gender, and seniority did not show a significant effect on ratings in any of the models, suggesting that perceptions of activities in the areas analyzed are relatively independent of these variables.

5. DISCUSSION

The study found a significant impact of two variables on the evaluation of CHR levels in the organization: age of employees and position held. Older employees rated the dimensions relating to FoSCB and FoWR higher than younger ones. People in management positions rate their enterprises' HAtEatN and FoWR activities higher than management staff. Other variables, such as industry, enterprise size, gender, or seniority, did not have a statistically significant impact on ratings, suggesting a uniform perception of the company's FoWR efforts. Research on the CHR model highlights the importance of the FoWR dimension and points to the need for systematic implementation of humanistic management practices. Although the lack of comparative studies limits interpretation, the data obtained emphasizes the role of managers' responsibility in creating humanistically responsible organizations.

5.1. Theoretical implications

The research conducted extends previous findings on CHR, emphasizing the role of humanistic practices in CSR and HRM. The data obtained sheds new light and expands knowledge on the humanistic dimensions of CSR, which, as the authors emphasize (Koon, 2021; Wang et al., 2016), are becoming increasingly important. They emphasize the importance of the FoWR dimension, consisting of respect between employees, cooperation or openness to diversity. The research conducted indicates the need to continue further inquiries and the need to expand the research panel to include other employee groups. This is consistent with other findings (Vlachos, Panagopoulos, Rapp, 2014), suggesting the need for further consideration in developing employee engagement in CSR initiatives. Changing course from economic to humanistic in the CHR concept enables the corporation to focus on employee engagement and action for the common good. It also allows, as indicated by D. Melé (2016), to extend by moral and human aspects the previous organization's functioning.

5.2. Practical implications

In recent years, the CSR concept has been gaining importance and significantly shaping the organization's activities focusing on concern for the environment and people. CHR's primary focus is on the human aspect, as it influences increased social engagement within the organization. Therefore, organizations need to increase employee well-being by implementing and applying appropriate practical solutions at both the individual and organizational levels (Koon, 2022).

The CHR model presented can provide a basis for implementing complex behavior, as it clearly defines how managers can shape and promote responsible behavior in the organization. An organization using CHR encourages its employees to act in a trusting and effective communication atmosphere (Keir, 2017).

The proposed CHR model can support leaders who want to achieve improvements in social performance in their organizations (Galbreath, 2010; Melo, 2012). Moreover, the findings can be incorporated into the education programs of future managers and business leaders, following the United Nations' Principles for Responsible Management (United Nations Global Compact, 2019), which promotes education based on humanistic concepts. It will also enable the redirection of attention in existing degree programs from an outcome-based approach focused on profitability, efficiency, and effectiveness indicators to an ethical and humanistic approach. Managers prepared in this way will emphasize morale and broad humanity in their organizations in practice (Spitzeck, 2011). The proposed CHR dimensions can effectively support the training of future leaders in the business ethics and people management areas.

5.3. Future research directions

The research conducted inspires further exploration. The CHR model needs further verification but can be the basis for developing future research, especially in the context of expanding the research sample. It is worth including diverse groups of employees to analyze the impact of internal and external factors on the organization's humanistic responsibility in different work environments. This is important because inconsistencies in social responsibility practices can negatively affect working life quality (Singhapakdi et al., 2015).

Future research should deepen understanding of the impact of the various CHR dimensions on different outcomes, as well as their interrelationships. Special attention should be given to the relationship between CHR, HRM, and CSR, which can support innovative work behavior. The CHR's role in the social challenges context, such as countering inequality or promoting a sustainable approach to the environment, is also an important exploration area (Fujimoto et al., 2022; Fujimoto, Uddin, 2022).

6. CONCLUSIONS

The study aimed to develop and verify the concept of Corporate Humanistic Responsibility as an approach that integrates humanistic values with CSR and HRM practices. The findings confirm that the humanistic dimension of organizational responsibility is an important area of analysis, particularly in relation to respect, cooperation, openness to diversity, employee engagement, and concern for the common good. The proposed CHR model broadens the understanding of responsible management by shifting attention from a predominantly economic perspective toward moral, relational, and human-centered aspects of organizational functioning.

The research contributes to the existing literature by indicating that humanistic practices can strengthen the relationship between CSR, HRM, and employee-oriented organizational outcomes. From a practical perspective, the model may support managers and leaders in shaping responsible behavior, building trust, and promoting a more ethical and people-centered organizational culture. Although the model requires further empirical verification, especially across diverse employee groups and organizational contexts, it provides a valuable basis for future research and managerial practice.

All authors have read and agreed to the published version of the manuscript.

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SHAPING THE CULTURE OF SAFETY IN ARTIFICIAL HUMAN ENVIRONMENTS

The transformation of the natural environment into increasingly artificial and technologized forms has accompanied humanity since the emergence of conscious human agency. In the years ahead, strengthening ecological culture among individuals and societies will be essential to ensuring appropriate living conditions. This article examines the potential for achieving synergistic effects within ecosystems through the integration of artificial habitats that support biocenoses. As human activity in artificial environments intensifies, ecological safety has gained growing importance. The study addresses the culture of safety in the context of emerging artificial spaces of human existence, the associated anthropogenic pressures, and their role in the contemporary world. It emphasizes that critical situations often arise unexpectedly, requiring rapid responses while simultaneously encouraging reflection on future challenges and the need for long-term solutions supported by dynamic cultural change. The relationship between artificial environments and the culture of safety is analyzed on the basis of findings from a diagnostic questionnaire-based survey.

Keywords: culture of safety, ecosystem, anthropogenic pressure.

1. INTRODUCTION

Theophrastus of Eresos (ca. 370-286 BCE) examined the relationships between living organisms and the natural environment. However, it was not until 1866 that the German naturalist Ernst Haeckel introduced the term "ecology," defining it as a scientific discipline concerned with the relationships between organisms and their organic and inorganic environments, as well as with the study of interactions among organisms and their

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surroundings (Egerton, 2013). The term "ecology" derives from the Greek words *oíkos*, meaning "home," and *lógos*, meaning "knowledge."

By extending the classical definition of ecology to include artificial human environments, H. Sommer and G. Zakrzewski argue that the criteria used to characterize the natural human environment can also be applied to newly created artificial spaces. The key element integrating these environments is the relationship between the biocenosis and the habitat, which provides the foundation for the flow of energy and matter (Sommer, Zakrzewski, 2023a).

The functioning of ecosystems and consequently the persistence of life on Earth, and in the longer term also in outer space, is fundamentally determined by the flow of energy and matter. As emphasized by H. Sommer and G. Zakrzewski, a major milestone in the development of ecology occurred in 1935, when Tansley introduced the concept of the "ecosystem" as the basic functional and spatial unit of ecological analysis. An ecosystem is defined as an area characterized by relatively homogeneous abiotic conditions (a biotope), inhabited by a set of species interconnected through trophic and paratrophic relationships, and traversed by flows of energy and matter. Technically developed areas may also be regarded as ecosystems, provided that they meet these criteria (Sommer, Zakrzewski, 2022).

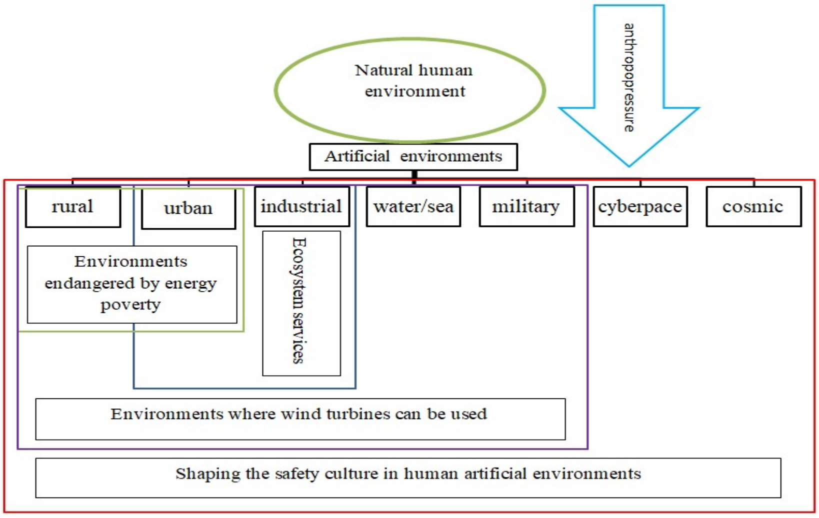
According to this definition, an ecosystem comprises two closely interrelated components:

- an abiotic component, consisting of the biotope (habitat), which includes soil, water, and air with their physicochemical properties, as well as climate,
- and a biotic component, namely the biocenosis, formed by assemblages of species characteristic of a given biotope under specific geographical conditions (Sommer, Zakrzewski, 2023b).

In contemporary societies, humans now function only marginally within natural environments and increasingly within artificial ones. Across all such spaces, anthropogenic pressure has reached a level that poses a tangible threat to the natural environment. The most recent artificial environments, outer space and cyberspace, are expected in the coming years to attract particular attention from both the scientific community and decision-makers, as they constitute significant dimensions of the social life of the Earth's inhabitants.

Since humanity began to intensively transform the natural environment, progressively more technologized forms of this environment have emerged. The authors propose introducing the current classification of these technologized environments, together with selected threat-generating elements, into the scientific lexicon; this classification is presented in Graph 1.

Humans operate within both natural environments and increasingly complex artificial environments of their own creation. The development of these spaces necessitates the intentional cultivation of a culture of safety and a thorough consideration of escalating anthropogenic pressures.



Graph 1. Human Environments and the Formation of a Culture of Safety
Source: Authors' own research.

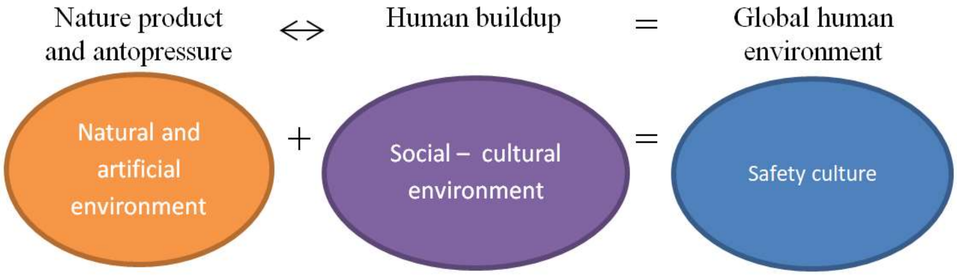
2. INTEGRATED SAFETY IN RELATION TO SAFETY CULTURE

Integrated safety represents a contemporary approach to safety management, founded on a holistic and systems-oriented framework for the protection of organizations, institutions, and infrastructure. It is premised on the assumption that effective protection can be achieved only through the integration and coordination of diverse safety domains – physical, technical, informational, personal, and organizational – within a single, coherent management system. From an academic perspective, integrated safety encompasses both the identification and analysis of risks and the design and implementation of complementary countermeasures, which together form a multilayered structure of protection. This approach strengthens the resilience of systems to complex, dynamic, and multidimensional threats characteristic of the contemporary security environment (Wróblewski, 2019).

In academic discourse, explicit references to culture as a distinct analytical category remained relatively limited for a long period of time. A more consistent and systematic engagement with the concept of safety culture emerged only after the Chernobyl nuclear power plant accident, when deficiencies in safety culture were identified as one of the principal causes of the disaster. Since then, safety culture has been examined more comprehensively, understood as a shared set of attitudes, beliefs, values, and behaviors among employees that shape the ways in which safety is managed within organizations.

Research on the transformation of the natural environment into artificial environments has been conducted by H. Sommer and G. Zakrzewski since 2017. In their introductory work, the authors emphasize that the relationship between humans and nature should be based on partnership, understood as coexistence, cooperation, and mutual interaction. Such an approach promotes respect for nature and supports the limitation of activities that lead to its degradation or devastation. As the authors note, by destroying nature as a partner, humans ultimately inflict harm upon themselves (Sommer, Zakrzewski, 2017).

Consequently, the socio-natural environment should be regarded as an integral component of the culture of safety, as illustrated in Graph 2.



Graph 2. Social and nature environment as part of safety culture
Source: Authors' own research.

Random events occurring in the world around us exhibit a distinctive feature: over long series of observations, their frequencies display a certain regularity. The theoretical counterpart of the concept of frequency is probability. Formally, the probability of an event A, denoted by P(A), is defined as a number between 0 and 1 assigned to that event. A probability of 0 represents impossibility, whereas a probability of 1 represents certainty. All other degrees of possibility lie between these two values.

The classical definition of probability, first formulated by Pierre Simon de Laplace in 1812, defines the probability of event A as the ratio of the number of cases favorable to event A to the total number of possible cases, assuming that all cases are mutually exclusive and equally likely (Jakubowski, Sztencel, 2002).

$$P(A) = \frac{|A|}{|\Omega|}$$

where: $|A|$ denotes the number of elements (cardinality) of set A,

$|\Omega|$ denotes the number of elements (cardinality) of the sample space.

This definition makes it possible to calculate probability in simple cases; however, it does not apply to infinite sets. In practice, situations frequently arise in which all elementary events are equally probable, allowing the use of the above formula. Not all tools of probability theory, however, can be directly applied to the description of safety in its broad sense. Safety has an open and potentially unlimited character, in that it can always be improved, refined, and elevated to a higher level. The limitations in this regard do not stem solely from economic, technological, material, organizational, or mental constraints. What remains fundamental is the objective of enhancing the level of safety through the application of the synergy effect (Sommer, Sommer, Zakrzewski, 2019).

In management theory, synergy is understood as a combination of two or more elements whose joint interaction produces an effect greater than the sum of the effects generated by each element separately. The synergistic effect can be expressed as a positive result of the following equation (Kozłowska-Makóś, 2015):

$$S = AB - (A + B) > 0$$

where: S – synergy effect,
AB – ecological value of environment AB after integration,
A – ecological value of environment A before integration,
B – ecological value of environment B before integration.

As a result of synergy, a synergistic effect emerges – that is, a new and additional value resulting from the integration of actions. In economic terms, it is manifested through increased efficiency and benefits for humans and their habitats. From a civilizational perspective, it encompasses the conduct of scientific research, the supervision and coordination of activities related to human impacts on the environment, as well as the monitoring and analysis of needs, capabilities, and the development of technical and logistical infrastructure. This applies both to planned economic activities and to unforeseen destructive actions caused by natural forces or human activity.

The subject of this article is the culture of safety of biocenoses functioning in artificial environments (biotopes, also referred to as habitats) (Sommer, Zakrzewski, 2025). The primary focus of the research, analysis, and discussion is the economic exploitation of the natural environment, which leads to the creation and subsequent acceptance of artificial environments, while striving to minimize the disturbances introduced. This issue is further examined through the lens of safety culture. The problem is interdisciplinary in nature, and the analysis is based primarily on heuristic methods and techniques.

3. METHODOLOGY AND RESULTS OF THE CONDUCTED RESEARCH

This chapter presents the methodological assumptions of the study, including sample selection, data collection methods, and analytical procedures. The purpose of this section is to provide a detailed discussion of the research approach, the choice of which was justified by both the nature of the research problem and the anticipated outcomes. The following paragraphs outline the research techniques employed and the criteria for their selection, ensuring the reliability and validity of the results obtained. The methodology presented provides the basis for the interpretation of the findings and allows for an assessment of the credibility of the entire research process.

The study was conducted as a limited-scope questionnaire survey in October 2025 among students from the Podkarpacie region who reported prior stays at the Polish seaside. A total of 200 respondents participated in the study, including 100 women and 100 men. The research instrument consisted of 10 closed-ended questions, which enabled the collection of comparable and clearly interpretable responses forming the basis for further analysis.

The main research problem was formulated as follows:

How is the culture of safety shaped in artificial human environments in the context of ecological, technological, and social transformations?

The specific research problems were defined in six questions:

1. What is the impact of an individual's level of ecological culture on safety in artificial human environments?
2. Does the integration (fusion) of different artificial environments contribute to the emergence of a synergy effect within the ecosystem?

3. How does human mobility and movement between different environments affect environmental safety?
4. What safety threats arise as a result of anthropogenic pressure in new artificial environments?
5. Is the culture of safety perceived as a necessary condition for human survival in the artificial environments of the future?
6. What cultural and social actions can accelerate adaptation to safety challenges in artificial environments?

In response to the main research problem, the following main hypothesis was formulated:

The culture of safety in artificial human environments is a key factor enabling the synergistic and safe coexistence of ecosystems and supporting human adaptation to dynamic technological and environmental changes.

In order to further specify the research problem, the following specific hypotheses were formulated on the basis of the adopted research objectives:

1. A higher level of an individual's ecological culture has a positive impact on both the perceived and actual levels of safety in artificial environments.
2. The fusion and integration of different artificial environments foster the emergence of a synergy effect in ecosystem functioning.
3. Increased human mobility between different environments (natural, artificial, and digital) raises levels of risk while simultaneously necessitating the development of a culture of safety.
4. Anthropogenic pressure leads to the emergence of new threats in artificial environments, which can be mitigated through the implementation of a culture of safety.
5. The culture of safety is perceived by individuals and societies as a necessary condition for survival in the artificial environments of the future.
6. Rapid cultural and social changes (e.g., increased ecological awareness and education) facilitate adaptation to safety challenges in new artificial environments.

The aim of the research was to identify the level of awareness and safety-related practices among students in the Podkarpacie region, as well as to determine the factors influencing their perception of threats and their willingness to comply with safety principles. The empirical data obtained provide a basis for assessing the degree of internalization of safety norms and the potential for improving the culture of safety in the analyzed context.

In order to verify the proposed hypotheses and to examine perceptions of the culture of safety in artificial human environments, empirical research was conducted, the most important results of which are presented below.

The data illustrate how women and men assess the relationship between ecological culture and safety in artificial environments. The largest proportion of both women (40%) and men (48%) selected a neutral response, indicating the absence of a clear opinion. A rather positive assessment was reported more frequently by women (36%) than by men (28%). Fully positive responses were less common and occurred at comparable levels for both genders (10% among women and 12% among men). Rather negative responses and "difficult to say" answers were reported only sporadically: 6% and 8% among women, and 8% and 4% among men, respectively. Overall, neutral and rather positive assessments clearly predominated.

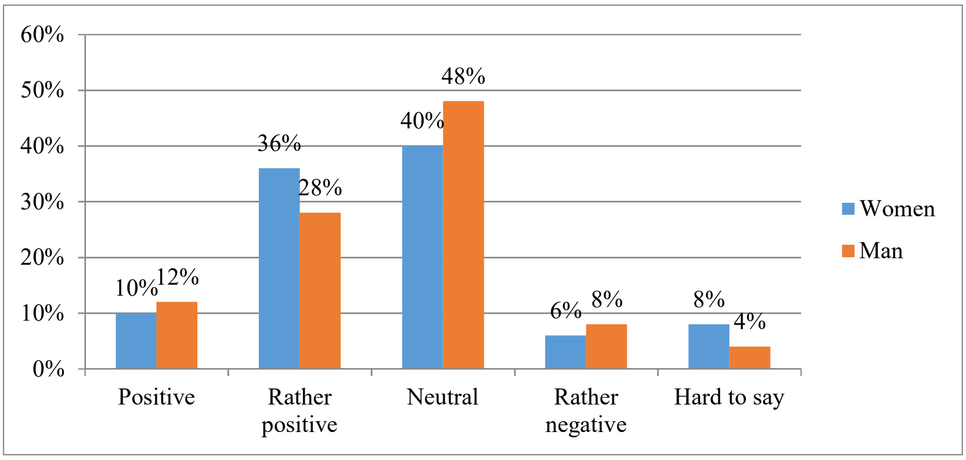


Chart 1. Ecological culture and safety in artificial environments

Source: authors' own research.

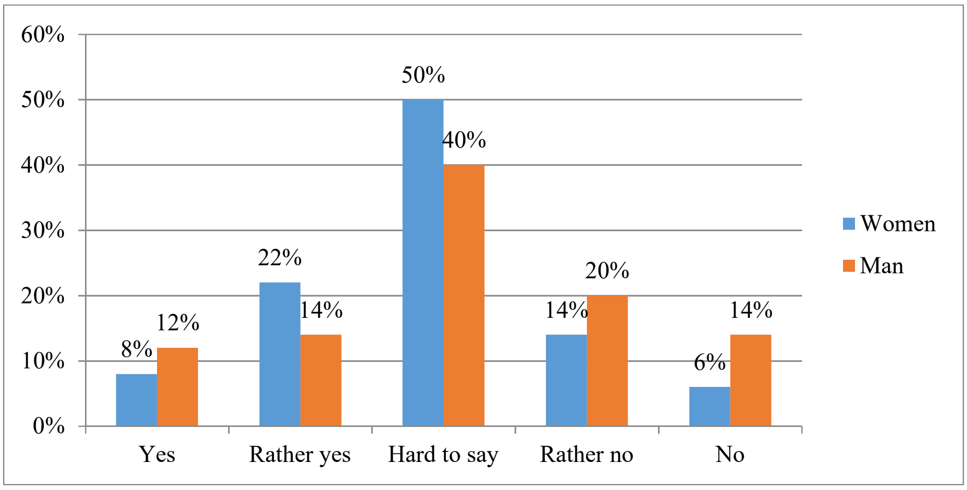


Chart 2. Synergy through the fusion of artificial environments

Source: authors' own research.

The chart presents responses regarding the phenomenon of synergy resulting from the fusion of artificial environments. The largest proportion of both women (50%) and men (40%) selected the response “difficult to say,” indicating the absence of a well-formed opinion in this area. The response “rather yes” was chosen by 22% of women and 14% of men, while the response “yes” was relatively infrequent – reported by 8% of women and 12% of men. Negative assessments were also observed: “rather no” was selected by 14% of women and 20% of men, and “no” by 6% of women and 14% of men. Overall, undecided responses predominated, and men were more likely than women to assess the phenomenon negatively.

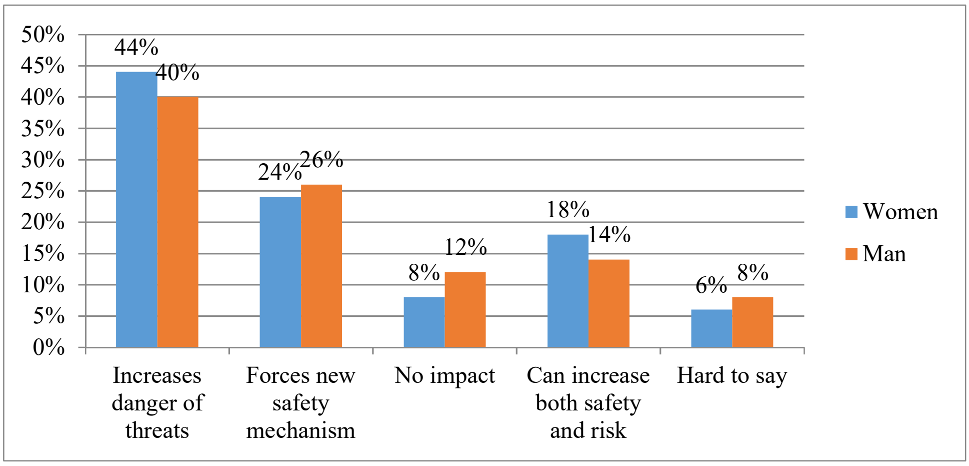


Chart 3. Human mobility and environmental safety
Source: authors' own research.

The chart presents opinions on the impact of human mobility on environmental safety. The most frequently reported view in both groups is that mobility increases threats, as indicated by 44% of women and 40% of men. The second most common opinion is the belief that mobility necessitates the development of new safety mechanisms (24% of women and 26% of men). A relatively small proportion of respondents consider mobility to have no impact (8% of women and 12% of men). Some participants perceive the phenomenon as ambivalent, believing that it can both enhance safety and increase risk – 18% of women and 14% of men. The response "difficult to say" was selected least frequently (6% of women and 8% of men). Overall, the data indicate that most respondents perceive mobility as a factor that either elevates threat levels or requires the strengthening of safety systems.

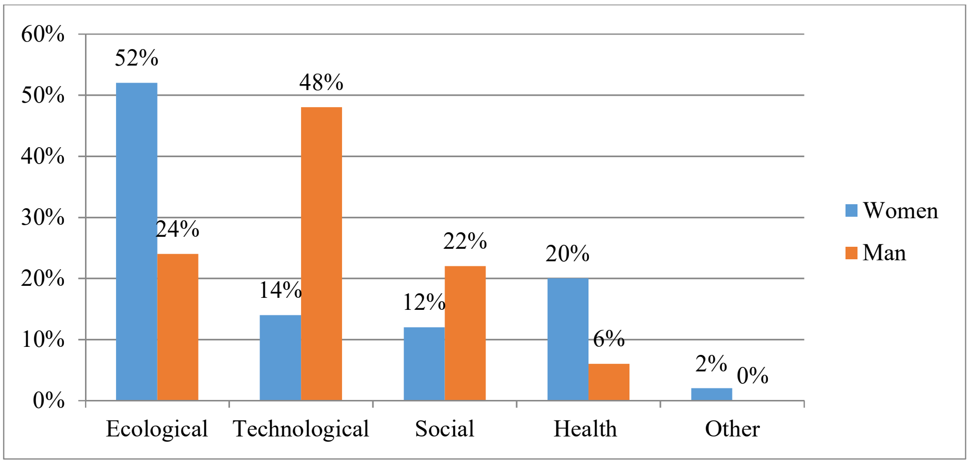


Chart 4. Threats in new anthropogenic environments
Source: authors' own research.

The chart illustrates the types of threats in new anthropogenic (human-created) environments as perceived by women and men. Among women, ecological threats are the most frequently indicated category, identified by 52% of respondents, representing the highest value in the entire dataset. Men also recognize ecological threats, though significantly less often (24%). By contrast, men most frequently point to technological threats (48%), whereas only 14% of women selected this response. Social threats are identified by 12% of women and 22% of men, while health-related threats are more commonly noted by women (20%) than by men (6%). The category “other” appears only sporadically – reported by 2% of women and by none of the men. Overall, the data indicate that women tend to focus more on ecological and health-related threats, whereas men more often emphasize technological and social threats.

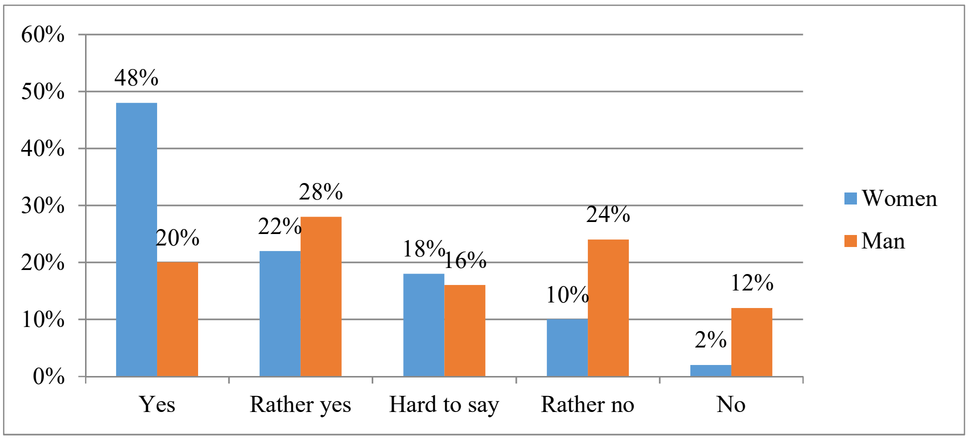


Chart 5. Safety culture as a survival condition

Source: authors' own research.

The chart presents opinions on the role of the culture of safety as a condition for survival. The largest proportion of women (48%) strongly believe that a culture of safety constitutes a condition for survival, whereas this response was indicated by 20% of men. The second most frequent response is “rather yes”, selected by 22% of women and 28% of men. The response “difficult to say” was chosen by 18% of women and 16% of men, indicating a moderate level of uncertainty in both groups. Negative responses were more common among men: “rather no” was selected by 24% of men (compared to 10% of women), and “no” by 12% of men and 2% of women. Overall, the data indicate that women are considerably more likely to perceive the culture of safety as crucial for survival, while men display greater skepticism toward this view.

The chart presents the social attitudes of women and men toward environmental challenges, indicating the actions considered most necessary. Among women, the most frequently selected option is social campaigns (28%), whereas among men environmentally friendly technologies predominate (34%). Women more often than men also point to ecological and technological education (24% compared to 20%) as well as social cooperation and solidarity (20% versus 16%). Men, in turn, slightly more often than women select the response “legal regulations” (10% compared to 6%).

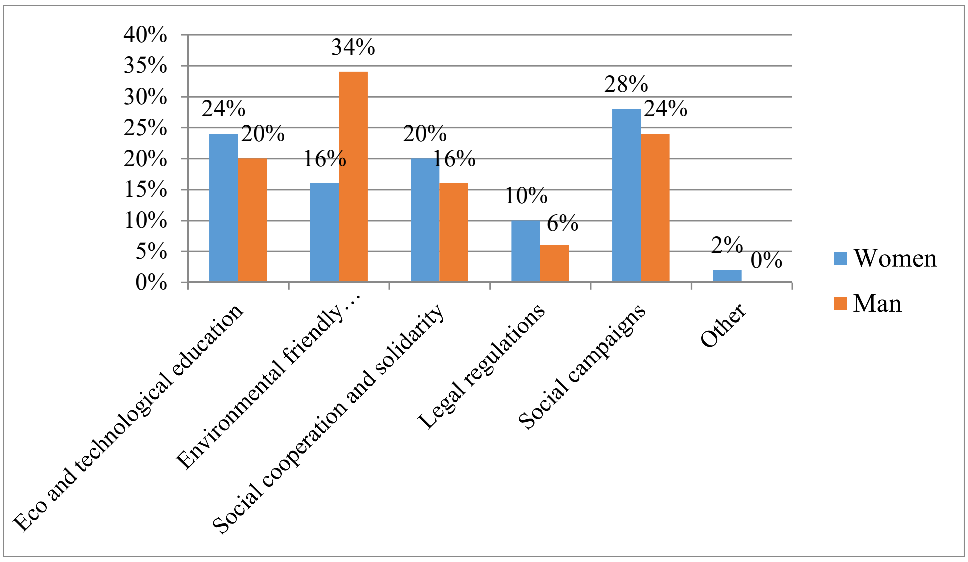


Chart 6. Social attitudes towards environmental challenges

Source: authors' own research.

Both groups indicate the category "other" only marginally (2% of women and none of the men). Overall, the data show that women tend to favor educational and social initiatives, while men place greater emphasis on environmentally friendly technologies.

Verification of the Hypotheses

The main hypothesis was confirmed. The results indicate that the majority of respondents consider the culture of safety to be crucial for functioning in artificial environments.

1. **A higher level of ecological culture increases the sense of safety.**
   – Moderately confirmed. Positive responses predominate over negative ones, although a substantial proportion of respondents remain neutral.
2. **The fusion of artificial environments fosters synergy.**
   – Weakly confirmed. A large proportion of respondents expressed no opinion, and positive responses do not clearly predominate.
3. **Mobility increases risk and necessitates the development of a culture of safety.**
   – Confirmed. Respondents most frequently indicate an increase in threats, as well as the need to develop new safety mechanisms.
4. **Anthropogenic pressure generates new threats that can be mitigated through a culture of safety.**
   – Partially confirmed. Respondents clearly perceive new threats, particularly ecological and technological ones.
5. **The culture of safety is regarded as a condition for survival.**
   – Strongly confirmed. Positive responses clearly predominate, especially among women.

6. **Cultural and social changes facilitate adaptation to the challenges of artificial environments.**
   – Confirmed. Education, pro-environmental technologies, and social campaigns are frequently indicated as key actions.

The conducted research confirms that the culture of safety plays a significant role in human functioning within artificial environments and in adaptation to dynamic technological and environmental changes. Respondents recognize the importance of educational, technological, and social activities in building safety, and the culture of safety is perceived by the majority as a necessary condition for survival in future, increasingly complex anthropogenic environments.

The results also indicate that:

- ecological culture has a positive, though moderately assessed, impact on safety,
- the integration of different artificial environments is perceived with uncertainty and ambiguity,
- human mobility increases risk while simultaneously stimulating the development of safety mechanisms,
- anthropogenic pressure leads to new threats, particularly ecological and technological ones,
- cultural and social changes, such as increased ecological awareness and education, facilitate adaptation and risk reduction.

Overall, the research findings confirm that the development of a culture of safety is a key factor enabling the synergistic coexistence of humans and artificial environments, as well as the mitigation of growing threats resulting from technological progress and anthropogenic pressure.

4. CONCLUSION

Dynamic technological development, advancing urbanization, and the intensification of anthropogenic pressure mean that contemporary humans increasingly operate within complex, multidimensional, and interrelated artificial environments. Under these conditions, the culture of safety becomes not merely a set of norms and practices, but a foundational framework enabling stable coexistence between humans and the surrounding technological, social, and environmental ecosystems. The theoretical analyses and empirical research results presented in this article clearly indicate that the role of the culture of safety will continue to grow systematically in the coming decades.

The research conducted confirms that social perceptions of the culture of safety are largely positive and that its importance for survival and adaptation in anthropogenic environments is widely acknowledged. Respondents identify both emerging threats resulting from technological development and increased mobility, as well as the need to create new protective mechanisms. At the same time, the findings demonstrate a growing level of ecological awareness and underscore the importance of education, environmentally friendly technologies, and social initiatives as key instruments for strengthening the culture of safety.

Synergy between natural, artificial, and digital environments requires contemporary society to possess not only technical competencies, but also adaptive capacities, creativity, and a sense of responsibility. The culture of safety, understood as a conscious and responsible approach to functioning across diverse environments, thus becomes a prerequisite for effective risk management, resource protection, and the development of sustainable social and technological structures.

In conclusion, shaping the culture of safety in artificial human environments is a multi-level process that requires the integration of educational, technological, social, and legal measures. It is precisely this integration that enables the emergence of synergy effects, which are essential for the harmonious and safe functioning of humans in a world characterized by constant change. The findings of this article demonstrate that building such a culture is not merely a response to contemporary challenges, but an investment in the future aimed at ensuring stability, resilience, and well-being for entire societies.

Practical recommendations primarily include the need to strengthen ecological and safety education, to promote the development of environmentally friendly technologies, and to establish integrated protection systems within artificial environments. Emphasis is also placed on the importance of social cooperation, appropriate legal frameworks, and systematic threat monitoring as essential elements in building a robust culture of safety and social resilience.

Future research should focus on analyzing perceptions of safety across different social groups, examining the impact of mobility on risk levels, modeling synergy between natural, artificial, and digital environments, and identifying new threats arising from anthropogenic pressure and technological advancement. Further studies should also assess the effectiveness of educational initiatives and social campaigns, as well as explore the role of the culture of safety in adaptation to climate change.

All authors have read and agreed to the published version of the manuscript.

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MEDIA MANAGEMENT EDUCATION: TERMINOLOGICAL AND DEFINATIONAL CHALLENGES

This paper attempts to conceptualise media management (MM) education by confronting existing definitions of MM with the perspective of academic teaching staff from four selected Polish public universities offering education in this area within social communication and media studies. We conducted a qualitative content analysis of 23 interviews with representatives of the authorities of media and communication studies units and academic staff specialising in MM. As a result, we identified MM's major features (research areas, media-industry specificity, and processes), difficulties in defining MM (inter-, multi-, and transdisciplinarity, obsolescence, scientific and educational conditions), and difficulties in defining the teaching of MM (the area of education and the theoretical-practical approach). Our study contributes to the body of knowledge on academic education in MM. It is also the first step toward re-conceptualising MM education as a research subject.

Keywords: media management, media management education, media entrepreneurship, definitions.

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1. INTRODUCTION

Media Management (hereinafter: MM) has a distinctly interdisciplinary character. It encompasses perspectives from a wide range of academic disciplines, including economics and finance, political science and public administration, management and quality sciences, legal studies, communication and media studies, and international relations (Albarran, Chan-Olmsted, Wirth, 2006; Kreft, 2015). Each field contributes research questions, theoretical frameworks, and methodological traditions, making the phenomenon dynamic and open to diverse analytical approaches. This diversity, however, complicates efforts to define media management precisely. Küng (2007, 2010) argues that MM should be positioned at the intersection of general management theories and the specific operational characteristics of media organisations. At the same time, she emphasises the ongoing lack of a unified definition of the phenomenon and the absence of a coherent research domain. As a result, media management remains in a formative stage rather than one of clearly directed development. This situation has significant consequences, raising a fundamental question about MM's research identity.

As Kreft (2015) points out, the number of scholars focusing on analysing media economic, managerial, or marketing systems remains relatively small. A key issue may lie in the multidisciplinarity mentioned above and the persisting – even growing – definitional ambiguity, which makes it difficult for researchers to classify their work within media management, let alone develop a sense of belonging or a need for self-identification with the discipline. The repercussions are also evident in the academic offerings of higher education institutions that deliver communication and media studies courses. They often include subjects or even specialisations related to MM, but as Jupowicz-Ginalska, Wróblewska and Dudziak-Kisio (2024) demonstrate, "as a direct focus of study it is scarcely present". After analysing the curricula of more than 20 public universities, the authors highlight the limited availability of MM-related offerings, the insufficient emphasis on practical aspects of management, and a lack of terminological consistency.

Thus, media management in Poland has fallen into stagnation. On the one hand, its definitional and conceptual ambiguity hinders scholarly development, resulting in a disappointing number of dedicated publications and research projects. On the other hand, education in this field is at an impasse, leading to low student engagement and, in the longer term, a lack of emerging researchers who would transform their academic interests into scholarly work. A catalyst is missing – a stimulus that would break MM out of its stupor and prevent it from drifting into academic oblivion.

As we have signalled, its terminological and conceptual ambiguity is the fundamental limitation. As Mierzejewska and Hollifield (2006) point out, making media management's terms and theories more consistent could help bring different research areas together and reduce the field's fragmentation. In response to these challenges, this paper attempts to confront existing definitions of MM with the perspective of academic teaching staff from four selected Polish public universities that offer education in this area within social communication and media studies. We aim to juxtapose the understanding of media management with its educational perspective, raising questions about what MM is today and how it is taught. This approach allows for a better understanding of the phenomenon. It serves as a starting point for future, in-depth discussions on its redefinition and the didactic dimension of how it should be taught in academic settings.

2. LITERATURE REVIEW

2.1. Theoretical approach to media management – an overview of approaches

The literature on media management from an educational perspective is not extensive. We were able to gather just over 20 publications on the subject (we searched in the Web of Science and Scopus databases using the keywords “media management” AND “higher education”). Based on these, we reviewed theoretical approaches to MM.

The origins of media management research can be traced back to the United States and are associated with the formation of large media conglomerates (Nierenberg, 2011). Although, as we indicated, MM is often seen as an interdisciplinary field, combining perspectives from media studies, political science, economics, law, sociology, and international relations (Kreft, 2015; Albarran, Chan-Olsmsted, Wirth, 2006), Beliczyński (2015) views it as one of the subdisciplines of management sciences, “distinguished both by its specialised management field and by the output of human labour”. According to this definition, MM would fall under Poland's current list of scientific disciplines, within the discipline of "management and quality sciences."

The literature on the subject also distinguishes between “media management” and “management in the media” (Nierenberg, 2013). In the first, more general approach, media organisations are subject to management processes, whereas in the second, narrower approach, they refer to internal management processes within media organisations.

“Media management” refers to a broad spectrum of levels and forms of influence on the functioning of the media. In this context, MM manifests itself through various regulatory mechanisms, such as legal norms, media market regulations, and principles governing the public and commercial use of the media for multiple purposes, e.g., in advertising or social campaigns, which are typically executed through media. McQuail (2007) similarly defines media management, stating that MM is a set of control mechanisms over the media sphere, established to protect the public interest and ensure the proper functioning of media institutions. On the other hand, “management in the media” focuses on the decision-making processes occurring within media organisations. In this sense, MM encompasses all activities related to the functioning and development of these organisations. These activities can be analysed from a functional perspective (about specific functions that make up the management process, focusing on planning and monitoring the decision-making processes) and from a structural perspective, concerning the shaping of the organisational structure (see: Nierenberg, 2013).

“Media entrepreneurship” is another term closely associated with media management (Sindik, Graybeal, 2016). Hang and van Weezel (2007) suggest a strong connection between entrepreneurship and media because both domains emphasise the importance of creativity, innovation and distinctive approaches. Hoag (2008) sees it as “the creation and ownership of an enterprise whose activity adds an independent voice to the media marketplace”. However, it should be noted that it applies to various areas of the media industry, ranging from traditionally understood press, radio, and television to modern technologies such as mobile applications and even video games (Hoag, 2008).

Another common characteristic of media enterprises is the difficulty in finding stable sources of income to complement profits from traditional advertising. The current state means that journalists – especially early in their careers – struggle with market realities, particularly the need to separate journalism from commercial activities (Briggs, 2012). According to research, ideally, media management, management in the media, or media entrepreneurship should lead to the introduction of business models that ensure the safe financing of operations without exposing journalists to tasks that fall outside the ethos of their work and professional ethics.

Santas, Inobemhe, and Asemah (2024) propose one of the recent and most comprehensive definitions. According to them, MM can be understood as “an aspect of management that focuses on identifying and describing the strategic and operational phenomena and problems in the administration of media organisations”. The researchers argue that MM should focus on strategic management, supply, production, organisational structure, and marketing functions.

As can be seen, media management is characterised by a broad spectrum that encompasses various aspects of the media process, from content creation to marketing activities, including the effective use of different media channels and platforms to, for example, improve the image of a media organisation and communicate messages to target audiences. In practice, it is a process initiated through strategic planning, during which organisations formulate their goals. It also involves defining target groups, analysing their regarding media consumption preferences, and selecting communication channels that enable effective outreach to these groups (Santas, Inobemhe, Asemahm, 2024). Therefore, it is not surprising that there are many overlapping specialisations within MM, focusing on content production and distribution, promotion and public relations, digital marketing, creative, legal and financial sectors, data analysis, etc.

Media management is characterised by interdisciplinarity and definitional ambiguity, within which perspectives from media studies, management, political science, economics, law, and sociology are integrated. The latest definitions strongly emphasise the need for a strategic approach to the phenomenon and highlight the importance of planning, creating, and implementing solutions that consider complex, dynamically changing media ecosystems. For this reason, education, and thus the preparation of young people for careers related to MM, should consider the above aspects.

2.2. Teaching MM: Definitional Challenges and Educational Perspectives

An analysis of the literature reveals a research gap regarding the definitions and concepts of teaching this field, as no formulated assumptions about its pedagogy have been identified. Previous research has focused on defining MM, leaving educational issues on the periphery of theoretical reflection. This is confirmed by Jupowicz-Ginalska, Wróblewska, and Dudziak-Kisio (2024), who write that “the existing state of art does not provide sufficient knowledge on this topic”. The authors point to the limited number of studies in this area, such as those by Zhang, Ma, and Huang (2022), who argue that studying MM “prepares students to function in a highly competitive market”.

Other discussed studies refer to the challenging cooperation between MM researchers and the media industry (see: Zhang, Li, 2021), the variable specificity of the media and media industry (Shaver, 2000), or the needs of the industry itself regarding the teaching and development of competencies necessary for media employees, such as teamwork, problem-solving skills, and innovation (see: Jupowicz-Ginalska, Wróblewska, Dudziak--Kisio, 2024). Gibb (2002) further observes that three approaches to teaching media management can be identified in the discourse: teaching about MM, teaching for MM, and teaching through MM. The latter, as a method that involves practical projects, is the most desirable by the industry.

A particular solution to the problem of limited literature on the subject is to draw theoretical inspiration from entrepreneurship education, which faces similar difficulties to MM. As Gartner (1990), Cunningham and Lischerson (1991), and Mwasalwiba (2010) note, entrepreneurial education lacks universally agreed-upon definitions, educational goals, and clear boundaries. Similarly, in media entrepreneurship, Ferrier (2013) emphasises that the absence of precise conceptual frameworks stems, among other factors, from the industry's dynamic changes and the diverse motivations of participants in educational processes. Singer and Broersma (2016) also point out that the terminology used in media entrepreneurship education is not unambiguous and may shape the perception of this field among students and lecturers.

Considering that, we observe that teaching media management requires further exploration, especially given the challenges associated with designing curricula and shaping the competencies of future media managers. However, before making any decisions regarding modifying existing academic offerings, it is essential to understand how MM and its teaching are conceptualised. Identifying the existing definitional perspectives provides an opportunity to discuss further and streamline the terminology. In other words, this is the first step toward revitalising the education in MM and the field of MM itself. Therefore, we would like to pose one significant research question: How do contemporary researchers and educators define MM and education in this field?

3. METHODOLOGY

The foundation of paper text lies in the methodological assumptions of the project titled "Media Management: An Educational Approach. Mapping and Identifying the Needs of the Academic Community in Poland", which is being carried out under the program "Excellence Initiative – Research University" at the University of Warsaw.

Its overall goal is to preliminarily assess the state of education in media management in Poland (in terms of teaching, organisational research, and environmental aspects). The project aims to identify the strengths and weaknesses of media management education and develop conclusions based on consultations and discussions. The project will also serve as the basis for developing future research tools for broader implementation (i.e., in case additional universities are invited to participate in the research).

Due to the preliminary nature of the research, we decided to establish contact with selected public universities that, within the field of communication and media studies, offer courses related to media management (see: Jupowicz-Ginalska, Wróblewska, Dudziak-Kisio, 2024). The final research sample included: University of Warsaw, Jagiellonian University, John Paul II Catholic University of Lublin, and Maria Curie-Skłodowska University in Lublin.

In the project, we employed three research methods. The first method was a quantitative-qualitative desk research analysis of existing data, i.e., the program offerings and syllabi of courses related to media management, which the selected universities made available to us.

The second method involved in-depth, semi-structured interviews with two groups of academic staff: 1) representatives of the authorities of media and communication studies units and 2) representatives of research and teaching staff specialising in MM. The aim was to establish an understanding of MM and education within MM; identify the reasons for offering MM courses; assess the condition of MM education in Poland; discuss factors that hinder or promote the development of MM; review the state of educational infrastructure; and characterise cooperation with media enterprises and scientific organisations.

We conducted a total of 23 interviews (four with university authorities, 19 with academic staff, i.e., four at the University of Warsaw, four at Jagiellonian University, four at John Paul II Catholic University in Cracow, and five at Maria Curie-Skłodowska University in Lublin). All the interviews lasted between 60 and 90 minutes. We anonymised them[6], and, after transcription, subjected them to qualitative content analysis, focusing on themes specific to the text.

The third research method involved focus group interviews (FGIs) with students from selected universities to understand their interest in the topic under discussion and to explore their needs and expectations in media management. We conducted FGIs with 24 students (i.e., seven at the University of Warsaw, six at Jagiellonian University, six at John Paul II Catholic University of Lublin, and five at Maria Curie-Skłodowska University in Lublin), who were compensated for their participation. All the focus groups lasted up to 120 minutes and were also transcribed. Like the individual interviews, all statements were anonymised and subjected to qualitative content analysis. We conducted the research between March and June 2024.

In this paper, we employed qualitative content analysis of in-depth interviews with authorities and academic staff representatives specialising in media management. In this particular case, we focus on how scholars understand media management and education in this area.

4. RESULTS

4.1. Defining Media Management: Areas, Media Industry Specificity, and Processes

4.1.1. Areas

Most respondents perceive MM as an interdisciplinary field related to planning, organising, directing, and distributing. The interviewees refer to Nierenberg's definitions (2011, 2013). Respondent WYK2_1 essentially repeats them, describing MM as "a process that involves planning, organising, directing, motivating, and controlling media organisations at all levels, from micro to global." Other respondents agree with this concept but emphasise the need to distinguish between the levels of this phenomenon, stating that "it is necessary to differentiate whether we are dealing with media management or management within the media, as Nierenberg presented in his classic distinction" (WYK3_3).

Thus, the aim is to refine the subject of study in MM, understood either broadly (as the organisation of the media system) or narrowly (as management within the media, directly related to media enterprises). The first area includes "regulations that serve to organise the media system to serve public interests and the interests of the media themselves" and "the organisation of interconnections between processes and activities, relating to all aspects and levels of the media system" (WYK3_3). The second area focuses on specific actions, such as "planning, organising, being a leader, motivating people, and controlling the production and distribution processes of content" (WYK3_3).

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[6] The coding pattern: W1 = University of Warsaw's media and communication authorities; W2 = Jagiellonian University's media and communication authorities; W3 = John Paul II Catholic University in Cracow's media and communication authorities; W4 = Maria Curie-Skłodowska University in Lublin = media and communication authorities. WYK1_1-4 = University of Warsaw's MM lecturers; WYK2_1-4 = Jagiellonian University's MM lecturers; WYK3_1-4 = John Paul II Catholic University in Cracow's MM lecturers; WYK4_1-5 = Maria Curie-Skłodowska University in Lublin = MM lecturers.

As can be seen, media governance, particularly the processes and levels of media actors, the role of audiences and the importance of the systemic conditions in which these media operate, is primarily defined as a starting point.

Our respondents advocate for “work at the grassroots level, meaning raising awareness that media management is present in many studies, even if it is not directly named. Unfortunately, instead, we search for synonyms associated with organization, marketing, which are essentially related to media management” (W4). To organize this, one must begin with "paradigms from the discipline of management and management and quality sciences" to "define what management itself is: meaning it is the entire process of organizing and conditioning for making informed decisions."

A definition of MM rooted in management, while accounting for the specifics of the media industry, should also incorporate levels of media management. Thus, “broadly understood media management would include activities at the intersection of politics and culture”. Then, operational levels could emerge, such as “quality management and information distribution” or “media production (…), which is naturally associated with media for non-media scholars”. The final level could be “crisis management or crisis management through media”, because "it deeply engages with image management, which opens up further research areas."

WYK1_3 suggests another proposal for systematising research areas. The researcher outlines three perspectives on MM: managing the media organisation, content, and campaigns. he first perspective concerns the comprehensive management of work within editorial teams. It includes planning, managing, and overseeing editorial activities and production processes. This is “management in the strict sense: you work in a media organisation, and your main task is to organise people’s work”. The second perspective is a “common understanding”, meaning the daily practice of deciding what to publish and when, including on social media, with content tailored to the audience and the situation. It includes creating, editing, and promoting content and responding to comments and messages, “reaching out with messages to the audience, whether at your request or someone else's”. The third perspective focuses on strategic planning and execution of advertising activities across various media, including budget allocation, channel selection, and campaign effectiveness monitoring. In this understanding, media management means “managing media plans and budgets (…) collecting data, applying criteria, setting deadlines, and signing contracts”.

4.1.2. Media Industry Specificity

The respondents highlight that media management (MM) differs from managing other entities due to the unique characteristics of the media industry, which pursues both commercial and pro-social goals. As a result, it is not always solely profit-driven but also mission-driven, aiming to exert influence and shape attitudes.

According to WYK3_2, this “dual goal” distinguishes the media from other entities, making “media a business like no other”. W4 also emphasises the uniqueness of the media, albeit in a negative context, by pointing out the media's power to “generate, obscure, silence, and cover up crises”, which is linked to the influence of media and journalists.

Due to the specific nature of the industry, some experts lean towards defining MM as a separate scientific subdiscipline focused on both the external and internal functioning of media organisations. For instance, WYK3_1 notes that in the classical understanding, MM “identifies and describes strategic phenomena” in which the media operate, aiming to “direct the entire media unit” through the implementation of specific functions such as “planning, organising, motivating, and controlling”. However, additional elements arise here that distinguish media from other entities. According to our respondents, these are the dual aspects of media agency and dependence. An agency relates to the management of information, i.e., holding “the power of creation and social influence”. On the other hand, dependence refers to the instrumentalisation of the media, where even independent media are “tools conditioned by many other social factors”. Therefore, the respondents argue that MM should equally combine a systems-business approach with a humanistic-social one.

4.1.3. Processes

Respondents emphasise the complexity of media management, particularly its process-oriented nature. This theme appears in various contexts as:

- WYK4_4: “A multi-dimensional activity related to planning actions, implementing these actions, and monitoring their implementation... It also involves ensuring the quality of the presented content, managing the workforce, the profitability of the media's existence, being sensitive to the cultural context in which the media operate, and being responsible for the materials presented”.
- WYK4_5: “A process whose main goal is to strengthen and develop the position of the media entity in the market. Its effectiveness depends on close cooperation between the owner and the editorial team, where common goals and mutual understanding ensure the smooth functioning of the organisation”.
- WYK4_2: “A conscious process based on a precise analysis of goals, financial resources, and constraints, encompassing planning, execution, distribution, and evaluation of communication activities conducted through mass media”.
- WYK4_3: “A process aimed at achieving set goals by properly distributing content through media channels”.
- WYK1_4: “The organisation of the team's work process so that the team creates reliable content that appeals to as wide an audience as possible and monetises as much as possible for the company and its owner”.

In conclusion, MM is a dynamic and multifaceted field that requires a balanced approach to strategic planning and operational management, while considering the media's ethical, social, and business dimensions. Educators and researchers need to address the gaps in MM education by focusing on both theoretical foundations and practical application to meet the media industry's evolving needs.

4.2. Difficulties in Defining MM: Inter-Multi-Transdisciplinarity, Obsolescence, Scientific and Educational Condition

4.2.1. Inter-Multi-Transdisciplinarity

WYK4_1 points out that MM is “spread across several different disciplines (...) such as media studies, management, economics, political science, and sociology”. The nature of the phenomenon causes difficulties in precisely defining it. WYK2_4 admits: “I have a problem defining the media management concept. I prepared a map of associations, and the problem is that it is very interdisciplinary, or rather, even transdisciplinary”. This refers to the disciplines mentioned above and related to terms such as media economics or media marketing. For example, WYK2_1 believes that “media management is a systemic umbrella for them. However, purists from, for example, media economics, may consider it equivalent to media management”. He argues that “friction” arises between fields and academic disciplines and within MM itself, affecting the mutual relationships and hierarchies of phenomena within it.

WYK2_4 emphasises that the diversity of research approaches yields many definitions, making it challenging to define a single, cohesive concept. He says, “This multi- and transdisciplinarity is both a strength and a hindrance in the theory of our research area”. The situation is further complicated by the specifics of contemporary media: mainly their complexity, convergence, ubiquity, and dynamism. Since media are “everything that surrounds us”, the problem becomes “to capture what we are trying to convey” (WYK2_3) and to “distinguish what media are today” (WYK2_3). It is important to remember that the media space is constantly evolving, changing how we understand it and forcing adjustments to terminology to keep pace with an ever-changing reality.

4.2.2. Obsolescence

Respondents emphasise that many existing definitions of media management are outdated because of the rapidly changing reality. For example, WYK2_2 states, “Theories we rely on are mostly from 20 years ago, and they no longer relate to what is happening in the media today”. Therefore, the term MM requires updating, adapting it to contemporary realities, and bridging significant gaps. WYK3_4 mentions the need to include references to “information management and digitisation and its impacts”. WYK1_2 points out the necessity of emphasising the technological aspect, stating that this issue, particularly digitisation, drastically changes how media are managed. She adds, “Today, talking only about content is hard. The technological aspect must be heavily emphasised. Technology and distribution are the foundations. There's a saying, 'Content is king,' but distribution is the queen. That's how it looks, but many forget about it”.

4.2.3. Scientific and Educational Conditions

Respondents point out the lack of research on media management. WYK3_4 believes that the small number of scientific publications makes it difficult to establish a uniform definition. W4 adds that this task is also complicated by the different approaches presented in the diverse literature, with no clear frameworks for this issue. WYK4_2 observes an additional obstacle: the lack of practical experience among MM lecturers from working in the media industry. In her opinion, this field requires specialised knowledge and direct exposure to practice, which many researchers and educators do not have. She explains: “It seems to me that problems arise from the lack of contact with management processes. If we have an academic who has never worked in a news editorial office, it will be hard for them to explain the processes that govern such an editorial office”.

4.3. Difficulties in Defining the Teaching of Media Management: The Area of Education and the Theoretical-Practical Approach

4.3.1. The Area of Education

Despite difficulties defining MM, our respondents attempted to outline how education in this field might be understood.

WYK2_1 notes that since the concept is constantly being reinterpreted, it is equally difficult to define methods for teaching it. He suggests, “If we don’t know what media management is, what are we teaching? So we try to show and describe the actual state in the media”. W4 agrees that creating a universal educational model for this field is a significant challenge. She points out two complementary approaches: general and operational. At a very general level, she suggests that MM education should include skills and competencies that enable graduates to make transparent, clear, and coherent decisions about the organisation of processes related to the broader functioning of the media, while maintaining the highest journalistic quality standards. The operational level focuses on teaching specific behaviours and providing knowledge to help students manage teams, organise, and ensure the quality of the media content they produce.

WYK3_3 focuses on leadership, defining media management as “the formation of leader”, because "in this unstable market, we need a leader”. Leading teams in such a dynamic environment as the media requires decision-making skills in management processes. These skills should be taught, especially in activities that affect the content audiences receive. WYK4_1 further emphasises the importance of leadership in media organisations. However, W2 believes adopting this approach would require a revolution, meaning that the focus should shift to training managers, not journalists. She argues, “If we want a powerful MM program, the graduate profile should be that of a media institution manager from the beginning”. Perhaps such a step would answer the question raised by W3: “How can we redefine teaching media management?”

4.3.2. Theoretical-Practical Approach

WYK2_4 sees education in MM as a combination of theory and practice, and the interviews indicate that the practical approach is understood in various ways.

First, it is viewed as a teaching method that includes not only lectures, but also workshops, exercises, seminars, or other practical skill-teaching solutions. WYK4_5 provides an example of students' active participation in actual media management processes. He says, “30 per cent of the time should be dedicated to practice, which means participating in the operations of media companies, in editorial teams, with an emphasis on observing the cooperation between the management and the editorial levels”.

Secondly, it is seen as an element of teaching material. According to the respondents, contemporary MM education should not only focus on conveying theoretical knowledge but should also develop skills for analytical thinking and market situation assessment. As WYK2_3 points out, it is essential to equip students with tools to critically analyse the media sector, so they can “understand the reality that surrounds them, so they have the basic instruments to comprehend it and know what is happening”. Similarly, WYK2_2 believes that explaining and understanding the principles of media functioning within MM is a priority: “Management is not just about teaching (...) that we present someone with a recipe for effective action. You need to understand what is happening in the media market”.

Thirdly, it is seen as real professional experience for lecturers and students. The respondents emphasise that MM education should focus on imparting practical skills, including applying acquired knowledge in real-world settings. WYK4_3 highlights the importance of practical education: “It is an attempt to pass on experiences, aimed at reducing the risk of new managers in media repeating the same mistakes”. WYK4_4 also notes that students can acquire practical skills, stating that “it would be good to learn about their experiences”. As observed, the respondents emphasise that teaching MM should involve theoretical knowledge and practical application, allowing students to gain real-world experience and understanding of the media environment.

5. DISCUSSION

Here, we would like to highlight the key insights into the specificity of MM definitions and elaborate on the challenges of developing an appropriate education system for future media managers.

Firstly, as our respondents notice, MM focuses on the planning, organising, managing, and controlling processes within media organisations. However, this approach is too narrow, as it does not embrace the full scope of MM, especially its operation across different levels of engagement, i.e., from organisational management to strategic decisions about distribution or financial planning. It also somehow misses the media's adjustments to regulatory frameworks, its relationships with recipients, and the broader external environment in which it operates. We may observe that MM is not a static set of tasks but a dynamic and evolving series of activities that require constant attention to detail and coordination. All of the aforementioned processes, from adapting to legal criteria and planning to execution and evaluation, are interconnected and cannot be treated in isolation. That means that effective media management requires a holistic approach that accounts for the interplay among these activities.

Secondly, the complexity of MM comes from the multifaceted nature of media companies. They are unique in that they do not function purely as commercial, profit-oriented entities, but also serve societal purposes by contributing to democratic processes and educating or upholding norms and values. In that context, media organisations serve as both business enterprises and platforms for social influence. It means that they must be efficient in, i.e. competing for audience attention, advertising revenue, and market share. On the other hand, they should serve the public interest by providing fact-based information, supporting pluralistic discourse, and strengthening social diversity. This duality distinguishes media management from management in other industries. Understanding it may be crucial to comprehending the full scope of MM, as it demands a managerial approach balancing commercial objectives with the responsibility of providing reliable content.

Thirdly, a more complex approach to MM ties up to the media's evolving nature. Media managers face new challenges constantly. In the past, there were digital media, convergence blending traditional and new media platforms, and new expectations for audiences. Now, the biggest issue might be AI, but other phenomena – like deepening polarisation or deepfakes – remain equally relevant. These circumstances necessitate a more flexible definition of MM that can accommodate ongoing transformations in media production, consumption, and regulation.

Given this, it is obvious that MM is a broad and diverse phenomenon. The possible criteria for MM systematisation may be set along the lines of media system types and media organisations, or the specific tasks and goals they aim to achieve. For instance, the management might focus on ensuring operational efficiency, deciding about content production and distribution across platforms, implementing news monetisation models, or monitoring the effectiveness of communication efforts.

In light of the above, it is clear that MM requires a broad set of diverse skills, from leadership and communication through strategic thinking to analytical ability. Media managers must be able to simultaneously oversee regular daily operations, respond to unforeseen challenges, make decisions under pressure, and adapt to new developments in the media industry. These inherent difficulties, both in defining and practising MM, extend to teaching it as well. Due to its interdisciplinary nature, media management education should therefore combine theoretical foundations (providing students with a comprehensive understanding of the key concepts and principles underpinning the field) and practical experience (developing managerial skills). In the first group, students should be offered lectures or seminars that explain the most crucial theories from fields such as media and communication studies and management studies (including legal and economic concepts). Especially addressing the uniqueness of the media industry (i.e., the dual goals of profit generation and social responsibility, and the specific challenges posed by a rapidly changing technological and regulatory environment) is important. In the second group, we should place stronger emphasis on developing students' practical skills, which are crucial for success in the media industry. We also need to consider that shift in the teaching concept – from a journalist orientation to a media manager's orientation – should place greater emphasis on human resources (leadership development, team management), strategic decision-making, innovation and entrepreneurship, and project-based management. It can be done through close collaboration with media professionals, who may provide insight into the real-world challenges of MM and thus help them learn how to apply theoretical concepts in practice.

Of course, MM education should remain flexible and responsive to emerging trends in the media industry, such as the constant, unstoppable growth of social media, the increasing importance of data analytics, and, last but not least, the implementation of Artificial Intelligence. The latter one should be recognised as an essential component of a modernised curriculum, as it reshapes planning, production, distribution, audience measurement, and decision-making processes. Incorporating practice-based knowledge on AI would not reflect the current transformation of the media ecosystem and strengthen the connections between academic training and industry expectations, ensuring that graduates are better equipped to operate in data-driven and algorithmically mediated environments.

6. CONCLUSIONS

As seen, the challenges of defining MM arise from its interdisciplinary nature and the dynamics of the media sector. Effective MM requires balancing commercial objectives with media's social responsibility; adapting to both technological and regulatory changes; and supervising engagement with audiences. The art of balance is also essential to MM education, as it equally incorporates theoretical knowledge and practical experience. With the proper combination of theoretical foundations and practical experience, it may equip future media managers with knowledge and skills suitable to the demands of the modern media environment.

We are aware of our study's limitations. The most important is the small research sample of the universities we studied (four). However, our goal was not to analyse a representative sample of universities engaged in MM education, but to map its specificity and potential for evolution. Although we conducted a sufficient number of interviews and focus groups, it is worth noting that we should expand the scope of the analysis in the future. The second limitation is the scarcity of literature on the subject, which would provide a solid theoretical basis (tools and research results) for work on MM education. The latter issue might also be our strength - we were able to add some insights addressing the existing research gaps.

In this way, our study contributes to the body of knowledge on academic education in MM. Its uniqueness stems from a more advanced, nuanced understanding of media management education, which is considered an interdisciplinary and evolving domain of inquiry rather than merely a curricular concern. By understanding MM education as a research-relevant field integrating managerial approaches, media-specific logics, technological transformation, and practice-oriented training, we also take the first step toward conceptualising MM education as a research subject, thereby leading to the restructuring of the entire curricula for this phenomenon.

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ACADEMIC LEADERSHIP INVENTORY: DEVELOPMENT AND VALIDATION IN INDIAN HIGHER EDUCATION

India's National Education Policy 2020 emphasises academic leadership as a key element of faculty development and institutional quality. However, validated instruments for assessing faculty academic leadership in Indian higher education remain limited. This study develops and validates the Academic Leadership Inventory (ALI), a context-specific measure of academic leadership among faculty in Indian higher education institutions. Following item generation through literature review and expert interviews, a 33-item instrument was pretested with 200 faculty members and examined using exploratory factor analysis. The revised 27 item instrument was validated using confirmatory factor analysis with data from 826 faculty members in IBM SPSS and AMOS 21.0. The findings supported a four-dimensional structure comprising Collegial Collaboration, Tutoring, Academic Proficiency, and Community Orientation. The ALI demonstrated satisfactory reliability and validity, offering a parsimonious instrument for assessing faculty academic leadership in Indian higher education contexts.

Keywords: academic leadership, distributed leadership, New Education Policy, inventory development and validation, Sustainable Development Goals.

1. INTRODUCTION

Leadership is an intensely explored topic of research for several decades (Bolden et al., 2008; Montgomery, 2020). Recent studies related to educational leadership have emphasised the importance of building relationships and the interactions between leaders and followers (Avolio et al., 2009; Bilimoria, Singer, 2019; Evans et al., 2013). The higher

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education sector of a nation contributes to the larger society in terms of innovations and solutions for social progress (Lu et al., 2017) and creates competent individuals who can contribute to the development of countries (Findler et al., 2019; Ruiz-Mallén, Heras, 2020). To achieve this goal, higher education institutions need leaders who will not only craft the vision and mission to foster quality education, but also take efforts to realise them (Shahmandi et al., 2012). Accordingly, the leadership of those who enhance students' learning outcomes is an essential element of higher education institutions (HEI). In the scholarly literature, there are different conceptualisations of the term ‘academic leadership’ (Khan, 2016; Fields et al., 2019). Academic leaders can be viewed as those who hold formal position and influence academic strategies, policies, management, and as individuals who create new knowledge, spread it, and elevate their capacity for this purpose (Rowley, 1997; Bolden, Petrov, Gosling, 2008; Hannah, Lester, 2009; Evans, Homer, Rayner, 2013; Khan, 2016; Mårtensson, Roxå, 2016). There is a body of evidence suggesting that such approach to leadership is embedded in the distributed leadership theory, which emphasises that leadership is not only located in the position of the principal but also shared within and across the institution (Harris, 2003; Bolden, Petrov, Gosling, 2009; Juntrasook et al., 2013; Jones et al., 2017). Regardless of the nature of the role, academic leaders impact creating the culture of teaching and learning by their approach to sharing knowledge, creating social networks, and facilitating change (Mårtensson, Roxå, 2016; Klempin, Karp, 2018). Leaders must develop skills to be more competent to perform their professional roles (Rowley, 1997; Spendlove, 2007). Hence, understanding the competencies of academic leaders that enable them to influence and enact change is crucial.

Developing leadership competencies has become one of the ministry of higher education priorities in several countries (Radwan, Ghavifekr, Abdul Razak, 2020). Recently, India has become one of the countries that concentrate on the quality of education and emphasise the role of leaders in due process. The National Education Policy 2020 (NEP, 2020) of India is a significant step in transforming India’s education system into a knowledge hub by providing high-quality education to all. India’s higher education system is one of the largest in the world. It consists of over 40,000 Higher Education Institutions (HEIs), including colleges, universities, deemed universities, and national institutes, enrolling over 37 million students every year (IBEF, 2020), however, the still gross enrolment ratio is lower than in developed countries AISHE (2019). India is currently gifted with demographic dividend as the median age of Indians is just 28 years (Gosh, 2020). The government of India has taken enormous initiatives to enhance the quality of teaching in higher education institutions and improve graduates' employability, in which faculty members are expected to play significant leadership roles, both within and beyond the classrooms.

Along with a study on academic leadership roles, behaviours, and characteristics, researchers have made an effort to develop numerous measurement instruments for academic leadership (Banker, Bhal, 2020). Some researchers also attempted to adapt originally developed instruments and test their relevance to a particular context. For instance, Harris et al. (2004) investigated the leadership characteristics of departmental chairs, and they used Leadership Practices Inventory (LPI) by Kouzes and Posner (2001) to collect data (Harris et al., 2004). LPI is a 360-degree assessment that examines a leader’s use of leadership practices defined by the authors. It has been extensively used in the education field (Watters, 2019). The majority of the research on academic leadership within higher education has focused on formal leadership roles held by the head, chair, dean, vice-chancellor, or president (Spendlove, 2007; Gibbs, Knapper, Piccinin, 2008;

Bolden et al., 2012; Evans, Homer and Rayner, 2013; Juntrasook et al., 2013). Only a few scholars have focused on academic leadership of those who facilitate change, but do not occupy formal leadership positions. Consequently, this area remains overlooked. (Gibbs, Knapper, Piccinin, 2008; Juntrasook et al., 2013; Fields, Kenny, and Mueller, 2019). In the present study, the authors have carried out a study of academic leadership based on leadership roles by faculty who do not necessarily have the responsibility in university management. In this article, the term faculty is used following the usage in most countries with EU tradition of teaching and defined as those who hold teaching assignments, with various level of achievements and is used interchangeably with the term academic staff.

The current article focuses on the academic leadership of individuals with teaching and research assignments and does not necessarily hold a formal leadership position. The study seeks to fill the existing gap in the scholarly literature by identifying the empirically verified factors of academic leadership of faculty in the context of Indian HEIs, namely the Academic Leadership Inventory (ALI). The authors propose ALI as an effective assessment tool of the leadership competencies of faculty. Therefore, the study strengthens the empirical evidence base of academic leadership in Indian HEIs. Hence, the research contributes positively to the educational leadership literature. Building on the existing scholarly literature, the current study addresses the following questions related to academic leadership in educational institutions: a) what are the pro-leadership behaviors that would constitute the concept of 'Academic Leadership' in Indian scenario? b) to what extent do faculty consider themselves to be capable of delivering the aforementioned academic leadership roles? This study aims to build a parsimonious and internally consistent instrument to measure the academic leadership roles of faculty working in the higher education sector in India. The goal is to identify and generate initial items from the literature, content validation, dimension identification, and finally, the assessment of validity and model evaluation, respectively. Given the changes and complexity of educational leadership roles in the context of HEIs, it is essential to determine the competencies and behaviours of faculty to perform these roles (Phuong, Cole, and Zarestky, 2018; Drew, 2010).

2. LITERATURE REVIEW

Although academic leadership is conceptualised and broadly described in the literature, there is no consensus on how faculty perform and utilise academic leadership roles and skills within an institutional context (Macfarlane, 2012; Fields, Kenny, Mueller, 2019). Leadership is context-dependent, leadership in one context might not be suitable for another (Gibbs, Knapper, Piccinin, 2008; van Ameijde et al., 2009; Banker, Bhal, 2020; Printy and Liu, 2021). What works best for academic leadership in India depends on the specific context of the institution. Hence there is a need to conceptualise factors of academic leadership and develop a measurement tool to evaluate progress in developing leadership competencies of faculty exclusively in the Indian context. Available measurement methods for academic leadership in India do not focus on the faculty themselves (Banker, Bhal, 2020).

Among the existing studies of leadership in the higher education context, this study attempts to answer the following questions "what are characteristics of leaders?", "what is effective leadership?", "what academic leaders do?", "how we can develop effective leaders?", "what conditions influence leadership?", "what are the effects of leadership?" and "which theories frame academic leadership ?"(Harris et al., 2004; Evans, Homer, Rayner, 2013; Juntrasook et al., 2013; Fields, Kenny, Mueller, 2019). The current article reviews various aspects of leadership in a higher education institution and focuses on those who have a teaching assignment and does not necessarily hold a formal leadership position. This perspective is imperative for understanding the Academic Leadership Inventory (ALI) development and its dimensions. The study considers the background of academic leadership development in India, academic leaders' roles, behaviours, characteristics, and academic leadership of faculty.

2.1. The background of academic leadership development in India

The rapid expansion of higher education in India forced a change in how higher education institutions are managed. The higher education sector's effective governance, management, and leadership are the fundamental principles that will guide the education system at large (NEP 2020). NEP 2020 places the competencies of various groups as a driving force of changes. Governance needs to be highly qualified, with academic and administrative autonomy. Faculty and institutional leadership positions will be reaffirmed through merit appointments and career progression based on teaching, research, and service. Outstanding and influential institutional leaders and faculty with high achievements and demonstrated leadership and management skills create the institution's success (NEP 2020). Governance and leadership are essential to creating a culture of excellence and innovation in HEIs. NEP 2020 is considered a milestone in the history of the education system in India, and educational leadership can act as a catalyst in creating the evolution of education.

Sustainable Development Goals (SDG 4) of the 2030 Agenda for Sustainable Development states that ensuring access to quality higher education is a global goal. India adopted the policy in 2015 to have the second highest-quality education system by 2040 (NEP 2020). Creating quality requires paying attention to leadership and its potential to succeed. The National Education Policy 2020 places management and teaching staff at all levels at the centre of the fundamental reforms in the education system. NEP 2020 emphasises leadership as an element of continuous professional development and career progression for principals and professors, hence fitting into the concept of distributed leadership. Faculty who demonstrate leadership skills will have opportunities for career growth to take on academic leadership positions in schools or government departments. To be recognised or promoted, the improvement needs to be evaluated whether faculty meet desired level of competencies. In the literature, there are numerous measurement instruments for leadership in the context of higher education, however, there is no scale available developed to evaluate academic leadership in the context of Indian HEIs.

2.2. The roles and characteristics of academic leaders

Leadership is a function of what leaders do. The core functionalities of academic leadership are teaching and research (Banker, Bhal, 2020). Traditional academic leadership is characterised by personal academic achievements, such as publication in refereed journals, paper presentation at a conference, authorship of scholarly works, and research student supervision (Rowley, 1997). Academic leaders play the role of managers and focus on tasks (Gumus et al., 2018). They are also engaged in administrative activities such as negotiating, raising funds, strategic activities. Banker and Bhal (2020) study revealed the framework roles and responsibilities of academic leaders. First, boundary-spanning focuses on a leader's ability to envisage the institution's future while being open to external stakeholders. Leaders are expected to manage those stakeholders, solve problems, and safeguard the institution from environmental threats. Second, nurturing human talent aims to hire and retain the best pool of people, especially faculty. The leader's priority is to motivate them, develop, ensure excellent and proper treatment, keep their morale high, and manage productive relations among peers. Social contribution, the third factor, indicates a leader's moral duty towards society. It might be related to the concept of servant leadership (Greenleaf, 1973). Leaders serve society with dedication and efforts. HEIs are expected to ensure equity and be socially responsible in contributing towards society's welfare. The last factor, operations, relates to routine daily activities. These activities include teaching, learning, and implementing the institution's strategic and operational plans (Banker, Bhal, 2020).

Other researchers focused on behaviours that constitute effective leadership in higher education (Bryman, 2007). Based on the literature review following aspects of leadership behaviours and activities were found: providing guidance, facilitating the direction, being considerate in terms of indicating a relationship of trust, warmth, mutual respect between leaders and follower, treating other staff members fairly and with integrity, being trustworthy, ability to be involved decisions making and building a community of practice, identifying problems and turning them into opportunity, communicating the direction, acting as a role model, being credible, creating positive work atmosphere, being proactive, providing feedback on performance, providing resources to stimulate research, making academic appointments, setting teaching expectations, involving students (Bryman, 2007; Gibbs, Knapper, Piccinin, 2008). Bryman (2007) indicated these characteristics as relevant for leaders holding the formal position of departmental heads.

Some authors conceptualise academic leadership through leaders' behaviours (Bryman, 2007). Spendlove (2007) states that sets of behaviour are competencies that are instrumental in delivering desired outcomes. These competencies capture the experience and knowledge to perform the role effectively. Bryman (2007; 2004) distinguished behaviours such as being considerate and trustworthy, treating others with integrity, having own personal integrity, being ethical, using effective communication, developing a vision, and empowering others. Harris et al. (2004) indicated that the most effective leadership behaviours and characteristics are ethical behaviour, effective communication methods, shared vision, empowerment, modelling, enabling others to act.

Few studies suggested that interpersonal skills, empowering and supporting others, being creative, and initiating change are essential for leaders (Spendlove, 2007; Drew, 2010). Williams (2007) identified essential leaders' characteristics, such as ensuring the safety and security of everyone, connecting students and families to health and human services. The study of academic leadership also focused on academic leaders' characteristics. Breakwell and Tytherleigh (2008) studied the formal academic leadership of Vice-Chancellors. They reported that credibility, financial awareness, adaptability, confidence, creating mission, and vision are crucial leadership characteristics in higher education. Academic leadership is multi-dimensional and incorporates intellectual, emotional, social, moral (Evans et al., 2013), instructional, visionary, and administrative aspects. Leadership determines the success or failure of an institution.

Researchers have analysed academic leadership also in relation to institutional performance (Gibbs et al., 2008; Findler et al., 2019). Goodall (2009) stated that the research profile of Vice-Chancellors is linked to the higher position of the university in rankings. The research profile is built on credibility, expert knowledge, and commitment to research excellence (Goodall, 2009). The position of Vice-Chancellors in UK institutions was also the subject of Spendlove's (2007) study. Credibility is central to most studies on academic leadership (Bolden et al., 2012). It indicates the trust given to those who demonstrate academic achievements and hence might be followed by others. Apart from already mentioned credibility, Spendlove (2007) also distinguished other competencies, including openness, honesty, consulting others, thinking broadly, and engaging in relations with people (Spendlove, 2007).

Academic leaders are involved in different tasks. To achieve institutional goals successfully, they need to distribute authority among other people. Such an approach to academic leadership is embedded in the distributed leadership theory, emphasising that leadership is located in the principal's position and shared within and across the institution (Gumus et al., 2018; Printy, Liu, 2021)). The concept of distributed leadership is an alternative for the "leaders-centric" approach to leadership and suggests that leadership is collective rather than individual (Bolden, Petrov, and Gosling, 2009). As a result, leaders have the opportunity to engage in different activities across all levels of the institution. Distributed leadership is based on three assumptions: first, the interaction of individuals within a group or network; second, leadership happens inside and outside the organisation; third, that interacting individuals share expertise among each other (Bennett, 2003).

2.3. Academic leadership of faculty

The role of educational leadership across the institution, including formal leadership positions and academic staff, has been led by Rayner et al. (2010). The authors researched the role of professors as academic leaders in the UK. They noted that the role varies within the same institution, the national context, and international boundaries. Several studies revealed research and teaching practices of professors as leaders, including mentoring, advising and demonstrating leading to others (Rayner et al., 2010; Macfarlane, 2012). Formal leadership roles in higher education are held by departmental heads and directors of courses, directors of research, and committee chairs. These roles are held by faculty who are also involved in teaching, research, and other roles outside the university (Macfarlane, 2012). In the UK, the expectation of leadership activities, apart from formal positions, is assigned to professors. The title professor is associated with high achievements, recognition, seniority, and distinction and does not refer to all academic staff (Rayner et al., 2010; Evans, Homer, Rayner, 2013). Professors undertake activities connected mainly with research, mentoring, influencing, and helping others. Macfarlane (2012) indicates that professors are academic developers responsible for teaching and student development. In the American educational professional classification system, the traditional UK term professor is replaced by a full professor (Evans, 2015).

Bolden et al. (2012) describe academic leadership as a process to construct, promote, and maintain academic values and identities. The process defines objectives for individual faculty whose academic work is characterised by self-leadership (Bolden et al., 2012). Macfarlane (2011) distinguished the following qualities of professors as leaders: role model through teaching and other academic achievements, mentor of fewer experienced colleagues, advocate, guardian of standards of scholarship and academic values, acquisitor of grants and other research resources, and an ambassador on behalf of the university. These informal leadership roles allow professors to influence practice not only inside but also outside the institution (Macfarlane, 2011)

Fields et al. (2019) developed a framework for conceptualising educational leadership in an academic development program. Based on participants' perceptions, five pillars of educational leadership have been identified: affective qualities, mentoring and empowering, action-orientation, teaching excellence, and research and scholarship (Fields, Kenny, Mueller, 2019). Numerous attributes characterise each pillar. Affective qualities include demonstrating humility, empathy, trust both inside and outside the classroom. Mentoring and empowering indicate the responsibility to help others to strengthen their teaching and learning practices. The third pillar, action-orientation, refers to facilitating change in teaching and learning, taking the risk, and demonstrating innovation. Teaching excellence is manifested in building confidence in learners through conversation, collaboration, and establishing a positive learning environment. The last pillar, research, and scholarship are being up to date on educational research. Faculty need to have a solid foundation in educational research translated into publications and projects.

While concluding the review of literature it is better to have a clear distinction between Academic Leadership, teaching effectiveness and faculty performance to understand the depth and breadth of the conceptual framework of the construct academic leadership. Teaching effectiveness is largely measured in terms of student learning outcomes, emphasising how far a teacher is successful in facilitating the student achievement of his academic goals. According to Cheng & Tsui (1999), behavioural, affective, and cognitive attributes of teachers that contribute to student learning and educational outcomes determine the teaching effectiveness. Faculty performance in higher education sector is a multidimensional construct, measured in terms of various aspects of performance such as Teaching effectiveness, student mentorship, research excellence, extension activities, academic leadership, etc. As Kurz (1989) rightly pointed out the faculty performance is to be measured in terms of effectiveness of achieving the academic objectives assigned to the teachers and not merely based on the quantity of the work done. In another words, faculty performance need to be defined and evaluated considering the totality of academic responsibilities and not just confined to student ratings and research outputs (Arreola, 2007).

Academic leadership is multi-dimensional and incorporates intellectual, emotional, social, moral (Evans et al., 2013), instructional, visionary, and administrative aspects. Leadership determines the success or failure of an institution as explained earlier. As highlighted by Spendlove (2007), it is to be viewed as behavioural competencies that are instrumental in delivering desired outcomes. These competencies capture the experience and knowledge to perform the role effectively. Academic leaders involve in a range of activities across all levels both inside and outside the organisations (Bennett, 2003). Though the constructs Academic leadership, Teaching effectiveness and faculty performance have common elements, each one of them stand out as an independent construct and provide efficient measure in the respective domains.

3. METHODOLOGICAL OVERVIEW AND ANALYSIS

This study followed the widely authenticated framework outlined by Hinkin (1998) and Churchill (1979) to develop a psychometrically comprehensive survey instrument. Accordingly, the empirical development and validation of the Academic Leadership Inventory (ALI) involved four steps viz; a) item generation, b) questionnaire administration, c) dimension identification and data reduction (exploratory factor analysis), and finally d) scale evaluation. The measurement of validity and reliability was done following the guidelines provided by Hair et al. (2010).

3.1. Step 1: Generation of Initial Items and content validation

The authors of the study developed the initial pool of items for the questionnaire to specify the content domain of the construct, identify items specific to that domain, and then empirically determine the extent to which these items are relevant to the specific domain under the focus of the study (higher education academic leadership) Based on the conceptualisation of the construct ‘Academic Leadership’, we generated 38 items through an extensive review of the literature (Ramsden et al., 2007; Xu, 2011; Dani and Mhunpiew, 2019) and subsequent in-depth interviews with five experts from academia and institutional heads. In-depth interviews were grounded on queries regarding the basic research question of this study: “what are the pro-leadership behaviours that would constitute the concept of ‘Academic Leadership’ in Indian scenario?”. To ensure content and face validity, the list of 38 generated items was then reviewed and refined by a group of twenty faculty members who had more than ten years of teaching and administrative experience in the higher education sector in India. Based on the feedback obtained, we removed and revised the wording of some items that were perceived to be ambiguous or redundant. At the end of this process, 33 items remained, which were considered representative of the construct ‘academic leadership’. The items were organised under the themes “Managing”, “Teaching”, “Motivating”, “Coaching”, “Mentoring”, “Working with Community”, and “Serving”. Following the guidelines that “the new items be scaled using 5-point Likert scales” (Hinkin, 1998), all the items were anchored at five points (1=strongly disagree to 5=strongly agree), and the participants expressed their level of agreement with each item.

3.2. Step 2: Participants and Procedure

The study aims to develop and test the characteristics of the proposed Academic Leadership Inventory (ALI). Apart from the list of 33 items generated through the thorough literature review and in-depth interviews, the questionnaire also included items to measure faculty job performance, organisational commitment, and job satisfaction. The survey items asked participants how they rated their role in the organisation they are currently employed in. The scale's psychometric properties were tested among a sample of currently employed faculty working in the higher education sector in India. India has one of the largest higher education sectors in the world, with over 40,000 educational institutions including colleges, universities and national level institutions (IBEF, 2020). India has over 37.4 million students enrolled in higher education during 2019, and the Gross Enrolment Ratio is 26.3 per cent in FY19 (IBEF, 2020). Also, the recent New Education Policy, 2020, focuses on broadening and enriching educators’ competence in both teaching and administrative roles. In this context, we conceptualised the development of an instrument that would measure the academic leadership of faculty in the Indian higher education context.

The sample of this study comprised of faculty working in higher education institutions in India. To ensure a homogeneous population, we collected data only from institutions approved by University Grants Commission all across India so that infrastructural and human resource practices would more or less be the same. The total number of faculty is around 14 lakhs, out of which about 57.8% are male and 42.2% are female (AISHE, 2019). This includes individuals occupying different posts like Professor, Associate Professor, Lecturer/Assistant Professor, and Tutor. To suit the context of the variables under the focus of this study, academic leadership, the authors defined the population as teachers who worked with the institution regularly and full-time. A pretest of the shortened and refined instrument with 33 items was done among 200 teachers who worked in different parts of

India and were selected through snowball sampling. Following EFA-based item reduction, the final 27-item instrument was administered to 826 faculty members for confirmatory factor analysis and scale validation.

3.3. Step 3: Dimension identification

Exploratory factor analysis was conducted on the pretest data collected from 200 faculty members using the 33-item instrument. The initial reliability check indicated acceptable internal consistency. Principal component analysis with Varimax rotation was then conducted using IBM SPSS 23.0 to identify the underlying factor structure. The Kaiser–Meyer–Olkin value was 0.945, and Bartlett's test of sphericity was significant, $\chi^2 = 15715.021$, $p < .001$, indicating that the data were suitable for factor analysis. The factor-retention decision was based on eigenvalues greater than one, the scree plot, item interpretability, and conceptual coherence with the academic leadership literature. The scree plot indicated that the curve levelled off after the fourth factor; therefore, a four-factor solution was retained. Table 1 presents the eigenvalues and percentage of variance explained by the retained factors. The first factor accounted for the highest proportion of variance, 41.584%. The four retained factors together explained 65.990% of the total variance. Six items had inadequate factor loadings less than 0.50 and were therefore removed from further analysis (Table 1). The final 27 items and their factor loadings are presented in Table 4.

The number of factors to be retained was determined using eigenvalues greater than one, the scree plot, item interpretability, and conceptual coherence with the academic leadership literature. As shown in Figure 1, the scree plot indicated a clear levelling off after the fourth factor, supporting the retention of a four-factor solution. Table 1 presents the eigenvalues and percentage of variance explained by the retained factors. The first factor accounted for the highest proportion of variance, explaining 41.584% of the total variance. Together, the four retained factors explained 65.990% of the total variance. Six items with factor loadings below 0.50 were removed from further analysis, resulting in a final 27-item scale. The retained items and their factor loadings are presented in Table 4.

The four factors were named based on the content of the retained items and their alignment with academic leadership literature. Tutoring reflects faculty behaviours related to student guidance, feedback, mentoring, reflection, and personal/professional development. Academic Proficiency captures the ability to organise academic work, manage resources and time, monitor goals, design outcome-based programmes, and apply technical solutions in teaching. Collegial Collaboration represents behaviours such as creating shared vision, building trust, listening to others, supporting mutual respect, and contributing to institutional improvement. Community Orientation reflects faculty engagement with society through community programmes, public expertise, consultancy, and advisory services. Thus, the factor labels were derived from both empirical item groupings and their conceptual meaning within academic leadership.

The first factor, named Tutoring, contained ten items and reflected coaching and mentoring competencies. Tutoring in academic settings combines elements of both coaching and mentoring. Tutoring aims to provide students with guidance and personalised assistance to facilitate their professional entry into the labour market (Flores et al., 2012). It refers to empowering others towards success. Leaders share knowledge, resources, ideas, and expertise (academic tutoring) and also bring out other's strengths, help them to overcome internal barriers and limitations to achieve personal excellence (Boyatzis et al., 2006). Tutoring might be seen as a process to fight against student academic failure, guide students through stimulating and facilitating the development of the student's personal and social aspects, provide personalised support, and go beyond the merit given in curricula (Flores et al., 2012). Faculty behaviours play a modelling role through helping others to do good educational practice.

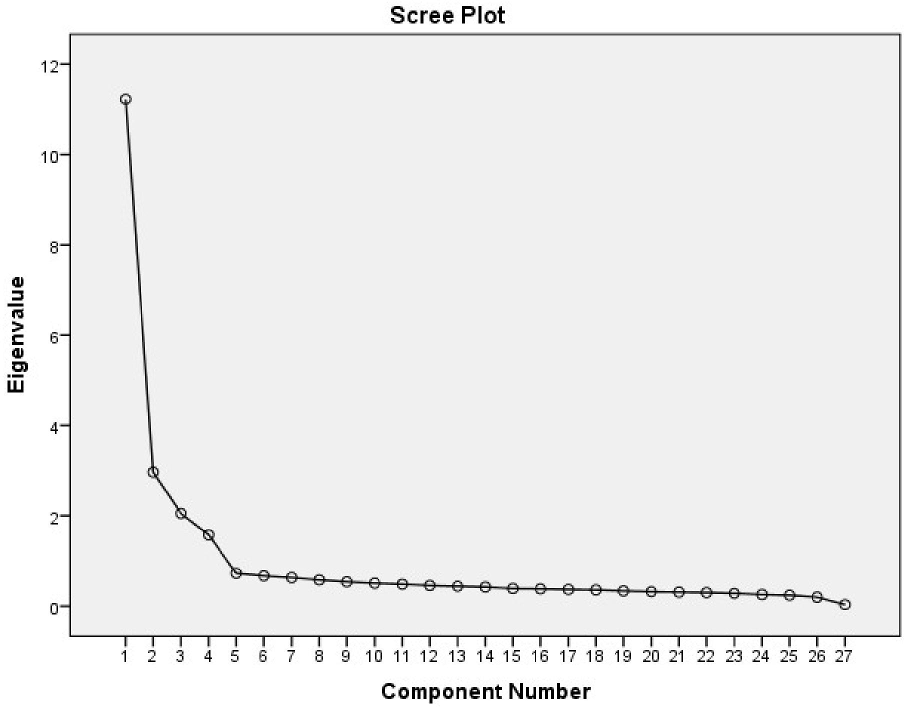

Figure 1. Scree Plot of EigenValues

Source: own elaboration.

Table 1. Total Variance Explained

	Eigenvalue	% of Variance	Cumulative %
Factor 1	11.228	41.584	41.584
Factor 2	2.964	10.977	52.561
Factor 3	2.051	7.598	60.159
Factor 4	1.574	5.831	65.99

Source: own elaboration.

Extraction Method: Principal Component Analysis.

The second factor, named Academic Proficiency, included seven items and reflected the managing and subject domain-related competencies of higher education. Apart from teaching and research, faculty have also additional roles, such as directors of courses, directors of research, chairs of committees (Macfarlane, 2012; Banker, Bhal, 2020). Hence, managing is also a core functionality of academic leadership. To perform these roles, faculty has organisational duties, including organising the work, managing time. Faculty as academic leaders are expected to establish a positive learning environment, facilitate student learning, and evaluate their outcomes. They also need to be up to date on research in their domain (Fields, Kenny, Mueller, 2019). Collegial Collaboration, the third factor, included six items and described faculty who facilitate change through creating a shared vision and looking beyond day-to-day realities. Faculty create a sense of priorities and purposes and create a safe, supportive environment. They connect with others to understand other intentions and perspectives (Fields, Kenny, Mueller, 2019).

The last factor, Community Orientation, included four items and covered faculty ability to collaborate with the different stakeholders of the institution, including families and professional organisations. Faculty involve themselves in networks and relating with different groups, they share and present their work outside their institution to stimulate change among others. Academic leaders have a moral duty towards society, they serve and contribute to the welfare of society in terms of educating people from rural areas, developing their skills, and empowering them (Banker, Bhal, 2020). This dimension is particularly important because it contributes to the broad Indian socio-economic status in line with one of the primary objectives of the Quality Mandate of University Grants Commission of India.

Among four dimensions adopted from the literature, the one namely Community Orientation was derived from Banker and Bhal (2020) framework of academic leadership, items on Collegial Collaboration, Academic Proficiency and Tutoring were derived from Fields et al. (2019). The reliability of the identified factors was computed by calculating the reliability of Cronbach's α coefficient (Table 4). The factors were named depending on the theme of the questions. As a result, the following factors emerged, with items grouped as below:

1. Factor 1: Tutoring (ALITECH1, ALICOACH2, ALICOACH4, ALICOACH5, ALIMENT1, ALIMENT2, ALIMENT3, ALIMENT4, ALIMENT5, ALISERV4).
2. Factor 2: Academic Proficiency (ALIMAN1, ALIMAN2, ALIMAN3, ALIMAN4, ALIMAN5, ALITECH3, ALITECH5).
3. Factor 3: Collegial Collaboration (ALIMOTIV3, ALIMOTIV5, ALICOACH1, ALISERV1, ALISERV2, ALISERV3).
4. Factor 4: Community Orientation (ALICOMM1, ALICOMM2, ALICOMM3, ALICOMM4).

3.4. Step 4: Assessment of Validity and Model Evaluation

Once the factors and items with appropriate loadings were identified from the exploratory factor analysis phase, we proceeded to the next stage of confirmatory factor analysis. The final instrument, which comprised 27 items, was administered among a sample of 826 faculty working in the higher education sector, selected through snowball sampling (the study covered teachers across several regions in India, and it was not practically possible to apply probability sampling techniques at the individual level). Hinkin (1998) suggested that convergent, discriminant and criterion-related validity of the newly developed scales was evaluated beyond the pieces of evidence provided through exploratory factor analysis (EFA). Therefore, using the items retained from EFA, confirmatory factor analysis was done using IBM Amos 21.0 using the data collected from 826 sample respondents. This step is helpful in terms of more stringent psychometric criteria for accepting models and ensures the statistical reliability and validity of the scale (Tummers, Knies, 2016).

A total of 1000 faculty members were contacted by email and invited to participate in the study. Of these, 875 responded, and 826 submitted complete and usable responses. The final sample comprised 462 female respondents (55.9%) and 364 male respondents (44.1%). With respect to age, 96 respondents (11.6%) were below 30 years, 385 (46.6%) were between 31 and 40 years, 231 (28.0%) were between 41 and 50 years, and 114 (13.8%) were above 50 years. Regarding academic domain, 162 respondents (19.6%) were from Humanities, 242 (29.3%) from Management, 200 (24.2%) from Engineering, and 222 (26.9%) from Medical Sciences. In terms of role, 356 respondents (43.1%) were engaged only in academic roles, while 470 (56.9%) were involved in both academic and leadership roles. With respect to institutional size, 183 respondents (22.2%) were from institutions with fewer than 1000 students, 260 (31.5%) were from institutions with 1000 to 5000 students, and 383 (46.4%) were from institutions with more than 5000 students. Regarding organisational tenure, 43 respondents (5.2%) had less than one year of experience in their current organisation, 226 (27.4%) had one to five years, 449 (54.4%) had more than five but less than twenty years, and 108 (13.1%) had more than twenty years.

Convergent validity was assessed by calculating the average variance extracted for each of the factors identified. A standardised loading estimate of 0.5 or above (Hair et al., 2010) was deemed adequate, and it was found that all factors had AVE greater than 0.50. Convergent validity was thus established. The scale reliability was assessed through composite reliability at a value of 0.70 or above (Bagozzi, Yi, 1988), and it was found that all factors qualified the required criterion. To examine the discriminant validity of the scales, we compared the AVE, and the variance shared between the constructs. The correlation values for each pair of constructs are smaller than the square root of the AVE values, thus establishing discriminant validity (Table 2) (Fornell, Larcker, 1981). Composite reliability and AVE values are presented in Table 2, while factor loadings are presented in Table 4. Criterion-related validity was assessed using faculty job performance, organisational commitment, and job satisfaction as theoretically relevant criterion variables. All four ALI dimensions were positively and significantly correlated with these outcomes: Collegial Collaboration ($r = .455–.611$, $p < .001$), Tutoring ($r = .456–.657$, $p < .001$), Academic Proficiency ($r = .423–.604$, $p < .001$), and Community Orientation ($r = .333–.468$, $p < .001$). These results provide supportive evidence for the criterion-related validity of the Academic Leadership Inventory.

Table 2. Convergent and Discriminant Validity of the ALI

	Scale Dimensions	**Mean**	**CR**	**AVE**	**MSV**	**1**	**2**	**3**	**4**
1	**Collegial Collaboration**	4.2012	0.876	0.541	0.460	**0.736**			
2	**Tutoring**	4.3448	0.920	0.563	0.460	0.678	**0.750**		
3	**Academic Proficiency**	4.0617	0.886	0.621	0.227	0.476	0.392	**0.788**	
4	**Community Orientation**	3.7862	0.876	0.640	0.353	0.594	0.485	0.450	**0.800**

Note: Mean values are based on a five-point Likert scale. Values on the diagonal in bold represent the square root of the average variance extracted (AVE), while values below the diagonal represent inter-construct correlations. CR = composite reliability; MSV = maximum shared variance.

Source: own elaboration.

The factor structure of the scale was further examined though confirmatory factor analysis using IBM AMOS 21.0. The fit indices reveals that the hypothesized four-factor measurement model is superior to the other one-factor, two-factor, and three-factor measurement models and provided an acceptable fit to the data ($\chi 2$ = 714.901; df = 240; $\chi 2$ /df = 2.979; P value < .001; GFI = 0.928; NFI = 0.949; TLI = 0.960; CFI = 0.965; RMSEA = 0.049) (Table 3). Since the data were collected using self-reported survey responses, common method bias was assessed using Harman's single-factor test. The results showed that the first unrotated factor accounted for 43.896% of the total variance, which is below the 50% threshold. This suggests that common method bias was unlikely to be a dominant threat, although it cannot be ruled out completely. However, given the cross-sectional and self-reported nature of the data, common-method bias cannot be ruled out entirely.

Table 3. Model fit indices for Confirmatory Factor Analysis

Competing models	$\chi 2$	df	$\chi 2$ /df	P value	GFI	NFI	TLI	CFI	RMSEA
One-factor model	7111.712	324	21.950	.000	.507	.553	.528	.564	.159
Two-factor model	6306.818	323	19.526	.000	.580	.604	.616	.616	.150
Three-factor model	3792.539	321	11.815	.000	.657	.762	.756	.777	.114
Four-Factor Model	714.901	240	2.979	.000	.928	.949	.960	.965	.049

Source: own elaboration.

Table 4. Factor loadings matrix

Item No.	**Items**	**Factor 1 Tutoring**	**Factor 2 Academic Proficiency**	**Factor 3 Collegial Collabora-tion**	**Factor 4 Community Orientation**	**Cronbach's α coefficient**
1	I monitor student progress systematically	.632				**0.920**
2	I ask questions that reveal the information needed for the benefit of the student	.744				
3	I communicate effectively with students and use language that has the greatest positive impact on the student	.710				
4	I create student awareness to achieve results and help to discover new thoughts, beliefs, perceptions, etc.	.815				
5	I help students to understand how to accomplish their task	.735				
6	I provide developmental feedback to students and encourage self-reflection	.791				

Table 4 (cont.). Factor loadings matrix

Item No.	Items	Factor 1 Tutoring	Factor 2 Academic Proficiency	Factor 3 Collegial Collabora-tion	Factor 4 Community Orientation	Cronbach's α coefficient
7	I guide students relevant to his/her needs based on my knowledge and personal experience	.699				**0.920**
8	I encourage students to revisit and seek alternative routes for solving problems	.791				
9	I help students to identify and solve study/life-related problems, create learning opportunities, and lead them through the problem-solving process	.577				
10	I am committed to the personal and professional development of students	.617				
11	I organise resources to meet organisational goals		.779			**0.903**
12	I organise work and manage time effectively.		.767			
13	I create an environment for change to advance academic reforms		.760			
14	I develop measurement methods for objective analysis of various academic aspects		.821			
15	I monitor the progress towards achieving goals		.818			
16	I design programs aligning with learning outcomes		.786			
17	I apply technical solutions in my teaching		.742			
18	I demonstrate a commitment to goals and a shared vision			.692		**0.881**
19	I create a sense of priorities and purposes			.668		
20	I create a safe, supportive environment that produces mutual respect and trust			.687		
21	I listen intently to others and understand what they're saying			.736		

Table 4 (cont.). Factor loadings matrix

Item No.	Items	Factor 1 Tutoring	Factor 2 Academic Proficiency	Factor 3 Collegial Collabora-tion	Factor 4 Community Orientation	Cronbach's α coefficient
22	I understand and acknow-ledge people's intentions and perspectives			.739		**0.881**
23	I look beyond day-to-day realities to the bigger pic-ture			.676		
24	I promote community-oriented programs and build trust among commu-nity				.827	**0.891**
25	I observe community views about students learning needs				.820	
26	I contribute intellectual expertise on issues related to national and global interests				.802	
27	I provide consultancy and advisory services to socie-ty, executing task establi-shed by government agen-cies and private sectors				.766	

Note: All loadings are significant at p<0.01

Source: own elaboration.

4. DISCUSSION

In recent years there have been substantial changes in the higher education sector worldwide, including India. These changes respond to government policy regarding expansion, equity, quality, internationalisation, research funding of higher education institutions. The higher education sector has been challenged by the creation of a knowledge economy enhanced by technological advances. Skilled employees and competent graduates capable to develop countries are increasingly in greater demand. Hence, universities became developmental engines of the economy (Bolden et al., 2012; Ghasemy et al., 2016). The findings of this conducted study can be translated into recommendations for shaping university policy. First, universities should introduce a formal mentoring program, where faculty mentor and advise other colleagues. Second, universities should monitor faculty's leadership practice and performance and take action towards those who underperform in this respect. Universities also should reduce uncertainty regarding faculty roles by clarifying that academic leadership skills should be in their daily practice. It should be communicated to all academic staff and included in the formal appraisal system of faculty.

This study makes several significant contributions to the leadership literature in the educational domain. The most important implication of the Academic Leadership

Inventory (ALI) is the availability of an empirically developed tool for assessing the academic leadership of faculty in higher education institutions. ALI is an effective instrument with good psychometric properties to reliably use in the higher education sector in general and the Indian context in particular. Faculty are considered as the core of the educational system. They are responsible for training students and sharing knowledge with other colleagues (Phuong, Cole, Zarestky, 2018). ALI provides objective and reliable information about skills and dispositions necessary for individuals who teach students. Therefore, ALI may be used to design appropriate Faculty Development Programmes (FDPs) (Author, 2019) focused on leadership skills for further teachers' development.

Assessment of those who teach became a key issue (Jung, Rhodes, 2008). The ALI can be used as an assessment tool for faculty job performance, considering the gap between the current and desired leadership competencies. ALI may also serve as a measure for giving feedback to faculty to improve daily job tasks. India is witnessing a drastic transformation in the quality enhancement in the higher education sector. The government is planning to improve the gross enrollment ratio to almost double and ensure all institutions' accreditation within a decade. Faculty are expected to play a significant role in this transformation, and hence their leadership quality and styles are of extreme value in Indian HEIs. It is in this context that the implication of assessment tools like ALI is discussed.

Another important implication of the ALI is that it can be used as a measurement instrument in future research studies and can facilitate research in academic leadership grounded in the distributed leadership theory. Since the ALI is developed in a large sample of faculty with a homogenous institutional background across the country, it claims higher reliability and validity as a research instrument. In conformity with the results of other leadership studies, the study provides insights into understanding leadership, which can be used as a tool in the recruitment and selection process of faculty and in their training and development programs. Effective governance and leadership for higher education institutions are vital for the success and sustainability of higher education institutions. The current tool developed (ALI) is proposed to support administrators in their leadership development journey.

5. CONCLUSIONS

Despite the valuable contributions, the study has certain limitations worth mentioning. First, faculty leadership behaviours were assessed through self-perspective rather than objective measurement, including samples of performance, natural observation in the workplace, and evidence from prior assessments. Secondly, the sample comprised teachers from HEIs in India. Future research could be extended to different countries to ensure the application of ALI in a multicultural context too. Finally, though procedural remedies were undertaken to keep common method bias within limits, it remains a concern. Although Harman's test is a commonly used diagnostic, it is not a definitive test; therefore, common method bias is acknowledged as a residual limitation. Future research may examine measurement invariance across gender, discipline, institutional type, and academic role.

The development of the Academic Leadership Inventory resulted in examining the dimensions of academic leadership in a new perspective and integrating various elements of academic leadership, as narrated by different researchers. The study identified a four-dimensional construct, namely Tutoring, Academic Proficiency, Collegial Collaboration, and Community Orientation. Earlier scales were consisting of many components for faculty leadership, and they were general in character. ALI, though simplified the concept with the four-dimensional model, provides an integrative and comprehensive model for assessing academic leadership in HEIs' contexts.

Key points for Practitioners:

- The Academic Leadership Inventory (ALI) provides a validated tool to assess faculty leadership in Indian universities.
- Four key leadership dimensions identified: Collegial Collaboration, Tutoring, Academic Proficiency, and Community Orientation.
- The tool ensures reliable evaluation of academic leadership to support professional development in HEIs.
- Designed for higher education practitioners, the inventory aids in leadership training and institutional growth.
- This study bridges a critical research gap by developing a context-specific leadership assessment tool.

All authors have read and agreed to the published version of the manuscript.

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LIFE SATISFACTION AMONG POLICE OFFICERS: THE ROLES OF RELIGION, NUMBER OF CHILDREN AND ETHNICITY

This study examined the associations between religion, number of children, ethnicity, and life satisfaction among police officers in Osun State, Nigeria. Anchored on the subjective well-being framework, a cross-sectional survey design was adopted. A total of 384 serving police officers were selected from Area Commands in Osun State. Data were collected using the Satisfaction with Life Scale (SWLS) and analysed using independent samples t-test and one-way ANOVA. Results indicated statistically significant differences in life satisfaction across demographic variables. Officers with one to three children reported higher life satisfaction than those with four to six children. Christian officers reported higher life satisfaction than Muslim officers. Ethnicity was also significantly associated with life satisfaction, with variation observed across groups. These findings highlight the role of demographic and socio-cultural factors in understanding life satisfaction among police personnel. However, findings are interpreted as bivariate associations due to the cross-sectional design. Implications for policy and officer welfare are discussed.

Keywords: life satisfaction, police officers, religion, number of children, ethnicity, well-being.

1. INTRODUCTION

The well-being of police officers has continued to attract scholarly attention due to its implications for individual functioning, occupational effectiveness, public safety, and organisational performance. Police officers operate in highly demanding environments characterised by exposure to stress, danger, long working hours, and emotional strain. Given their critical role in safeguarding individuals and nations (Arisukwu et al., 2020), it is important that police personnel maintain adequate psychological well-being to effectively perform their duties. One important indicator of psychological well-being

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is life satisfaction, which reflects individuals' overall evaluation of the quality and meaningfulness of their lives.

Life satisfaction is a central component of subjective well-being, referring to individuals' cognitive and affective evaluations of their overall life circumstances (Diener et al., 1985). From a psychological perspective, life satisfaction represents a cognitive judgment about the extent to which one's life aligns with personal goals, expectations, and standards. However, this evaluation is not formed in isolation, as it is also influenced by sociocultural contexts, including cultural values, religious beliefs, social relationships, and institutional environments. Therefore, among police officers, life satisfaction may be understood as an outcome of the interaction between personal characteristics and broader social and occupational conditions.

Contemporary literature on police well-being conceptualises the determinants of life satisfaction within a multidimensional framework. These determinants can be broadly classified into personal factors (e.g., age, gender, personality characteristics, and demographic attributes), family-related factors (e.g., marital status, number of children, and family responsibilities), occupational factors (e.g., workload, job demands, and exposure to operational stressors), organisational factors (e.g., leadership style, organisational support, and working conditions), and socio-cultural factors (e.g., religion, ethnicity, and social support systems). Although demographic characteristics represent only one dimension of these influences, they remain important because they shape individuals' experiences, resources, and interpretations of their life circumstances.

Religion has been identified as an important socio-cultural factor associated with psychological well-being and work-related outcomes. Religious involvement may provide individuals with coping resources, emotional support, social connectedness, and meaning-making frameworks that influence how they evaluate their lives. Previous studies have shown that religious beliefs and practices may be associated with employee attitudes and behaviours. For instance, Odogwu and Nnonyelu (2021) reported a positive relationship between religious beliefs and practices and job performance among university employees in South-South Nigeria. Similarly, Haybatollahi (2012) found that employees' religious affiliations (Christianity, Islam, and Traditional African Religion) were associated with organisational experiences, with Christian participants reporting greater satisfaction with workplace safety structures compared to other religious groups. Furthermore, Ramadhan and Eryandra (2021) demonstrated a positive association between religiosity and employee performance. These findings suggest that religious affiliation may be related to how individuals perceive and evaluate their life experiences.

Family-related characteristics, particularly number of children, have also received attention in studies examining employee well-being. The number of children an individual has may influence life satisfaction through family responsibilities, financial obligations, caregiving demands, and emotional support. Findings from previous studies, however, remain inconsistent. For example, Amarasena et al. (2015) reported that university faculty members with fewer children experienced higher job satisfaction compared to those with larger families. Similarly, Hendrawijaya (2019) and Hanif et al. (2011) found that family responsibilities were associated with employee outcomes among workers and teachers, respectively. These findings suggest that managing larger families may present additional demands that could influence employees' well-being. Conversely, Rush (2021) reported that having more children was positively associated with life satisfaction, indicating that the relationship between family size and well-being may depend on contextual factors.

Ethnicity is another socio-cultural factor that may be associated with life satisfaction, particularly in culturally diverse societies. Ethnic identity can influence individuals' access to social support, sense of belonging, perceived inclusion, and experiences within social institutions such as the police force. However, empirical evidence regarding ethnicity and well-being remains mixed. Mobolaji-Olajide et al. (2020) reported a significant association between ethnicity and satisfaction outcomes, while Omosehin and Smith (2019), in a cross-cultural study involving White British, UK ethnic minorities, and Nigerian employees, found that cultural background did not significantly predict well-being. Similarly, Knies et al. (2016), in a study involving Black Africans, UK-born Indians, and Pakistanis, found differences in life satisfaction between majority and minority ethnic groups, suggesting that ethnic context may play a role in subjective well-being.

In Nigeria, police officers are recruited from diverse religious, ethnic, and family backgrounds, which may contribute to variations in how they evaluate their lives. However, limited research has simultaneously examined the associations between religion, number of children, ethnicity, and life satisfaction among Nigerian police officers. Most previous studies have been conducted outside Nigeria, with relatively limited emphasis on understanding how these demographic characteristics relate to the cognitive evaluation of life experiences among law enforcement personnel within the Nigerian context.

Therefore, this study examines the associations between religion, number of children, ethnicity, and life satisfaction among police officers in Osun State, Nigeria. Using a cross-sectional design, the study focuses on identifying differences in life satisfaction across demographic groups and interpreting findings as statistical associations rather than causal relationships

2. METHODOLOGY

Research Design

A cross-sectional survey design was employed to examine associations between demographic variables (religion, number of children, ethnicity) and life satisfaction among police officers.

Participants

Participants were 384 serving police officers in Osun State, Nigeria, comprising 195 males and 189 females. Officers were drawn from selected Area Commands using purposive and convenience sampling techniques. Participants represented diverse religious and ethnic backgrounds.

Ethical Consideration

Ethical approval was obtained from the Health Research Ethics Committee of Obafemi Awolowo University, Ile-Ife, Nigeria (Reference: IPH/OAU/12/2287). Informed consent was obtained from all participants, and confidentiality and anonymity were ensured.

Measures

Life Satisfaction

Life satisfaction was assessed using the Satisfaction with Life Scale (SWLS) developed by Diener et al. (1985). The scale consists of 5 items rated on a Likert scale. Higher scores indicate greater life satisfaction. The scale demonstrated acceptable reliability in this study (Cronbach's $\alpha = .70$).

Demographic Variables

Demographic information included religion (Christianity, Islam), number of children (1-3, 4-6), and ethnicity (Hausa, Igbo, Yoruba, Others).

Data Analysis

Data were analysed using independent samples t-tests and one-way analysis of variance (ANOVA). Tukey–Kramer post hoc tests were used for multiple comparisons. Statistical significance was set at $p < .05$.

3. RESULTS

The data were analysed using both independent samples t-tests and one-way ANOVA.

Table 1a. Summary of independent samples t-test showing the association between number of children and life satisfaction

Life Satisfaction			
Variable	**Mean (SD)**	**t**	**p**
Number of Children		2.49	.013*
1-3	14.43 (4.84)		
4-6	12.89 (5.59)		

*Note: Statistically significant **p<.01, *p<.05*

Source: own statistical analysis based on data from respondents.

As shown above, an independent samples t-test was conducted to examine differences in life satisfaction based on number of children (1-3 vs. 4-6 children). Results indicated a statistically significant difference in life satisfaction scores between the two groups, $t(383) = 2.49$, $p = .013$. Officers with 1–3 children reported higher life satisfaction (M = 14.43, SD = 4.84) compared to those with 4–6 children (M = 12.89, SD = 5.59). This suggests a statistically significant association between number of children and life satisfaction.

Table 1b. Summary of independent samples t-test showing the association between religion and life satisfaction

Life Satisfaction			
Variable	**Mean (SD)**	**t**	**p**
Religion		4.82	.001**
Christianity	14.92 (4.62)		
Islam	12.33 (5.48)		

*Note: Statistically significant **p<.01, *p<.05*

Source: own statistical analysis based on data from respondents.

As shown above, an independent samples t-test was also conducted to examine differences in life satisfaction based on religious affiliation (Christianity vs. Islam). The results showed a statistically significant difference, t(383) = 4.82, p < .001. Christian officers reported higher life satisfaction (M = 14.92, SD = 4.62) than Muslim officers

(M = 12.33, SD = 5.48), indicating a significant association between religion and life satisfaction.

Table 2a. Summary of One-Way ANOVA Showing the Association Between Ethnicity and Life Satisfaction

	Sum of squares	Df	Mean Square	f	p
Between Groups	868.248	**3**	289.416	12.33	.01
Within Groups	8919.562	380	23.473		
Total	9787.810	383			

Source: own statistical analysis based on data from respondents.

As shown in the analysis above, ethnicity was found to be significant [F (3, 380) = = 12.33, p<.05] as officers from other ethnic groups (M = 15.07, SD = 4.53) reported higher life satisfaction compared to Hausa's (M = 9.72, SD = 3.69), Igbo's (M = 11.33, SD = 5.57), and Yoruba's (M = 14.56, SD = 4.92). The results suggested that there were significant differences in the mean scores of the ethnic groups on life satisfaction. Consequently, Turkey's –Kramer HSD (Honest Significant Difference) for unequal group post hoc test was conducted in order to know the particular group's mean differences in life satisfaction. The results of the analyses are presented below in Table 2b.

Table 2b. Tukey's – Kramer HSD for Unequal Groups Showing Multiple Comparison of Ethnicity on Life Satisfaction

Ethnic Groups	N	Mean	SD	1	2	3	4
Hausa	18	9.72	3.69	1			
Igbo	48	11.33	5.57	-1.61	1		
Yoruba	199	14.56	4.92	-4.84*	-3.22*	1	
Others	119	15.07	4.53	-5.35*	-3.74*	-.51	1

*Note: *. The mean difference is significant at the 0.05 level*

Source: own statistical analysis based on data from respondents.

The results on Table 2b revealed that police officers who are from other ethnic groups (M = 15.07, SD = 4.53) reported higher life satisfaction than police officers who are Hausa (M = 9.72, SD = 3.69), Igbo (M = 11.33, SD = 5.57) and Yoruba (M = 14.56, SD = 4.92). Furthermore, the results revealed a significant difference in the life satisfaction of respondents between Hausa and Yoruba (Tukey = -4.84; p<.05). There was also significant difference in the life satisfaction of respondents between Igbo and Yoruba (Tukey = -3.22; p<.05). The result also revealed a significant difference in the life satisfaction of respondents between Hausa and other (Tukey = -5.35; p<.05). There was also significant difference in the life satisfaction of respondents between Igbo and Hausa (Tukey = -3.74; p<.05).

4. DISCUSSION

This study examined the associations between religion, number of children, ethnicity, and life satisfaction among police officers in Osun State, Nigeria. The findings indicate statistically significant differences in life satisfaction across the examined demographic variables.

First, the results showed that life satisfaction differed by religious affiliation, with Christian officers reporting higher mean scores than Muslim officers. This finding is consistent with prior research (Odogwu, Nnonyelu, 2021) suggesting that religious involvement may be associated with psychological well-being through mechanisms such as social support, coping strategies, and meaning-making processes. However, it is important to emphasise that the present study did not assess specific religious practices, levels of religiosity, or contextual factors that may explain these differences. Therefore, the observed variation should be interpreted strictly as an **a**ssociation, and not as evidence of religious influence on life satisfaction.

Second, the findings indicated that officers with fewer children reported higher life satisfaction compared to those with a larger number of children. This result may reflect the potential economic and caregiving demands associated with larger family sizes, particularly in contexts where financial resources may be limited (Amarasena et al., 2015). However, other unmeasured factors such as income level, marital status, and family support systems may also contribute to this relationship. Consequently, the observed association should be understood within the limitations of the data and not interpreted as a direct effect of family size on life satisfaction.

Third, ethnicity was significantly associated with life satisfaction, with differences observed across ethnic groups. Officers categorized as “others” reported higher mean life satisfaction compared to Hausa, Igbo, and Yoruba officers. While previous studies (Tay et al., 2014; Mobolaji-Olajide et al., 2020) have suggested that ethnic identity and minority status may be linked to subjective well-being through social integration and perceived inclusion, the present study did not assess contextual factors such as workplace discrimination, cohesion, or social support. Therefore, explanations for these differences remain speculative and require further investigation.

Overall, the findings align with the broader theoretical position that life satisfaction is a multidimensional construct influenced by a combination of personal and socio-cultural factors. However, given the cross-sectional design and the absence of controls for potential confounding variables (such as age, rank, income, marital status, and years of service), the results should be interpreted as bivariate associations only.

5. LIMITATIONS OF THE STUDY

This study has some limitations. First, the cross-sectional design limits the ability to draw causal inferences. Second, reliance on self-report measures may introduce response bias. Third, the study did not control for important occupational and demographic variables such as age, rank, income level, marital status, and years of service, which may influence life satisfaction. Fourth, the use of categorical group comparisons does not allow for assessment of the independent predictive strength of each variable.

6. IMPLICATIONS AND FUTURE RESEARCH

Future research should employ longitudinal or multivariate designs, such as multiple regression or structural equation modelling, to better examine the relative contribution of demographic, occupational, and organisational factors. Including broader control variables would also improve the robustness of findings. Additionally, qualitative approaches may help to better understand the contextual mechanisms underlying life satisfaction among police officers.

All authors have read and agreed to the published version of the manuscript.

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CYBER WARFARE AND THE TRANSFORMATION OF CONTEMPORARY CONFLICT: MOVING BEYOND THE KINETIC BATTLEFIELD

The rise of cyber warfare has reshaped modern conflict, shifting attention from physical battles to digital arenas where states and non-state actors exploit weaknesses in national systems. This paper examines how cyber operations now influence political and economic outcomes without traditional combat, drawing on recent global incidents and insights from Realism and Postmodern Warfare. Using case study and content analysis of secondary data, it highlights the strategic, ethical, and legal dilemmas of cyber activity and the inability of traditional military doctrines to address emerging asymmetric threats. The paper finds cyber warfare as a deliberate instrument states deploy to project power globally, and that global stability depends on how seriously governments and international bodies take cyber threats. It underscores the need for nations to strengthen cyber defense and rethink security frameworks, urging the United Nations and other multilateral institutions to establish binding rules governing state behaviour in cyberspace.

Keywords: cyber warfare, denial of service, cyber espionage, non-kinetic warfare, malware.

1. INTRODUCTION

In the 21st century, conflict feels qualitatively different from past transitions. Now, digital technology has not simply given militaries new weapons; it has fundamentally altered what conflict looks like and who participates. Critical systems fail without a shot fired, and governments meddle in foreign elections through keyboards rather than coups. This is not a hypothetical future; it is already the world we live in. Cyber operations now occupy a peculiar space in international affairs. They are often too disruptive to ignore but too ambiguous to trigger a conventional military response. They blur the line between war and peace, between espionage and sabotage, between state action and criminal activity. These operations target vital infrastructure, financial systems, political processes, and public opinion through methods like hacking, data manipulation, and disinformation

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campaigns (Rid, 2020). Consequently, today's security environment is increasingly shaped by digital vulnerabilities and the covert activities of actors who exploit them. The actors involved range from military intelligence agencies to freelance hacktivists to state-sponsored criminal groups with plausible deniability baked into their design.

What makes this challenging is that the legal and strategic frameworks developed over centuries of warfare, based on sovereignty, proportionality, attribution, and clear thresholds of violence, sit uncomfortably in a world of anonymous intrusions and invisible sabotage. This makes cyber warfare more difficult to regulate cyber behaviours and hold parties accountable (Kello, 2017). The Tallinn Manual 2.0, which attempts to map existing international law onto cyber operations, is a serious and valuable effort, but it also reveals just how much remains unsettled (Schmitt, 2017).

Despite the growing body of scholarship on cyber warfare and digital security, significant gaps remain in our understanding of cyber warfare, as many incidents are classified or never publicly acknowledged, making the empirical foundation inherently thin. This study argues that cyber warfare is no longer supplementary to traditional conflict; it is actively reshaping it. Digital technologies have shifted battlegrounds to virtual spaces, lowered barriers to participation, and pushed conflict beyond what older doctrines can address. Understanding this transformation is no longer optional for anyone serious about national security.

Evolution of Warfare

The nature of warfare has continually evolved in response to technological, political, and socio-economic shifts. For most of human history, conflict meant armies meeting on physical terrain, trying to destroy or capture what the enemy valued most: people, territory, and resources. The model evolved through the industrial era, producing the mechanized carnage of the World Wars, and then gave way to the strange, proxy-driven logic of the Cold War, where major powers competed indirectly, careful never to let their conflicts go nuclear (Gray, 2005). Digitisation connected power grids, financial markets, and government databases, making them accessible to anyone with sufficient technical skill. Unlike conventional operations, cyber-attacks can be launched cheaply, from anywhere, with significant effects and limited attribution risk. The emphasis shifts from destroying things to disrupting, manipulating, and controlling them (Libicki, 2007). A well-placed piece of malware can do what a bombing campaign once did, at a fraction of the cost and with a fraction of the fingerprints.

This is not just a technical evolution; it is a conceptual one. Modern conflict increasingly incorporates what strategists call "grey zone" tactics, operations that fall below the threshold of armed conflict but produce real strategic consequences (NATO, 2021). Cyber espionage, ransomware, disinformation campaigns, infrastructure sabotage: these are the instruments of contemporary competition, often deployed not in wartime but as continuous, low-level pressure between ostensible peacetime rivals (Lemmon, 2024). Again, the democratization of digital tools means that non-state actors such as hacktivist collectives, cybercriminal organizations, and terrorist groups now operate in the same space as state militaries. This complicates attribution, muddies legal responses, and challenges a security establishment still largely organized around state-versus-state confrontation (Singer, Friedman, 2014). In essence, the growing prominence of cyber conflict has essentially broadened the playing field for those in power, giving leaders and decision-makers more options to pursue their security goals without necessarily triggering a full-blown war. In many ways, it offers a quieter, more calculated path to achieving strategic outcomes, one that operates in the shadows of traditional conflict below the threshold of open war.

2. THEORETICAL FRAMEWORKS FOR UNDERSTANDING CYBER CONFLICT

Two theoretical traditions help make sense of cyber conflict. Realism views cyber capabilities as simply the latest addition to the toolkit of coercion and deterrence; states develop offensive and defensive programmes for the same reason they build navies or nuclear arsenals (Mearsheimer, 2001). The cyber arms race between the United States, China, and Russia fits this logic neatly. However, realism struggles to account for cyberspace's asymmetric character, where small states and non-state actors can disrupt far more powerful adversaries at minimal cost. Postmodern Warfare Theory is more comfortable with this ambiguity, emphasising the blurring of boundaries between war and peace, combatants and civilians, and physical and virtual space (Der Derian, 2001). Closely related, Network-Centric Warfare argues that information superiority, gathering and acting on information faster than your adversary, is the decisive advantage in modern conflict (Alberts, Garstka, 1999). In all, these frameworks confirm that cyber warfare represents a genuine transformation in the logic of conflict, demanding new doctrines, legal frameworks, and ways of thinking about security.

3. CYBER WARFARE: CAPABILITIES AND TACTICS

Cyber warfare is a complex, ever-evolving domain that exploits vulnerabilities in software, networks, and human behaviour rather than relying on physical force. The goal is no longer simply to occupy territory but to control information, disrupt critical systems, and shape outcomes remotely. This fundamental shift reflects how deeply technology has embedded itself into the fabric of modern power and security.

Cyber espionage is the most persistent activity in cyber warfare, which involves the covert theft of sensitive information from government, military, and corporate systems. What makes it particularly dangerous is its patience. Advanced Persistent Threats (APTs) are designed to infiltrate systems and remain undetected for months or even years, quietly exfiltrating data that can shape military strategy, commercial competition, or diplomatic negotiations (Healey, 2011).

Denial-of-Service attacks, both targeted (DoS) and distributed (DDoS), work by overwhelming systems until they collapse under the load. They are blunt instruments, but effective for disrupting communications, financial services, or emergency systems at politically sensitive moments. Estonia in 2007, Ukraine in 2022: the pattern recurs (Ottis, 2008).

Malware covers a wide range of destructive tools such as viruses, ransomware, wiper programmes, designed to corrupt systems, extract data, or simply destroy. The most consequential example remains Stuxnet, which didn't just steal data but caused physical damage to Iranian centrifuges by manipulating the industrial control systems governing them. The idea that software could produce kinetic effects was, at the time, genuinely revelatory (Zetter, 2014).

Psychological and information operations (PIO) use digital platforms to shape public opinion, spread confusion, influence elections, and undermine trust in institutions. These operations exploit the speed and reach of social media to produce real-world political effects while concealing their origins (Rid, 2020). The line between cyber warfare and information warfare here is effectively nonexistent.

Zero-day exploits (ZDE) are forms of attacks that leverage undiscovered software vulnerabilities before developers can patch them, which represent the cutting edge of offensive cyber capability. They are expensive to develop and valuable to hoard, but when deployed, they allow cyber actors to penetrate even heavily secured systems without warning (Andress, Winterfeld, 2013).

What ties these capabilities together is their shared character: asymmetric, often deniable, cost-effective, and designed to produce strategic effects without crossing the threshold into open military confrontation.

4. STATE-SPONSORED CYBER WARFARE: THE EVIDENCE

The record of state-sponsored cyber operations over the past two decades is striking in its scope and ambition. Table 1 summarizes some of the most significant incidents.

Table 1. Selected State-Sponsored Cyber Warfare Incidents and Their Strategic Characteristics

State Actor	Cyber Operation / Incident	Year(s)	Target(s)	Type of Cyber Attack	Strategic Objective / Outcome
United States & Israel	Stuxnet	2010	Iranian nuclear facility (Natanz)	Industrial malware (ICS sabotage)	Delay uranium enrichment without kinetic strike
Russia	Ukraine Power Grid Attacks	2015-2016	Ukrainian energy infrastructure	Malware (BlackEnergy, Industroyer)	Destabilize civilian life & test hybrid warfare tactics
Russia	HermeticWiper, WhisperGate	2022	Ukrainian ministries, banks, media	Wiper malware & cyber-intrusions	Support pre-invasion kinetic strikes; weaken state response
China	OPM Data Breach	2015	U.S. Office of Personnel Management	Massive data exfiltration (espionage)	Intelligence on federal workers, long-term infiltration
China	APT1 Operations (Unit 61398)	2006-2013	U.S. corporations (tech, defense, energy)	IP theft, remote access trojans (RATs)	Accelerate domestic industrial growth via stolen innovations
North Korea	Sony Pictures Hack	2014	Sony Corporation (U.S.)	Data breach, destructive malware (Destover)	Retaliation for political satire; global deterrence through fear
North Korea	Crypto Theft via Lazarus Group	2017-2023	Global crypto exchanges, fintech platforms	Phishing, malware, DeFi hacks	Illicit revenue to fund weapons programs amid sanctions
Iran	Shamoon Attacks (Saudi Aramco)	2012 & 2016	Saudi oil companies & energy networks	Disk-wiping malware	Retaliate for cyber espionage; regional power projection

Sources: (Zetter, 2014; Clarke, Knake, 2010; FBI, 2014; Kshetri, 2017; Mandiant, 2013; Inkster, 2016; Nakashima, 2015; Connell, Vogler, 2017; Microsoft Threat Intelligence Center, 2022)

Several things stand out from this record.

Cyber warfare is a flexible tactic shaped by distinct national goals, the United States and Israel used Stuxnet for precise sabotage, China for intelligence gathering, and Russia for hybrid campaigns (Mandiant, 2013; Microsoft Threat Intelligence Center, 2022). It has also democratised conflict participation, enabling sanctioned states like North Korea to steal billions in cryptocurrency (UN Security Council, 2023) and Iran to project regional power without military confrontation. Remarkably, most operations occur outside formal warfare, eroding the war-peace distinction and undermining traditional deterrence models (FBI, 2014; Nakashima, 2015). Attacks target infrastructure and public trust rather than territory, reflecting a shift toward systemic disruption (Zetter, 2014; Kello, 2017). This makes the Tallinn Manual's application of sovereignty, due diligence, and non-use of force to cyberspace increasingly urgent (Schmitt, 2017).

5. STUXNET: A CASE STUDY IN MODERN CYBER WARFARE

The 2010 Stuxnet operation remains the most studied example of state-sponsored cyber warfare, and for good reason. It was, in several respects, something genuinely new. Designed jointly by the United States and Israel and deployed against Iran's uranium enrichment facility at Natanz, Stuxnet was a piece of malware engineered to do something specific: cause the centrifuges used to enrich uranium to malfunction, while simultaneously displaying normal readings to the operators watching them. Unlike conventional military strikes that risk immediate escalation and civilian casualties, Stuxnet achieved strategic objectives through stealth and precision. The centrifuges tore themselves apart and Iranian engineers spent months trying to figure out what was wrong. All of this happened without a single military aircraft entering Iranian airspace (Zetter, 2014). As a cyber-operation, it exemplified a new form of warfare where digital code could silently degrade a nation's critical infrastructure with plausible deniability. Stuxnet proved that cyber offense is neither cheap nor easy, and conventional military thinking distorts our understanding of the domain, cyber conflict demands its own analytical framework (Slayton, 2016; Fanelli, 2016).

Key Characteristics of ModernCyber Warfare in the Case of Stuxnet

Three features of the Stuxnet operation illuminate what modern cyber warfare looks like at its most sophisticated form. These three features identified from the case study emerged from patterns observed in its execution, targeting logic, and strategic impact.

Asymmetry. Cyber operations allow power differentials to be exploited without committing conventional forces or risking the escalation that kinetic action might trigger. Realism frames asymmetry as states exploiting capability differentials strategically, while Postmodern Warfare theory sees it as power diffusing beyond conventional military hierarchies through technological innovation.

Deniability. Neither the United States nor Israel officially acknowledged involvement, keeping the attack below the threshold of recognised armed conflict and demonstrating cyber warfare's defining strategic advantage, consequential action with plausible deniability. Deniability reflects Realist strategic calculation, allowing states to pursue their interests while avoiding escalation. From a Postmodern warfare perspective, it further erodes clear authorship in conflict, where ambiguity and anonymity blur the boundaries between war and peace.

Precision. Stuxnet was engineered to target only specific Siemens controllers within Natanz's centrifuges, activating only in the right environment, representing a fundamentally different kind of precision weapon than anything that came before. Precision targeting reflects Realist emphasis on strategic efficiency, neutralising specific threats without large-scale military action, while Postmodern warfare theory interprets it as a shift toward algorithmically driven, technologically mediated conflict.

However, Stuxnet confirmed cyberspace as a genuine domain of warfare, blurring boundaries between espionage and armed conflict, and compelling nations to reassess their security architectures (Lindsay, 2013).

6. STATE-SPONSORED CYBER UNITS IN THE RUSSIA-UKRAINE CONFLICT (2014-2022): COMBINED KINETIC AND CYBER OPERATIONS

Unlike Stuxnet's precision strike, Russia's campaign in Ukraine revealed what sustained cyber operations look like when woven into broader hybrid warfare. Combining Kinetic warfare, proxy conflict, disinformation, and infrastructure sabotage to achieve strategic objectives no single tool could accomplish alone (CyberPeace Institute, 2025). Russian cyber units targeted Ukraine's infrastructure, information systems, and morale while supporting conventional military operations (Przetcaznik, Tarpova, 2022). Russia's cyber operations relied on a deliberately layered structure. Sandworm (GRU Unit 74455) orchestrated the 2015 and 2016 power grid attacks and the devastating 2017 NotPetya attack (Rid, 2020), while APT28 focused on espionage and disinformation. Proxy groups like Killnet and XakNet provided deniability while advancing Kremlin objectives. Days before the February 2022 invasion, cyber-attacks struck Ukrainian government websites and banks, confirming digital operations were integral to the campaign (CISA, 2022).

6.1. Ukrainian and International Responses

Ukraine responded with resilience, strengthening its cyber defenses through cooperation with NATO, the EU, and private-sector partners like Microsoft and Google. In the wake of the 2022 invasion, Ukraine mobilized a volunteer IT Army for defensive and counter-offensive cyber operations (Hendrix, 2022). These developments reveal a new model of cyber resilience that blurs the line between state and civilian defense. The Russia--Ukraine conflict highlights the evolving character of warfare, where cyber capabilities are not merely auxiliary but central to operational success. The expediency of cyber security leads to integration of Cyber-attacks into battlefield tactics and strategic planning, now challenging traditional conceptions of war and peace (Cohen, Smetana, 2020).

6.2. Distribution of Combined Kinetic and Cyber Operations by Key State and Proxy Units (2014–2022)

The Russia-Ukraine conflict from 2014 to 2022 has become a textbook case of hybrid warfare, where kinetic (physical) and cyber operations were conducted in a coordinated fashion by both state-backed and proxy units. This dual-use strategy was not only designed to weaken Ukraine’s defensive posture but also to disrupt governance, create psychological pressure, and complicate international response (Connell, Vogler, 2017; Zhora, 2022). A breakdown of the distribution of these operations by actor type, state versus proxy, reveals the strategic division of labour within Russia’s cyber ecosystem.

Table 2. Estimated Distribution of Combined Kinetic and Cyber Operations by Actor Type (2014–2022)

Actor Type	Key Unit Examples	% of Combined Operations	Operation Characteristics
State Cyber Units	GRU Unit 74455 (Sandworm), FSB Units	55%	Sophisticated, infrastructure-targeting, often timed with military actions
Proxy Hacktivists	XakNet Team, Killnet	25%	Disruptive, DDoS attacks, narrative warfare, loosely coordinated
State-Military Hybrid	GRU-Affiliated Technical Battalions	15%	Tactical support, command disruption, battlefield integration
Civilian-Supported IT Cells	Pro-Russian cyber volunteer groups	5%	Social media misinformation, website defacements, spam/phishing

Sources: (Greenberg, 2019; Cohen, Smetana, 2020); Rid, 2020).

Table 2 reveals how cyber operations in Ukraine were deliberately structured. Approximately 55% were carried out by dedicated state units, most notably Sandworm, carefully timed to coincide with battlefield movements, most devastatingly in the 2015 and 2016 power grid attacks (Greenberg, 2019). Proxy groups, such as Killnet and XakNet accounted for 25%, focusing on information disruption while maintaining plausible deniability (Cohen, Smetan, 2020). A further 15% came from hybrid military-cyber units providing battlefield support through signal jamming and reconnaissance across eastern Ukraine (Rid, 2020). The remaining 5%, civilian volunteers and pro-Russian communities, contributed symbolic disruption and narrative warfare (Hendrix, 2022). Together, these actors formed a coordinated, layered campaign rather than a collection of isolated attacks.

7. NON-STATE ACTORS AND CYBER TERRORISM IN THE TRANSFORMATION OF CONTEMPORARY CONFLICT

Beyond state actors, non-state players have become increasingly significant in shaping modern cyber conflict. Cyber terrorism, which is regarded as the deliberate use of digital attacks to spread fear or advance political agendas has carved out a prominent place in contemporary warfare, largely because it is cheap, borderless, and difficult to trace (Iftikhar, 2024). Groups like ISIS and al-Qaeda have weaponised cyberspace for propaganda, recruitment, and inciting real-world violence, and while their technical sophistication may fall short of state-sponsored hackers, their psychological impact should never be underestimated (Weimann, 2015). Non-state actors have also targeted critical infrastructure, recognising that even the threat of disruption can trigger national panic. The 2007 cyberattacks on Estonia demonstrated how ideologically driven groups can paralyse an entire country's digital services without firing a single shot (Ottis, 2008). The landscape is further complicated by the blurred line between ideology and criminality, as ransomware and digital extortion have become funding mechanisms for some groups, making it increasingly difficult to distinguish political motivation from outright cybercrime.

Ultimately, warfare has been democratised. The digital battlefield now includes ideological radicals, activists, and cybercriminals alike, demanding genuine collaboration between governments, the private sector, and international bodies to build meaningful resilience (Iftikhar, 2024).

8. CONCLUSION

Cyber warfare is no longer a trend to watch because it has fundamentally transformed contemporary conflict. From Stuxnet's precision sabotage to Russia's hybrid campaign in Ukraine and China and North Korea's relentless espionage, a clear pattern has emerged: cyber capabilities are now deliberate instruments through which states project power and destabilise adversaries without the costs of conventional military action. This shift demands new thinking across every dimension of security. International law needs binding frameworks beyond the Tallinn Manual's expert commentary. Security doctrines must treat cyber defense as a core function, not an afterthought. Attribution remains difficult and deterrence uncertain, yet nations that fail to adapt risk dangerous exposure, not just militarily, but in the stability of their economies, institutions, and public trust.

9. RECOMMENDATIONS

Develop binding international legal norms for cyber conduct. The Tallinn Manual is a starting point, not a destination. States need to work through the United Nations and other multilateral forums toward enforceable agreements that codify how principles of sovereignty, due diligence, and non-intervention apply in cyberspace.

Reconceptualize security frameworks to incorporate cyber capabilities. The dual-use nature of cyber tools, the same capability can serve civilian infrastructure and military offense, makes existing distinctions between civilian and military assets increasingly untenable. Security doctrines need to be rebuilt from the ground up to reflect this reality, rather than awkwardly retrofitted onto frameworks designed for a different era.

Invest in cyber resilience as a national security priority. Deterrence in cyberspace is difficult and uncertain. Absorbing attacks, recovering quickly, and maintaining critical functions may be more valuable. This demands protecting critical infrastructure, building public-private partnerships, training a capable cyber workforce, and making cyber awareness a basic competency across society.

The author has read and agreed to the published version of the manuscript.

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WHAT KIND OF EXPERIENCE: USER, VISITOR, CUSTOMER OR STAKEHOLDER? EXPLORING THE CONCEPT OF EXPERIENCE IN THE MUSEUM CONTEXT

This article focuses on the concept of experience in the museum context by examining how it is conceptualized and explored. Using a literature review, this study aims to synthesize existing research, with particular attention to the roles of various stakeholders and the integration of physical and digital touchpoints. Data for this study were collected from the Scopus and Web of Science databases. The findings reveal a scarcity of holistic, stakeholder-inclusive perspectives and limited attention to the complexity of the museum journey. While digital tools such as VR and social media have been widely discussed, broader frameworks for phygital experience creation are underdeveloped. This study highlights the need for future research that integrates managerial and multi-stakeholder viewpoints in both theoretical and empirical contexts.

Keywords: customer, experience, experience economy, museum, stakeholders.

1. INTRODUCTION

The current highly competitive environment requires a different approach to creating the organization's offer and building relations with varied external and internal stakeholders. Hence, even if the concept of „experience economy" (Pine, Gilmore, 1998; Radder, Han, 2015) has quite a long story (dating back to the 90s), it is still relevant and needs a fresh, in-depth exploration. This issue is caused, among others, by the growing importance of technology and the emergence of a new term called phygital experience (Debono, 2021; Jacob et al., 2023), which connects online and offline areas. On the other hand, exploration is needed due to the intense societal changes, growing and high expectations of stakeholders (e.g. Daniel, 2019), and changing roles of entities operating in various sectors. A visible example of such an ongoing modification is in the museum sector.

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Hence, museums – especially nowadays and in post-pandemic times – are places where orientation towards visitors is gradually becoming increasingly important (e.g. Camarero et al., 2015; Zhao, Mao, 2025). It is caused not only by shortening the amount of public financial support, but also changing preferences in society and competitive pressure from other entities (Burke et al., 2010), resulting in varied options for spending free time. Hence, museums are not an obvious choice for current or possible audience members. Thus, they must present an engaging environment and deliver a positive experience, especially if they want repeat visitors. Such an issue becomes especially challenging in technology-dominant times and in the face of shortening attention spans (https://www.apa.org/news/podcasts/speaking-of-psychology/attention-spans, access: 21.04.2025). Therefore, experience is somehow present in a museum context (e.g. Mencarelli et al., 2020; Khalil et al., 2024), yet with a focus on visitors. Nevertheless, current circumstances pressure museums to actively engage with many stakeholders. Such an issue, despite being somehow reflected in the literature (e.g. Serravalle et al., 2019), is still not been explored appropriately and intensively. Hence, this article focuses on reviewing and systematizing the scientific debates concerning the various perspectives on the experience concept and experience creation in the museum context. This article begins with an overview of the current state of the literature. Then, the narration presents the research methods and findings. The article ends with a conclusion and possible future research directions.

2. LITERATURE REVIEW

The concepts of experience and experience economy are generally established in the literature (Carlson, 1997; Pine, Gilmore, 1998; Pine, Gilmore, 1999). One of the most renowned and highly referenced works came from the late 90s (Pine, Gilmore, 1998, 1999), although this narration focused more on stationary, offline activities. Despite being somewhat established in scientific and practical debates, the topic still needs fresh light and redefinition, including new social and technological circumstances (i.e., the overlap of online and offline experiences, presence of the technology in almost every part of life). Therefore, the literature and professionals from theoretical and practical contexts discuss concepts such as user experience (e.g. Berni, Borgianni, 2021), employee experience (e.g. Batat, 2022), or customer experience (e.g. Kim, So, 2022; Lipkin, Heinonen, 2022), trying to broaden understanding of what makes some offer or place truly special in the eyes of the stakeholder and what factors and elements comprise final positive or negative experiences.

Thus, the issue of shaping and managing experiences nowadays is even more important and challenging than before. This is connected to the growing competitiveness of the environment and the complexity of experience touchpoints (e.g. Bolton et al., 2022). Another important element regards the high and constantly growing expectations and demands of the stakeholders, who (especially customers) look for something unique, which creates the necessity to respond to their needs. Hence, the assumption made in the experience economy concept (Pine, Gilmore, 1998) – that we are currently in the fourth stage of delivering value and in the progression of economic development, where simple product or service delivery is insufficient, currently has even greater importance. In the times of having so many diverse and personalized products and services readily available, the aspect that people "experience" the fact of using something or participating in some activities could be the crucial issue affecting whether people will recommend that product or service or will be interested in using it more often. Social media specificity should not be omitted here, as it directly affects the way in which experiences can be shared (Piancatelli et al., 2021; Lim, Rasul, 2022).

Nevertheless, the most challenging issue does not necessarily lie in the pure fact that organizations should take care of delivering a preferably positive experience and consider how people feel during the buying process or when using the service. On the contrary, an especially relevant and demanding aspect concerns the fact that "experience" is such a diverse and multidimensional term. First, experience is a highly individual concept (Mossberg, 2007; Mehmetoglu, Engen, 2011) – hence, there will not be one consistent experience for all stakeholders involved in a project or preparing any initiative. This diversity is also connected to the fact that stakeholders are gradually becoming more diverse (regarding age, ethnicity, material status, and so on). As a result, accessibility and inclusivity have become especially relevant factors affecting user/stakeholder experiences (Sauer et al., 2020). Moreover, current environmental conditions are strictly connected to technology-related specificity and the dominance of technology in everyday life. Hence, phygital (Mishra et al., 2023) experience (a combination of digital and physical, offline areas) is also gaining importance.

Considering all issues that highlight the importance of experience, this concept in the literature can be identified in the context of many topics and sectors. First, experience is an element of studies related to services, service design, and service management (Jaakkola et al., 2015; Rosenbaum et al., 2017). This means that a wide variety of sectors can be explored, as the service has different meanings and exists in both the tourism, hospitality, and many business areas, as well as in the museum context. This has led to the identification of some more context-specific studies. Thus, experience is inherently connected to tourism activities and experiences. In this context, many tourism branches can be identified, but cultural and heritage tourism seems to be the leading (Xiao, Shen, 2020; Salem, Umar, 2023). Nevertheless, the debate is much broader and covers, among others, retailing (Rosenbaum et al., 2021) or banking industries (Abbas et al., 2024).

When mentioning the tourism sector, museums can also be indicated here (e.g. Khalil et al., 2024), even if their activities are not only focused on the tourism aspect. Hence, the concept of museum experience (Radder, Han, 2015; Riva, Agostino, 2022) is generally known and mentioned in the literature, yet it still requires additional, more exhaustive exploration. Two factors reflect this. First, going beyond the visitor/customer-centered perspective would be beneficial in light of the growing importance of the multi-stakeholder approach. Moreover, even if exhibition space is the main point of reference and mainly affects stakeholders' reflections and opinions, it is not the only area where museums actively cooperate and work (e.g. Najda-Janoszka, Sawczuk, 2023). Phygital experience (Debono, 2021), being a combination and overlapping of digital and offline areas, also concerns the museum sector and reflects the necessity for additional exploration. Moreover, museums nowadays have to consider and apply more business and management-oriented perspectives because of their highly dynamic and unstable environment (e.g. Riviezzo et al., 2022). From this perspective, considering the needs and expectations of stakeholders is a relevant issue. Moreover, by mapping and systematically monitoring stakeholders' experiences, the preparation of more interesting and competitive offers could be possible, which is also critical for cultural organizations.

Hence, in a time of high competitiveness (Riviezzo et al., 2022) and scarcity of resources (mainly financial but not only), the time and attention of customers and visitors are highly significant (Burke et al., 2010; Roederer, Filser, 2018). Exploring the experience and mapping it may be helpful in the preparation of an appropriate offer. Although to some extent highlighted in museum literature (Villaespesa, Álvarez, 2020), the topic is dynamic and needs fresh exploration until now. Moreover, the literature on museum experience and museum management focuses primarily on museum visitors (Roederer, Filser, 2018; Ponsignon, Derbaix, 2020; Mencarelli et al., 2020). Even if they are crucial for museum existence (the pandemic clearly showed this), they are not the only entities important for museum activities (Najda-Janoszka, Sawczuk, 2023) and affecting how museums operate. In times of dynamic changes and unstable situations, a multi-stakeholder approach can be perceived as especially relevant. Moreover, the roles and functions of stakeholders may overlap, as a person representing the academic community may also be a part of the museum council or a local artisan may be a museum visitor. Thus, there is a need for a more in-depth and complex approach to the connection between experiences and museum stakeholders.

3. METHODOLOGY

Considering the abovementioned literature gaps, the subject of the research is the complexity of the experience concept. Specifically, the main objective of this study, having an initial character, is to explore and systematize scientific debates regarding the concept of experience and experience creation in the museum context. The following research questions were formulated to address the research purpose:

RQ1. How is experience understood in the context of museum institutions?

RQ2. What stakeholders and their roles are analyzed in the context of museum experience creation?

RQ3. What insights and frameworks do the existing literature provide regarding the integration of digital and physical interactions in museums to enhance visitor experiences across various touchpoints*?*

In order to address the assumed research objective, a systematic literature review was applied. The data collection process included two renowned databases - Scopus and Web of Science. Data were first collected in January and February 2024. The dataset was then double-checked and verified in September 2024. The central keyword combination guiding the process of analysis was „*museum*” AND „*experience*”. Such a keyword combination was applied to the abstract, article title, and keywords (as per the options available on Scopus). On Web of Science, the analogous option selected was „topic”.

Moreover, a set of inclusion and exclusion criteria was applied in the process of selecting publications for in-depth analysis. It concerns the language, year of publication, specific topic area, status, and publication type.

First, the time spans of the publications were not determined. It was important to gain a broader overview of the topic, particularly regarding when this issue emerged in the literature and when the most intense discussions took place. Moreover, only publications written in English were included in the database of articles for the analysis. When it comes to the topic area, only publications coming from the “business, management (and accounting)” areas were taken into consideration. This is especially relevant in the museum's context, as even though some topics existed in the literature previously, they were not necessarily assumed from the managerial perspective.

Therefore, publications written in languages other than English were excluded from this research process. As mentioned previously, the exclusion criteria also included the stage of publication. Thus, articles in press were excluded from the research process. Moreover, publication types such as notes, editorials, letters, short surveys, errata, and conference reviews were also excluded from the in-depth analysis. The collected findings were reported based on the assumptions of the PRISMA approach (fig. 1). Moreover, after the first screening of the data, it was also decided to exclude those records that do not have full access to the text, as this limits the possibility of full exploration of the context. Publications not connected to the explored research area (museums or, in a broader sense, cultural institutions) were also excluded from the final group of publications.

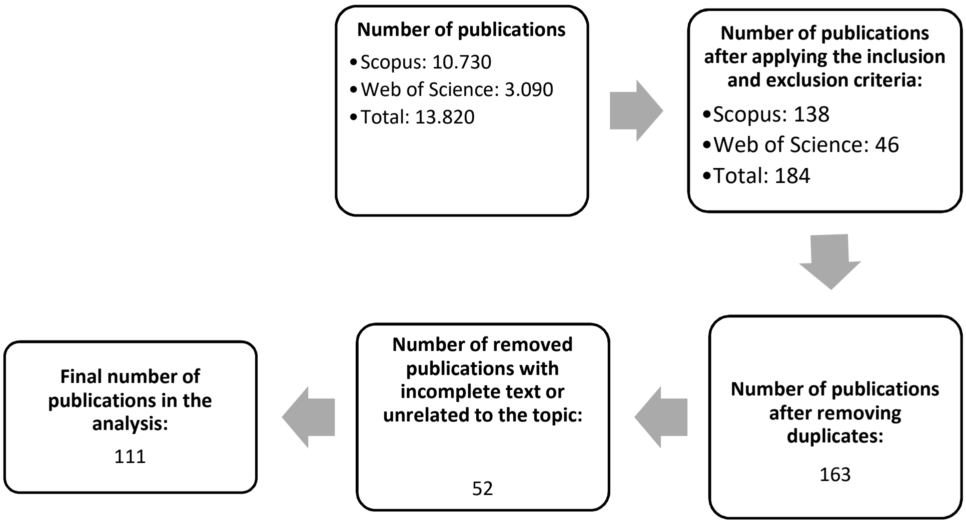

Figure 1. Overview of the process of selecting data for the analysis and literature review

Source: own elaboration.

Hence, based on the research assumptions and assuming that publications unrelated to the explored topic will also be excluded from the analysis, a specific set of publications, consisting of 111 publications, emerged (fig. 1).

4. RESULTS

According to the research assumptions described in the previous section, the lack of predetermined timespans of publications was oriented towards a general overview of tendencies in publishing. Nevertheless, the oldest publication, from 1983, was unavailable in the full version. The more intense and regular discussions about „experience" began around 1999, which seems to be consistent with the publication of Pine and Gilmore's work. While older papers focus more on visitor/customer experience concepts (Rowley, 1999; Mitchell, Mitchell, 2001), the newest articles (Khalil et al., 2024; Massari et al., 2024) explore the connection between new technologies and experience.

Observations regarding the journals most frequently represented in the sample also reflect the main topics of interest. Hence, the journals most often identified are among others: Journal of Marketing Management (8 articles), European Journal of Marketing (7 articles), Tourism Management Perspectives (5 articles), Journal of Destination Marketing & Management (5 articles), Tourism Analysis (5 articles), and Journal of Travel & Tourism Marketing (4 articles). The other journals are as follows: Journal of Promotion

Management, Event Management, Journal of Business Research, and International Journal of Market Research.

Therefore, it can be observed that many analyses are centered around tourism and its varied forms, whether museum, cultural, heritage, or dark. Thus, one of the first topic areas emerged. It concerns **emotions** and is primarily related to dark tourism initiatives. Nevertheless, emotions can also be explored in the context of interacting with heritage or content that is not always pleasant to look at. While this can be connected to the area of negative experiences, they can exist in various dimensions (based on anger, fear, or maybe disgust). Here, the Auschwitz-Birkenau State Museum (Dresler, Fuchs, 2021), or the museum in Sachsenhausen (Nawijn et al., 2017), is one of the main points of reference.

The issue, to some extent, connected with emotions is **authenticity**, yet this is another topic explored in the literature, mainly as one of the factors shaping experience (Jin et al., 2020; Wang et al., 2023; Saleem, Umar, 2023). Moreover, authenticity is explored from the perspective of tourists or visitors, while their origins may be included in the study design and the issue of overlapping stakeholder roles is not considered. While authenticity is discussed, the **firm-centric perspective of shaping experiences** is oriented more towards practical considerations, such as the arrangement of the physical place or website. Considering the issue that experience is highly individual, such an arrangement of the place may support the creation of experience rather than the creation of experience itself. Technology-driven solutions can also shape or support the creation of experiences - for example, in museums or tourism heritage sites (Ponsignon, Derbaix, 2020). Moreover, the literature reflects on **social media and marketing** activities, and how technology can be important in experience creation activities (Amitrano et al., 2018; Piancatelli et al., 2021; Massari et al., 2024).

When it comes to defining experience in a museum context, one of the main reference points is the work made by Pine and Gilmore, as both newer and older articles refer to this seminal proposition (e.g. Mehmetoglu, Engen, 2011; Gorchakova, Hyde, 2022). Nevertheless, in the literature, it is also possible to identify the existence of a concept like a „museum experience" (Cerquetti, 2018). By referencing Falk and Dierking (Cerquetti, 2018), it can be defined as an interaction among different contexts: personal (what a person brings to the museum visit, like previous knowledge), social, and physical (referring to the settings in which the experience takes place). Hence, some dimensions are similar to Pine and Gilmore's proposition but focus more on specific organizational contexts. Therefore, regardless of the organizational context, it is possible to say that experience is highly individual: how people feel, and what their state and feelings are (Cerquetti, 2018; Ponsignon, Derbaix, 2020). Such a highly individualistic perspective is sometimes related to the issue that (especially in the UX design context) no pure experience is generated (Mossberg, 2007), but the conditions that support the emergence of (preferably) positive experiences are created.

Experience is also closely related to emotions. It can be noted that articles more often focus on the positive ones that may be especially relevant to the tourism context (e.g. Mengda Jiang et al., 2023). Nevertheless, concentrating on the negative aspects could also be important, especially with respect to how user/customer/stakeholder experience can be improved. On the other hand, an element that is very often included in experience-related analysis is the factor of satisfaction (Albayrak, 2018; Chen, Ryan, 2020), which is a facet that intensively determines whether it is a positive or negative experience.

Moreover, apart from defining „museum experience," the analysis of the literature also reveals that experience is mainly depicted from the exhibition perspective (Jin et al., 2020;

Piancatelli et al., 2021; Gorchakova, Hyde, 2022) – hence, a strictly defined area. It also applies to satisfaction (Chen, Ryan, 2020), which is evaluated primarily from the exhibition area or, sometimes, in a broader sense, the museum area (in the case of some events). Nevertheless, exhibition spaces are the main focus of interest when it comes to the issue of museum experience.

Hence, when it comes to stakeholders and their roles analyzed in the process of museum experience creation, visitors or tourists are the most often mentioned and perceived as crucial actors in this process. They are placed in the center of attention, as they can „experience something" while visiting museums or heritage sites individually or in groups. They may be satisfied, but their satisfaction may also affect others' decisions. The approach in which researchers try to explore the dimensions of experience is based on quantitative and qualitative lenses, where, among others, observations are considered an important form of study (e.g. Dresler, Fuchs, 2021). In times of social media popularity, experiences can be easily shared (e.g. Yin et al., 2023), and newer publications have also considered this issue (apart from the pure importance of technology over the visitors' experience). Therefore, museum employees should not be overlooked when it comes to what, who, and to what extent affects the visitor's experience. In this way, they are considered important, but primarily because of their impact on the other's experience, and hence, in the role of being the source of the information (e.g. Fillis et al., 2017). Thus, they are included (employees and managers) in the research processes, for example, by being interviewees, yet their perspectives seem not as relevant as those of the visitors. However, another form of experience, employee experience, can be considered with such an issue.

These remarks are closely connected to subsequent observations, identifying that a comprehensive and general reference to the multi-stakeholder perspective can be observed in the literature. Some articles highlight that there is a need for a more complex perspective regarding the relationships between museums and their environment, yet those references are rather general and do not entirely focus on the multidimensionality of this issue (tom Dieck, Jung, 2017; Serravalle et al., 2019).

Similarly, rather general reflections can be observed when it comes to the issue of integrating digital and physical interactions in museums to enhance visitor experience. Hence, some of the literature sources reflect on parts of journey creation, meaning two (or three) points in time and aspects of experience creation. Nevertheless, it is also more „exhibition/tourism attraction-centered" perspective (e.g. Ponsignon, Derbaix, 2020) with the overlooking of other activity areas (Najda-Janoszka, Sawczuk, 2023).

The notified exhibition-centered perspective limits the complexity of the concept of experience to some extent. However, at the same time, with reference to the exhibition area, the issue of technology implementation is quite often described. Hence, technologies such as virtual or augmented reality (Massari et al., 2024; Khalil et al., 2024) can be applied to the exhibition's traditional offline space. Another issue is the importance of the application of social media. Here, it is not necessarily that social media can extend the offline experience, yet it can encourage or discourage others from experiencing the institution and activities as well. In this sense, social media (specific social media channels) can serve as one of the touchpoints on the customer journey, yet this issue could be explored more intensely. Apart from the visitor's perspective, this type of touchpoint could also be important for employees.

5. DISCUSSION

An in-depth analysis of the literature revealed that experience is a concept often described in the literature (e.g. Mehmetoglu, Engen, 2011; Berni, Borgianni, 2021) as well as in the museum context (e.g. Roederer, Filser, 2018; Cerquetti, 2018). However, even if the literature tries to apply it to current issues and socio-technological changes, some of the explored studies seem to be somewhat fragmented. This is primarily reflected by the issue of the visitor-centered perspective of the experience (Camarero et al., 2015; Chen, Ryan, 2020). A similar reflection regards the co-creation issue, which too often focuses only on customers or visitors. Hence, in such a way, literature analysis reflects the path for future, more in-depth exploration. Visitors are crucial recipients of the offer, yet they are not the only entities relevant, as they are not the only one that experience museum offerings.

Reflections on value co-destruction can be relevant in this sense, as whether experience is mainly explored from the „positive" perspective, the negative ones should not be omitted as well. They are undoubtedly relevant to the organization's existence, yet they are not the only ones – apart from visitors or employees, volunteers or academic representatives could be included in the explorations. Moreover, stakeholders can apply to more than just one role, which can also be relevant to the analysis. In addition, even if the experience of a volunteer, academic representative, or business representative goes beyond the „exhibition space" in times of interconnected relations, such an exploration will provide important benefits to the museum management perspective. It can be mainly connected to the perspective of relations as one of the crucial resources that may help organizations' performance. The interconnections and importance of these relations are especially visible in times of social media and varied technology. Such an issue is employed from the visitors' perspective, yet not only those stakeholders apply the technology.

6. CONCLUSIONS

A conducted study revealed the main tendencies and research streams in the museum management literature. It revealed both the still relevant and trending topics, as well as areas that remain underexplored. In the current competitive environment, museums and cultural institutions have to consider how to shape experiences not only of the visitors, but also of all other stakeholders that participate in creating the museum offerings.

Despite being a complex exploration of the experience in the museum context, this study is not free from limitations. Firstly, it is based only on the literature review. Therefore, further exploration and in-field studies will be necessary. Hence, further studies should have a primarily empirical character (such as interviews with museum stakeholders) and theoretical and conceptual ones regarding journey mapping and the concept of touchpoints. Regarding the diversity of touchpoints, the issue of phygital experience could be valuable here as well.

The author has read and agreed to the published version of the manuscript.

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WHEN EVERY WORD IS WORTH ITS WEIGHT IN GOLD – COMMUNICATION WITH A PERSON WHO STUTTERS – PRELIMINARY REPORT

This article examines the experiences of paramedics and paramedic students in contact with patients who stutter. A qualitative study based on in-depth interviews shows that speech disfluency significantly prolongs emergency procedures and generates the risk of misdiagnosing stroke or intoxication. The study is a pilot study prior to planned, larger studies aimed at preparing a broader research project. The main research question focuses on whether and how a patient's/relative's stuttering is related to the course of emergency medical procedures. To improve communication, paramedics use adaptive strategies such as closed-ended questions, maintaining eye contact, and slowing the speech rate. The analysis revealed an educational gap – none of the respondents had participated in training on stuttering. The authors recommend reforming education through workshops with individuals who stutter. This form of learning, including pre-briefing, scenario implementation, and debriefing, allows for the development of genuine empathy and improvement in patient safety in emergency situations.

Keywords: clinical communication, emergency medical services, qualitative research, social awareness, stuttering.

1. INTRODUCTION

In the daily practice of paramedics, a key element of effective action is efficient and clear communication with the patient, which determines the accuracy of the medical interview (Frankel, Sherman, 2015). Researchers are increasingly drawing attention to the decline in communication skills of paramedics with patients (Włoszczak-Szubzda et al., 2013) and to communication barriers resulting from the attitudes of medical personnel towards people with a different way of speaking. Understanding the specifics of these relationships helps paramedics build empathetic connections and avoid the cognitive biases

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that can lead to rushing into action. However, a proper approach to a patient with stuttering requires solid theoretical knowledge about the nature of this phenomenon (Wrześniewska-Wal, 2022). We cannot forget about the role that paramedics play in cooperation with other services during rescue operations, in which volunteers also participate (Mulholland et al., 2009). At this level, rescuers must often ensure efficient communication with volunteers, who may experience rescue operations as a time of trauma and drama. For them, this can be an event for which they are unprepared and often unable to count on professional support (Skorek, 2025).

In the literature on the subject, stuttering is defined as a speech fluency disorder characterised by involuntary repetitions of sounds, syllables, or words, prolongations of sounds, and blocks in the flow of speech (Kelman et al., 2013; Węsierska, Boroń, 2018). Nowadays, they are increasingly perceived not only as a deficit but also as a form of verbal neurodiversity, emphasising a different way of organising speech processes within the normative spectrum (Schneider, 2024). Most often, the first symptoms of stuttering appear between the ages of two and six, i.e. during the period of intensive development of the child's linguistic and emotional competences (Węsierska et al., 2013). It's worth noting that not all preschool speech disfluencies are pathological. Physiological developmental disfluencies are a natural stage of language acquisition and should not be equated with stuttering (Schneider, 2024). We talk about stuttering when the symptoms are persistent, noticeable to others and affect the individual's communication functioning (Bloodstein, Ratner, 2008). This complex nature makes stuttering a subject of research across many disciplines – speech therapy, medicine, psychology, pedagogy and sociology – which underlines its status as a significant scientific problem.

Effective verbal communication is a key operational resource in emergency medicine, determining the speed of clinical decision-making and the accuracy of therapeutic interventions. In conditions of time pressure, high responsibility, and diagnostic uncertainty, precise communication between medical team members and the patient directly impacts health safety (Wrześniewska-Wal, 2018). The specific nature of an emergency situation – including intense emotional arousal, cognitive overload, and exposure to high-intensity stimuli – creates an environment particularly susceptible to communication disruptions. Acute stress activates physiological and psychological mechanisms that can affect speech fluency, articulation rate, and respiratory and phonatory control. Consequently, individuals predisposed to stuttering may experience exacerbated symptoms during emergency interventions. Analysing this relationship is important not only from a clinical perspective but also from an organizational and psychosocial perspective, justifying the need for in-depth research on communication functioning under conditions of extreme stress.

The aim of this article is to analyse the experiences of paramedics and paramedic students in contact with individuals with fluency differences and their reactions in such situations, considering the timing and accuracy of diagnosis. The presented study is a pilot study prior to planned, larger studies aimed at preparing a broader research project, including the development of training workshops for healthcare environments. The main research question of the study focuses on whether and how stuttering in a patient/relative is related to the course of emergency medical procedures. The research presented is based on individual in-depth interviews with three paramedics with 27, 21, and 4 years of experience, as well as four final-year bachelor's degree students in paramedicine. The authors of this study chose a qualitative approach, which, in the sociological sciences, allows for in-depth analysis of subtle aspects of the phenomena under study.

This article consists of a literature review of definitions of stuttering, its sources, symptoms, variability, and communication processes in emergency medicine and diagnostics. The pilot study serves as an illustration of this issue. The methodology and key findings are discussed in the following sections. The main conclusions, limitations, and recommendations related to the study are presented in the summary.

2. LITERATURE REVIEW

Stuttering is a common condition observed in all social and cultural environments, regardless of a person's origin or social standing. This phenomenon has been known to humanity for centuries, as evidenced by references in historical sources (Brosch, Pirsig, 2001). The literature on the subject emphasises that stuttering is not a homogeneous phenomenon - it is characterised by significant variability in symptoms and depends on individual factors that influence how it is perceived by the environment (Kelman, Nicholas, 2020). Individuals who experience severe speech disfluency may exhibit increasing fear of speaking, avoid social contact, experience low self-esteem, and have difficulty functioning in society. The literature increasingly emphasises the social consequences of stuttering, including stigma and self-stigma, which can impact the self-esteem, psychological well-being, and quality of life of people who stutter (St. Louis, 2015; Boyle, 2018; Bauszek, Węsierska, 2022).

Definitions of stuttering indicate that it is a multifactorial phenomenon, the causes of which may stem from biological, psychological, and environmental factors (Kelman, Nicholas, 2020). Biological factors include genetic predisposition and differences in brain structure and function. Research indicates that stuttering is more common in some families, although this is not deterministic – it may or may not be inherited (Bloodstein, Ratner, 2008; Guitar, Conture, 2013; Yairi, Ambrose, 2013). Neuroimaging studies have shown differences in the activity and lateralisation of areas involved in planning and executing speech in people who stutter (Watkins et al., 2007). These areas may be more susceptible to disruption, and other brain structures attempt to compensate for the impaired functions (Schneider, 2024). Psychological and environmental factors include temperament, social reactions to stuttering, anxiety levels, and the family communication climate. Research does not support the idea that parents “cause” stuttering (Kloth et al., 1998). However, the way we respond to symptoms can perpetuate the problem. Excessive focus on speech fluency, criticism, or high communication pressure can contribute to the persistence of difficulties.

A characteristic feature of stuttering is its variability and unpredictability – the intensity of symptoms may vary depending on the situation, the interlocutor, the level of emotional tension or time pressure (Kelman, Nicholas, 2020; Hussain, Lui, 2024). Situations perceived as stressful – such as public speaking, speaking to an authority figure, or contact with an institution – can lead to increased speech challenges. In the context of medical events, stress is particularly acute: it involves life-threatening situations, pain, fear for loved ones, and the pressure to quickly convey key information. In a person who stutters, this can lead to increased blocks and co-movements, as well as reduced spontaneity. As a result, communication may be fragmented, interrupted, or distorted in rhythm and tempo. Effective communication in emergency medicine is a key element of correct diagnosis and the implementation of appropriate emergency medical procedures. The standard for collecting information about the condition of a conscious patient – one whose condition allows communication – is the SAMPLE interview (Symptoms, Allergies, Medications, Past medical history, Last oral intake, Events leading to the incident) (Yost, 2026). It allows for the collection of basic information but also requires quick, precise acquisition of information from the patient or witnesses to the event, and the ability to listen carefully to the transmitted content (Berman, Chutka, 2016; Mohamed et al., 2025).

The literature on communication barriers in medicine indicates that difficulties in communicating with patients from so-called special groups (e.g. people with hearing impairments, aphasia, intellectual disabilities) may lead to longer diagnostic times and an increased risk of medical errors (Walencik-Topiłko, 2023). In the case of stuttering, there is an additional risk of overinterpretation of symptoms – they may be misinterpreted as a neurological symptom (e.g. aphasia in the course of a stroke) or as an effect of psychoactive substances (Norouzinia et al., 2015). From a communication psychology perspective, time pressure is also important. Paramedics operate under high levels of responsibility and limited time to make decisions (Czerniachowska, 2009). The need to patiently listen to the patient may be perceived as being in tension with the need for rapid action. This can generate additional emotional burden for the staff, such as frustration or a sense of helplessness. The variability of stuttering symptoms and their exacerbation in stressful situations pose a potential diagnostic risk. In the prehospital setting, where response time is crucial, speech disfluency can hinder the collection of a complete history and prolong the emergency medical team's stay at the scene. It can also lead to diagnostic "false leads" or affect the assessment of the patient's neurological status. At the same time, it should be emphasised that stuttering itself is not a cognitive or intellectual abnormality (Iverach et al., 2009). A person who stutters possesses full linguistic and cognitive competence, and the challenge lies solely with fluency. Misinterpretation of symptoms may therefore stem from the staff's lack of knowledge or experience with fluency disorders.

From a professional ethics perspective, it is crucial to treat stuttering as a communicative disorder requiring empathy and appropriate adaptive strategies. A positive attitude among medical staff can reduce patient stress and, in turn, reduce symptom severity. In the context of paramedic education, it seems reasonable to ask whether educational programs address the specific challenges of interacting with patients who stutter. Incorporating elements of speech therapy, effective communication techniques, and patient listening training could enhance patient safety and improve staff comfort.

The theoretical framework presented indicates that stuttering – especially in life-threatening situations – may be a significant factor modifying the course of medical communication. The multifactorial nature of stuttering, its variability, and its susceptibility to stress justify the need to empirically examine paramedics' experiences in contact with people who stutter and to assess the impact of these experiences on the diagnostic and therapeutic process.

3. METHODOLOGY

The analyses presented are based on a qualitative research model, in which individual in-depth interviews (IDI) played a key role. The choice of this method was driven by the need to explore subjective experiences and communication strategies that are difficult to capture within the rigid framework of quantitative research. The purposive sampling enabled the collection of opinions from individuals with varying levels of professional experience, different educational backgrounds, and distinct roles within the emergency medical services system. Three experienced medical professionals participated in the study: R1 (a 51-year-old male working as an emergency medical coordinator in a city hospital, with 21 years of experience), R2 (a 22-year-old male working as an ambulance driver and support paramedic, with 4 years of experience), and R3 (a 51-year-old female working as a certified emergency nurse and an academic teacher, with 27 years of experience). Furthermore, the study included four final-year female undergraduate students in the field of emergency medical services (S1-S4), aged between 21 and 24 years. This diverse group structure enabled the identification of differences between academic knowledge and clinical practice, developed over years of fieldwork across various professional environments. It should be emphasised that, given the group's specific nature and size, this project should be considered a pilot study. They constitute an introduction to further, broader and more in-depth analyses, which in the future may cover larger populations of medical professionals and allow for the development of standardised communication procedures in clinical speech therapy for emergency medical purposes.

The qualitative model used in this study is an approach with a well-established tradition, which gained importance in the social sciences in the 1960s, although its theoretical foundations were already formed at the beginning of the century in the works of Florian Znaniecki (Znaniecki, Thomas, 1996). Contemporary qualitative methodology, as noted by Krzysztof Konecki (Konecki, 2000), is not a form of free-form or impressionistic creativity, but rather a painstaking, systematic, and fully controlled research process. Unlike quantitative methods, this approach openly recognises research as an interaction between the researcher and the social world, while maintaining the rigour and objectivity necessary to draw reliable conclusions. Using this perspective in the context of emergency medical services, through the technique of individual in-depth interviews (IDI), allows the extraction of practitioners' and students' unique experiences, providing a valuable complement to theoretical knowledge for those working in the public and medical spheres.

The interview scenario was designed to illuminate several important aspects of medical interaction. It begins with a reconstruction of paramedics' own experiences with individuals with speech fluency disorders and a projection of such actions on students, which allows for an understanding of their natural reactions in the workplace. The analysis then focuses on the conflict between time pressure and the necessary patience required to listen to the patient. A key element of the scenario is the verification of symptom differentiation processes, aimed at determining whether and how often stuttering has been or can be misinterpreted as aphasia or alcohol intoxication. The list of research areas concludes with a review of specific techniques for facilitating communication.

The research material obtained during the study was analysed within two categories that define the relationship between the paramedic and the stuttering patient under stress during the intervention. The first is an operational-systemic criterion, in which staff focus on technical optimisation and on minimising barriers arising from the structure of the emergency medical system. This class of behaviours primarily encompasses conscious modification of tools used in diagnostic communication, aimed at tailoring the medical history to the patient while maintaining its substantive value. This category encompasses paramedic behaviours that respond to time pressure, in which every minute of intervention must be clinically justified.

Parallel to technical activities, the participants exhibited behaviours consistent with the psychological-behavioural criterion, which pertains to the emotional and relational aspects of contact with others. A behavioural manifestation of these attitudes is stepping into the patient's head, seeking to minimise the trauma of a life-threatening situation, which, in their opinion, may exacerbate stuttering symptoms. Furthermore, adopting a present-minded approach to the patient's presence in the here and now can lead to a more accurate diagnosis. In this approach, stuttering is viewed as a situation that requires greater attentiveness and support from the physician, thereby preserving the patient's credibility and dignity in the face of a health crisis.

4. RESULTS

Analysis of the collected research material allows for the formulation of preliminary conclusions regarding the attitudes of emergency medical personnel and future medical staff toward patients with speech disorders. The following summary discusses the results of the pilot study, focusing on key operational and communication areas.

In the analysis of the section on the dynamics of emergency medical teams (EMT), the tension between maintaining the highest operational pace and obtaining precise clinical data becomes a key issue. A patient's stuttering undoubtedly contributes to prolonging the intervention, a fact noted by all respondents, regardless of their length of service. However, paramedic R1 emphasises that although the time spent on the scene may be longer, this is usually done without concern for the ultimate success of the rescue operation. Due to time pressure, R1 emphasises the importance of minimising verbal contact and establishing clear rules for the question-and-answer line, thereby eliminating unnecessary, lengthy patient narratives in favour of specific medical information. Paramedic R2 contributes a significant insight to this discussion:

I sometimes add things, but I don't rush things unless it's medically necessary, because the paramedic's rush is the main stressor for the patient[3].

R2

Paramedic R3 focuses his opinion on critical situations when there is an increased risk to the patient's life, indicating a one-way communication strategy, i.e. one in which the messages he utters have an informative function, without the need for the other person to speak:

If there is a life-threatening situation and the patient is in a bad mood, I inform and do my job.

R3

This indicates a focus on saving lives rather than gathering detailed information from the patient. Young paramedic trainees (S2 – S4), on the other hand, express much stronger concerns. In their opinion, in critical situations where every second counts, a speech barrier can make providing help difficult and lead to frustration from having to repeat questions. However, S1 determines the pace of intervention based on the level of threat:

Depending on the severity of the situation, but unless the patient is dying in my arms, I should find time. A history can provide important information.

S1

[3] All interview quotes are accurate transcripts of the respondents' statements, and therefore any stylistic errors, slips of the tongue, etc. have been preserved.

The precision of the interview is directly linked to the challenges of differential diagnosis, where speech fluency disorders carry the risk of following a “false lead.” Students strongly emphasise the dangers of error and misdiagnosis, fearing confusion between stuttering and stroke or central nervous system injury symptoms, especially when the interview is conducted in a rush. Paramedic R1 takes an expert stance, arguing that a thorough medical history and physical examination completely eliminate this risk, whereas slurred speech poses a greater threat to the accuracy of the diagnosis. Paramedic R2 proposes a simple yet extremely effective verification strategy: when in doubt, ask the patient directly whether stuttering is a permanent feature. Paramedic R3's approach, which highlights the two-pronged nature of the diagnostic process, is interesting:

In addition to verbal communication, I have diagnostic tools that measure regardless of the patient's speech style.

R3

In this situation, basic vital signs become valuable information without the need for conversation. Furthermore, it also indicates that the patient is exploiting their pain as a way to signal their condition. R3 believes this is a form of „silent” diagnosis.

The communication strategies employed by respondents in contact with people who stutter constitute a set of practical, adaptive techniques that evolve with acquired professional experience, moving from intuitive empathy to pragmatic management of the medical history. The first and crucial step in the intervention process is identifying the disorder itself, and respondents present different approaches. While students rely primarily on auditory observation and on detecting repeated sounds or syllables during conversation, experienced paramedics prefer a direct approach, asking the patient openly whether stuttering is a permanent feature, which allows immediate exclusion of acute neurological causes. After identifying the problem, all respondents unanimously report a conscious modification of their speech style, manifested primarily in a significant slowing of the speech rate and careful articulation. Paramedic R1 also highlights the technique of speaking louder, which, in his opinion, combined with slower speech, aims to stabilise the rhythm of the conversation. He also emphasises that the patient's emotional state can hinder a correct diagnosis:

Patients talk about everything, not about what interests the paramedic.

R1

A crucial element of the strategy is changing the question structure. Participants often abandon open-ended questions in favour of closed-ended questions that require only short “yes” or “no” answers, thereby significantly conserving the patient's verbal energy and minimising verbal contact in high-stress situations. Paramedic R1 goes a step further, suggesting establishing strict communication rules at the beginning of the intervention to calm the patient and eliminate unnecessary, lengthy narratives in favour of specific medical information. In extreme situations, when a speech impediment prevents verbal communication, R1 also allows written communication. An important tool, although requiring caution, is completing the patient's statement. This practice is common among all participants, with students and paramedic R2 emphasising the need to wait for the patient to confirm whether their guess was correct. R3 strongly emphasises that in life-threatening situations, immediate action is necessary, regardless of the patient's communication.

However, as he himself notes, this is a critical situation. If I'm not performing, however, I try to approach the stuttering patient with more empathy, but I don't use any special verbal techniques to facilitate communication. However, point out a change in body language:

I sit down and don't exert pressure, I don't dominate, I adopt a partnership attitude.

R3

In parallel to verbal actions, respondents employ advanced nonverbal and relational strategies. The keyword that appears in all groups' responses is “calmness”, understood as actively ensuring the patient's comfort and sense of security. Paramedic R1 emphasises the importance of constant eye contact, which serves a dual purpose:

I maintain eye contact because it is also a form of diagnosis.

R1

This approach builds rapport with the injured party, which is essential in emergency situations, and serves as an additional diagnostic tool for overall condition. Often, the clinician also tries to utilise the injured party's surroundings, family, or witnesses to obtain the most complete picture of the situation. The students and the R2 paramedic supplement this picture with a strategy of giving the patient more time to formulate a statement, avoiding any signs of urgency that could exacerbate stuttering symptoms. The R2 paramedic emphasises that this is only possible if the patient's life is not in danger. All of these actions are aimed not only at efficiently collecting the SAMPLE interview but, above all, at protecting the patient's dignity and credibility during the rescue process, which is a particularly burdensome experience for someone with speech disorders.

The credibility of a patient who stutters in the eyes of emergency personnel is a significant ethical and diagnostic aspect, which, in light of the conducted research, appears to be free from prejudice, though not without interpretative challenges. Most respondents, regardless of professional experience, maintain that speech fluency disorders should not compromise the reliability of the information provided by the patient. The strongest voice on this issue comes from paramedic R1, who categorically states that stuttering does not discriminate against the patient, and that speech impediment does not negatively impact their credibility as a source of information about their own health. For him, it is crucial to distinguish between speech characteristics and sudden clinical symptoms, such as slurred speech, which, unlike stuttering, constitutes a much more serious alarm signal for the paramedic. R3's experience shows that stuttering itself does not constitute a reason for discrimination against the patient. Their credibility remains unchanged. Patients with psychiatric or neurological symptoms are more likely to lose credibility in the eyes of the paramedic.

Interesting nuances emerge, however, in the statements of paramedic R2 and student S1, who indicate that although the patient's intentional credibility remains intact, the stuttering itself can serve as a signal that alters the clinical assessment of the entire event. Paramedic R2 acknowledges the possibility that a lack of speech fluency could influence the interpretation of the patient's condition, suggesting to the paramedic, for example, the occurrence of severe shock or other psychophysical disorders resulting from the trauma experienced. Student S1 presents similar observations, noting that stuttering may prompt staff to suspect a state of shock, which, in turn, alters the context in which the patient's words are perceived, despite the absence of ill will on either side. Therefore, this does not undermine the patient's sincerity, but rather the risk of assigning a diagnostic meaning to a lack of speech fluency that the patient does not have in each case.

The remaining students – S2, S3, and S4 – consistently maintain their belief in the full credibility of people who stutter, viewing their difficulties solely as a communication barrier, not a reliability deficit. They emphasise that stuttering does not affect the substantive value of the interview, provided the respondent demonstrates appropriate patience and avoids situations where haste distorts the reception of information. In the respondents' opinion, a patient who stutters is treated as a full-fledged and reliable partner. The only real threat to this relationship is the hasty, incorrect interpretation of stuttering as a sudden neurological or psychological symptom, which can occur, especially if medical personnel lack appropriate educational training.

The issue of professional preparation for contact with patients with fluency issues appears to be one of the most neglected areas of medical education, according to respondents. Analysis of responses from all study participants – from final-year students to a paramedic with 21 years of experience – reveals a consistent pattern of systemic gaps: none participated in classes dedicated to stuttering during their education. The only element related to communication barriers, mentioned by Paramedic R1, is:

Communication training for patients with speech disorders? Yes, in school, but sign language and stuttering are not.

R1

This demonstrates the lack of consideration for clinical speech therapy in paramedic training standards. R3 made an important point, noting the lack of training in working with people who stutter and suggesting workshops with such people, including their participation. This way, the workshops would gain value stemming from the personal experience of the person who stutters and would be supported by their life experience.

Paramedic students (S1–S4) almost unanimously advocate introducing systemic changes, arguing that training on, or even mentioning, such situations during their studies would significantly raise future staff's awareness. They feel that a lack of knowledge translates into fear of making a diagnostic error or misunderstanding a patient in life-threatening situations. Paramedic R2 goes a step further in his recommendations, suggesting that curricula should include collaboration with psychologists or counsellors specialising in speech fluency differences, so that medics can professionally manage patients' emotions under stress.

The most experienced respondent, R1, offers an extremely interesting and pragmatic perspective. Although he believes that communication training alone is “not necessarily” necessary, as daily practice and experience allow him to cope with such situations without much difficulty, he sees enormous value in other types of education. He advocates organising awareness-raising training courses or conferences that, instead of focusing on the technical aspects of conversation, would focus on psychology and empathy. According to R1, it is crucial for a rescuer to understand how a person who stutters feels in the face of tragedy and how they want to be perceived by medical personnel, suggesting a shift in emphasis from the “mechanics of conversation” to a deep understanding of the patient's needs. In summary, respondents see a pressing need to incorporate this topic into continuing education, promoting an education model that builds awareness and ensures the psychological well-being of those affected.

5. CONCLUSIONS

Developing a list of best practices for Emergency Medical Teams (EMTs) requires balancing clinical pragmatism with empathy, as evidenced by studies among paramedics (R1–R3) and students (S1–S4). The most important practice, almost unanimously identified by all respondents as a factor in improving communication, is maintaining and projecting calm. In an extremely stressful emergency situation for the patient, the paramedic must serve as an emotional anchor. R2 emphasises that the patient is experiencing trauma, and the paramedic's role is not to exacerbate it by rushing unless medically necessary. Time pressure during the conversation itself should be consciously reduced, as a patient feeling rushed may exacerbate their stuttering, paradoxically further prolonging the intervention.

To optimise intervention time, which naturally lengthens with speech fluency disorders, a key practice is to modify how questions are asked. Instead of open-ended questions, which force the patient to construct complex statements, paramedics should use short, closed-ended questions that require only a “yes” or “no” response. Paramedic R1 even suggests establishing firm communication rules at the very beginning of the encounter: “I ask, you answer briefly”, which minimises the patient's verbal effort and allows for faster acquisition of essential clinical data.

It is recommended that paramedics avoid guesswork and instead adhere to the principle of directness. The most effective way to quickly rule out acute neurological conditions, such as stroke or aphasia, is to directly ask the patient (or family) whether stuttering is a permanent feature or a sudden onset. This is critical, as paramedic students rightly fear the risk of misdiagnosis when haste overrides a thorough physical examination and history.

During the conversation, paramedics should consciously utilise nonverbal cues, such as maintaining constant eye contact, which can not only build trust but also serve as an additional diagnostic tool in the patient's care. You should also adjust your own speaking style – slowing down, speaking clearly, and, if necessary, raising your voice a bit to ensure the patient feels heard and understood. When it comes to completing a statement for the patient, which is sometimes used as a last resort, good practice is to do so with extreme caution. Each completed word should be followed by a request for confirmation to avoid leading the patient into incorrect answers under stress.

In extreme situations, when a patient's life is in immediate danger, patient listening may be a luxury that no one has time for. However, in all other cases, it's important to remember that stuttering doesn't diminish a patient's credibility and shouldn't be used to discriminate against them in the decision-making process.

The research suggests implementing training workshops that, instead of traditional theoretical lectures, would be based on working with the “living matter” of the problem. Such training should include active participation by people who stutter, allowing paramedics to directly confront communication barriers in a controlled yet realistic setting. The teaching process in the workshops should begin with a pre-briefing, during which the educational assumptions and goals are discussed in detail, followed by each participant performing a planned rescue scenario that reflects the dynamics and stress of emergency situations. The exercises should culminate in an in-depth debriefing that provides a space for an open exchange of experiences, with the voice of the person who stutters playing a key role. Their subjective impressions of the exercises, their perception of stress, and how they wish to be perceived by medical personnel constitute the most valuable element of the training. This allows paramedics to build genuine empathy and a better understanding of the patient's psychology, which is as crucial in emergency practice as the mechanics of conversation itself.

Furthermore, to effectively implement these best practices, it is essential to establish comprehensive institutional and academic support for paramedics regarding the management of patients who stutter. From an academic perspective, medical universities should formally incorporate elements of clinical speech therapy and neurodiversity awareness into their paramedicine curricula. The dual perspective of participant R3 – an experienced nurse and academic teacher – highlights that universities must provide foundational support through practical workshops involving individuals who stutter. On an institutional level, hospitals, dispatch centres, and emergency medical systems should offer ongoing professional development. Emergency coordinators, represented in this study by R1, play a vital role here. They should facilitate interdisciplinary training with speech-language pathologists and psychologists. Such systemic institutional support would equip paramedics not only with technical communication strategies but also with the emotional resilience needed to reduce their own stress, which, as R2 noted, is often the primary stressor for the patient.

Despite the interesting conclusions the study itself yielded, it had several limitations. Primarily, the research was social in nature, and the method used has its shortcomings. Qualitative interviews involve direct interaction between the researcher and the participant, which always carries a degree of subjectivity and influence on the answers provided. The sample size itself was also a limitation. Seven individuals were reached: two paramedics with extensive experience, one with four years of experience, and four students. Such a small, specifically selected sample means the results are merely pilot in nature and cannot be automatically applied to the entire medical community.

The psychological pressure to appear as good as possible in front of the interviewer was undoubtedly challenging. Active paramedics may have subconsciously avoided admitting moments of helplessness or irritation to avoid undermining their professionalism in the researcher's eyes. Students, on the other hand, may have feared that their answers would be perceived as evidence of knowledge gaps, leading them to provide "bookish" answers rather than share their sincere concerns.

An additional limitation may have been that the study relied on self-reports and recollections rather than direct fieldwork observation. There is a risk that, in the conditions of a real rescue operation – with third parties present and extreme time pressure – applying the discussed strategies would be significantly more difficult than theoretical considerations suggest in the calm setting of an interview. Furthermore, the lack of previous, comprehensive studies on the contact between rescuers and people who stutter meant that the researchers had no point of reference for comparing their results with other national data.

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INNOVATIVE STRATEGIES FOR EDUCATION OF GEN Z AND ALPHA WITH SPECIAL FOCUS ON SUSTAINABLE DEVELOPMENT GOALS

This paper explores the alignment between generational learning preferences and the pedagogical imperatives of Education for Sustainable Development (ESD). Drawing on outcomes developed as part of a project funded under the Erasmus+ program, it analyzes how Game-Based Learning (GBL), Challenge-Based Learning (CBL), Design Thinking (DT), and Case Studies can support the development of SDG-related competences among students from Generations Z and Alpha. Using expert reviews and content analysis of project's outcomes, we examine their relevance, adaptability, and alignment with digital-native learners. The study contributes to current debates on innovative pedagogy in sustainability education and provides practical insights for higher education institutions aiming to integrate ESD into their curricula.

Keywords: education for sustainable development, game-based learning, challenge-based learning, Design Thinking.

1. INTRODUCTION

The challenge of educating young generations in line with the Sustainable Development Goals (SDGs) has become one of the key priorities in contemporary higher education. Universities are expected to shape critically thinking, socially responsible individuals capable of addressing complex sustainability issues (UNESCO, 2017; Rieckmann, 2012).

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Meeting this expectation requires the adoption of innovative pedagogical strategies that not only reflect the goals of sustainable development but also resonate with how today's students learn best.

At the same time, academic educators face a profound generational shift in their classrooms. Students from Generation Z (born approximately 1995-2010) and Generation Alpha (born after 2010) are digital natives, accustomed to fast-paced information processing, gamified experiences, and immediate feedback. Their cognitive habits and learning preferences significantly differ from those of previous generations, posing new challenges and opportunities for effective teaching. In response, educators explore approaches like game-based learning and design thinking as potential tools to activate students more effectively and support the development of sustainability-related competences.

The present article explores this intersection of generational learning preferences and the imperative of sustainability education. Drawing on the outcomes of the international project funded under the Erasmus+ program, we examine a set of didactic tools and strategies – such as Sustainability Challenges, case studies, simulation game and assessment rubrics – designed to foster sustainable entrepreneurship mindsets in students. These resources are based on the Design Thinking framework and emphasize creativity, empathy, critical thinking and practical problem-solving.

This article provides a structured review of learning strategies application, educational tools and teaching resources developed as outcomes of the project. It draws on expert reviews, project documentation, and implementation feedback to assess the relevance and applicability of these tools in the academic context. The focus lies particularly on their alignment with the needs of students from Generations Z and Alpha, and their potential to support effective teaching of the SDGs.

The following sections review relevant literature, outline the methodology, present results, and discuss implications for practical applications.

2. LITERATURE REVIEW

A. Background

Adopted in 2015 by all United Nations Member States, the Sustainable Development Goals (SDGs) constitute a global call to action to address critical environmental, social, and economic challenges. The SDGs address a broad spectrum of issues, including poverty, inequality, education, climate change, peace, justice, and environmental degradation. The initiative's core vision is to ensure a sustainable future for all, emphasizing that progress in one area often affects outcomes in others. Therefore, activities undertaken in any domain should reflect a balance between social, environmental, and economic sustainability.

A high level of SDG awareness within the workforce brings tangible benefits to contemporary organizations. For example, a study in the public sector demonstrated that employees with greater SDG awareness perform better in economic, environmental, and social areas (Dar et al., 2020). A deep understanding of SDG 12 (Responsible Consumption and Production), for instance, can stimulate intrinsic motivation to seek more sustainable production methods, reduce environmental footprints, and improve long-term cost efficiency (Kazantsev et al., 2025). At the organizational level, SDG awareness also contributes to greater enterprise resilience (Ford et al., 2021). Awareness of SDG 8 (Decent Work and Economic Growth) and SDG 13 (Climate Action) enables employees to better adapt to market shifts, regulatory changes, and to identify opportunities for sustainable innovation and growth. Given the rising consumer preference for sustainability-minded companies, businesses that value the SDGs can also benefit from improved brand image and customer loyalty.

In today's complex business ecosystem, a workforce educated in SDGs is increasingly seen as a source of competitive advantage. It drives innovation, improves organizational performance, and supports global sustainability objectives. Embedding SDG awareness into organizational culture helps firms operate successfully in environments where sustainability is becoming a critical success factor.

According to UNESCO's Education for Sustainable Development (ESD) framework, education plays a vital role in achieving the SDGs. Higher Education Institutions (HEIs) should contribute not only to SDG 4 (Quality Education) but also to preparing future graduates to take action across the entire SDG agenda. University graduates should be equipped for both individual sustainability efforts and organizational roles that involve implementing sustainable business strategies. The holistic approach promoted by ESD supports the development of knowledge, values, and competences that enable learners to act responsibly in light of the complex interconnections between economic, social, and environmental systems.

HEIs play a key role in building sustainable societies by promoting development through research and teaching and disseminating sustainability knowledge and competences among their students (UN, 2011). This vision has translated into various institutional practices. In recent years, many universities have established specialized departments focused on sustainability (e.g., sustainable management, sustainable finance, environmental sustainability). In addition, existing programs have incorporated sustainability-related courses or modules. HEIs are also actively involved in research aligned with the SDGs, patent development, open lectures, seminars, and conferences.

It is important to distinguish between Education for Sustainable Development (ESD) and Sustainability Education (SE). While ESD aims to equip learners with the knowledge, skills, and values necessary for sustainability-oriented action, SE has a broader mandate. It involves integrating sustainability across all educational domains, with the objective of transforming behaviors and fostering a harmonious coexistence with the planet and society (Bianchi, 2020).

To implement ESD effectively, universities must redesign curricula around key sustainability competences. This requires comprehensive training programs for academic staff and a deep understanding of relevant pedagogical approaches (Brundiers et al., 2021). Only well-prepared educators can apply innovative and activating teaching strategies that support the development of core competences for sustainability. As highlighted in the literature, many of these competences are psychological and behavioral rather than purely technical or practical (Liu et al., 2020). As such, scholars advocate for methodologies such as action learning, backcasting, collaborative learning, gamification, game-based learning, simulation (Bijlhout et al., 2023), case studies (Bonney, 2015; Georgallis, Bruijn, 2022), project- and problem-based learning (Lozano et al., 2017), challenge-based learning (Portuguez Castro, Gómez Zermeño, 2020), and design thinking (Earle, Leyva-de la Hiz, 2021). Within these methodologies, structured rubrics play a crucial supporting role. They not only guide assessment but also promote feedback, reflection, and self-regulation - particularly in complex learning environments where no single correct answer exists and trade-offs in sustainability must be considered (Lozano et al., 2017).

B. Learner-Centered approaches for ESD

To effectively build sustainability-related competences among students, HEIs must first develop a deep understanding of the learning preferences of the new generations. Generation Z and Alpha, as digital natives, prefer multimodal, interactive, and autonomous learning experiences. Technology, particularly smartphones, tablets, and laptops forms a natural extension of their abilities and is seamlessly integrated into most aspects of daily life, including learning (Prensky, 2001; Dopson, 2023). As a result, these learners often prefer interactive, collaborative, and online environments over static, lecture-based formats. This shift has prompted leading universities worldwide to reconsider traditional teaching formats and adopt more diverse, student-centered pedagogical approaches.

Moreover, researchers have observed that the average attention span of these students is notably shorter than that of previous generations, often estimated at around 8 seconds (Microsoft Canada, 2015). This implies that traditional long-form content may not be as effective, and microlearning formats – short, focused learning segments may better sustain engagement. Visually appealing, bite-sized, and interactive content, often presented in collaborative formats, aligns well with their cognitive preferences.

Autonomy is another key characteristic of Gen Z and Alpha learners. They often value self-directed, exploratory learning experiences, where they can seek out resources independently while still receiving structured guidance and timely feedback (Dopson, 2023). This balance between independence and support is essential for motivation and effective skill development.

These students respond positively to multimodal and collaborative learning environments that accommodate various learning styles. This approach not only accommodates individual preferences but also promotes better retention and application of knowledge (Fleming, 2001; Laal, Ghodsi, 2012). It also complements their preference for collaborative learning, both in physical and digital environments, where teamwork, discussion, and feedback play a central role in the learning process.

Finally, there is growing evidence that these generations are particularly motivated by authentic, purpose-driven learning experiences. They value content that is socially relevant, globally aware, and aligned with their personal values, including sustainability and ethical responsibility (Seemiller, Grace, 2016). Consequently, subject-matter content that reflects real-world issues such as the SDGs can enhance both engagement and long-term learning outcomes.

In line with their need for immediate feedback and transparent expectations, rubrics play a crucial role. These tools not only support fair assessment but also provide regular, structured input that aligns with young learners' desire for control and autonomy in the learning process. Black and Harrison (2001) emphasize that constructive feedback enhances student engagement and motivation. Recent studies confirm that well-designed rubrics foster metacognition and active participation, especially when students work on complex, SDG-related problems (Bonello, Musumeci, 2022).

3. METHODOLOGY

A. Empirical context

The SEED project was designed with generational preferences in mind, adopting and combining four educational strategies: Design Thinking, Game-Based Learning, Challenge-Based Learning, and Case Studies, that align with Gen Z and Alpha's cognitive and motivational profiles. Table 1 presents the alignment between these learning strategies and student preferences.

Table 1. Comparison of Selected Innovative Teaching Strategies

Strategy	Alignment with Gen Z and Alpha Preferences	Key Features	Benefits	Challenges
Design Thinking (Alvarado, 2025; Panke, 2019)	Emphasizes creativity, problem solving, and innovation. Aligns with students' preference for real-world, collaborative, and iterative learning. Focus on user-centered outcomes supports autonomy and social relevance.	Iterative, human-centered process (empathize, define, ideate, prototype, test)	Promotes creativity, empathy, and innovation; holistic solutions	Needs facilitation skills; difficult for large groups
Game-Based Learning (Sun et al., 2023; Plass et al., 2015)	Offers interactive, technology-enhanced environments with immediate feedback. Supports microlearning and internal motivation. Appeals to teamwork and competition in simulated contexts.	Use of game mechanics; rules, feedback, and rewards; simulations	High engagement; safe failure; effective for digital natives	Risk of superficial learning; high design effort
Challenge-Based Learning (Galdames-Calderón et al., 2024; Paraniti, 2025)	Reflects purpose-driven, autonomous learning. Encourages engagement through authentic challenges. Combines project-based and collaborative approaches that foster SDG awareness.	Problem-solving based on real-world challenges; student autonomy; collaboration	High motivation; connection to real contexts; interdisciplinary learning	Requires flexible curricula; time-consuming implementation
Case Studies (Mustaji, 2025; Toogood, 2025)	Encourages critical thinking and application of knowledge to real-life situations. Supports teamwork, reflection, and exposure to diverse perspectives in decision-making contexts.	In-depth analysis of real or simulated scenarios; often discipline-specific	Encourages critical thinking and application of theory; bridges academia and practice	Context-dependent; effectiveness relies on facilitation; may lead to passive learning if not designed as interactive and reflective.

Source: Own elaboration.

Before the key products of the project will be introduced, it is important to clarify the differences between learning strategy, learning tool and educational resource.

Learning strategy frame the way a learner is engaged in behaviors and thoughts and is intended to influence the learner's encoding process. Thus, the goal of any particular learning strategy is to affect the way in which the learner selects, acquires, organizes, or integrates new knowledge and develops skills that comply with the learning outcomes

(Grosser, 2020). A *learning tool* is any digital device, or application designed to enhance the teaching and learning process (Kozma, 2003). Finally an *educational resource* is any content that conveys the essential knowledge and skills of a subject through any medium or combination of media (Olayinka, 2016).

The project's products adapt learning strategies (e.g. GBL, DT) and include learning tool (simulation game), as well as educational resources (e.g. Case studies, Challenges content, Rubrics). The most important are the following:

- *Teaching Guide*, which outlines the methodological foundations of the teaching process based on the Design Thinking approach and presents a framework for organizing learning activities related to sustainability,
- *Sustainability Challenges*, which are open-ended, real-world scenarios developed to engage students in identifying and solving sustainability-related problems,
- *Simulation Game*, which enables students to experience sustainability-oriented decision-making in a business context, combining elements of gamification, entrepreneurship, and systems thinking,
- *Case Studies*, showcasing successful sustainable entrepreneurship practices and intended to support discussion, reflection, and application of sustainability concepts,
- *Assessment Rubrics*, designed to evaluate student performance in terms of sustainability competences and learning outcomes.

These products have been extensively tested and refined across multiple European educational contexts during the implementation.

B. Research design and data collection

The research follows a qualitative, expert-based evaluation approach, combining document analysis with the assessment of learning tools and resources prepared and tested during the project. The research employed a structured expert review methodology to qualitatively analyse the project's products in terms of pedagogical effectiveness, generational alignment, and sustainability competence development. This methodological approach is commonly used in evaluating innovative educational interventions and is particularly suitable in early-stage or exploratory studies (Patton, 2002; Flick, 2009).

The expert-based approach focused on identifying how the products developed correspond with the learning preferences of Gen Z and Alpha, and whether they support the acquisition of sustainability competences. The study also explored how the selected materials reflect the principles of Education for Sustainable Development (ESD).

Expert reviews of the products were conducted using standardized templates. The review process was implemented in two stages. First, structured feedback was collected during international design workshops involving 15 experienced higher education teachers specializing in sustainability education. These interactive sessions provided practical insights into pedagogical effectiveness and alignment with students' learning preferences. Based on the results of this initial review, improvements were made to the materials.

Subsequently, a second round of independent expert evaluations was conducted at the final stage of the project to assess the refined products. This two-step review process ensured the pedagogical consistency, SDG relevance, and generational fit of the SEED project outputs.

Experts participating in both review stages were purposefully selected according to a set of predefined criteria to ensure the credibility and relevance of their assessments. Selection criteria included:

- a minimum of five years of teaching experience in higher education, with direct involvement in sustainability-related or entrepreneurship-related courses,
- demonstrated engagement in education for Sustainable Development through research, curriculum design, or professional training,
- institutional diversity, with experts drawn from partner universities across different European countries to capture varied pedagogical traditions and contextual perspectives.

Where possible, experts also represented a mix of disciplinary backgrounds (e.g., business, education, and social sciences), allowing the review process to account for both pedagogical and sustainability-content expertise.

This selection was intended to balance depth of subject-matter knowledge with breadth of institutional and disciplinary perspectives, thereby strengthening the validity and transferability of the expert judgments collected. The explicit selection criteria helped ensure that participants possessed sufficient expertise to meaningfully evaluate the pedagogical effectiveness, generational alignment, and sustainability relevance of the reviewed materials.

The analysis was guided by UNESCO's ESD competence model (UNESCO, 2017), emphasizing systems thinking, critical thinking, collaboration, and self-awareness; literature on sustainability competences in higher education (Rieckmann, 2012; Lozano et al., 2017); and research on learning preferences of Gen Z and Alpha (Seemiller, Grace, 2016; Dopson, 2023).

The reviewed materials were evaluated along four key dimensions:

1. Alignment with generational learning styles (autonomy, interactivity, multimodal content, purpose-driven tasks).
2. Consistency with ESD principles.
3. Support for SDG awareness and action competence.
4. Practical applicability in higher education curricula.

Thematic analysis was conducted by coding expert feedback and project materials, identifying emerging patterns, strengths, and areas for improvement.

4. RESULTS

The following section presents the results of the expert evaluation of the project's products. Drawing on structured feedback and review data collected, the analysis focuses on four core learning strategies adopted and implemented in the project: Challenge-Based Learning, Game-Based Learning, Design Thinking, and Case Studies. In addition, the Assessment Rubrics are discussed as a key supporting resource. For each strategy, we summarize perceived strengths, limitations, and areas for potential improvement.

4.1. Challenge-Based Learning

Challenge-Based Learning (CBL) engages students in solving authentic, complex problems collaboratively. It supports self-directed learning and is particularly effective in developing competences relevant to sustainability and the SDGs (Portuguez Castro, Gómez Zermeño, 2020). The Sustainability Challenges are central to the project's application of the Challenge-Based Learning approach. The Sustainability Challenges were formulated as open-ended prompts grounded in contemporary environmental and social dilemmas. Examples included:

- How to reduce food waste in university cafeterias?

- What actions should a local entrepreneur take to move towards a circular economy?
- How can students raise awareness about fast fashion in their community?

Reviewers emphasized that the challenges are open, complex, and real-world oriented offering authenticity and meaningfulness essential for learner motivation. For instance, one challenge requires students to address textile overproduction and waste, combining environmental and social goals.

According to expert feedback, the challenges "present relevant, realistic problems" and enable students to "see tangible impacts of decisions made". Reviewers confirmed alignment with learner preferences such as autonomy, collaboration, and purpose-driven learning. The challenges also encourage self-directed exploration, with students working in groups to define a problem and co-create solutions in relation to selected SDGs.

However, some reviewers suggested that students might require initial orientation or scaffolding to fully benefit from the open structure, especially when they are not yet used to working with uncertainty or designing solutions from scratch.


Sustainability Challenge: Novice

Green Office Practices

Offices play a significant role in environmental impact due to energy consumption, waste generation, and commuting. This challenge aims to design and implement sustainable practices within office environments, reducing energy consumption, promoting recycling, and minimizing waste. It seeks to engage employees and make sustainable practices a seamless part of office life.

Objective

Design and implement sustainable practices within the office environment for a successful startup company to reduce energy consumption, promote recycling, and minimize waste generation.

Constraints

1. The solution should be easy to adopt without significant costs.
2. It should encourage employee engagement and participation.
3. It must comply with workplace safety regulations.
4. It should address all three bottom lines: people, planet, and profit.

Design Thinking Stages

1. Empathizing: Research and understand employees' preferences and pain points related to sustainable office practices.
2. Re-defining to understand: Clearly identify the key areas where sustainability improvements can be made.
3. Ideating: Explore how you might adapt simple and cost-effective ideas for improving office sustainability.
4. Prototyping: Develop simple representations of your sustainable office practices.
5. Evaluating: Pilot the selected practices and gather feedback/feedforward from stakeholders. Adjust the practices as needed.
6. Implementing: Plan how you could monitor the impact of your sustainable office practices.

Figure 1. Interface of a Sustainability Challenge

Source: SEED Project.

4.2. Game-Based Learning

The SEED simulation game was recognized by reviewers as a valuable tool for applying Game-Based Learning to sustainability contexts. It allows students to simulate decision-making within an entrepreneurial team launching a sustainable business. The game includes time pressure, team dynamics, financial and environmental trade-offs, and direct links to multiple SDGs (especially SDG 12 and SDG 13). A detailed description of the game mechanics and the sustainability competencies it aims to develop is provided in Jakieła, Świętoniowska, and Wójcik (2024). Furthermore, the effectiveness of the game in fostering student engagement and learning outcomes was investigated in a dedicated study involving 45 university students. The results of this analysis, including quantitative and qualitative insights into motivation and perceived learning gains, are discussed in a forthcoming article: *The impact of game-based learning on sustainability education for the next generations: a case study analysis* (Wójcik, Świętoniowska, Jakieła, in review).

Experts appreciated its immersive format and relevance for Generations Z and Alpha. As stated in one review: "The game provides fast feedback, introduces competition and collaboration, and stimulates decision-making in a safe space". The structure encourages multiple attempts and learning from failure, elements associated with long-term learning retention.

A key strength highlighted in the feedback is the game's ability to simulate complex systems and interdependencies, reinforcing SDG thinking. Limitations include the necessity of facilitation and proper debriefing after gameplay. Reviewers also noted the need for clearly defined learning objectives to ensure consistent outcomes across different learning contexts.

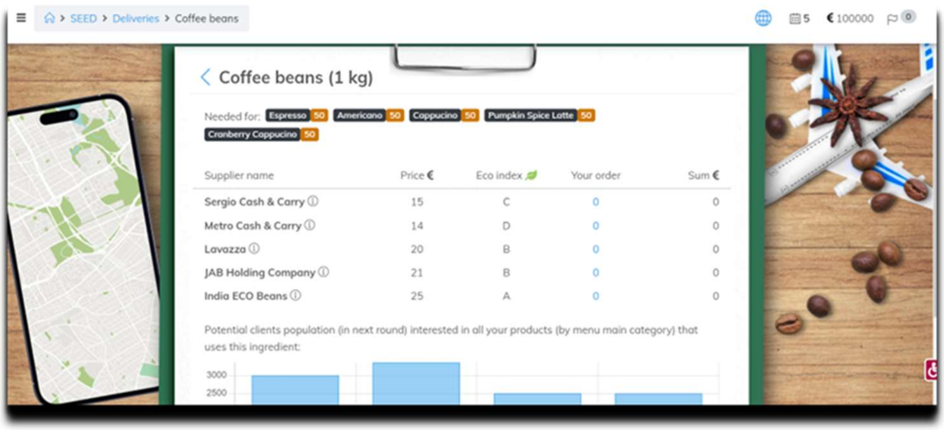


Figure 2. Main dashboard of the SEED Game

Source: SEED Project.

4.3. Design Thinking

The Design Thinking framework facilitates the development of SDG competences by requiring students to explore problems from multiple stakeholder perspectives (Maher et al., 2018; Clark et al., 2020). The approach adopted was based on the Pedagogy for Nurturing Sustainability Changemakers model developed by Macagno et al. (2024), which frames DT as a process of cognitive and behavioral transformation.

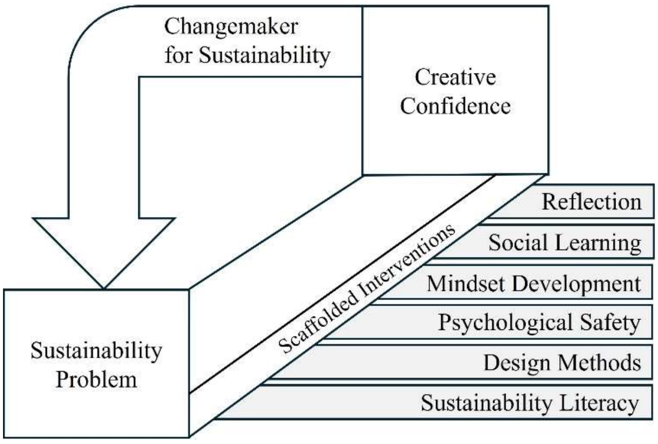


Figure 3. DT framework and its application to solving SD problems
Source: (Macagno et al., 2024).

The Teaching Guide serves as a central methodological resource and embodies the Design Thinking approach, structured in six phases: Empathizing, (Re)defining for understanding, Idea generation, Prototyping, Evaluation, and Implementation. Reviewers confirmed that the Guide is "highly structured, easy to follow, and adaptable to different teaching environments". It includes templates, examples, and facilitation suggestions that support educators in applying the method effectively. Figure 3 serves as a roadmap for planning DT-based learning units aligned with ESD objectives.

The Guide is particularly well aligned with Generation Z and Alpha students' preferences, offering iterative, hands-on learning with a strong focus on user-centered problem solving. Guide fosters critical competences for sustainability, including empathy, foresight, and creativity.

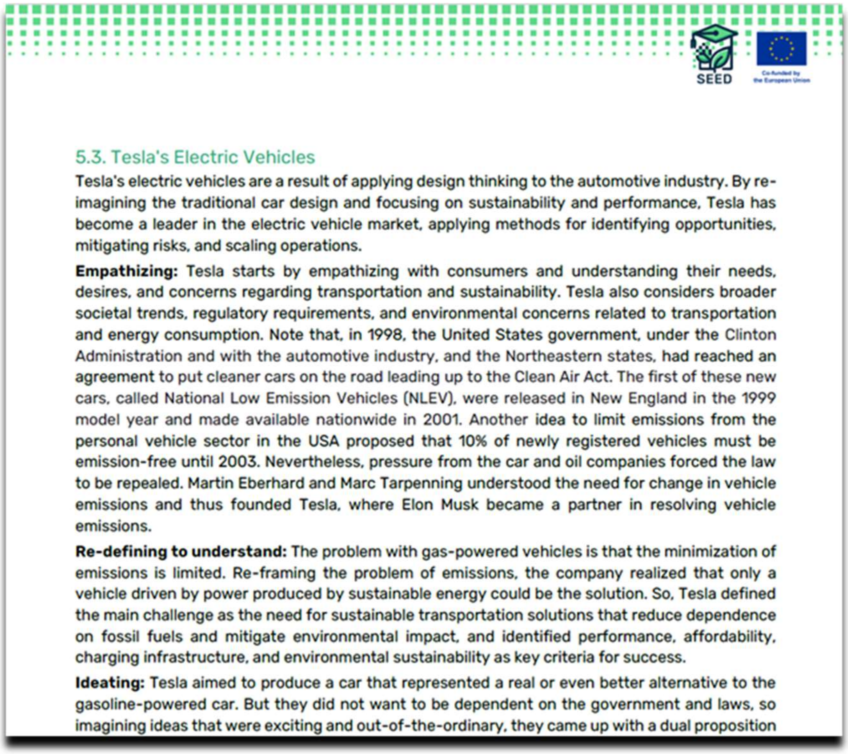
As stated by one reviewer: "The method supports the development of entrepreneurial skills and decision-making under complexity, essential for building sustainability mindsets."

4.4. Case Studies

While challenge-based learning engages students in co-creating solutions to open-ended problems, case studies serve a different pedagogical function by providing completed real-world examples that students can analyse, discuss, and reflect upon. Case studies were used to showcase successful examples of sustainable entrepreneurship and organizational innovation. Their primary aim was to support students in recognizing patterns, understanding systemic relationships, and connecting theoretical concepts to practical applications. The studies cover diverse themes, such as responsible packaging, local circular economy models, and inclusive employment.

Experts found the Case Studies to be pedagogically effective, particularly for encouraging reflective learning, teamwork, and systems thinking. One reviewer emphasized that "students are encouraged to analyse not only outcomes but the decision-making process, including trade-offs and value conflicts".

The structure of the cases promotes role division and reflection, which supports the development of social and behavioral competences – a key component of ESD. However, several reviewers recommended expanding the diversity of industries and including structured reflection prompts to guide post-analysis discussions.



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5.3. Tesla's Electric Vehicles

Tesla's electric vehicles are a result of applying design thinking to the automotive industry. By re-imagining the traditional car design and focusing on sustainability and performance, Tesla has become a leader in the electric vehicle market, applying methods for identifying opportunities, mitigating risks, and scaling operations.

Empathizing: Tesla starts by empathizing with consumers and understanding their needs, desires, and concerns regarding transportation and sustainability. Tesla also considers broader societal trends, regulatory requirements, and environmental concerns related to transportation and energy consumption. Note that, in 1998, the United States government, under the Clinton Administration and with the automotive industry, and the Northeastern states, had reached an agreement to put cleaner cars on the road leading up to the Clean Air Act. The first of these new cars, called National Low Emission Vehicles (NLEV), were released in New England in the 1999 model year and made available nationwide in 2001. Another idea to limit emissions from the personal vehicle sector in the USA proposed that 10% of newly registered vehicles must be emission-free until 2003. Nevertheless, pressure from the car and oil companies forced the law to be repealed. Martin Eberhard and Marc Tarpenning understood the need for change in vehicle emissions and thus founded Tesla, where Elon Musk became a partner in resolving vehicle emissions.

Re-defining to understand: The problem with gas-powered vehicles is that the minimization of emissions is limited. Re-framing the problem of emissions, the company realized that only a vehicle driven by power produced by sustainable energy could be the solution. So, Tesla defined the main challenge as the need for sustainable transportation solutions that reduce dependence on fossil fuels and mitigate environmental impact, and identified performance, affordability, charging infrastructure, and environmental sustainability as key criteria for success.

Ideating: Tesla aimed to produce a car that represented a real or even better alternative to the gasoline-powered car. But they did not want to be dependent on the government and laws, so imagining ideas that were exciting and out-of-the-ordinary, they came up with a dual proposition

Figure 4. Six design thinking steps in the SEED Case Studies

Source: SEED Project.

4.5. Assessment Rubrics

To support formative and summative assessment within the learning experience, a dedicated grading rubric was developed. Students were evaluated based on their group's proposed solution to the sustainability challenge using the dimensions shown in Table 2. These dimensions cover both the process (e.g., risk-taking, reflection, boundary crossing) and the outcome (e.g., feasibility, market potential, and 3BL impact). The rubric also rewards novelty and the ability to apply learning in realistic and innovative ways.

According to the reviewers, the rubrics are "clear, well-structured, and useful for both formative and summative assessment". They help educators ensure consistency in evaluation while giving students transparent expectations. Some reviewers proposed adding examples of rubric use in various classroom settings and more differentiation in difficulty levels depending on course progression (introductory vs. advanced).

Table 2. SEED Grading Rubric

Criteria	0 points	1 point	2 points	3 points
Risk-taking: Identification and Reflection	Significant issues are missing; no reflection on the learning experience.	Limited identification of key issues and reflection.	Minor gaps in the key issues, Potential for more exploration of further meaningful reflection	Key entrepreneurship issues precisely articulated. Deep understanding of personal and group learning.
Boundary crossing: Coordination and Transformation	Flawed or no collaboration plans; insights are not actionable strategies.	Some coordination but plans suffer from execution challenges; strategies lack innovation or adaptability.	Potential for effective coordination across boundaries to transform ideas into actionable strategies for sustainable entrepreneurship.	Diverse boundaries, coordinated and transformed; coordinated collaboration plans; learning applied to real-world scenarios with innovative thinking and adaptability.
Feasibility	Solutions lack practicality and feasibility; implementation challenges not addressed at all.	Limited consideration of feasibility; significant implementation challenges unaddressed.	Some aspects of feasibility considered, but significant implementation challenges remain unaddressed.	Well-thought-out and feasible solutions proposed, considering potential obstacles and practical implementation.
Market potential	Limited understanding of the target market and its potential.	Some understanding of the target market, but minimal exploration of market potential.	Some understanding of the target market, but market potential not fully explored or articulated.	Strong analysis of the target market (including size and characteristics) and market potential for the proposed solution.
Triple Bottom Line	People, planet and profit not considered.	Limited attention to one or two of the three bottom lines.	All three bottom lines addressed, but with incomplete or superficial analysis.	All three bottom lines addressed with thorough and well-researched analysis.

Table 2 (cont.). SEED Grading Rubric

Criteria	0 points	1 point	2 points	3 points
Addressing and solving the challenge	Insufficient consideration of challenge-specific metrics; lack of relevance to the presented challenge.	Minimal attention to challenge-specific metrics; limited relevance or depth.	Some attention to challenge-specific metrics, but limited relevance or depth.	Comprehensive and insightful analysis of challenge-specific metrics directly related to the presented solution to the sustainability challenge.
Novelty	Lack of originality: ideas presented are common or unremarkable.	Limited originality: ideas lack creativity or uniqueness.	Moderate level of originality: some creative ideas presented.	Highly original: demonstrates a fresh perspective.

Source: project internal documentation.

5. DISCUSSION

While the teaching approaches explored in this study are not entirely new, their application in the context of ESD and generational learning remains limited. The results of this study confirm that strategies such as GBL, CBL, DT, and Case Studies effectively support SDG competences among Gen Z and Alpha students.

A key theoretical insight emerging from this analysis is the affirmation that learning strategies in ESD must be rooted in student agency, interactivity, and relevance. The reviewed products demonstrate that when these preferences are addressed, whether through gamification, problem-solving challenges, or real-world case analysis, student engagement and competence development are more likely to occur. Table 3 provides a summary of the strengths and areas for improvement of each analysed strategy, reflecting expert feedback and observed alignment with ESD and generational preferences.

Rubrics enable structured reflection and metacognitive engagement, critical for navigating complex sustainability issues where multiple solutions and trade-offs exist. Their role as formative tools aligns with Black and Harrison's (2001) foundational work on feedback for learning, which posits that structured, process-oriented feedback enhances both motivation and outcomes. Rubrics in the project operationalize sustainability competences, offering measurable, transparent pathways for development. This is especially relevant in ESD, where outcomes are often intangible or holistic (Lozano et al., 2017), and where rubrics have proven valuable in promoting reflective and self-regulated learning, particularly when applied to ill-structured problems (Bonello, Musumeci, 2022).

Table 3. Summary of Strengths and Areas for Improvement of SEED projectproducts

Strategy	Strengths	Areas for Improvement
Challenge-Based Learning	Authentic tasks, team-based problem solving, SDG integration, autonomy-friendly	Requires scaffolding and facilitation in early phases
Game-Based Learning	High engagement, feedback loops, experiential learning, SDG systems thinking	Needs debriefing, facilitator guidance, clear LO statements
Design Thinking	Structured, promotes empathy and creativity, supports user-focused design	Instructor support needed for novice DT users
Case Study	Connects theory and practice, encourages critical thinking, promotes discussion	Needs broader context diversity and guided reflection
Rubrics	Clear structure, aligned with learning outcomes, supports formative assessment	Could benefit from contextual application examples

Source: Own elaboration based on education resources and expert reviews.

Moreover, the study aligns with Brundiers et al. (2021) calls for "transformative learning environments" spaces where students can engage with uncertainty, co-create knowledge, and act in authentic sustainability contexts. Project's products such as the Teaching Guide and the Simulation Game foster such environments by embedding learners in decision-making processes that mirror real-life complexity. The emphasis on empathy and iteration within Design Thinking also supports the development of emotional and interpersonal competencies identified as critical in the UNESCO ESD framework. A synthesis of the study's key takeaways is presented in Table 4, which outlines practical pedagogical implications for aligning ESD strategies with the learning preferences of Generations Z and Alpha.

Table 4. Practical Pedagogical Implications for ESD and Generational Learning

Aspect	Implication for Practice	Rationale
Learner Preferences (Gen Z & Alpha)	Design learning experiences that are interactive, purpose-driven, and personalized	These generations seek autonomy, relevance, and immediate feedback (Seemiller & Grace, 2016; Dopson, 2023)
Competence Development	Focus on behavioral and system competences, not just knowledge	ESD requires development of values, attitudes, and action-oriented skills (Rieckmann, 2012; Liu et al., 2020)
Use of Rubrics	Integrate rubrics as a standard part of assessment and feedback	Supports transparency, motivation, and metacognition in complex SDG tasks (Black, Harrison, 2001; Bonello, Musumeci, 2022)

Table 4 (cont.). Practical Pedagogical Implications for ESD and Generational Learning

Aspect	Implication for Practice	Rationale
Teacher Role	Educators should act as facilitators, not content transmitters	Strategies like Design Thinking and CBL rely on guided discovery and support (Brundiers et al., 2021)
Tool Selection	Use modular, flexible resources like games, challenges, guides, and cases	Materials need to be scalable and adaptable to institutional capacities
Feedback Mechanisms	Provide frequent, process-oriented feedback aligned with rubric indicators	Supports learner engagement and self-regulation in open-ended learning environments
Institutional Support	Invest in educator training and digital infrastructure	Effective use of innovative strategies depends on institutional readiness and capacity (Lozano et al., 2017)
Assessment Focus	Shift from summative to formative assessment with authentic tasks	Real-world sustainability issues require assessment of reasoning, collaboration, and creativity

Source: Own elaboration based on project analysis.

While the potential of innovative methods in ESD is widely recognized, the literature also warns against the "over-romanticization" of pedagogical innovation. As Liu et al. (2020) argue, the success of innovative strategies depends heavily on educator preparedness and institutional support. To overcome such barriers, universities must prioritize targeted educator training, robust digital infrastructure, and flexible curriculum frameworks. While the project studied offers clear methodological scaffolding, its scalability may be limited in settings with restricted resources or low digital readiness. This tension between innovation and feasibility remains a central challenge for ESD implementation.

Finally, this study affirms the strategic role of HEIs in mainstreaming sustainability literacy. Aligning educational practices with generational preferences and sustainability competences is both feasible and necessary. However, sustained success demands systemic support, institutional commitment, and a readiness to innovate pedagogically.

6. CONCLUSIONS

Drawing on expert evaluations and content analysis of educational products developed in the funded project, this paper has explored the potential of four teaching strategies: Design Thinking, Game-Based Learning, Challenge-Based Learning, and Case Study, to foster SDG-related competences among Generation Z and Alpha learners

Three key insights emerged from this study:

1. Learner-centred and purpose-driven strategies resonate with Gen Z and Alpha students, significantly enhancing their engagement and motivation.
2. Structured assessment tools (e.g., rubrics) effectively operationalize abstract sustainability competences, promoting reflective and self-regulated learning.

3. Successful implementation of innovative ESD pedagogies requires systematic educator training and consistent institutional support."

While the study's qualitative scope limits generalizability, it offers a useful reference for educators and curriculum designers seeking to integrate SDGs into higher education through active, research – informed pedagogy. Future research should include quantitative studies examining measurable impacts of these strategies on student learning outcomes and comparative analyses across diverse institutional and cultural contexts.

In conclusion, the alignment of generational learning preferences with the transformative vision of ESD is not only possible but necessary. Projects such as the one studied here demonstrate that with thoughtful design and pedagogical rigor, sustainability education can move from aspiration to meaningful impact.

All authors have read and agreed to the published version of the manuscript.

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THE PHENOMENON OF THE RWANDAN STATE: TRAUMA FROM CRIMES AS MOTIVATION FOR CHANGE AND DEVELOPMENT

The article offers reflections on Rwanda, its past, and its dynamic development over the years. The experiences of the escalating crisis, fratricidal struggles, whose tragic end was the genocide in 1994, still constitute trauma for subsequent generations, despite efforts to build a new society, but also serve as a factor motivating impressive changes. The genocide in Rwanda is also one of the greatest failures in the history of the United Nations Organization (UN), a crime fueled by external influences and interference in Rwanda's political situation, events that the rest of the world passively observed. The inspiration for the author to write the article was a conversation with Professor Anastase Shyaka, the Ambassador of the Republic of Rwanda in Poland, during which a diagnostic survey method using individual expert interviews was employed. The author conducts research on global conflicts and their consequences, including migration, as part of his scientific interests. This method made it possible to conduct an interview and write a scientific essay that included a critical analysis and the author's subjective reflections. The article aims to present the changes that have taken place in the Republic of Rwanda. These changes are also evident in distant Poland, where they have attracted interest and recognition.

Keywords: conflicts, international security, migration, internal security, peace and development.

1. INTRODUCTION

In November 2025, in Angola, 7 have already been held the European Union Summit – African Union whose idea was to deepen cooperation between Europe and Africa. The African Union (AU) based in Addis Ababa is an international organisation, which brings together 55 African countries in areas related to politics, military and economy. It was established on July 9, 2002, at the Durban Summit in place of the Organisation of African Unity (Africa Union, 2025). It considers the aims of its activities to promote the unity of African countries, to improve the lives of its inhabitants, to assist sovereignty and independence and elimination of all forms of colonialism in Africa, which is to be used by

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extensive international cooperation, which is devoted to the observance of the provisions of the United Nations Charter and the Universal Declaration of Human Rights.

A full-fledged member of the African Union is Rwanda, which after the genocide in 1994 became the leading state of this structure and a symbol of successful transformation, specific stabilisation and intensive development. Both the Rwandans and the international opinion often emphasise that many objective factors are affected by this and the hard work and vision of those who opened this country to the world and also exercise power, among others, President Paul Kagame. The expression of such actions is an active involvement in the implementation of the so-called. “Consensus of Kigali”, a climate treaty, a term for amendment introduced to the Montreal Protocol of 2016 defining the issue of ozone, which aimed to develop a reduction in hydrofluorocarbons (HFC) emissions to avoid the effect of significant global warming, which is to be used to invest in the development of green refrigeration technologies. Kigali is the capital of the Republic of Rwanda, it is considered one of the most modern cities in the world, a symbol of Rwanda’s intensive development. This can be seen in Europe and in Poland as well while in a situation where Rwanda hosts various types of meetings, peaks, sports competitions, which is also a method for acquiring new business and political relations and attracting investors.

2. UNITY AND RECONCILIATION

However, Rwanda was not always seen in this way. Europeans and international public opinion associate Rwanda is first associated with the events of 1994, the final of which was genocide, especially on Tutsi. The conflict that led to this was not accidental. Rather, it was an element of general reality, closely related to the strength-related implementation of the structure of the European model of state into a sensitive local social fabric, where ethnic element was often used to polarise society. Such a fate also met Rwanda, originally part of German East Africa, after the Treaty of Versailles the Belgian colony, after the merger of Rwanda and Burundi with the Belgian Congo, became the subject of competition between the power-state politics and the struggle for dominion between France supporting the Hutu tribes for most of the time and others Other Western European countries, including Great Britain, which supported the Rwandan Patriotic Front (RPF), dominated by the Tutsi, who ultimately overthrew the Hutu government and ended the genocide in Rwanda in 1994. As always in such situations, the local society paid the price for the conflict, because after Rwanda gained independence, previously fueled ethnic conflicts flared up with new intensity, resulting in massacres and fratricidal fights, where almost entire ethnic communities became victims, (Wolańska, 2011), murdered by a very well-organised narrow group of those whose only goal was extermination. As a result of these events, nearly a million people lost their lives. The genocide of 1994 the Tutsi is the culmination of tensions that had been building up over the years, which many perceive as a protracted civil war with varying intensity, where both Tutsi and Hutu were victims.

“Key dimensions of Rwanda's success story are peace, progress, and equality” – this is the opinion of Prof. Anastase Shyaka, Ambassador of the Republic of Rwanda in Poland. In his opinion,

> it is the only solution that allows for healing after that trauma, rebuilding trust, and preventing future ethnic violence. It is also the foundation of sustainable development and transformation. To achieve this, it is

> necessary to consciously create and function national unity, speaking the same language as a single nation, which speaks the same language.

In fact, for decades, the international community has accused the Rwandan authorities of using methods far removed from those understood in the Western world. Especially two elements of this policy raised concerns, namely the first – the so-called *Ingando* solidarity camps, established to promote peaceful coexistence and build a sense of national unity, where the official version of history was also taught and the worldview of the new society was shaped, and the second element – the elimination tribal labels (Hutu, Tutsi, Twa) from ID cards. Another issue involved the suspension of media outlets, which are considered illegal in Rwanda and considered independent in the West media in 2010, which was met with protests, among others, by the New York Committee to Protect Journalists (Thomson et al., 2011), a decision that was justified by President P. Kagame as essential to maintaining the ethnic unity of society (Głowacka, 2015). There were also accusations concerning the creation of a police and one-party state, although these topics took a back seat, especially in the United States, which at the same time approved of such a way of exercising power because, in practice, it meant stability in the region.

Assessment of President P. Kagame's actions from the perspective of Europe and the United States and the values they officially represent. The support for democracy, pluralism, and freedom of speech is understandable. Still, it perhaps does not necessarily reflect the Rwanda's perspective and of the African continent, "where the social and political conditions are different, the problems are different and their solutions do not have to be the same as in the West" – this is the opinion of Prof. Anastase Shyaka. It is important to consider the role that the media, specifically Radio Hundred Hills, played in the genocide and the dissemination of extremist slogans. This radio nearly perfectly targeted its propaganda at a select and predominantly illiterate group of Hutu tribesmen, mostly men, who later became executors of the executions, which calls to mind the Nazi methods characteristic of Goebbels.

Generally, it should be noted that colonial policies had a significant impact on social divisions in Rwanda and their exacerbation. They exploited the original tribal organisation and longstanding class and social divisions, in which the minority cow-keeping Tutsi, who did not have to work, constituted the upper social class and also visually distinguished themselves from the lower class. But then they maintained the same clan identity, which meant that they were of the same family even if they were from different social classes.

This eventually led to the introduction of racial themes, emphasising differences and superiority of those who owned cattle Hutu who made up nearly 90% of the population and formed the backbone of the army. Even in the 19th century, Germans were not very interested in this territory, considering it to lack the potential for quick enrichment. However, they implemented their rules there, which in practice led to isolation from the outside world (e.g., the inability to accept settlers from Europe and to conduct international trade), with only one exception: they authorised Catholic missionaries to carry out their missionary work, simultaneously granting them education, which significantly shaped the local population. this In the opinion of Prof. Anastase Shyaka – "Belgium continued this and even made it more stringent". Many researchers believe that this was also another cause of increasing tensions and the spreading of negative xenophobic attitudes, among other reasons, leading to such conclusions in their publications Gerard Caplon oraz Walter Rodney (Głowacka, 2015). This is also a charge often directed at the institutions of the Catholic Church and its predominantly passive stance in situations of genocide or lack of response to violence, especially towards people seeking refuge in parish areas. After Belgium gained control over Rwandan territory, the situation worsened, and its symbolic dimension was the introduction of ethnic identity cards in the 1930s, which only emphasised divisions and later facilitated the execution of genocide decades later. At this moment, it is also impossible not to relate this situation to Nazi methods, which were particularly applied to the Jewish population and also facilitated extermination at that time. Actions reminiscent of a local version of apartheid policy triumphed amid the silent stance of the rest of the world. Now, it is also unpopular to remember that in the 1930s, Belgian colonisers conducted anthropological research on a local community that vividly resembled those carried out by Germans on Jews (Rosiak, 2009).

Prof. Anastase Shyaka, Ambassador of the Republic of Rwanda in Poland, emphasised in a conversation that

> reconciliation is a long and not easy process that is still ongoing. It is also a great achievement of the vision and leadership of President Paul Kagame, the resilience of Rwandan citizens, as well as the success of mechanisms like Home Grown Solutions (HGS), such as *Gacaca*.

These mechanisms mostly involved implementing locally devised solutions that, as "tailor-made", aimed to gain better social acceptance while establishing order and accounting for crimes. After the genocide in 1994, Rwanda lacked the proper administrative infrastructure to prosecute the criminals; the country was in ruins, and the small group of judiciary officials who survived those events would not have been able to handle the process. Prof. Anastase Shyaka mentioned in the interview that this process would take 100 years because it would require the incarceration of 130,000 prisoners accused of participating in the 1994 genocide massacres. Therefore, Rwanda sought support from the UN Security Council, which led to the creation of the International Criminal Tribunal for Rwanda. However, a more significant solution was the local courts based on customary tribal elders, called *Gacaca*, which were used in precolonial times and eventually incorporated into Rwanda's official legal system. In fact, *Gacaca* has led to up to a million cases being prosecuted. The activities of these people's courts also aroused emotions, especially among Rwandans from mixed families, which were not scarce for decades. Some even believed that these courts mainly focused on blaming the Hutu for all the responsibility for the genocide, failing to recognise the criminal acts of the Tutsi in earlier years (Rosiak, 2009).

Reconciliation seems to be the most important challenge and task for the rulers in Rwanda. For most people, it is clear that it should be based on truth and be a necessity for the individual, because only then can it be effective. Beyond reconciliation, the success and development of Rwanda are still influenced by a specific and consistent management philosophy. Prof. Anastase Shyaka considers that

> this philosophy focuses on the human resource, joint search for solutions to our problems (home grown solutions) accountability, and institutional efficiency supported by work ethics and the hard work of society. These actions are supported by responsible institutions such as the Office of the Ombudsman and the Rwanda Governance Board (RGB). An important element of the system is the fact that women are entrusted with a significant responsibility in managing the state and other areas. Rwanda

> is, in fact, a world leader in the representation of women in leadership positions, where 63.8% of women sit in parliament, 45% in the cabinet, and 52.4% of women are judges and officials.

Such a situation is not only a result of cultural conditions, respect for women and their role in families, but primarily a consequence of the depletion of the male population and the role of women in the first years of reconstruction after 1994. After the genocide, it was mainly women who had to bear the burden of rebuilding the country, which involved not only holding managerial positions but also undertaking work typically done by men.

3. RWANDA ON REGIONAL AND GLOPBAL ISSUES

Concerning regional matters, Rwanda mainly focuses on development management and the fight against corruption, safety and climate. During the national elections, great importance is attached to maintaining unity, responsibility for the future, and thinking on a large scale. It should be noted that in 2021, Rwanda ranked 3rd on the list of the least corrupt countries in Africa according to Transparency International, and for example safe walking alone at night for women notes.

Prof. Anastase Shyaka. Rwanda plays an important role in East Africa, primarily within the framework of the Regional Great Lakes Forum (ICGLR) and as a member of the African Reciprocal Trade Union and the African Continental Free Trade Area (AfCFTA), the East African Community (EAC), and the African Union (AU). It is a beneficiary of the African Growth and Opportunity Act (AGOA), the EAC-EU Trade Agreement (including with Poland), and the COMESA-EAC-SADC Tripartite Free Trade Area (Rwanda). Information on economic relations with Poland (Ministry of Development and Technology, 2022). It also receives financial support, among others, from the World Bank, and all this translates into its economic potential. From the point of view of Europe, Poland is also seen as the proverbial gateway to the markets of Central and Eastern Africa. For years, it has maintained a steady and high level of economic growth at the level of kilos of per cent and has been conducting activities to increase the importance of private entrepreneurship, construction of economic zones, expansion of the logistics system and promotion of export. We import coffee and tea to Poland most often, while we export machines and equipment necessary for the expansion of the industrial sector and dairy products. As part of economic policy, Rwanda uses the Asian model, demonstrating a strong commitment to economy, education and technology.

An extremely difficult topic about Rwanda is the issue of regional security, covering the crisis in the Democratic Republic of Congo (DRC).

> Colonial heritage: arbitrary establishment of borders has caused many Rwandans to cross the border. After crossing the genocide border after the genocide of Tutsi in 1994. Many genocidal forces have fled to the Democratic Republic of Congo, which led to the creation of today’s Democratic Republic of Congo Liberation Forces (FDLR). Extensive management problems in the Democratic Republic of Congo and external interference participation of international entities in the crisis, guided by the principle of “divide and rule”, further complicated the already very tense situation

so the reasons for this crisis said Prof. Anastase Shyaka, while pointing out that the ONZ reports are very unequivocal and not entirely fair to Rwanda and emphasizing that Rwanda is the second largest donor of UN peacekeeping missions and that more than 5,890 Rwanda soldiers are serving in ONZ missions.

The world media has often compared Rwanda's actions in Congo to Putin's actions in Ukraine during the first part of the invasion from 2014 to 2022 (diplo.news, 2025), what Ambassador Shyaka calls a major misunderstanding resulting from disinformation. According to him, the two conflicts Ukraine and the Eastern DRC are very different, with different backgrounds, motives, and circumstances. In practice, a dispute that has been continuously going on for over 20 years, every now and then takes on wind in sails and deeply worries, although the world is not living this conflict, even if one can say that it is not very interested in it. However, in the background of this conflict, there are also economic issues and illegal smuggling and trading of exceptional minerals such as cobalt, tantalum, tungsten and of course gold. The United Nations reports have repeatedly pointed out at least the quiet support by the Rwanda authorities of the rebels from the M23 group (United Nations News, 2025), which has been communicated by the head of the United Nations peacekeeping operations, Jean-Pierre Lacroix. However, it is worth paying attention to the fact that Prof. also emphasised. Anastase Shyaka, that rebels are also a threat to Rwanda, because their presence increasingly deepens destabilisation on the border and further draws the attention of the Western world to the problems of the country which, after all, constantly aspires to the name of a modern and leading country in the region. Especially the U.S. actions, which regularly restricted the operation of many programmes dedicated to Rwanda of a support and development nature for the economy, translated into such a government of financial resources that they overrepresented efforts to end long-term fighting.

The agreement signed in 2012 proved ineffective and introduced the next escalation ten years later, which is to close the recently negotiated deal by Donald Trump and his surroundings. The 2025 Washington Agreement aimed at the end of the conflict in the eastern DRC and the withdrawal of Rwanda troops and disarmament of armed groups. In the opinion of Prof. Anastase Shyaka –

> it should be emphasized, however, that the second, less-talked-about aspect of this conflict is an internal problem within the DRC, namely the governance of a country plagued by decades of corruption and the denial of citizenship to Congolese who speak Kinyarwanda. The Doha peace process is intended to resolve this important aspect of the conflict.

However, the effectiveness of these solutions will only be shown in the future. It has already happened many times that the fighting was resumed, because not everyone respected the agreements and simply there was still no trust between them, which is still sensible there. Still, the conflict is still alive, although over the years and Rwanda's acquisition of large economic partners like Turkey and China seems less profitable than it once was. On the other hand, the UN continues to emphasise that the situation is unstable enough to cause escalation and a greater crisis and migration at any time.

4. RWANDA AND MIGRATION

Migration from Africa, including Rwanda, is a well-known topic in Europe. Its origins date back to the 1950s and are, of course, rooted in colonial heritage. Initially, migration to Europe was mainly for studies, and the other individuals were mostly associated with business circles or diplomatic environments. Events related to conflicts and independence struggles over the 1960s and 1980s in Congo and Rwanda-Burundi led to another wave of migration to Europe, including Belgium, the United Kingdom, Germany, and the Netherlands (Wojtaszczyk et al., 2017). Currently, the Rwandan diaspora in Europe accounts for at least 10% of all Rwandans worldwide. Rwandan migrants are also associated in the media in Europe, particularly in the context of a controversial program recently implemented by the United Kingdom regarding asylum policy, which in practice involved deporting illegal migrants to Rwanda. Prof. Anastase Shyaka describes these actions in a highly diplomatic manner, using the official name: “Rwanda-United Kingdom Migration Partnership implemented in April 2022, when Rwanda and the United Kingdom signed a partnership agreement aimed at relocating asylum seekers from the United Kingdom to Rwanda”.

The agreement with the United Kingdom was ratified, but after the 2024 elections and the Labour Party's victory, its implementation was withdrawn, citing the high costs and ethical doubts. Rwanda decided to join this initiative due to the desire of its citizens to return to their homeland, but many analysts emphasise that it was also about strengthening Rwanda's international position, including by Ben Shepherd, an African analyst at the London think tank Chatham House, Rwanda, seeking sources of income, aims to deport illegal immigrants from Europe (Niedziński, 2025). In the opinion of Prof. Anastase Shyaka – Rwanda decided to join this initiative because of the desire to support the international community in finding practical solutions to this important issue of migration. This is because Rwanda was the first African country to receive refugees in the 1950s, even before it gained independence in 1962. This is an issue Rwanda understands well.

In 2021, the Danish government created conditions for a change in asylum policy by passing a law that allowed for the processing of asylum applications outside the European Union, which practically enabled the establishment of reception centres on the territory of countries such as Rwanda, where migrants would wait for their applications to be processed. However, considering that Rwanda might host even hundreds of thousands of asylum seekers and refugees, for instance from the Democratic Republic of the Congo, accepting a few hundred people from Europe would not significantly change the situation. The main motive behind such actions was to deter future migrants from illegally arriving in Europe.

Rwanda also seeks to cooperate on migration issues by engaging in various initiatives. An example is the ongoing collaboration since 2019 with UNHCR and the African Union, which resulted in the establishment of the Gashora transit centre, where detained African migrants from Libya are accepted and supported. Additionally, in 2021, Rwanda, in cooperation with the International Organisation for Migration (IOM), helped resettled Afghan girls continue their education in Rwanda. Anastase Shyaka stated that Rwanda understands migration issues because it believes that migration is also a tragedy for migrating and the country, a lot of suffering, as migrants leaving cause the loss of young, valuable generations for the state. From Europe's perspective, migrations from African countries cause tensions and lead to conflicts, especially when this issue becomes the subject of political debate among many extreme groups. Migrations should be systematically managed, respecting humanitarian aspects and mandatory integration into the community of the country to which the migrants arrive.

5. CONCLUSION

The Republic of Rwanda is a unique example in the world of a country that, despite experiencing tragic historical events, managed to build a modern state focused on development despite relatively limited natural resources and a significant overpopulation problem. The author's objective was to present these dynamic and impressive transformations. The Republic of Rwanda is a country that continually seeks new solutions, such as becoming the main transport hub for East Africa or a model global conference center. Cooperation with the world. Externally, this is also about the desire to dispel the perception of Rwanda that has persisted over the years, and the ambition to create a vision of a safe country, which aims to establish a distinctly defined reputation for Rwanda on the international stage and to attract more investors and expand the tourism offer. On the other hand, it is a country governed by strict rules, heavily controlled by the authorities, with a small political opposition according to European standards and a quiet public debate, which raises certain controversies in Western countries. Something in Europe that we do not fully understand there is the external and internal stability, perhaps referring strongly to centralized authority reminiscent of pre-colonial times, when a country inhabited by a homogeneous society was governed by a monarch called *mwami*, surrounded by a narrow elite. Hypothetically, this pattern of exercising power may be better understood in that part of the world because, in a sense, it is typical there, only continued in a new form, with the difference that Rwandans pay much attention to creating national unity and avoiding divisions, which in their opinion guarantees the survival and development of their state. Maybe their own home grown solutions in which everyone participates in their own way that they create the platforms they need for social dialogue and for the development of statehood.

The author has read and agreed to the published version of the manuscript.

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ADDITIONAL INFORMATION

The journal annually publishes a list of reviewers: in the last issue of the quarterly – No. 4 (2026) and on the website:
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