

Environmental, entrepreneurial, and identity-based drivers of civic attitude and citizen involvement: an exploratory analysis among EU students

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Abstract: This paper advances a conceptual model examining five key dimensions aligned with current EU priorities: sense of belonging to a European identity, entrepreneurial spirit, environmental responsibility, civic attitude, and citizen involvement. Employing partial least squares structural equation modeling, the study tests the proposed model using empirical data from 679 student observations across four EU member states—Bulgaria, France, Romania, and Slovakia—collected within the Citeuropass Erasmus+ project. Results indicate that the model explains 40.2% of the variance in civic attitude and 31.9% in citizen involvement, highlighting the positive influences of the sense of belonging to a European identity, environmental responsibility, and entrepreneurial spirit on these outcomes. These findings inform ongoing debates on EU priorities by identifying three salient drivers for strengthening civic attitude and citizen involvement. Moreover, the study contributes to the literature by integrating all five dimensions into a unified analytical framework, revealing effects that would otherwise remain undetected.

Keywords: entrepreneurial spirit, environmental responsibility, civic attitude, citizen involvement, European identity, active citizenship

Introduction

Various EU initiatives, such as Union of Skills (European Commission, 2024), are aimed at addressing labor and skills gaps while boosting competitiveness across Europe. They focus on empowering individuals with the skills needed to thrive in their educational and professional lives. Specifically, these initiatives are underlying the role of transversal and transferable skills. The Union of Skills aims to ensure that individuals can effectively apply their transferable skills in various professional

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contexts. This alignment supports the EU's goals of competitiveness, inclusivity, and cohesion.

If transferable skills often complement and reinforce each other, the web of interconnected abilities may enhance overall effectiveness of the young generation, as well as their life satisfaction.

In this context, our paper aims to identify whether environmental responsibility, entrepreneurial spirit, and the sense of belonging to a European (EU) identity can form such an effective web and investigate their direct and indirect effects on civic attitude and citizen involvement (see Figure 1).

To achieve this aim, the paper introduces a conceptual model presenting assumed relationships between the five concepts: environmental responsibility; entrepreneurial spirit; sense of belonging to a EU identity; civic attitude and citizen involvement. Furthermore, the paper employs structural equation modeling (SEM) to test the conceptual model and present the results derived from SEM analysis application on a dataset of 679 entries collected in 2023 from youths enrolled as undergraduate or graduate students in EU universities located in four different countries (i.e. France, Slovakia, Romania, Bulgaria).

By introducing and testing the conceptual model incorporating five core concepts, this paper presents a novel approach. The existent literature only addresses relationships within individual pairs of dimensions included in our model. The relationship between entrepreneurial spirit and citizen involvement is dealt with by Monti (1999), Monti et al. (2007), Steiner et al. (2013) or Alderete (2024). Authors like Bell (2022), Mravcová (2023) or Valdivielso (2013) study environmental responsibility in connection with citizen involvement. The relationship between the sense of belonging to a EU identity and citizen involvement can be explained through Social Identity Theory (Tajfel et al., 1979). The contribution of all these authors is explained in detail in the first section of the paper.

The research presented in this paper adds to the existing scholarship by integrating all five constructs into a unified analytical framework that makes it possible to uncover combined effects, which cannot be observed when analyzing variables separately.

The study therefore contributes to the literature by offering a comprehensive explanation of civic attitude and citizen involvement in the EU context, positioning our research as the first to examine the five dimensions jointly in a single model. Such an approach provides deeper insights and generates more reliable policy implications than the fragmented evidence available so far. This research also contributes to the ongoing and increasingly intensive academic and policy discussions on contemporary EU policy priorities, including environmental protection, the stimulation of the EU economy and entrepreneurship, and the consolidation of a shared EU identity.

Much of this discussion centers on the implications of the EU's strategy for sustainable development, as articulated in the European Green Deal. For instance,

Stoian et al. (2023) argue that achieving the strategy's ambitious objectives cannot rely solely on "win-win" solutions for all stakeholders. Reducing pollution and mitigating global warming, they note, may entail trade-offs, including potential losses in the competitiveness of European firms and the associated social costs. In line with this concern, Brabec and Macháč (2025) find that within the academic literature, fears about a decline in competitiveness—particularly in relation to the implementation of the EU Taxonomy—constitute the most frequently mentioned potential consequence of the Green Deal. Other scholars highlight a broader policy evolution. Fernández-Miguel et al. (2025) contend that the EU is moving beyond a traditional, environmentally focused policy orientation toward a strategic and systemic sustainability framework that integrates environmental protection with industrial competitiveness and multi-level stakeholder involvement. The political economy context of the EU's declining competitiveness and diminishing global economic weight has also received substantial scholarly attention in recent studies. For example, Gros (2025) and Chang (2025) both reference the Draghi report, which calls for deep structural economic reforms deemed necessary to stop the EU's relative decline compared with major competitors such as the United States and China. This report received a lot of public attention. Chang (2025) emphasizes that the initiatives aimed at stimulating the EU economy and fostering entrepreneurship will require extensive political negotiation and compromise, while Gros (2025) critically observes that Draghi report fails to specify the kinds of political coalitions or compromises that could render such reforms viable. Greco and Raunion (2025) stress that any reform agenda must be effectively communicated to European citizens and should strengthen the EU's legitimacy by enhancing public awareness of EU policies and fostering greater citizen involvement.

The paper is structured into four main sections as follows. The first section presents the key concepts analyzed in the study as a short literature review supporting the research hypotheses and the conceptual model it advances. The second section outlines methodology, research design and data collection. The third section presents the results of SEM analysis, discusses the findings and research limitations. Finally, the last section formulates conclusions and contributions. It interprets the significance of research results and their implications in the EU context and suggests future research directions.

1. Conceptual model and literature review

Aiming to fill a research gap by advancing a conceptual model which brings novel insights into the impact of environmental responsibility, entrepreneurial spirit and sense of EU identity on civic attitude and citizen involvement of European youths, the paper builds on the literature indications (Alderete, 2024; Andrei et al., 2025; Bandura, 2000; Bell, 2005; 2022; Covin et al., 2020; Doolittle & Faul, 2013; European Commission, 2023; Lahudin et al., 2024; Lenzi, 2023; Malinda et al.,

2024; Putnam, 2000; Steiner et al., 2013; Verba et al., 1995; Webb et al., 2008) to explore these five dimensions and potential relationships between them.

The study considers the concepts of civic attitude and citizen involvement in the context of the European Union and uses theory to propose the conceptual model presented in Figure 1. As seen in the conceptual model, the study assumes that civic attitude and citizen involvement are increasing with higher levels of the following characteristics of participants in the study: a higher sense of EU identity, increased entrepreneurial spirit and increased environmental responsibility. Thus, the study aims to test six research hypotheses formulated as follows:

H1: Environmental responsibility has a positive influence on Civic attitude

H2: Sense of belonging to a EU identity has a positive influence on Civic attitude

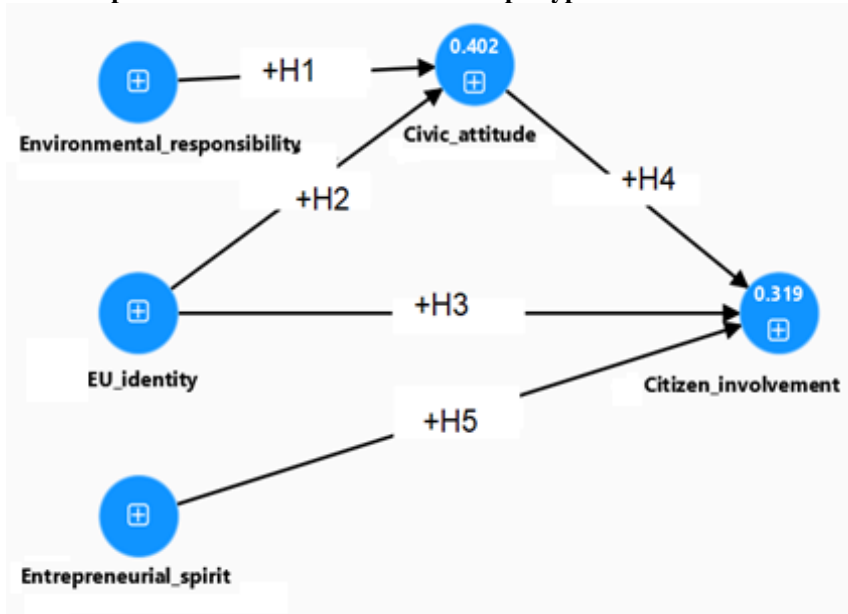
H3: Sense of belonging to a EU identity has a positive influence on Citizen involvement

H4: Civic attitude has a positive influence on Citizen involvement

H5: Entrepreneurial spirit has a positive influence on Citizen involvement

H6: Environmental responsibility has a positive indirect influence on Citizen involvement via Civic attitude

Figure 1. Conceptual model with direct relationships hypotheses



Source: authors' representation

The following lines depict the theoretical support of the six research hypotheses in close connection with the five constructs included in the conceptual model.

1.1. Concept of entrepreneurial spirit

The notion of “entrepreneurial spirit” has been extensively researched, with its origins dating back to the 1960s, as evidenced by the works of Coleman (1963), and Dubno and Weintraub (1966). Nevertheless, it was not until 2010 that it gained greater popularity. It is often used as a synonym for terms such as entrepreneurial orientation, entrepreneurial initiative and pro-activity, culture of entrepreneurship, spirit of capitalism, being entrepreneurial or simply entrepreneurship.

A substantial degree of heterogeneity is observed, not only in the terminology employed in literature, but also in the interpretations of these terms. Some authors provide simplistic explanations, for instance, Da Silva (2013) conceptualizes entrepreneurial spirit as a strong inkling for business. Other authors emphasize the complexity of this phenomenon. As Cheng et al. (2021) explain, it can be defined as a combination of abilities, values and traits, including curiosity, moderate risk-taking, emotional adjustment and resilience, quick-wittedness, and perseverance. According to Wiyono and Wu (2022), the term refers to the attitude, willingness, and behaviors to handle businesses or activities with a variety of characteristics such as “a strong will to work with an independent spirit, being able to make appropriate decisions, daring to take risks, being creative and innovative, persevering, being conscientious and productive, and having a spirit of togetherness and business ethics”. Lastariwati et al. (2016) designate a series of entrepreneurial behaviors, including creativity, innovation, independence, responsibility, honesty, leadership, persistence, discipline, cooperation, action-orientation, hard work, communication, risk-taking, evaluation, and reflection. Malinda et al. (2024) underscore the necessity of maintaining an optimistic attitude, never giving up, and a desire to learn and progress. In the empirical part of this study, the construct of entrepreneurial spirit was adapted from Covin et al. (2020) who describe it as a tendency towards innovative, proactive, and risk-taking behaviors and provide a scale for its measurement (see Table 1). This approach is in line with other authors mentioned in the literature review.

In our research, we are interested in testing the hypothesis whether entrepreneurial spirit has a positive influence on citizen involvement (*H5*):

H5: Entrepreneurial spirit has a positive influence on citizen involvement

The existing literature on the relationship between entrepreneurial spirit and citizen involvement is limited. Monti et al. (2007) points to the fact that entrepreneurs have long been some of the most engaged leaders and civic actors in their communities. They use the expression civic capitalism to convey entrepreneurs integrating the “social mission” into their business plan, thereby distinguishing them from social entrepreneurs, who primarily pursue social mission whilst incorporating a for-profit component into their activities. The authors further posit an evolution in the perception of entrepreneurs. In their earlier work (Monti, 1999), they delineated the citizen involvement of successful entrepreneurs as an obligation to give

something back to society. In this contribution they indicate that entrepreneurs and people from the public or non-profit sectors are becoming more alike. However, authors acknowledge that the extent to which entrepreneurs' behavior reflects the concept of "civic-minded capitalism" is non-uniform.

Steiner et al. (2013) address the approach to solving societal problems, based on entrepreneurial innovations generated by the society's individuals and groups. The authors advocate for the utilization of innovation potential, creativity, and collaborative capabilities of each citizen in the pursuit of civic change. They delineate five competence dimensions deemed to be of critical importance for citizen participation. These dimensions are founded upon a conceptual framework of problem-solving competencies. Innovation-based entrepreneurial processes are proposed as an example of such complex problem-solving. The five competence dimensions include professional domain competence, systemic competence, sociocultural (collaborative) competence, personal competence and creativity competence. Drawing upon the contributions of Steiner et al. (2013), it can be concluded that both entrepreneurship and citizen participation demand a repertoire of similar competencies that facilitate problem-solving.

Alderete (2024) focuses on the concept of citizen participation as both a social good and a fundamental principle of the open government. The right to access public information and to participate in public decision-making is what enables citizens' participation. Based on Grazian and Nahr (2020), the author differentiates two types of roles that citizens can adopt when utilizing online participation tools. The passive role is characterized by the consumption of information regarding the decision-making processes of politicians. The active role encompasses engagement in discussions, deliberations, and voting. The author further discusses the relationship between civic participation and entrepreneurship. She mentions two British e-democracy tools as an example of shift from voluntary collaboration to professionalization that has been observed in different countries in recent years. The first of these is the WhoCanIVoteFor tool, which provides election statements from candidates during elections. The second is an online platform that matches voters across British constituencies. It is noteworthy that the development of these tools was initially spearheaded by a team of volunteers. However, over time, the majority of project managers have transitioned to becoming professionals in their respective projects. The author thus concludes that by participating, citizens can become entrepreneurs.

1.2. The concept of environmental responsibility

Sustainability involvement (or environmental responsibility) in connection with citizens refers to the role individuals play in addressing environmental challenges through their actions and behaviors. The concept has evolved from its origins in the 1990s to encompass a broader range of behaviors and responsibilities

(Bell, 2022). This responsibility is not only about individual actions but also involves participating in broader societal and political efforts to promote environmental well-being. It includes both private actions, such as reducing personal waste, and public actions, like advocating for environmental policies (Goldman et al., 2020). While individual actions are important, the collective impact of citizens acting as environmental stewards is crucial for meaningful change (Mravcová, 2023). The same was pointed out by Wolf (2007), that changes done by individuals may not be large enough to have a real and effective impact. On this issue, Valdivielso (2013) argues that many motivated and active citizens do not have enough opportunities to practice environmental behavior adequately. Thus, the above presented literature indicated that environmental responsibility leads to a positive influence on civic attitude (*H1*) and finally, to citizen involvement (*H6*):

H1: Environmental responsibility has a positive influence on civic attitude

H6: Environmental responsibility has a positive indirect influence on citizen involvement via civic attitude

Environmental responsibility is closely tied to environmental citizenship, which emphasizes the duty of citizens to contribute to environmental sustainability, both locally and globally. Environmental citizenship involves individuals recognizing their role in the global community and taking responsibility for environmental preservation. According to Meerah et al. (2010), the core of the concept of environmental citizenship emphasizes that environmental protection is everyone's responsibility. This concept aims to redefine the relationship between man and nature, change or develop attitudes and behavior and encourage personal participation, while being fundamentally linked to environmental rights and responsibilities (Dean, 2001). Environmental citizenship is seen as the fundamental concept through which the roles of individual citizens are shaped (Bell, 2005; Dobson, 2003). In this context, new global forms of citizenship are also emerging in the environmental literature (Mravcová, 2023). These are: "environmental citizenship", "ecological citizenship", "sustainability citizenship", "green citizenship" (Bell, 2005), "environmentally sensible citizenship" (Hailwood, 2005) or "environmental stewardship" (Barry, 2002).

Environmental citizenship is underpinned by several key principles that guide its implementation and practice. These principles include (1) Active Participation: Environmental citizenship emphasizes the importance of active involvement in environmental conservation efforts. This can take the form of individual actions, such as reducing carbon footprints, or collective actions, such as community-based initiatives to protect local ecosystems (Bell, 2022; Lahudin et al., 2024), (2) Global Responsibility: The concept of environmental citizenship extends beyond national borders, recognizing that environmental challenges are global in nature. It emphasizes the need for individuals and communities to take responsibility for their impact on the global environment (Mravcová, 2023), (3) Sustainability: Environmental citizenship is closely tied to the principle of sustainability, which

seeks to balance human needs with the protection of the environment for future generations. This principle is reflected in the emphasis on sustainable practices and the promotion of a low-carbon society (Hadjichambis et al., 2022), (4) Cultural Diversity: Environmental citizenship recognizes the importance of cultural diversity in addressing environmental challenges. It advocates for approaches that respect and incorporate the perspectives of different cultures, ensuring that environmental conservation efforts are inclusive and equitable (Guzmán & Velazco, 2023; Lenzi, 2023) and (5) Political Responsibility: Environmental citizenship also involves a political dimension, emphasizing the need for individuals and communities to engage in environmental governance and advocacy. This includes participating in policy-making processes and holding governments accountable for environmental protection (Mravcová, 2023).

Citizenship significantly impacts the sense of environmental responsibility and engagement in pro-environmental behaviors. There is often a gap between environmental knowledge and actual pro-environmental behavior, highlighting the need for targeted educational strategies (Goldman et al., 2020). Educational institutions can enhance citizenship to promote a stronger sense of environmental responsibility among students, suggesting that fostering citizenship can lead to more sustainable behaviors (Janmaimool & Khajohnmanee, 2018). According to Yulistiana (2022), there is a positive relationship between knowledge of environmental pollution and responsible environmental behavior. This suggests that increasing awareness and understanding of environmental issues can enhance individual responsibility and pro-environmental actions.

Environmental responsibility appears to have a positive influence on civic attitudes. Research indicates that pro-environmental attitudes and behaviors are associated with enhanced civic cooperation and engagement. Studies show a positive association between pro-environmental attitudes and civic cooperation. Individuals who are willing to pay higher taxes for environmental protection often exhibit stronger civic cooperation attitudes. This relationship is influenced by the country's development level and environmental quality (Owen & Videras, 2004; 2006). Environmental education programs, as we mentioned before, foster civic engagement. These programs often result in positive civic outcomes at both community and individual levels, such as increased civic skills, knowledge, and attitudes. Key practices include focusing on local communities, participatory approaches, and providing opportunities for social interaction (Ardoin et al., 2022). According to Barnason et al. (2022), participation in environmental action programs during youth can lead to increased civic engagement in adulthood. Programs that emphasize youth voice and adult relationships have demonstrated positive outcomes in civic engagement.

1.3 Concepts of civic attitude, citizen involvement and European identity

Civic engagement is a comprehensive umbrella concept comprising attitudes (internal dispositions) and actions (behaviors) that reflects how people connect their personal lives to the public good, contribute to the welfare of their communities, and participate in democratic systems (Doolittle & Faul, 2013; Putnam, 2000; Verba et al., 1995; Zaff et al., 2016). Empirical models of civic engagement often treat these two component dimensions of civic engagement as related but distinct constructs. Doolittle and Faul (2013) use civic attitude and civic behavior. Zaff et al. (2016) use civic attitude and civic actions. In our model, civic attitude and citizen involvement are the two dimensions used. To ensure conceptual precision in line with our measurement model, we use the construct citizen involvement to reflect the behavioral dimension of civic participation that characterizes EU citizenship (Andrei et al., 2025; European Commission, 2023). Our approach shifts the focus away from the local actions specific to Doolittle and Faul's (2013) behavior subscale of civic engagement and adapts the measurement to include forms of civic participation that indicate multilevel behavior (e.g., voting at the local, national, and EU levels). Thus, the action-oriented dimension of civic engagement is operationalized in our model under the construct citizen involvement.

Citizen involvement refers to the active participation of individuals in the society. It is a cornerstone of democratic societies, because it enables citizens to contribute to decision-making processes and address societal challenges (Verba et al., 1995; Putnam, 2000).

Civic attitude is seen as the motivational foundation that increases the likelihood of participation in civic activities, while participation itself can reinforce and reshape civic attitudes, revealing a dynamic relationship in which attitudes and behaviors co-evolve (Putnam, 2000; Zaff et al., 2016).

Civic attitude refers to the individual's beliefs, values, and feelings toward their role and responsibilities as a citizen. The literature (Putnam, 2000) shows that civic attitude is a key driver of citizen involvement, as it shapes how individuals engage in societal and political processes. A positive civic attitude - characterized by a sense of duty, emotional connection to the community (e.g., the EU), and the belief in one's ability to drive change (perceived efficacy) - can significantly influence citizen involvement. Strong emotional attachment to the EU fosters a sense of responsibility, motivating individuals to participate in civic activities that support its well-being (Bruter, 2005; Fligstein et al., 2012). The belief that one's actions can influence outcomes (e.g., EU policies) increases the likelihood of participation in voting, advocacy, or volunteering (Bandura, 2000; Verba et al., 1995). Alignment with democratic and civic values encourages individuals to engage in activities that promote these principles (Norris, 2002). So, a positive civic attitude, driven by emotional connection and perceived efficacy, directly enhances citizen involvement (Andrei et al., 2020; Putnam, 2000; Zait & Andrei, 2019) by motivating individuals

to take action in support of their community or political entity (e.g., the EU). This aligns with the hypothesis that civic attitude has a positive influence on citizen involvement (H4):

H4: Civic attitude has a positive influence on citizen involvement

On the other hand, a sense of belonging to a community (for example in the framework of the EU identity) reflects the extent to which individuals feel connected to the European Union as a collective entity, sharing its values, goals, and aspirations. This sense of belonging is not just about legal aspects of citizenship but also about emotional and psychological identification with the EU as a community. It represents the affirmative connection and satisfaction that emerges from identifying oneself as part of a social collective (Gorgos et al., 2016; Vatamanescu et al., 2015)

The EU citizenship is closely associated with the concept of “European identity” (Mäkinen, 2019), which is characterized as a supranational social identity influencing individuals’ emotional ties and self-perception within the framework of EU membership (Tajfel, 1978). Scholars often explore both cognitive (identifying as European) and affective aspects (emotional attachment to Europe) to understand the complexity of this identification (Bergbauer, 2017; Starke, 2021; Prieto-Arranz et al., 2023).

The connection between a sense of belonging to a EU identity and citizen involvement can be explained through the Social Identity Theory (Tajfel et al., 1979). According to this theory, individuals derive part of their self-concept from the groups they belong to, such as national or supranational communities, like the EU. When people identify strongly with a group, they are more likely to engage in behaviors that benefit the group. In the context of the EU, a strong sense of belonging to a European identity can motivate individuals to participate in civic activities that support the EU’s goals, such as voting in European Parliament elections, supporting EU-wide initiatives, or advocating for policies that align with EU values.

Several mechanisms explain how a sense of belonging to a European identity can positively influence civic attitude and citizen involvement. First, shared values and goals play a critical role (Bruter, 2005; Fligstein et al., 2012). The EU is built on principles such as democracy, human rights, and solidarity. When individuals identify with these values, they are more likely to engage in civic activities that promote them. Secondly, an emotional connection to the EU fosters a sense of responsibility toward its well-being (Fligstein et al., 2012; Norris, 2002). This emotional bond can inspire individuals to take action, such as voting, participating in protests or volunteering for EU-related causes. Third, perceived efficacy matters, as Bandura (2000) and Verba et al. (1995) have shown: if individuals believe that their actions can make a difference at the EU level, they are more likely to participate. For example, someone who feels their vote in European elections matters is more likely to vote.

Extant research (Bruter, 2005; Fligstein et al., 2012; Putnam, 2000) supports the idea that a sense of belonging to a collective identity, such as EU identity, fosters civic attitude, in line with our hypothesis (H2):

H2: Sense of belonging to a EU identity has a positive influence on civic attitude

For instance, Bruter (2005) found that individuals who identify strongly with the EU are more likely to participate in European elections and support EU policies. Similarly, Fligstein et al. (2012) demonstrated that the European identity is linked to greater support for EU integration and engagement in EU-related activities.

These findings align with broader studies on national identity, which show that a strong sense of belonging to a nation increases civic participation (Putnam, 2000). Extending this logic to the EU level, it is reasonable to assume that a sense of belonging to a EU identity can similarly enhance citizen involvement, and thus formulate the hypothesis (H3):

H3: Sense of belonging to a EU identity has a positive influence on citizen involvement

A strong EU identity can motivate individuals to participate in civic activities by aligning them with shared values, fostering emotional connections, and enhancing their belief in the efficacy of their actions.

2. Methodology and data

The conceptual model (Figure 1) and research hypotheses (H1 to H6) were tested using structural equation modeling based on partial least squares (PLS-SEM) for data analysis, and Citeuropass questionnaire (Andrei et al., 2025) for data collection.

The questionnaire was applied anonymously and used 1 to 5 Likert scales to collect participants' responses on the items depicted from the literature (see Table 1) for covering the five dimensions comprised in the conceptual model (Figure 1) and detailed in Table 1: Environmental responsibility (4 items construct); EU identity (4 items construct); Citizen involvement (6 items construct); Entrepreneurial spirit (5 items construct); Civic attitude (7 items construct). Citeuropass questionnaire (Andrei et al., 2025) is an ample instrument developed from the literature (Arslan & Wong, 2022; Becuwe & Baneth, 2021; Bogoslov et al., 2022; Dąbrowski et al., 2021; Doolittle & Faul, 2013; European Commission, 2019; 2023; Francois-Lecompte & Roberts, 2006; Hadjitchoneva et al., 2024; La Barbera & Capone, 2016; Remr, 2023; Schimmelfennig & Sedelmeier, 2020; Spears et al., 1997) within the project Erasmus+ “Citeuropass - Learning, Experiencing and Validating European citizenship through collaborative and innovative projects”. This instrument contains multi-item constructs (see Table 1) measuring the concepts comprised in the research model presented in Figure 1.

Data collection took place between the end of March and middle of June 2023 on a convenience sample (N=679) of undergraduates (75.1%) and graduate students (29.9%) enrolled in universities from France, Slovakia, Bulgaria and Romania in fields of study such as: Social Sciences, Economics and Business (75.7%), Informatics, Mathematics, Natural Sciences and other (24.3%). Most of the participants (90.9%) in the study were aged between 18–25 years old.

PLS-SEM was selected for data analysis because it is a variance-based method capable of handling non-normal data and complex structural models with high predictive accuracy, as Henseler (2017) have shown.

Unlike covariance-based methods, which require strict distributional assumptions, PLS-SEM utilizes bootstrapping to test the statistical significance of the path coefficients (H1–H6), and it is recognized as a robust method for assessing both direct and indirect effects in exploratory theoretical frameworks (Henseler, 2017). Thus, PLS-SEM was chosen over other methods (i.e. covariance-based CB-SEM or multiple regression) because PLS-SEM is the appropriate methodological choice for research focused on prediction, new conceptual models and theory development. The primary objective of PLS-SEM is to maximize the explained variance (R square) in the dependent variables (endogenous constructs). In contrast, Covariance-Based SEM focuses on confirming how well a theoretical model fits the observed data. As Henseler (2017) indicated, PLS-SEM is more appropriate for testing a new model.

The methodological superiority of PLS-SEM over multiple regression has been repeatedly acknowledged by the literature (Sarstedt et al., 2023). Researchers have shown that PLS-SEM is a superior method for testing models with multi-item constructs compared to multiple regression. PLS-SEM accounts for measurement error by analyzing latent variables (multi-item constructs) rather than just observed sum scores. Regression assumes variables are measured without error, so biases results. Moreover, PLS-SEM tests the entire model (all hypotheses H1–H6) simultaneously in a single analysis. Regression would require running separate analyses for each dependent variable, which increases the risk of statistical error and fails to account for the overall network of relationships.

Thus PLS-SEM was selected for testing the conceptual model.

Data analysis followed the instructions of Chin (1998) and Hair et al. (2019) methodological recommendations regarding the sequential approach of PLS-SEM evaluation: assessment of measurement first, then the analysis of structural model via bootstrapping procedure.

Therefore, prior to structural model examination, the empirical robustness of the five multi-item constructs included in the conceptual model was established through the assessment of the measurement model.

Table 1. Measurement reliability and validity

| Constructs | Items | α | Rho_a | Rho_c | AVE |
|--|--|----------|-------|-------|-------|
| <i>Environmental responsibility</i> (4-items construct adapted from Bell, 2005; 2022; Lenzi, 2023; Webb et al., 2008) | ER1. I try not to buy products from companies that harm the environment; ER2. I try to reduce my consumption to what I really need. ER 3. I worry about environmental problems; ER4. A better environment starts with myself; | 0.739 | 0.746 | 0.835 | 0.559 |
| <i>Entrepreneurial spirit</i> (5-items construct adapted from Bolton & Lane, 2012; Covin et al., 2020; Covin & Slevin, 1989). | ES1. I have very few problems with renewal and change. ES2. I quickly master new routines, procedures and new ways of working. ES3. I always search for creative solutions instead of familiar ones ES4. I am constantly looking for new ways to improve my performance at work. ES5. I value new plans and ideas, even if I feel that they could fail in practice. | 0.794 | 0.794 | 0.859 | 0.551 |
| <i>EU identity</i> (4-items construct adapted from Bruter, 2005; Fligstein et al., 2012) | EI1. The fact that I am a EU citizen is an important part of my identity; EI2. I feel I am deeply tied to other EU citizens; EI3. EU citizens have a lot in common with each other. EI4. I am similar to the average EU citizen; | 0.817 | 0.824 | 0.880 | 0.647 |
| <i>Civic attitude</i> (7-items construct adapted from Doolittle & Faul, 2013) | CA1. I feel responsible for my community. CA2. I believe that I have a responsibility to help the poor and the needy. CA3. I am committed to serve in my community CA4. I believe that all EU citizens have a responsibility to our enlarged community CA5. I believe that it is important to be informed of community issues CA6. I believe that it is important to volunteer CA7. I believe that it is important to financially support non-profit organizations | 0.875 | 0.877 | 0.904 | 0.574 |
| <i>Citizen involvement</i> (6-items construct adapted from Andrei et al., 2025; Doolittle & Faul, 2013; European Commission, 2023) | CI1. I pay close attention to the local news and events. CI2. I pay a lot of attention to international events and news. CI3. I am interested in reading the news related to the EU and European countries as much as I am interested in those related to my own country. CI4. I always vote in local elections. CI5. I always vote in national elections. CI6. I always vote in the elections of our national representatives in the EU bodies. | 0.819 | 0.826 | 0.866 | 0.518 |

Source: authors' representation

3. Results and discussion

Prior to structural model examination, the adequacy of the measurement model was established.

The measurement model evaluation involved a systematic assessment of reliability, internal consistency, and discriminant validity metrics. Considering PLS-SEM methodological requirements (Hair et al., 2019), we found that the measurement model meets all the criteria, as follows: model fit (standardized root mean square residual SRMR= 0.073 is lower than the 0.08 limit stipulated by Hu and Bentler (1999); validity and reliability values reported in Table 1 ($\alpha > 0.7$; $\rho_A > 0.7$; $\rho_C > 0.8$; $AVE > 0.5$) comply to the requirements. Also, the variance inflation factor shows no collinearity among items or among constructs (VIF values < 3.3 , as advised by Diamantopoulos and Siguaw (2006). The discriminant validity is confirmed by Henseler et al.'s (2009) criterion of HTMT < 0.85 (see Table 3) and Fornell and Larcker's (1981) criterion requiring that the square root of each construct's average variance extracted (diagonal entries) must be greater than the correlation of the construct with all other constructs (see Table 2 showing that diagonal entries are higher than non-diagonal entries).

Table 2. Discriminant validity: Fornell-Larcker criterion

| Constructs | Environmental responsibility | EU identity | Citizen involvement | Entrepreneurial spirit | Civic attitude |
|------------------------------|------------------------------|--------------|---------------------|------------------------|----------------|
| Environmental responsibility | 0.748 | | | | |
| EU identity | 0.273 | 0.804 | | | |
| Citizen involvement | 0.380 | 0.407 | 0.720 | | |
| Entrepreneurial spirit | 0.437 | 0.352 | 0.447 | 0.742 | |
| Civic attitude | 0.567 | 0.428 | 0.476 | 0.503 | 0.758 |

Source: authors' representation

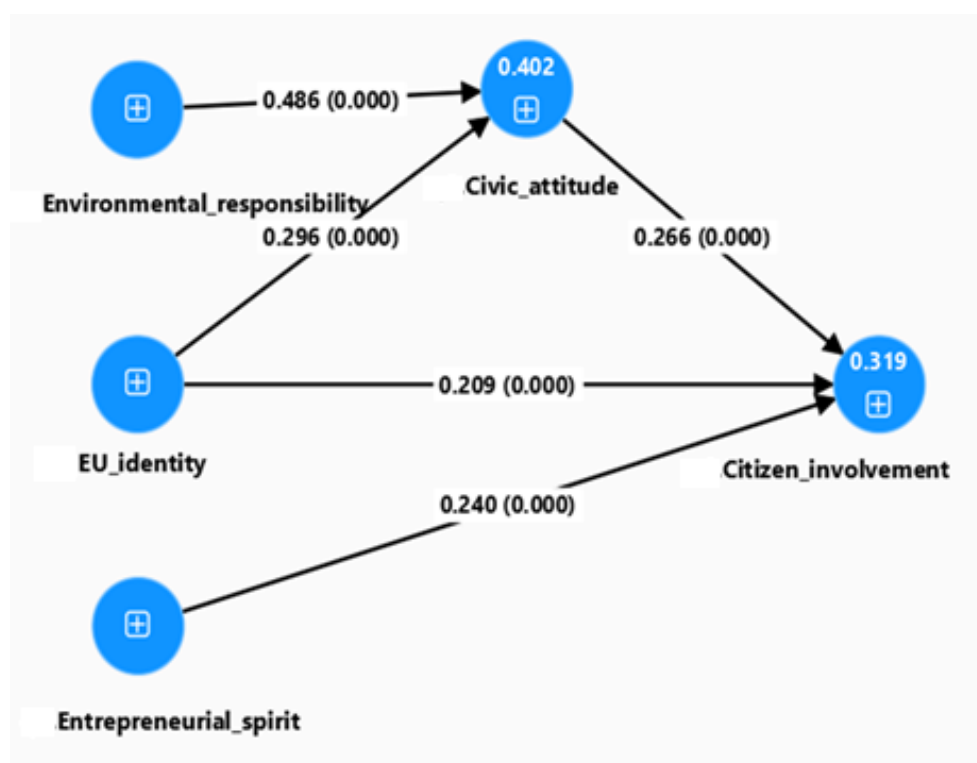
As measurement model evaluation showed full compliance with methodological requirements, the structural model assessment was conducted in the second step of the analysis to estimate the statistical significance of the relationships between the constructs (H1-H6) via a bootstrapping procedure of 5000 re-samples as recommended by Hair et al. (2019).

The assessment of the structural model (outlined in Figure 2, Table 4 and Table 5) indicates that the statistical analysis of assumed relationships supports the research hypotheses.

Table 3. Discriminant validity: HTMT.85 criterion

| Constructs | Environmental responsibility | EU identity | Citizen involvement | Entrepreneurial spirit | Civic attitude |
|------------------------------|------------------------------|-------------|---------------------|------------------------|----------------|
| Environmental responsibility | | | | | |
| EU identity | 0.349 | | | | |
| Citizen involvement | 0.473 | 0.468 | | | |
| Entrepreneurial spirit | 0.564 | 0.434 | 0.529 | | |
| Civic attitude | 0.695 | 0.506 | 0.532 | 0.602 | |

Source: authors' representation

Figure 2. Structural model and relationships

Source: authors' representation

The sense of EU identity and Environmental responsibility explain 40.2% of the variance of Civic attitude ($R^2=0.402$).

The findings show that 31.9% of the variance in Citizen involvement ($R^2=0.319$) is explained by the other 4 dimensions included in the model: Entrepreneurial spirit, Environmental responsibility, the sense of EU identity, and Civic attitude.

Statistics reported in Table 5 showed that Environmental responsibility has a significant positive effect on Civic attitude ($\beta = 0.486$, $t=14.420$, $p < 0.05$; H1 is supported) and a significant indirect effect on Citizen involvement ($\beta = 0.129$, $t=5.881$, $p < 0.05$; H6 is supported) indicating that Civic attitude mediates the positive influence of Environmental responsibility on Citizen involvement.

Table 4. Structural model: R-square

| Constructs | R-square | R-square adjusted |
|---------------------|----------|-------------------|
| Citizen involvement | 0.319 | 0.316 |
| Civic attitude | 0.402 | 0.400 |

Source: authors' representation

Table 5. Structural model: direct and indirect effects

| Relationships | Beta Coeff. | M | StDev | T | P | H |
|---|-------------|-------|-------|--------|-------|----------------|
| <i>Direct relationships</i> | | | | | | |
| Environmental responsibility -> Civic attitude | 0.486 | 0.487 | 0.034 | 14.426 | 0.000 | H1 confirms |
| EU identity -> Civic attitude | 0.296 | 0.296 | 0.031 | 9.411 | 0.000 | H2 confirms |
| EU identity -> Citizen involvement | 0.209 | 0.210 | 0.037 | 5.568 | 0.000 | H3 confirms |
| Civic attitude -> Citizen involvement | 0.266 | 0.264 | 0.040 | 6.672 | 0.000 | H4 confirms |
| Entrepreneurial spirit -> Citizen involvement | 0.240 | 0.242 | 0.039 | 6.086 | 0.000 | H5 confirms |
| <i>Indirect relationships</i> | | | | | | |
| EU identity -> Civic attitude -> Citizen involvement | 0.079 | 0.078 | 0.015 | 5.339 | 0.000 | H3 confirms |
| Environmental responsibility -> Civic attitude -> Citizen involvement | 0.129 | 0.129 | 0.022 | 5.881 | 0.000 | H6 confirms |

Source: authors' representation

Furthermore, the results indicated that the sense of EU identity has a significant positive effect on Civic attitude ($\beta = 0.296$, $t=9.411$, $p < 0.05$; H2 is supported).

Also, the results confirm H3 hypothesis showing that the sense of EU identity exerts a positive influence on Citizen involvement through its direct positive effect ($\beta = 0.209$, $t=5.568$, $p < 0.05$) increased by the indirect positive effect ($\beta = 0.079$, $t=5.339$, $p < 0.05$) via Civic attitude.

The positive effect of Civic attitude on Citizen involvement ($\beta = 0.266$, $t=6.672$, $p < 0.05$) confirms H4.

H5 is supported by the statistics indicating the significant positive effect of Entrepreneurial spirit on Citizen involvement ($\beta = 0.240$, $t=6.086$, $p < 0.05$).

The findings of our study confirmed that environmental responsibility positively influences civic attitude (H1). This result is consistent with the notion that individuals who perceive themselves responsible for environmental issues tend to develop stronger civic values than others, as well as a sense of duty toward their community. Thus, our result adds to the literature emphasizing the connection between pro-environmental behavior and civic cooperation (Ardoin et al., 2022; Owen et al., 2006). Environmental responsibility extends beyond individual behavior and encompasses broader societal engagement, including advocacy, participation in public initiatives, and cooperation with others (Bell, 2022; Mravcová, 2023). Environmental education and awareness do not only strengthen pro-environmental values but also contribute to developing civic competencies and attitudes necessary for democratic participation (Ardoin et al., 2022; Goldman et al., 2020).

Also, our findings support the previous research of Norris (2002), Andrei et al. (2020) about the positive impact of civic attitude on citizen involvement (H2).

Moreover, our statistical analysis confirmed that civic attitude mediates the relationship between environmental responsibility and citizen involvement (H6). This indirect effect highlights the importance of internalizing civic values as a step toward active involvement in society. While a sense of responsibility for the environment is crucial, it is the development of civic attitudes—such as trust, cooperation, and willingness to engage in collective action—that ultimately translates into concrete forms of citizen participation. This result aligns with previous findings showing that individuals who participate in environmental programs during youth often carry these civic values into adulthood, leading to sustained engagement in public life (Barnason et al., 2022). Moreover, civic attitude provides a psychological and social framework through which environmental values are operationalized into participatory behavior. Fostering environmental responsibility can have broader societal benefits by enhancing civic engagement and encouraging active participation in democratic and environmental processes.

Similarly, the positive impact of the sense of belonging to a EU identity on both civic attitude (H2) and citizen involvement (H3) was confirmed by the results of our study. While previous research on this topic (Bruter, 2005; Fligstein et al., 2012; Norris, 2002; Putnam, 2000) was mostly carried out in the pre-pandemic period, our results enhance the knowledge on this topic and confirm the validity of these theoretical underpinnings for the case of the current generation of young

Europeans, too. Therefore, we can say that the sense of belonging to a EU identity and civic attitude acts as catalysts for fostering the willingness of individuals to act collectively for the common good and participate in activities that benefit the broader community.

Our study also confirmed the positive influence of entrepreneurial spirit on citizen involvement (H5). This phenomenon can be attributed, as posited by Monti et al. (2007), to the motivational impulse of entrepreneurs to reciprocate the benefits they have received from society. The positive relationship between entrepreneurship and citizen involvement may be further explained in line with Steiner et al. (2013) by the similarity of the skills required for problem-solving in both domains. This finding indicates that cultivating the entrepreneurial skills and spirit among youth can boost citizen involvement. In the same way, it can be hypothesized that civic engagement can help young people to become entrepreneurs in the future.

Finally, the analysis controlling for participants' country of residence revealed no significant differences between Bulgaria, France, Romania, and Slovakia samples. This suggests that the proposed model is robust across respondents' countries of study, making the findings of our exploratory research even more encouraging despite its limitations related to the sample (students aged 18–25) and transversal approach.

The research limitations related to the sample (students aged 18–25) indicate that we cannot generalize findings to older or younger populations. Even if our study participants come from different countries, using a student sample represents a limitation because university environments tend to promote certain common norms and behaviors that could mask differences that might appear in a more heterogeneous sample. Students often share similar lifestyles, educational environments, and socio-economic conditions. These shared characteristics may not reflect the diversity found in the general population, thereby reducing external validity. The research limitations related to the transversal approach did not allow us to observe how things evolve over time. Since data are collected only once, the results may be influenced by temporary situational factors, which limit their stability and generalizability. Future studies are needed to address the aforementioned limitations.

Conclusion

The sense of belonging to a EU identity is a powerful driver of civic attitude and citizen involvement. By fostering emotional connections, aligning individuals with shared values, and enhancing their belief in the impact of their actions, a strong EU identity can encourage citizens to actively participate in shaping the future of their communities and the European Union as a whole. This connection highlights the importance of promoting a shared European identity, the importance of promoting a shared European identity to strengthen civic attitudes, citizen involvement, and democratic participation throughout the EU.

Furthermore, a civic attitude, which includes a sense of duty, an emotional connection, perceived efficacy, and alignment with shared values, is essential in fostering citizen involvement. When individuals feel a strong emotional bond to their community or political entity (e.g., the EU) and believe their actions can make a difference, they are more likely to engage in civic activities such as voting, advocacy and acting on social problems. This connection between civic attitude and citizen involvement underscores the importance of nurturing a sense of belonging and responsibility among citizens, as it does not only strengthen democratic processes but it also empowers individuals to contribute meaningfully to societal well-being. By promoting positive civic attitudes, societies can enhance citizen participation and address collective challenges more effectively.

It is to underline that education plays a crucial role in fostering a sense of identity grounded in shared values, though emotional connections to this identity are still developing (Bruter, 2005; Delanty, 1997; Delaneuville, 2020; Lehning, 2001; European Commission, 2019). Active citizenship serves as the foundation for meaningful involvement at the local, national, and EU levels (European Commission, 2019). Initiatives are set to promote citizen involvement in EU policymaking and strengthen democratic legitimacy across member states (European Commission, 2023). Our results confirm the legitimacy and the promising results of such European initiatives. However, their efficiency needs to be continuously tested by further studies.

The findings of this study resonate strongly with several key priorities of contemporary EU policies, particularly those aimed at environmental protection, boosting the EU economy and entrepreneurship, as well as strengthening EU identity in response to the growing support for populist, often Eurosceptic political parties. Our results suggest that initiatives in these fields may also enhance civic attitudes and contribute positively to increasing citizen involvement. This relationship may be reciprocal. Higher levels of citizen involvement can, in turn, stimulate pro-environmental behaviors or entrepreneurial initiatives. In light of this, a range of policy recommendations can be derived from the study's findings. For example, the promotion of community-based green initiatives (such as urban gardens and community recycling schemes) has the potential to directly engage citizens and strengthen their involvement in sustainability efforts. These initiatives should be complemented by a strengthened system of environmental education, placing emphasis on topics such as climate and biodiversity protection, green innovation challenges, circular economy principles, and sustainable business models. Furthermore, access to early-stage funding through targeted micro-financing mechanisms for environmentally oriented entrepreneurs should be enhanced. The development of cross-border entrepreneurial networks, including EU-wide incubators and accelerators, would further support collaboration, knowledge exchange, and mobility among emerging green innovators. Beyond the economic and environmental dimensions, the reinforcement of EU identity remains of crucial

importance. The advancement of this objective can be achieved through the integration of European values, cultural heritage, and democratic participation in formal and informal education. Additionally, the expansion of cultural and exchange programs fostering interpersonal connections across member states can contribute to this objective. Finally, the employment of effective communication strategies that clearly demonstrate the tangible local benefits of EU environmental and economic policies can help strengthen the citizens' sense of belonging and trust in the European project.

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