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Insights into Civic Knowledge and Environmental Sustainability

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Abstract

Protection and awareness of the environment is a duty for citizenship and so has "implications for the development of civic and citizenship curricula" (Lotz-Sisitka, Fien, and Ketlhoilwe, 2013 in Schulz, 2018, p.4). In civic and citizenship education, "countries have increasingly concluded that responsible citizenship includes regard for the environment and its long-term protection, requisite for future sustainable development" (Dobson, 2003; Dobson & Bell, 2006; Ferreira, 2013; Hayward, 2006 in Schulz, 2018, p.4). In addition, there are many educational systems that expose "protection of the environment or education for environmental sustainability" as an important issue in their citizenship curricula (Ainley et al., 2013; Eurydice, 2012; Schulz et al., 2010 Schulz, 2018, p.5). This study examines the association between students' civic knowledge and their involvement in environmental activities, perceptions of global environmental threats, and willingness to participate in future initiatives, with a focus on environmental sustainability. Drawing from two research questions and corresponding hypotheses, the study explores these associations through secondary analyses using the ICCS 2022 Slovenian database.

Keywords: civic knowledge, ICCS, environmental protection, sustainable development, climate change

INTRODUCTION

Environmental sustainability and youth engagement are critical components in addressing the challenges posed by climate change and environmental degradation. The youth play an important role in shaping the future of environmental sustainability through their active involvement in various initiatives and their potential to drive positive change. However, despite the increasing recognition of the importance of youth participation in environmental sustainability, there are still significant gaps and challenges that need to be addressed. Youth engagement in environmental sustainability initiatives is essential for fostering a sense of responsibility towards the environment. Studies have emphasized the need for formal environmental education to bridge the knowledge gap between the youth and older generations, particularly in waste management practices, to achieve environmental sustainability (Debrah et al., 2021). The relationship between civic knowledge and environmental sustainability has garnered significant attention in the field of education. It has been recognized that responsible citizenship encompasses a regard for the environment and its long-term protection, which is essential for sustainable development (Cheah & Huang, 2019). Educational systems across various countries have increasingly acknowledged the importance of integrating the protection of the environment and education for environmental sustainability into their citizenship curricula (Cheah & Huang, 2019). This recognition has led to the formulation of hypotheses that posit a positive correlation between civic knowledge and environmental activism among students (Qu et al., 2022; Sachitra, 2023).

School activities related to environmental sustainability are viewed as an important part of citizenship education (Huckle, 2008 in Schulz et al., 2023). The concept of "sustainable schools" (Henderson & Tilbury, 2004 in Schulz et al., 2023) refers to initiatives to establish learning environments that respect the principles of sustainable development and aim to enable students to experience these principles directly. Adopting school-level measures to make schools more climate-friendly is noteworthy as an initiative within the context of UNESCO's activities to promote education for sustainable development (Gibb, 2016 in Schulz et al., 2023). This study will explore the association between students' civic knowledge and their involvement in environmental activities, perceptions of global environmental threats, and willingness to participate in future initiatives, with a focus on environmental sustainability. Secondary analyses will be conducted using the Slovenian database from the International Civic and Citizenship Education Study (ICCS). In the ICCS 2016 framework, environmental sustainability was integrated into civic and citizenship education as one of the three focal points aimed at expanding the scope of the subsequent ICCS cycle. In contrast, ICCS 2022 adopted a more comprehensive understanding of sustainability, encompassing content related to environmental, social, and economic sustainability. This broader perspective was designed to enhance the emphasis on Education for Sustainable Development (ESD) and increase the volume of ESD-related content compared to previous ICCS cycles (Schulz et al., 2023).

THEORETICAL FRAMEWORK

Despite the significant impact that youth can have on environmental sustainability, there is a prevailing lack of explicit inclusion of youth as key actors in environmental social sciences and sustainability-related research (Barraclough et al., 2021). This exclusion limits the potential contributions of youth to addressing environmental challenges and shaping sustainable futures. Additionally, the diverse ways in which youth express their political agency, particularly in challenging power relationships and promoting climate-resilient futures, have been underscored as essential for driving positive change (O'Brien et al., 2018). Moreover, the moral and ethical implications of sustainability underscore the

importance of engaging the youth in discussions and actions related to environmental sustainability, as they have a stake in the future state of the world (Baker-Shelley et al., 2017). Youth engagement in climate change action and disaster risk reduction has been acknowledged as a critical aspect of building resilience and promoting sustainable practices (Pickering et al., 2022). Furthermore, the normalization of environmental and climate injustices in the everyday lives of youth highlights the need for greater attention to the challenges faced by youth in addressing environmental and climate-related issues (Sloan Morgan, 2023). The engagement of youth in climate change awareness and advocacy has been identified as a protective factor to support youth's sense of hope and agency in addressing climate-related challenges (Udas et al., 2021). However, there is a need for further research and evaluation of methods to nurture and sustain authentic youth engagement in environmental health research and advocacy, which could ultimately lead to environmental health gains (Cardarelli et al., 2021).

Environmental sustainability and education are crucial in shaping the civic knowledge and engagement of youth. The intersection of environmental education and civic knowledge is essential for fostering a sense of responsibility, awareness, and action among young individuals. Research has emphasized the multifaceted nature of environmental education, which goes beyond the mere transfer of information to encompass the enhancement of environmental attitudes, awareness, knowledge, and skills for affirmative environmental action (Debrah et al., 2021). This holistic approach to environmental education is important in nurturing the civic consciousness of youth and preparing them to address environmental challenges. Moreover, the development of empathy, prosocial behavior, and future-oriented thinking among adolescents has been identified as influential factors in shaping their civic engagement, including environmental behaviors and social responsibility values (Metzger et al., 2018; Silke et al., 2018). These socio-emotional competencies are integral in fostering a sense of responsibility towards environmental sustainability and promoting active participation in environmental initiatives. Youth engagement in environmental sustainability is not only influenced by individual competencies but also by the broader social and educational contexts. For instance, classroom civic discussions and curricula have been linked to youth's civic knowledge and environmental behaviors, highlighting the role of formal education in shaping civic knowledge and environmental engagement (Wray□Lake & Shubert, 2019). In conclusion, the integration of environmental sustainability and education is instrumental in shaping the civic knowledge, attitudes, and behaviors of youth. By fostering a sense of responsibility, empathy, and future-oriented thinking, environmental education contributes to the development of environmentally conscious and civically engaged youth. The multifaceted nature of environmental education, encompassing formal education, socio-emotional competencies, and innovative approaches, underscores its significance in preparing the next generation of environmentally responsible citizens.

RESEARCH DESIGN

In this paper, we focused on the data from the International Civic and Citizenship Study (ICCS 2022), which is conducted by the International Association for the Evaluation of Educational Achievements (IEA) on the international level, and by the Educational Research Institute (ERI) on the national level (Schulz et al., 2023). This paper performed secondary analyses using the ICCS 2022 Slovenian database, and it tested the association between students' civic knowledge and ecological awareness of students'. The sample is representative of eighth-grade students from participating educational systems.

The paper focused on two research questions:

RQ1: How do Slovenian eighth-grade students engage in environmental activities, considering their past participation, perceptions of global environmental threats, and willingness to partake in future initiatives?
RQ2: How does students' civic knowledge of Slovenian eighth-grade students relate to the environmental sustainability?
From RQ2, three following hypotheses are derived:
H1: Students exhibiting higher levels of civic knowledge are more actively engaged in environmental protection endeavours compared to their counterparts with lower civic knowledge.
H2: Students with higher level of civic knowledge acknowledge that environmental changes are threatening the future more often, than those with lower levels of civic knowledge.
H3: Students with higher levels of civic knowledge will be more likely to undertake proactive measures for environmental action in the future than their counterparts with lower civic and citizenship proficiency.

To test our hypotheses, we utilized the ICCS 2022 student questionnaire and used 11 items that are linked to environmental sustainability:
Q14 Have you ever been involved in the activities of any of the following organisations, clubs or groups?
c) A group or organisation campaigning for a particular cause (e. g. environmental protection, human rights, or animal rights)
d) A global campaign for a particular issue (e.g. action on climate change)
Q15 At school, have you ever done any of the following activities?
f) Participating in an activity to make the school more environmentally friendly
Q28 To what extent do you think the following issues are a threat to the world's future?
a) Pollution
d) Climate change
j) Loss of biodiversity, extinction of living species
k) Water shortages
Q31 Would you take part in any of the following activities to express your opinion in the future?
g) Refuse to buy products that are harmful for the environment
h) Tell someone to stop causing damage to the environment
i) Participate in an organized protest to demand more action to protect our environment
j) Encourage other people to make personal efforts to help the environment (e.g. through saving water)

We first analysed all the items with descriptive statistics presenting percentages for each item. Next, we constructed 3 scales out of the items, each corresponding to one hypothesis. Items from Q14 and Q15 were used to construct the scale "participation", items from Q28 were used to construct the scale "threats to world's future", and items from Q31 were used to construct the scale "future participation". Options on the Likert scales were in descending order, so we reverse-coded them in order to get the ascending options. Later we performed a regression analysis with ICCS test scores as a dependent variable and scales as independent variables while also controlling for socioeconomic status (SES) and students' gender. IEA IDB analyzer was used as a tool for testing the hypotheses. We also tested for multicollinearity which showed minimal correlation between predictors.

FINDINGS

In this section we present the reported results of Slovenian eight-grade students about environmental sustainability. In the tables below are reported results about students' participation in environmental activities, students' perceptions of global environmental threats and students' expected participation in environmental protection activities as well as the association between civic knowledge and environmental sustainability.

Table 1: Students' participation in environmental activities

	No, I have never done this		**Yes, I have done this more than a year ago**		**Yes, I have done this in the last year**	
	N	Percentage	N	Percentage	N	Percentage
A group or organisation campaigning for a particular cause (e. g. environmental protection, human rights, or animal rights) (out of school)	2434	71.2	696	20.4	287	8.4
A global campaign for a particular issue (e.g. action on climate change) (out of school)	2994	87.7	281	8.2	138	4
Participating in an activity to make the school more environmentally friendly (e.g. through water - saving or recycling) (in school)	1925	56.3	949	27.7	547	16

In the table above, we observe the numbers and percentages of Slovenian eighth-grade students who reported engagement in environmental initiatives both in and out of school. Most students who reported that they had participated in any of the listed activities did so in "A group or organization campaigning for a particular cause (e.g., environmental protection, human rights, or animal rights)" or "Participating in an activity to make the school more environmentally friendly (e.g., through water-saving or recycling)" either more than a year ago or in the last year. Conversely, the largest percentage of eighth-graders in Slovenia, as much as 87.7%, indicated that they had never participated in "A global campaign for a particular issue (e.g., action on climate change)." Looking at the whole table, we can say that most of the students never participated in any environmental group, organization or campaign, and about half did participate in some environmental activities.

Table 2: Students' perceptions of global environmental threats

	Not at all		**To a small extent**		**To a moderate extent**		**To a large extent**	
	N	Percentage	N	Percentage	N	Percentage	N	Percentage
Pollution	103	3	104	3.1	443	13	2750	80.9

Climate change	137	4.1	276	8.2	944	28.1	2006	59.6
Loss of biodiversity, extinction of living species	140	4.2	264	7.9	869	25.8	2090	62.1
Water shortages	167	4.9	190	5.6	469	13.9	2548	75.5

In Table 2, we see the reported results of the Slovenian eighth-grade students; we asked them to what extent the items that they see in the table above are threats to the world's future. The majority of the students reported that the biggest threat to the world's future is "pollution"; 80.9% of students reported that to a large extent, and 13% of students think that pollution is a threat to a moderate extent. A little less, but also a high present of students reported that also "climate change" and "loss of biodiversity, extinction of living species" are threats to the world's future.

Table 3: Students' expected participation in environmental protection activities

	I would certainly not do this		**I would probably not do this**		**I would probably do this**		**I would certainly do this**	
	N	Percentage	N	Percentage	N	Percentage	N	Percentage
Refuse to buy products that are harmful for the environment	406	12.3	825	25	1334	40.4	734	22.2
Tell someone to stop causing damage to the environment	330	10	715	21.7	1415	43	828	25.2
Participate in an organised protest to demand more action to protect our environment	440	13.2	1962	31.9	1247	37.5	579	17.4
Encourage other people to make personal efforts to help the environment (e.g. through saving water)	343	10.3	726	21.8	1451	43.6	808	24.3

In Table 3, we can observe the self-reported anticipated future participation in various activities that take an active stance against environmental damage. We can see that the activities the Slovenian students are the most comfortable with are "Tell someone to stop causing damage to the environment" and "Encourage other people to make personal efforts to help the environment (e.g. through saving water)". These are also the options that have the most answers of "I would probably do this. On the other side participating in an organised protest and refusing to buy products that are harmful to the environment

are the options with most answers being "I would certainly not do this" and I would probably not do this". Overall, we can see that about two-thirds of students believe they will probably or certainly take action in all activities except in the case of "participation in an organised protest to demand more action to protect our environment", where around half of the students will probably or certainly do that.

Table 4: Association between civic knowledge and environmental sustainability

	Regression Coefficient	Regression Coefficient (s. e.)	Standardised Coefficient (t-value)
Participation (in school and out of school)	2.17	3.72	0.58
Threat to the future of the world	47.97	2.14	26.02
Anticipated future participation	16.33	2.25	7.20

From the table above, we can see that we found no statistically significant connection between student's civic and citizenship knowledge and current or past participation in environmental activities (t = 0.58). On the other hand, we have found a statistically significant association between civic knowledge and the second and third items in the table (threat to the future of the world and anticipated future participation). The regression showed that students who scored higher on the ICCS test also acknowledged various environmental problems as threats to the future of the world more often (t = 26.02). Additionally, students who scored higher on the ICCS test also tend to anticipate they will participate more in future environmental activities (t = 7.20).

Picture 1: Students' expected engagement in environmental protection activities

Country	Percentages of students who expect to probably or certainly: Tell someone to stop causing damage to the environment (%)	Encourage other people to make personal efforts to help the environment (e.g., through saving water) (%)	Refuse to buy products that are harmful for the environment (%)	Participate in an organized protest to demand more action to protect our environment (%)	Average scale scores indicating students' expected participation in environmental protection activities
Bulgaria	70 (1.0) ▽	69 (1.3) ▽	67 (1.1)	60 (1.1) △	50 (0.2)
Chinese Taipei	84 (0.7) ▲	85 (0.8) ▲	84 (0.7) ▲	60 (0.8) △	53 (0.2) △
Colombia	82 (0.9) △	83 (1.0) ▲	71 (1.2) △	77 (0.9) ▲	54 (0.3) ▲
Croatia[1]	77 (1.1) △	77 (1.0) △	65 (1.2)	62 (1.0) △	51 (0.2) △
Cyprus	74 (1.0)	71 (1.1)	64 (0.9)	63 (1.0) △	51 (0.3) △
Estonia	58 (1.4) ▼	64 (1.4) ▽	56 (1.3) ▽	43 (1.3) ▼	47 (0.3) ▼
France	75 (1.0) △	77 (1.0) △	67 (0.9)	51 (1.0) ▽	51 (0.2) △
Italy	85 (0.9) ▲	82 (0.9) △	76 (1.0) ▲	67 (1.1) ▲	53 (0.2) △
Latvia[1]	59 (1.2) ▼	58 (1.3) ▼	56 (1.2) ▽	48 (1.2) ▽	46 (0.3) ▼
Lithuania	73 (0.8)	75 (0.9) △	68 (1.1) △	63 (1.0) △	51 (0.2) △
Malta	77 (1.4) △	74 (1.6)	66 (0.8)	55 (0.9)	50 (0.3)
Netherlands†	46 (1.5) ▼	53 (1.6) ▼	48 (1.4) ▼	30 (1.3) ▼	44 (0.3) ▼
Norway (9)[1]	57 (0.9) ▼	58 (0.9) ▼	55 (0.9) ▼	36 (1.0) ▼	46 (0.2) ▼
Poland	84 (0.7) ▲	78 (0.9) △	73 (0.9) △	61 (0.9) △	51 (0.2) △
Romania	86 (1.4) ▲	86 (1.0) ▲	73 (1.5) △	77 (1.2) ▲	54 (0.3) ▲
Serbia	74 (1.2)	69 (1.1) ▽	62 (1.3) ▽	61 (1.3) △	50 (0.3)
Slovak Republic	79 (1.0) △	75 (1.1) △	66 (1.1)	62 (1.3) △	51 (0.3) △
Slovenia	68 (1.0) ▽	68 (1.1) ▽	63 (1.0) ▽	55 (1.0)	49 (0.2) ▽
Spain	80 (0.9) △	80 (0.8) △	68 (1.0) △	64 (1.1) △	52 (0.2) △
Sweden[1]	61 (1.1) ▼	65 (1.1) ▽	63 (1.0) ▽	35 (1.1) ▼	47 (0.2) ▽
ICCS 2022 average	72 (0.2)	72 (0.2)	66 (0.2)	57 (0.2)	50 (0.1)
Countries not meeting sample participation requirements					
Brazil	74 (0.8)	80 (0.8)	67 (0.9)	71 (1.0)	53 (0.2)
Denmark	56 (1.1)	60 (0.8)	64 (0.9)	36 (1.2)	47 (0.2)
German benchmarking participant meeting sample participation requirements					
North Rhine-Westphalia	60 (1.2) ▼	67 (1.2) ▽	55 (1.2) ▼	43 (1.3) ▼	47 (0.3) ▼
German benchmarking participant not meeting sample participation requirements					
Schleswig-Holstein	60 (1.5)	69 (1.7)	56 (1.6)	48 (1.7)	48 (0.3)

Notes:
Because results are rounded to the nearest whole number, some aggregate statistics may appear inconsistent.
() Standard errors appear in parentheses.
(9) Country deviated from international defined population and surveyed adjacent upper grade.
† Nearly met guidelines for sampling participation rates only after replacement schools were included.
[1] National defined population covers 90% to 95% of national target population.

National ICCS 2022 results are:
▲ More than 10 percentage or 3 score points above ICCS 2022 average
△ Significantly above ICCS 2022 average
▽ Significantly below ICCS 2022 average
▼ More than 10 percentage points or 3 score points below ICCS 2022

Source: (Schulz et al., 2023, p.137).

In the Picture 1, national percentages are compared across countries together with corresponding scale scores about students' expected engagement in environmental protection activities. The highest scale scores were recorded in Colombia and Romania (more than three scale score points above the ICCS 2022 average), while the lowest were observed in Estonia, Latvia, the Netherlands, and Norway. If we look at the results for Slovenia, compared to other participating countries, it is significantly below the ICCS 2022 average for the first three environmental protection activities.

CONCLUSION

In conclusion, this study provides insights into the relationship between civic knowledge and environmental sustainability among eighth-grade students in Slovenia. Despite the growing recognition of the importance of youth engagement in environmental initiatives, there remain significant challenges in fostering active participation and addressing environmental threats. The findings reveal that while there is no statistically significant association between students' civic knowledge and their current or past participation in environmental activities, there is a notable correlation between civic knowledge and students' perceptions of global environmental threats, as well as their expected future participation in environmental protection activities. Specifically, students with higher civic knowledge tend to acknowledge environmental issues as threats to the future more frequently and express a greater willingness to engage in future environmental initiatives. These findings underscore the importance of integrating environmental education into civic and citizenship curricula. By fostering a sense of responsibility and awareness, environmental education plays a crucial role in preparing the next generation to address environmental challenges and contribute to sustainable development. Further research and evaluation of educational strategies are needed to enhance youth engagement in environmental sustainability and promote meaningful participation in environmental initiatives.

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