

Introduction

"In a new, stormier world, where extreme weather events, droughts, climate change, heat waves, flooding, poor air quality, biodiversity loss and humanitarian crises threatens human well-being and global peace, resilience — the ability to adapt to disruption and "bounce back" — is everything" (De Paula, 2018, p.1). Important measures to achieve the goals of sustainable development include environmental awareness and awareness-raising of our responsibility, which is also a condition for changing values, behaviors and lifestyles (Špes, 2008, p.52). Sustainable Development (especially climate change) is a concern, which is increasingly exposed in political, social and economic debates through countries all over the world. (Dringer, 2013; Edenhofer et al., 2014 in Schulz et al., 2016, p.4).

"In many societies, awareness of the environment and its long-term protection are now widely regarded as integral to responsible citizenship and therefore has implications for the development of civic and citizenship curricula" (Lotz-Sisitka, Fien, and Kethoilwe, 2013 in Schulz, 2016, 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, 2016, p.4). In addition, there are many educational systems that expose "protection of the environment or education for environmental sustainability" as important issue in their citizenship curricula (Ainley et al., 2013; Eurydice, 2012; Schulz et al., 2010 in Schulz, 2016, p.5).



The data used in this paper comes from the International Civic and Citizenship Education Study (ICCS) from its 2016 cycle. The ICCS 2016 "investigated the ways in which young people are prepared to undertake their current and future roles as citizens." It was conducted in 24 educational systems, analyzing lower secondary students' civic knowledge, as well students' home background and school characteristics. The results of this study can be compared among and between those participated educational systems. The data are gathered "from more than 94,000 students enrolled in their eight year of schooling (Grade 8 or equivalent) at about 3800 schools in 24 countries" (Schulz, Ainley, Fraillon, Agrusti and Friedman, 2016, p.2).

In ICCS 2016, new focus areas have been identified and one of them is "the growing concern about global threats as well as sustainable development" (Schulz et al, 2016, p.2). This paper will perform secondary analyses using ICCS 2016 database and it will test the association between students' civic knowledge and ecological awareness of students'. The sample is representative for eight grade students from participating educational systems.



Research design

H1: Students with higher level of civic knowledge have been more involved in environmental protection activities like those with lower civic knowledge achievement.

H2: Students with higher civic knowledge tend to think that pollution and environmental change are more serious threats for the world compared to students with lower civic knowledge.

H3: Students with higher level of civic knowledge are more likely to anticipate taking actions to help environment as adults, than students with lower level of civic knowledge.

This study used the regression analysis to test the association between civic knowledge and environmental sustainability.

The study used data from the student questionnaire, taking the variables from five questions covering environmental sustainability:

Q1: Have you ever been involved in activities of any of the following organizations, clubs or groups? (Please tick only one box in each row.)

IS3G15B: An environmental action group or organization

Q2: "At school, have you ever done any of the following activities? Please think about all schools you have been enrolled at since the first year <ISCED level>. (Please tick only one box in each row.)"

IS3G16F: "Participating in an activity to make the school more <environmentally friendly> (e.g. through watersaving or recycling)".

Q3: How important are the following behaviors for being a good adult citizen? (Please tick only one box in each row.)

IS3G23N: Making personal efforts to protect natural resources (e.g. through saving water or recycling waste)

Q4: To what extent do you think the following issues are a threat to the world's future? (Please tick only one box in each row.)

IS3G28A: Pollution

IS3G28I: Climate change

Q5: Listed below are different ways adults can take an active part in society. When you are an adult, what do you think you will do? (Please tick only one box in each row.)

IS3G31J: Make personal efforts to help the environment (e.g. through saving water)

Findings

IS3G15B:

Students who have participated in an environmental group or organization, but more than a year ago, tend to be more knowledgeable in civic matters than those who have never done this in the next countries (statistically significant): Bulgaria, Mexico.

The interesting result in Dominican Republic and Peru: those who participated in an environmental group or organization in the past or do it now both have negative and statistically significant results (tend to be less knowledgeable in civic matters).

Slovenia: Students who have done it before tend to be more knowledgeable (although the difference with the ones who have never done it is not statistically significant) and the difference between the ones who have never done it and those who do it now is even higher (although, again, not statistically significant).

IS3G16F:

Countries in which students, who have participated in an environmental group or organization or they participate now tend to be more knowledgeable in civic matters (statistically significant): Slovenia, Belgium, Chinese Taipei, Croatia, Denmark, Estonia, Finland, Hong Kong, SAR, Korea, Latvia, Lithuania, Malta, Norway, Sweden.

IS3G23N:

In all countries students who think that making personal efforts to protect natural resources is very important, have been scored higher in civic knowledge that students who think that this is not so important.

IS3G28A and IS328I:

The study also showed for all countries, that students who think that pollution and climate change are a threat to the world's future are much more knowledgeable in civic matters that those students who think that this is not a problem.

ISG31J:

For all countries that participated in study, the result showed that students with higher level of civic knowledge are more likely to anticipate taking actions to help environment as adults, than students with lower level of civic knowledge.



Conclusions

The study showed the association between civic knowledge achievement and environmental sustainability. Students with higher level of civic knowledge have in general been more involved in environmental protection activities than those with lower civic knowledge achievement. Higher scores on civic knowledge test have been achieved by students that are aware of threats to the environment and those with better civic knowledge are also more likely to actively help environment as adults, than students with lower level of civic knowledge. Civic knowledge is important determinant for environmental awareness.