Construct of Youth Environmental Citizenship among International Large-Scale Educational Studies †

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† Presented at the 2nd International Conference of International Researchers of the Education for Environmental Citizenship 2022, 10–11 March 2022. Available online: https://enec-cost.eu/ireec22/.

Abstract: Environmental citizenship has become an integral element of civic and citizenship education curricula, both globally and at the European level. Previous analysis provided important evidence that environmental-citizenship education practice in Nordic schools has a significant positive association with heightened attitudes and magnified behaviours among students toward environmental actions now and in the future. This paper starts with critiques on the strengths and limitations of ICCS 2016 data measures of youth environmental citizenship, and then it provides an overview of measures applied in a few other large-scale international studies such as PISA 2015 and PISA 2018. At the end, we present a measurement proposal on environmental citizenship through combining the measures from these studies.

Keywords: environmental citizenship; Nordic countries; citizenship education; International Civic and Citizenship Education Study (ICCS); Programme for International Student Assessment (PISA)

1. Introduction

Environmental citizenship has become an integral element of civic and citizenship education curricula, both globally and at the European level [1,2]. Previous analysis [3,4] provided results of measures using students’ concerns, values, engagement, and intended future participation on environmental issues to construct environmental citizenship and its relation to student home socioeconomic background, gender, and migrant status. The results show that there are both similarities and small variations in elements of student environmental citizenship among the Nordic countries and in comparison with their European and international peers. Nordic students stand out as concerned environmental citizens while they rank somehow lower than their European and international peers in engagement, values, and intended participation of environmental citizenship. We find that student environmental citizenship is socially divided in all Nordic countries as it differs significantly between students from different socioeconomic strata and genders. Although not all differences of student environmental citizenship by migrant status are statistically significant among the Nordic countries, we find some significant influence of migrant status interaction with socioeconomic status and genders.

We follow a recent and comprehensive definition of environmental citizenship by the European Network for Environmental Citizenship (ENEC, 2017–2022): Environmental citizenship is the responsible pro-environmental behavior of citizens who act and participate in society as agents of change in the private and public sphere on a local, national, and global scale, through individual and collective actions, in the direction of solving contemporary environmental problems, preventing the creation of new environmental problems, and achieving sustainability and developing a healthy relationship with nature (https://enec-cost.eu/our-approach/) (assessed on 16 March 2022 ENEC, 2018) [5].
The ENEC definition of Environmental citizenship includes elements of knowledge, skills, attitudes, values. These elements are also compatible with the UNESCO definition of Education for Sustainable Development (ESD), “Education for Sustainable Development empowers learners with knowledge, skills, values and attitudes to take informed decisions and make responsible actions for environmental integrity, economic viability and a just society.” [6].

2. Existing Data and Measures of Environmental Citizenship

We present the variables of interest measuring student concerns, values, attitudes, behaviors and intended behaviors related to environmental issues from existing data of ICCS 2016 in Table 1 and PISA 2016 and PISA 2018 in Table 2. Table 1 shows students’ responses to the measurement items in percentages of Europe comparing with those of international. The preliminary results in Table 1 indicate an overall similarity between European students and students of the world. In Table 2, without data analysis, we only present the measures of variables relevant for environmental citizenship existing in PISA 2015 and PISA 2018 studies, to serve the purpose of our conference presentation of proposing a measurement of environmental citizenship.

Table 1. Description of measures from International Civic and Citizenship Education Study (ICCS) 2016 study.

| Items of Interest in ICCS 2016                                      | Response Alternative | % Europe     | % International |
|-------------------------------------------------------------------|----------------------|--------------|-----------------|
| Have you ever been involved in environmental organizations        | Yes, have been       | 25.1 (0.3)   | 28.1 (0.2)      |
| or groups (STQ15b)                                                | Never                | 74.9 (0.3)   | 71.9 (0.2)      |
| A school, to what extent have you learnt how to protect the       | A lot                | 41.2 (0.4)   | 46.1 (0.3)      |
| environment (STQ18c)                                              | To some extent       | 37.9 (0.3)   | 34.7 (0.2)      |
|                                                                  | A little             | 16.5 (0.2)   | 15.2 (0.2)      |
|                                                                  | Not at all           | 4.4 (0.2)    | 3.9 (0.1)       |
| Total                                                             |                      | 100          | 100             |
| How important for a good adult citizen to participate in          | Very important       | 38.2 (0.3)   | 44.1 (0.2)      |
| protecting the environment (STQ23)                                | Quite important      | 43.8 (0.3)   | 41.3 (0.2)      |
|                                                                  | Not very important   | 15.1 (0.2)   | 12.1 (0.1)      |
|                                                                  | Not important at all | 2.9 (0.1)    | 2.5 (0.1)       |
| Total                                                             |                      | 100          | 100             |
| How important for a good adult citizen make personal effort to    | Very important       | 43.1 (0.3)   | 48.7 (0.2)      |
| protect the environment (STQ23b)                                  | Quite important      | 43.9 (0.3)   | 40.7 (0.2)      |
|                                                                  | Not very important   | 10.9 (0.2)   | 8.8 (0.1)       |
|                                                                  | Not important at all | 2.1 (0.1)    | 1.9 (0.1)       |
| Total                                                             |                      | 100          | 100             |
| Biggest threat to the world future is pollution (STQ28a)          | To a large extent    | 73.6 (0.3)   | 75.3 (0.2)      |
|                                                                  | To a moderate extent | 21.3 (0.3)   | 20 (0.2)        |
|                                                                  | To a small extent    | 3.7 (0.1)    | 3.5 (0.1)       |
|                                                                  | Not at all           | 1.2 (0.1)    | 1.2 (0.0)       |
| Total                                                             |                      | 100          | 100             |
### Table 1. Cont.

| Items of Interest in ICCS 2016                                      | Response Alternative | % Europe     | % International |
|-------------------------------------------------------------------|----------------------|--------------|-----------------|
| Biggest threat to the world future is climate change (STQ28i)    | To a large extent   | 55.6 (0.3)   | 56.8 (0.2)      |
|                                                                  | To a moderate extent| 29.6 (0.3)   | 28.4 (0.2)      |
|                                                                  | To a small extent    | 11.9 (0.2)   | 11.9 (0.1)      |
|                                                                  | Not at all           | 2.9 (0.1)    | 2.8 (0.1)       |
|                                                                  | Total                | 100          | 100             |

When becoming adult, will you make personal efforts to protect the environment (STQ31i)

|                                                      |                      | Europe  | International |
|------------------------------------------------------|----------------------|---------|---------------|
| I would certainly do                                 |                      | 29.6 (0.3) | 38 (0.2)      |
| I would probably do                                  |                      | 45 (0.3)   | 41.4 (0.2)    |
| I would probably not do                              |                      | 19.2 (0.2) | 15.3 (0.2)    |
| I would certainly not do                            |                      | 6.1 (0.2)   | 5.3 (0.1)     |
| Total                                                |                      | 100      | 100           |

Source: Table A1 in [4].

### Table 2. Measures from PISA 2015 and 2018 studies.

| Items of Interest in PISA 2015                                      | Response Alternatives                        |
|-------------------------------------------------------------------|-----------------------------------------------|
| Students’ responses to question “How informed are you about the following environmental issues?” (ST092) | 1 = I have never heard of this             |
|                                                                  | 2 = have heard about this but I would not be able to explain what it is really about |
|                                                                  | 3 = I know something about this and could explain the general issue |
|                                                                  | 4 = I am familiar with this and I would be able to explain this well |

|                                                                 | 1 = improve                       |
|                                                                 | 2 = stay about the same           |
|                                                                 | 3 = get worse                      |

| Students’ responses to question “Do you think problems associated with the environmental issues below will improve or get worse over the next 20 years?” (ST093) | 1 = I couldn’t do this,             |
|                                                                 | 2 = I would struggle to do this on my own, |
|                                                                 | 3 = I could do this with a bit of effort, |
|                                                                 | 4 = I could do this easily          |

| Predict how changes to an environment will affect the survival of certain species | 1 = very often                        |
|                                                                 | 2 = regularly                        |
|                                                                 | 3 = sometimes                        |
|                                                                 | 4 = never or hardly ever             |

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Table 2. Cont.

| Items of Interest in PISA 2018                                                                 | Response Alternatives                                                                 |
|-----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Students’ responses to questions “How easy do you think it would be for you to perform the following tasks on your own?” (ST196) |                                                                                       |
| Explain how carbon-dioxide emissions affect global climate change                             | 1 = I couldn’t do this, 2 = I would struggle to do this on my own, 3 = I could do this with a bit of effort, 4 = I could do this easily |
| Establish a connection between prices of textiles and working conditions in the countries of production |                                                                                       |
| Discuss the different reasons why people become refugees                                     |                                                                                       |
| Explain why some countries suffer more from global climate change than others                  |                                                                                       |
| Explain how economic crisis in single countries affect the global economy                      |                                                                                       |
| Discuss the consequences of economic development on the environment                           |                                                                                       |
| Students’ responses to question “How informed are you about the following topics?” (ST197)     |                                                                                       |
| ST197Q01HA: Climate change and global warming                                                |                                                                                       |
| 1 = I have never heard of this, 2 = I have heard about this but I would not be able to explain what it is really about, 3 = I know something about this and could explain the general issues, 4 = I am familiar with this and I would be able to explain this well |
| Students’ responses to question “Are you involved in the following activities?” (ST222)       |                                                                                       |
| I reduce the energy I use at home (e.g., by turning the heating down or turning the air conditioning up or down or by turning the lights when leaving a room) to protect the environment |                                                                                       |
| I choose certain products for ethical or environmental reasons, even if they are a bit more expensive | Yes = 1 No = 2                                                                         |
| I sign environmental or social petition online                                                |                                                                                       |
| I keep myself informed about world events via Twitter or Facebook                            |                                                                                       |
| I boycott products or companies for political, ethical or environmental reasons              |                                                                                       |
| I participate in activities promoting equality between men and women                           |                                                                                       |
| I participate in activities in favour of environmental protection                             |                                                                                       |
| I regularly read websites on international social issues (e.g., poverty, human rights)       |                                                                                       |
| Students’ responses to question “To what extent do you agree with the following statements?” (ST219) |                                                                                       |
| ST219Q06HA: Looking after the global environment is important to me                           |                                                                                       |
| 1 = Strongly disagree, 2 = Disagree, 3 = Agree, 4 = Strongly agree                            |                                                                                       |

Source: Student Questionnaire for Pisa 2018 www.oecd.org/pisa/data (accessed on 16 March 2022).

3. Discussion and Conclusions

There have been studies that explore concepts and measures relevant to environmental education; in this paper we have categorised environmental-related questions formulated in the ICCS 2016 and PISA studies into several environmental citizenship attributes. First, the ICCS study appears to focus on students’ concerns, values and future intentions in/outside of school engagement that are interpreted as environmental citizenship attributes. Second, the PISA studies seem to focus on knowledge, skills, engagement, dialogue, social media participation, and habit formation that are interpreted as environmental citizenship attributes. Nonetheless, existing studies such as teachers’ understanding of sustainable development and student attitudes and consciousness towards the environment, school education and student learning for environmental citizenship, and a collective effort in conceptualization of environmental citizenship [7] also explore concepts and contribute to measures of environmental citizenship. However, the concepts and measures of envi-
Environmental citizenship are rather fragmented geographically and socio-culturally, as well as across different scientific disciplines at different analytical levels. Hence, this array of studies may also contribute to a current lack of comprehensive measurement and perhaps enable researchers to assess and compare youth environmental citizenship across systems and national borders. This preliminary analysis of the ICCS and PISA studies has led to our proposing a new measurement including eight items measuring students’ concerns, values, and future intentions in/outside of school engagement, and knowledge, skills, dialogue, social media participation and habit formation that are conducive to pro-environmental movements and change.

**Author Contributions:** Conceptualization, S.L.C. and L.H.; methodology, L.H.; formal analysis, S.L.C. and L.H.; investigation, S.L.C.; resources, L.H.; writing—original draft preparation, S.L.C. and L.H.; writing—review and editing, S.L.C.; visualization, L.H. All authors have read and agreed to the published version of the manuscript.

**Funding:** This research did not receive any external funding.

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** Not applicable.

**Conflicts of Interest:** The authors declare no conflict of interest.

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