

Article

Environmental Attitudes among Youth: How Much Do the Educational Characteristics of Parents and Young People Matter?

Andrej Kirbiš 

Department of Sociology, Faculty of Arts, University of Maribor, Koroška Cesta 160, 2000 Maribor, Slovenia; andrej.kirbis@um.si

Abstract: Research shows that education increases environmental attitudes, yet there is a lack of studies examining young people's attitudes and the role of various educational characteristics in youth's environmental engagement. The main aim of our study was to examine how several educational characteristics of young people and their parents impact youth's environmental attitudes. We employed a survey sample of 14–34-year-olds ($N = 1508$; $M_{\text{age}} = 19.25$ years) collected in January 2020. The impact of five educational variables was tested: maternal and paternal educational level; students' educational stage (primary, secondary and tertiary school students); educational track of secondary students (vocational, professional and general); and youth's educational status (currently in education vs. not in education). We controlled for several demographic and economic confounding factors in multivariate analyses. These indicate significant between-track differences in environmental attitudes among secondary school students, while educational status and educational stage have no significant impact on environmental attitudes. In addition, the father's (but not the mother's) education increases Slovenian youngsters' environmental attitudes. As findings indicate significant differences between educational tracks of secondary students independent of their parental education and other personal and family characteristics, educators may want to revise vocational and professional secondary school syllabuses to include an increased number of environmental, climate change and sustainability topics.

Keywords: environmental attitudes; educational characteristics; school track; parental education; young people



Citation: Kirbiš, A. Environmental Attitudes among Youth: How Much Do the Educational Characteristics of Parents and Young People Matter? *Sustainability* **2023**, *15*, 11921. <https://doi.org/10.3390/su151511921>

Academic Editor: Alan Randall

Received: 17 June 2023

Revised: 28 July 2023

Accepted: 1 August 2023

Published: 3 August 2023



Copyright: © 2023 by the author. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

1. Introduction

Human activity is widely recognized as the primary driver behind environmental degradation and climate change, which are among the most critical global issues in the modern world [1–3]. Climate change is linked to other critical issues, from global poverty and social inequality to biodiversity loss and natural resource depletion [4]. As climate change and environmental issues are complex global problems, they need to be tackled at different levels. This includes a change in environmental attitudes, values, knowledge and behaviour among decision-makers and the general public [5,6]. The complexity of the issue makes one's awareness of what is needed to create a low-emission future and environmental engagement vital. Education plays a critical role in this endeavour, as highlighted by crucial documents in this area, such as the *United Nations Framework Convention on Climate Change* [7] and the *Paris Agreement* [8]. Article 6 of the UNFCCC [7], for example, states that signatory countries should “Promote and facilitate . . . the development and implementation of educational and public awareness programmes on climate change and its effects”, while the Paris Agreement [8] in Article 12 states that countries “shall cooperate in taking measures, as appropriate, to enhance climate change education, training, public awareness, public participation and public access to information”.

Considering the importance of education for addressing global environmental issues, including climate change, it is crucial to examine various individuals' educational characteristics in their environmental engagement. Young people are the group most heavily involved in educational processes. More importantly, they are a crucial group to involve in the fight against climate change. They are not only the current members of society but also the future decision-makers, and they will have to deal with the adverse effects of this global issue in the future [9]. As Corner and colleagues put it: ". . . young people arguably have the most to gain and the most to lose in a changing climate." [10] (p. 523). Therefore, in the present study, we examined the environmental attitudes of Slovenian youth, with a particular focus on the role of educational characteristics of young people and their parents.

2. Theoretical Background

2.1. The Impact of Education on Environmental Attitudes

The critical role of education in sustainable behaviours and attitudes, including environmental attitudes, is well established in the literature. Most studies investigating the impact of education have examined adults' educational levels. Ample correlational research shows that education positively impacts environmental attitudes [11,12] and behaviour [13,14]. Furthermore, there is evidence that education has a causative impact on people's pro-environmental engagement [15].

Several additional mechanisms may explain why education positively impacts environmental attitudes and behaviour. First, education is considered one of the elements of socioeconomic status that impacts one's objective and subjective existential security. When people have higher levels of material security and day-to-day survival is largely taken for granted, they can put a higher value on non- or post-materials goals, emphasizing self-expression, self-realization and quality of life, which includes being more aware of environmental issues, which, then, increases pro-environmental attitudes and behaviour [16]. Second, education is linked to cognitive abilities, which are, in turn, linked to one's openness [17]. More educated groups tend to exhibit a greater connectedness to the environment, possibly due to their broader perspective and increased concern for others, reflected in their openness towards the value and importance of nature and the environment. Third, educational levels also tend to be linked to how people spend time during their leisure activities. For example, education increases outdoor physical activities; spending more time outdoors in natural settings can enhance one's sense of affinity and care for the environment, which can have a positive impact on pro-environmental attitudes and actions [18,19].

The significance of educational levels for environmental attitudes and behaviour of adults is well-documented. However, existing studies on young people primarily focus on environmental education [20–22], while there is much less known on other educational determinants of young people's environmental attitudes.

2.2. Parental Education

One of the main questions to be answered is whether the positive impact of adults' education on their environmental attitudes translates into their offspring's pro-environmental attitudes. In this regard, studies are less consistent; some studies show that parental education may positively impact offspring's environmental engagement. For example, a study of Hungarian secondary school students found parental education to increase students' environmental attitudes and behaviour [23]. A study of Turkish children found that their connectedness to nature increased with parental education [24], as did adolescents' environmental awareness [25]. In addition, studies of primary [26] and secondary school students [27] found higher environmental knowledge among those with higher-educated parents. Students with higher-educated parents are less likely to think about being disconnected from nature and perceive nature as a fearful and loathsome environment [28]. Higher parental education might also increase youth's environmental engagement through informal parental teaching about sustainable environmental behaviour and instilling environmental awareness [29].

However, some studies have found no impact of parental education on young people's environmental engagement. For example, a study from US regions found neither the parental education [30] nor the maternal education [31] to be linked with offspring's environmental attitudes or behaviour. In another study of US youth, parental SES (measured through parental education and income) also had no impact on youth's environmental attitudes or behaviour [32]. Similarly, using PISA 2006 data, a 56-country study by Boeve-de Pauw and Van Petegem [33] found no impact of parental education on youth environmental attitudes.

Furthermore, the impacts of mother's vs. father's education are rarely examined separately. In a ten-country study of youth in Southeast Europe, the father's education was not significantly linked to a measure of the youth's civic environmental competencies, which included an item of boycotting products due to environmental reasons; the mother's education, however, had a positive impact in four out of ten countries [34].

2.3. Educational Track

The educational track is another characteristic seldom addressed in the environmental engagement literature. Coertjens and colleagues argue that the role of school, including the role the educational track, plays in shaping environmental attitudes of youth "... *up until now may not have received the attention it deserves*" [35] (p. 499). They analysed PISA 2006 data of Flemish secondary school students and found that, surprisingly, students in the vocational track had significantly higher environmental attitudes scores, followed by general track students, while the technical track students had the lowest environmental attitudes. One of the explanations provided by Coertjens and colleagues for increased pro-environmental attitudes among vocational track students is that their vocational education "*exposes them to real-life environmental topics related directly to the profession they are learning in school*" [35] (p. 512).

Analysis of post-secondary school students shows similar between-track differences. A study in the US found that academic majors impacted young people's perceptions of nature. Specifically, social science/humanities/arts majors and engineering/math/computer science majors were half as likely to think about disconnection from nature regularly compared to natural/physical science majors [28]. Another study in the US found that economics and business majors were less likely to participate in public environmental behaviour [13]. However, one study found no impact of a major on environmental attitudes (e.g., [30]).

2.4. Educational Stage

Differences between educational stages (e.g., primary, secondary and tertiary education) on environmental attitudes are also seldom examined in the literature. A handful of existing studies show educational stage differences in environmental attitudes. For example, in Poland, secondary students from gymnasiums (lower stage) reported higher environmental knowledge than those from lyceums (higher stage) [36]. A US study found that with an increasing stage of education, students express more pro-environmental attitudes [30].

2.5. Educational Status

Finally, another essential educational characteristic of each young person is their educational status (i.e., whether they are currently a student compared to having a different activity status, e.g., being employed, unemployed, or retired due to, for example, a health condition). Since there is a lack of research on the role of this educational characteristic, we included it in our analysis, as we were interested in whether leaving the institutionalized educational process is linked to lower environmental attitudes.

2.6. Environmental Attitudes among Slovenian Youth

Recent studies have indicated comparatively high levels of environmental engagement among Slovenian youth. For example, “protecting nature” was rated as “very important” by 38.5% of Slovenian youth in 2020 and “living in a clean and pristine environment” was rated as “very important” by 44.6% of Slovenian youth [37] (p. 309). In comparison, “material goods” were rated as “very important” by only 11.8% of Slovenian youth (*ibid.*). A study of Slovenian primary school students found 71.8% of respondents “strongly agreed” that “Plants and animals have as much right as people to live”. Similarly, 63.3% “strongly agreed” that “If things don’t change, we will have a big disaster in the environment soon” [38].

Earlier studies also indicate that the environmental attitudes of Slovenian youth are translated into pro-environmental behaviour, with encouraging trends in the last decade. For example, compared to 2010, Slovenian youth in 2020 were more likely to have bought or would be willing to buy certain products due to political, ethical or environmental reasons (31.4% vs. 46.3%, respectively). Furthermore, 52% of young people reported minimizing their consumption/purchases to what they really need due to environmental problems and 54% stated that, when possible, they buy local products that are not transported long distances [37].

We argue that a more detailed look into the role of education among youth is needed about environmental attitudes. As most previous studies focus on individual educational variables among adults, we investigated the impact of several educational characteristics of Slovenian youth and their parents and their impact on youth’s environmental attitudes. This is the first study of Slovenian youth to examine and compare youth across three educational stages, secondary school tracks and two educational statuses. Previous studies of Slovenian youth have included only primary [39], or secondary school students [40], or excluded some educational and age groups, e.g., [41]. In addition, none of the previous studies focused on educational determinants, except for a study that examined parental education; it found a positive impact of maternal (but not paternal) education on civic environmental competencies among Slovenian youth [34].

3. Study Aim

The main aim of our study was to examine environmental attitudes among Slovenian youth (12–34-year-olds). We were interested in how prevalent environmental attitudes are and how they may be impacted by young people’s and their parents’ educational characteristics. We tested the role of five educational predictors: maternal and paternal educational level; students’ educational stage (primary, secondary and tertiary school students); educational track of secondary students (vocational, professional and general); and youth’s educational status (currently being in education or not). We controlled for several demographic and economic confounding factors in multivariate analyses.

If a link is found between youngsters’ personal educational characteristics (educational status, stage and track) and their environmental attitudes, the results may answer whether the inclusion of parental education into the predictive models decreases the impact of youngsters’ educational determinants. If so, parental educational levels may partly explain why educational status, stage and track may be linked to environmental attitudes. On the other hand, if examined personal educational characteristics remain a significant predictor after the inclusion of parental education (and other indicators of a family’s social status), then some other mechanisms may be at play.

4. Method

4.1. Data and Sample Description

We analysed survey data from a large sample of Slovenian young people (N = 1508; 12–34 years; age = 19.25; 57.6% of women), collected initially to analyse youth’s cultural participation and lifestyle patterns [42]. The sample included primary school students (n = 147), secondary school students (n = 982), tertiary students (n = 248), employed (n

= 88) and unemployed (n = 47) young people who, at the time of the survey (in January and February 2020) resided in Slovenia. The survey was conducted in all twelve Slovenian statistical regions. The sample was collected by contacting randomly selected primary and secondary schools in Slovenia and by sharing the link to an e-survey via the project's online social networks and the Faculty of Arts of the University of Maribor. Although the sample is not representative of young people in Slovenia, it covers all key groups of activity statuses and young people from all twelve regions and is gender-balanced (for detailed information on sampling, see [43]).

4.2. Measurement

4.2.1. Outcomes Variables

Environmental attitudes were measured with two items. The first question was: "How important is caring for nature and looking after the environment to you?" (1 = not important at all; 2 = not important; 3 = somewhat important; 4 = very important).

The second item was previously used in World Values Survey, European Values Study [44] and Slovenian Public Opinion [45]: "I would give part of my income if I were certain that the money would be used to prevent environmental pollution." (1 = strongly disagree; 2 = disagree; 3 = agree; 4 = strongly agree).

Both items were combined in an additive index and proved sufficiently reliable ($\rho = 0.47$; $p < 0.001$). We performed a principal component analysis and used a factor score of both items in multivariate analyses. Factor score values were recoded into deciles (1 = lowest decile; 10 = highest decile), which were used as our ordinal outcome variable, with higher values indicating higher pro-environmental attitudes.

4.2.2. Educational Predictor Variables

Five educational predictors were examined. Current educational status was a dichotomized answer of the predominant respondent's activity (0 = not in education; 1 = in education). All students' current educational stage was also tapped (1 = primary school; 2 = secondary school; 3 = tertiary school). Among secondary school students, the educational track was measured (1 = vocational; 2 = professional; 3 = general). Finally, the mother's and father's educational level was tapped with a question on parental education; original values were recoded into three categories (1 = primary school or less; 2 = some secondary education; 3 = some higher education).

4.2.3. Control Variables

Based on the literature on determinants of environmental attitudes and educational outcomes, we included several control variables in our multivariate models: gender (1 = male; 2 = female), age (in years), size of residential settlement (1 = less than 1000 inhabitants; 2 = 1000–10,000 inhabitants; 3 = 10,000–100,000 inhabitants; 4 = more than 100,000 inhabitants), family structure (1 = both parents; 2 = a single parent family; 3 = reorganized family), partner status (1 = living with a partner; 2 = partner, but not living together; 3 = single), children status (1 = no; 2 = yes) and ethnic status (1 = Slovenian; 2 = other). In addition, the respondent's economic status was tapped with questions on self-assessed family material status (0 = lowest material status; 10 = highest material status) and respondent's monthly income (1 = lowest quintile; 5 = highest quintile).

4.3. Plan of Analysis

We first present descriptive analyses of two environmental attitude items. We then calculated bivariate associations between five educational predictors and the additive outcome variable. Lastly, we performed ordinal regression analyses on the outcome variable, controlling for confounding factors.

5. Results

5.1. Descriptive Analyses

Table 1 shows the prevalence of environmental attitudes of Slovenian youth. More than nine out of ten respondents say caring for nature and looking after the environment is important to them (among them, 61.1% rate it as “very important” and 32.5% as “somewhat important”). As to preparedness to give a part of one’s income to be used to prevent environmental pollution, 24.7% “strongly agree” that they would give part of their income if they were certain that the money would be used to prevent environmental pollution, and 43.4% “agree” with the statement. Only 11% would not give a part of their income for the stated cause. descriptive analyses indicate that environmental attitudes are highly prevalent among Slovenian youth.

Table 1. Descriptive analysis of environmental attitudes among Slovenian youth. Source: Kirbiš et al. [46].

	Importance of Caring for Nature and Looking after the Environment		Would Give Part of My Income If I Were Certain that the Money Would Be Used to Prevent Environmental Pollution
Not important at all	1.1%	Strongly disagree	4.4%
Not important	4.4%	Disagree	6.6%
Somewhat important	32.5%	Neither	20.9%
Very important	62.1%	Agree	43.4%
		Strongly agree	24.7%

5.2. Bivariate Associations

Figures 1 and 2 show differences in environmental attitudes among Slovenian youth by educational variables. Figure 1 shows that current educational status does not significantly impact the attitude toward the importance of nature. Those currently in education are more likely to (strongly) agree that they would donate their income to the environment (Figure 2), but differences in educational status are not significant ($p > 0.05$). The educational stage is not significantly associated with the assessed importance of nature (Figure 1). However, it is significantly associated with donating income (Figure 2), with respondents currently in the tertiary educational stage most likely to donate their income and those in primary school least likely. We note that the effect of age and personal income may play an especially important role in explaining these differences (for this reason, we control for these and other confounders in multivariate analyses). The educational track is the only educational predictor that is significantly linked with both environmental outcomes. We see that students in gymnasiums (general track) are more likely to express high importance of nature (65%) compared to professional and vocational school students (55%) (Figure 1). Differences in donating income are even more pronounced, with 74% of gymnasium students saying they are likely to donate their income but only 51% of vocational education students. Among those in a 4-year professional education, 62% would donate their income.

Turning to both parental education variables, we see that only one is significant out of four possible associations; those with the highest educated mothers are most likely to donate their income to the environment (Figure 2), while the lowest likelihood is among those with mothers with 4-years secondary school education ($p < 0.05$).

5.3. Multivariate Analyses

Table 2 shows ordinal regression analyses of the impact of examined educational variables on environmental attitudes score, controlling for sociodemographic and economic variables. Each educational predictor was included in separate models, with all Model 1 excluding parental education and Model 2 including it.

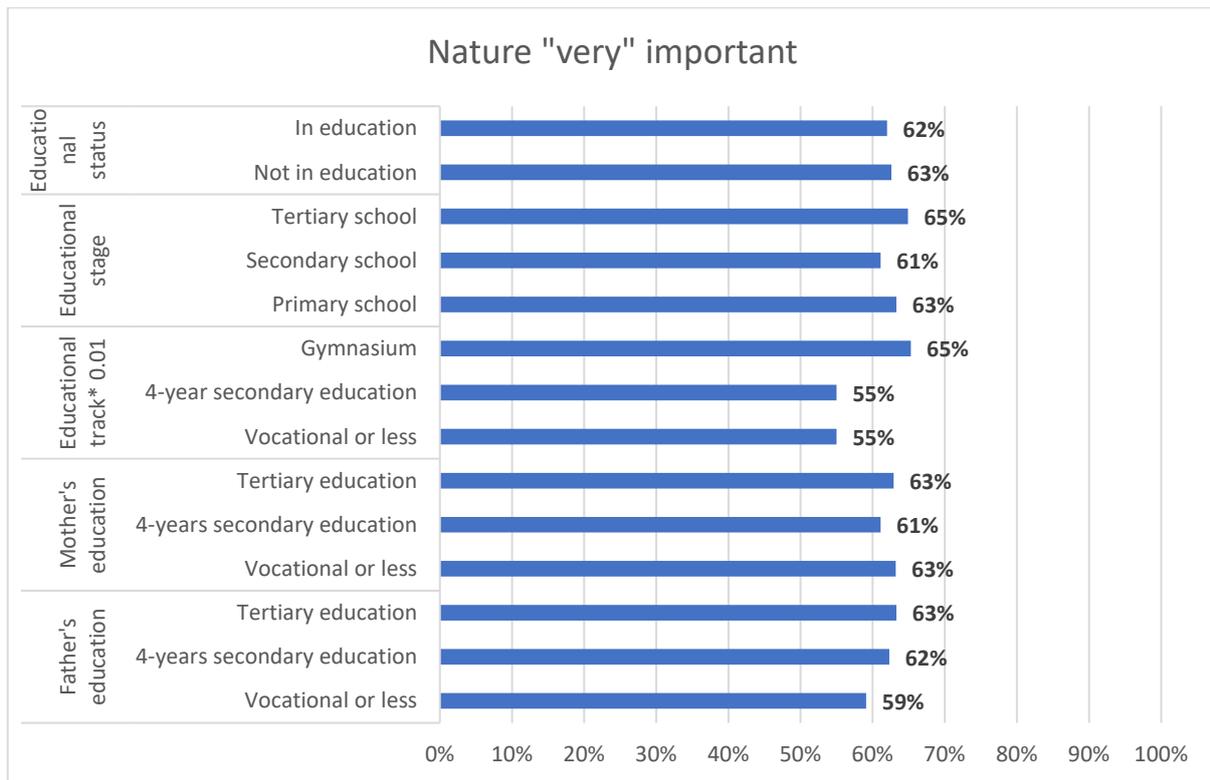


Figure 1. Bivariate correlations between environmental attitude (importance of nature) and educational variables. Note: * $p < 0.05$. Source: Kirbiš et al. [46].

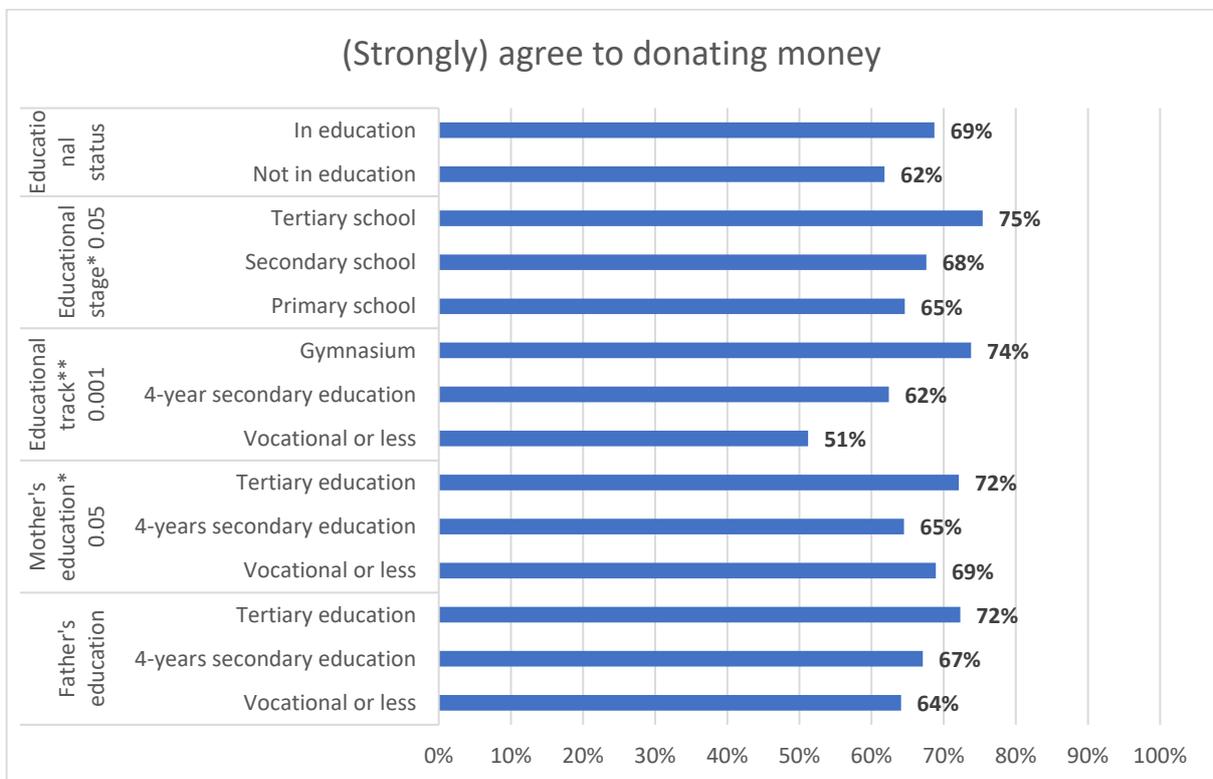


Figure 2. Bivariate correlations between environmental attitude (donating income) and educational variables. Note: * $p < 0.05$; ** $p < 0.01$. Source: Kirbiš et al. [46].

Table 2. Ordinal regression model (parameter estimates) predicting environmental attitudes among the Slovenian youth. Source: Kirbiš et al. [46].

		Model 1A	Model 2A	Model 1B	Model 2B	Model 1C	Model 2C
Educational status ¹	Not in education	−0.336	−0.316	/	/	/	/
Educational stage ²	Primary school	/	/	−0.316	−0.305	/	/
	Secondary school	/	/	−0.268	−0.288	/	/
Educational track ³	Vocational or less	/	/	/	/	−0.685 ***	−0.611 **
	4-year secondary education	/	/	/	/	−0.505 ***	−0.445 **
Mother's educational level ⁴	Vocational or less	/	0.096	/	0.094	/	0.074
	4-year secondary education	/	−0.126	/	−0.172	/	−0.098
Father's educational level ⁴	Vocational or less	/	−0.474 **	/	−0.468 **	/	−0.341
	4-year secondary education	/	−0.0219	/	−0.151	/	−0.143
Explained variance (Nagelkerke) (%)		3.6	4.6	3.0	4.0	5.6	6.0

Notes: ** $p < 0.01$; *** $p < 0.001$; Reference categories: ¹ In education; ² Tertiary education; ³ General education (Gymnasium); ⁴ Tertiary education. All models were adjusted for all confounding variables, except for two variables excluded from Models 1C and 2C (partner status and children status), as the model included primary school children who were not asked these two questions. Models 2A, 2B and 2C controlled for mothers' and fathers' education. Model A included a full sample, Model B included youth in education, and Model C included secondary school students.

Results indicate that only one of the three youngsters' educational variables was a significant predictor; we detected significant differences in environmental attitudes between educational tracks of secondary school students. In line with bivariate analyses, secondary school students from gymnasiums expressed environmental attitudes to a higher degree than professional and vocational track students (Model 1C and 2C).

As for parental education, the mother's education proved non-significant in all three models (2A, 2B and 2C). Father's education, on the other hand, proved significant in Model A (educational status of a full sample) and Model B (educational stage of youth in education), but not Model C (educational track of secondary school students). The impact of two educational predictors (educational status and educational stage) remained non-significant in Models A and B. In contrast, the differences between educational tracks among secondary school students only marginally decreased with the inclusion of parental education, which was non-significant. Our findings indicate significant between-track differences in environmental attitudes among secondary school students and that the father's (but not the mother's) education increases pro-environmental attitudes among Slovenian youth.

6. Discussion

The present study examined the prevalence and determinants of environmental attitudes among Slovenian youth in 2020, just before the beginning of the COVID-19 pandemic. Among examined determinants, we focused on young people's and their parents' educational characteristics. We analysed the link between environmental attitudes and five educational characteristics while controlling for demographic and economic variables.

We found that the majority of Slovenian youth showed high levels of environmental attitudes, with 62.1% stating that caring for nature and looking after the environment is very important, and 68.1% of youth (strongly) agreed to give a part of their income if they were certain that the money would be used to prevent environmental pollution. The high prevalence of pro-environmental attitudes in our study is mainly in line with

earlier studies of Slovenian youth. However, earlier studies have detected somewhat less prevalent environmental attitudes [37,38].

As for educational determinants of youth's environmental attitudes, we found that only the educational track of secondary school students proved to significantly impact attitudes. At the same time, other examined personal educational predictors had no impact on multivariate analyses. Previous studies of Slovenian youth have not examined the role of educational characteristics in environmental attitudes. Our findings on the importance of paternal education align with previous studies in other countries, which showed that parents' education positively impacts offspring's environmental engagement [23–25,28]. Our findings on maternal education (but not paternal education) are also in line with a study of US young adults and cross-national studies, which found no impact of parental education on offspring's environmental engagement [32,33]. A study of Lebanese youth similarly found that only the father's educational level plays a significant role in the offspring's environmental knowledge, which was explained by the country's context of "a relatively male-dominated Middle Eastern Lebanese culture" [27] (p. 31). Slovenia, however, ranks high on the gender equality index [47]. Our findings suggest that the role of parental educational level may be country- or culture-dependent and that maternal and paternal educational levels should be examined separately in future studies, e.g., [34] in order to identify potential mechanisms that may explain the moderating role of parental gender for youth's environmental attitudes.

In addition, we found no differences in environmental attitudes according to educational status (in education vs. not in education) and educational stage, which is not in line with scant research from other countries, e.g., [30,36]. One of the explanations for the lack of significant impact of the educational stage and educational status in the present study could be the characteristics of the Slovenian education system and its educational workers. For example, one of the recent studies indicated relatively high environmental awareness, knowledge and attitudes of teachers across Slovenian educational institutions. Research in Slovenia [48] and in other countries as well, for example, Spain [49], show that future primary education teachers (trainee teachers) have high levels of environmental concerns. Future Slovenian teachers see the protection and preservation of the environment as (very) important, although their environmental behaviour is fairly average [48]. Not surprisingly, teachers who have more pro-environmental attitudes also report more pro-environmental behaviours. More importantly, Slovenian trainee teachers believe that teachers' opinions about the environment influence the students' environmental attitudes, which may motivate teachers to include environmental and sustainability topics in their classes. Considering high environmental attitudes among teachers, it might be that they, regardless of the educational stage they teach at, provide many educational tasks and encouraging contexts that engage students in discussions about nature, climate change, sustainability and other environmental topics. Teachers' in-class environmental engagement could translate into students' environmental attitudes across educational stages. Cross-national data on youth environmental attitudes align with this explanation, as it has been shown that Slovenian students are above the OECD average on awareness of fundamental environmental issues, a sense of responsibility and some forms of climate change knowledge [50,51].

In addition, there might be a more general equalization effect over and above the teachers' effect, whereby the educational process provides basic environmental information, knowledge, competencies and behavioural encouragement across educational stages. Some studies in Slovenia have previously indicated a similar lack of educational effect on various outcomes. For example, the educational level does not affect the Slovenian public's vaccine attitudes, unlike most studies in other countries [52], nor does parental education impact youth's healthy lifestyles, e.g., [53]. Such lack of educational effect could be explained by recent trends in postmodern societies whereby expansion of tertiary education decreased its social status, producing less education-related inequalities of outcomes. At the same time, other forms of cultural capital may function as stronger markers of distinction [54]. For

example, Boeve-de Pauw and Van Petegem [33] found that education, an institutionalized form of cultural capital [55], did not impact young people's environmental attitudes. However, other forms of cultural capital, e.g., objectified cultural capital in the form of educational resources, such as access to books, the Internet, and work of art such as painting, increased youth's environmental attitudes [33].

Previously reported above-average environmental attitudes of Slovenian students could also partly explain the lack of effect of educational stage and educational status. The primary school curriculum in Slovenia emphasises environmental topics [56], which may result in comparatively similar levels of environmental attitudes among educational stages (primary, secondary and tertiary stage). In addition, once young people leave the educational process (most frequently after completing secondary or tertiary education), it may not harm their environmental engagement (as evidenced by our findings of no significant effect of educational status) since students primarily gain their basic environmental knowledge and awareness during their formal education.

However, our study detected significant differences in environmental attitudes between the three secondary educational tracks. A study in Poland found differences between secondary school tracks, although students were also of different ages, which could contribute to between-track differences, e.g., [36]. Our results are not in line with a study by Coertjens and colleagues [35], who found higher environmental attitudes among Flanders' vocational track students. In the present study, the vocational group had the lowest scores on environmental attitudes. Our findings suggest that differences between secondary school track curricula may explain some of the between-track differences in environmental attitudes, although these may depend on the national context, including the characteristics of an educational system. In Slovenia, the curriculum in general secondary educational tracks (gymnasiums) includes more weekly and yearly hours of biology (including ecology), geography and other subjects involving nature, climate and environment, while in vocational and professional track curricula, several individual subjects are joint into a single subject. At the same time, students also have fewer weekly hours in these subjects [57–59]. Our findings suggest educators may want to revise vocational and professional secondary school syllabuses to include environmental and sustainability topics to a larger extent. Future studies of Slovenian students should also empirically examine the link between curricular content and students' environmental engagement.

Between-track differences detected among secondary school students may also be due to secondary school teachers having a greater (and more diverse) impact on environmental attitudes than tertiary education professors (compared to secondary school teachers). However, future studies should test this assumption. In addition, it would be helpful to examine the environmental attitudes of teachers in a cross-national comparative perspective to understand better how national and institutional contexts may shape teachers' environmental attitudes, as our findings may not be generalizable to other contexts due to idiosyncrasies of Slovenian culture, history and demographic structure.

However, it remains largely unclear why differences in environmental attitudes among secondary school students in different educational tracks exist. While environmental attitudinal differences may have to do with differences in school curricula and methods of teaching in different educational tracks, they may also have to do with self-selection, i.e., with some unobserved characteristics of young people, their parents, families or wider social environment that makes the young individuals more likely to enrol in general track (compared to professional or vocational track) and also more likely to hold environmental attitudes. Panel data tracking children and adolescents into young adulthood, measuring potential explanatory characteristics (e.g., including aspects of parental social status, parenting styles, parents' environmental socialization, youth's values, attitudes and educational aspirations, and also their peer group characteristics), would be helpful in future studies.

Our study has several limitations that need to be addressed. First, despite including groups of young people from various demographic, educational and economic backgrounds, the sample was not representative of Slovenian young people due to self-selection,

although this is a standard issue of online surveys. Future studies should employ representative samples in order to replicate our findings. Second, causality cannot be inferred from our cross-sectional data. Although we controlled for several confounders, the list was limited to demographic and economic variables. For example, a range of factors that may impact youth's environmental attitudes were not examined or controlled for, including peer influence, media exposure, and awareness of climate change. Future studies should investigate these aspects.

The third caveat of the present study is that we examined only two indicators of environmental attitudes and combined them into a single index in multivariate analysis. Therefore, researchers should also focus on other environmental attitudes. They should also examine environmental behaviour, e.g., walking, bicycle use or public transport use, recycling behaviour, electricity conservation, low car and plane mobility, low meat consumption and other high-impact environmental and sustainable behaviour.

Researchers must also examine why certain demographic and economic factors play a role in environmental attitudes, i.e., the mediating mechanisms at work. Scholars should also examine whether educational characteristics (e.g., educational track) moderate the impact of sociodemographic and economic predictors on environmental attitudes. Studies are also needed on whether the environmental attitudes of Slovenian youth are associated with their environmental behaviour and the strength of this association. Environmental attitudes are essential insofar as they impact environmental behaviour and behaviour changes, which then, on a mass population scale, can have a positive outcome for sustainable development and climate change mitigation. Finally, research is needed on whether various educational characteristics impact those environmental behaviours that have the most substantial impact on environmental damage, as recent studies of adults suggest that educational level has no significant impact on the most critical, high emission-related behaviour that includes housing, mobility and dietary patterns [60].

7. Implications

One of the implications of our study is that educational interventions aimed at increasing the environmental attitudes of Slovenian youth may be particularly warranted in secondary schools, where students hold significantly different environmental attitudes. Increasing environmental curricular topics in vocational and professional secondary schools might help increase students' environmental awareness and behaviour. Although interventions should be tailored to the knowledge and skills of secondary school students, there is evidence that educational interventions for environmental competencies may be effective regardless of the educational track [61]. Similar curricular content could therefore be used across secondary tracks, as the aim should not only be to decrease between-track differences but also to increase environmental attitudes across tracks, including among gymnasium students, as they will also most likely end up with high educational levels and decision-making positions in the future. Second, interventions should also target youth with less educated fathers, as their offspring hold pro-environmental attitudes the least. This, again, implies targeting vocational school students, as their parents tend to be positioned lower on the socioeconomic ladder. Third, as secondary and tertiary school students show similar levels of pro-environmental attitudes to primary school students, it may be useful to include more complex environmental content in curricula in higher educational stages.

8. Conclusions

Consistent with previous studies, our findings show that most young people hold pro-environmental attitudes, which could also primarily result from their formal educational inclusion, which seems environmentally oriented across educational stages. However, only some educational characteristics affect Slovenian youth's environmental attitudes. Teachers should therefore continue including environmental education activities, such as field trips, workshops or home assignments, thereby enhancing the intergenerational transmission

of environmental attitudes, values and practices. This could also help foster a sense of environmental responsibility and stewardship among families and communities. However, more research is needed to examine the long-term effects of educational characteristics and environmental education on young people's environmental outcomes, as well as the determinants that may facilitate or hinder the effectiveness of such interventions. Environmental education remains a crucial strategy for creating a more sustainable society and addressing the global challenges of environmental issues and climate change.

Funding: This research was partly funded by the Slovenian Research Agency (ARRS), grant numbers J5-4579, V5-1726 and P6-0372 (B). The research was also partly funded by financed by the Slovenian Ministry of Higher Education, Science and Innovation and the European Union through the European Social Fund.

Institutional Review Board Statement: The study was conducted according to the guidelines of the Declaration of Helsinki. All study participants gave their written informed consent to use and share their data for scientific purposes. No personally identifiable information of respondents was obtained in the survey, ensuring anonymity. Subjects were informed that participation was on a fully voluntary basis, that completion of the questionnaire indicated their consent for study participation and that all gathered data would be collectively elaborated, having no other purpose than evaluation of determinants of vaccine attitudes. In addition, they were informed that they can withdraw from the survey at any point without any penalty.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The data are available upon reasonable request to the author.

Conflicts of Interest: The author declares that he has no financial, professional or personal conflicting interests related to this study. The funders had no role in the design of the study; the collection, analyses or interpretation of data; the writing of the manuscript; or the decision to publish the results.

References

1. IPCC. Climate Change: A Threat to Human Wellbeing and Health of the Planet. Taking Action Now Can Secure Our Future. Available online: <https://www.ipcc.ch/2022/02/28/pr-wgii-ar6/> (accessed on 31 May 2023).
2. WHO. Ten Threats to Global Health in 2019. Available online: <https://www.who.int/news-room/feature-stories/ten-threats-to-global-health-in-2019> (accessed on 31 May 2023).
3. Steffen, W.; Richardson, K.; Rockström, J.; Cornell, S.E.; Fetzer, I.; Bennett, E.M.; Biggs, R.; Carpenter, S.R.; de Vries, W.; de Wit, C.A.; et al. Planetary boundaries: Guiding human development on a changing planet. *Science* **2015**, *347*, 1259855. [CrossRef]
4. United Nations. Framework Convention on Climate Change: Education and Training under Article 6. Available online: <https://unfccc.int/topics/education-and-outreach/workstreams/education-and-training> (accessed on 31 May 2023).
5. Harrington, J. Misconceptions: Barriers to Improved Climate Literacy. *Phys. Geogr.* **2008**, *29*, 575–584. [CrossRef]
6. Kuthe, A.; Körfggen, A.; Stötter, J.; Keller, L. Strengthening their climate change literacy: A case study addressing the weaknesses in young people's climate change awareness. *Appl. Environ. Educ. Commun.* **2020**, *19*, 375–388. [CrossRef]
7. UNFCCC. United Nations Framework Convention on Climate Change. Available online: <https://unfccc.int/resource/docs/convkp/conveng.pdf> (accessed on 31 May 2023).
8. UNFCCC. The Paris Agreement. Available online: <https://unfccc.int/resource/docs/2015/cop21/eng/109r01.pdf> (accessed on 31 May 2023).
9. Ojala, M.; Lakew, Y. Young People and Climate Change Communication. In *Oxford Research Encyclopedia of Climate Science*; Storch, H.V., Ed.; Oxford University Press: New York, NY, USA, 2014; ISBN 9780190228620.
10. Corner, A.; Roberts, O.; Chiari, S.; Völler, S.; Mayrhuber, E.S.; Mandl, S.; Monson, K. How do young people engage with climate change? The role of knowledge, values, message framing, and trusted communicators. *Wiley Interdiscip. Rev. Clim. Chang.* **2015**, *6*, 523–534. [CrossRef]
11. Torgler, B.; García-Valiñas, M.A. The determinants of individuals' attitudes towards preventing environmental damage. *Ecol. Econ.* **2007**, *63*, 536–552. [CrossRef]
12. Xiao, C.; Dunlap, R.E.; Hong, D. The Nature and Bases of Environmental Concern among Chinese Citizens. *Soc. Sci. Q.* **2013**, *94*, 672–690. [CrossRef]
13. Smith, V.K. Does Education Induce People to Improve the Environment? *J. Policy Anal. Manag.* **1995**, *14*, 599. [CrossRef]
14. Klineberg, S.L.; McKeever, M.; Rothenbach, B. Demographic Predictors of Environmental Concern: It Does Make a Difference How It's Measured. *Soc. Sci. Q.* **1998**, *79*, 734–753.
15. Meyer, A. Does education increase pro-environmental behavior? Evidence from Europe. *Ecol. Econ.* **2015**, *116*, 108–121. [CrossRef]

16. Inglehart, R.; Welzel, C. *Modernization, Cultural Change, and Democracy: The Human Development Sequence*/Ronald Inglehart, Christian Welzel; Cambridge University Press: Cambridge, UK, 2005; ISBN 0521609712.
17. Hirsh, J.B. Personality and environmental concern. *J. Environ. Psychol.* **2010**, *30*, 245–248. [[CrossRef](#)]
18. Kantomaa, M.T.; Tammelin, T.H.; Näyhä, S.; Taanila, A.M. Adolescents' physical activity in relation to family income and parents' education. *Prev. Med.* **2007**, *44*, 410–415. [[CrossRef](#)] [[PubMed](#)]
19. Liefländer, A.K.; Fröhlich, G.; Bogner, F.X.; Schultz, P.W. Promoting connectedness with nature through environmental education. *Environ. Educ. Res.* **2013**, *19*, 370–384. [[CrossRef](#)]
20. Jorgenson, S.N.; Stephens, J.C.; White, B. Environmental education in transition: A critical review of recent research on climate change and energy education. *J. Environ. Educ.* **2019**, *50*, 160–171. [[CrossRef](#)]
21. Marcinkowski, T.; Reid, A. Reviews of research on the attitude–behavior relationship and their implications for future environmental education research. *Environ. Educ. Res.* **2019**, *25*, 459–471. [[CrossRef](#)]
22. Pellín Carcelén, A.; Cuevas Monzonís, N.; Rodríguez Martín, A.; Gabarda Méndez, V. Promotion of Environmental Education in the Spanish Compulsory Education Curriculum. A Normative Analysis and Review. *Sustainability* **2021**, *13*, 2469. [[CrossRef](#)]
23. Mónus, F. Environmental education policy of schools and socioeconomic background affect environmental attitudes and pro-environmental behavior of secondary school students. *Environ. Educ. Res.* **2022**, *28*, 169–196. [[CrossRef](#)]
24. Ahmetoglu, E. The contributions of familial and environmental factors to children's connection with nature and outdoor activities. *Early Child Dev. Care* **2019**, *189*, 233–243. [[CrossRef](#)]
25. Tuncer, G.; Ertepinar, H.; Tekkaya, C.; Sungur, S. Environmental attitudes of young people in Turkey: Effects of school type and gender. *Environ. Educ. Res.* **2005**, *11*, 215–233. [[CrossRef](#)]
26. Tayci, F.; Uysal, F. A Study for Determining the Elementary School Students' Environmental Knowledge and Environmental Attitude Level. *Procedia—Soc. Behav. Sci.* **2012**, *46*, 5718–5722. [[CrossRef](#)]
27. Makki, M.H.; Abd-El-Khalick, F.; Boujaoude, S. Lebanese Secondary School Students' Environmental Knowledge and Attitudes. *Environ. Educ. Res.* **2003**, *9*, 21–33. [[CrossRef](#)]
28. Taylor, D.E. College Students and Nature: Differing Thoughts of Fear, Danger, Disconnection, and Loathing. *Environ. Manag.* **2019**, *64*, 79–96. [[CrossRef](#)] [[PubMed](#)]
29. Herdiansyah, H.; Brotosusilo, A.; Negoro, H.A.; Sari, R.; Zakianis, Z. Parental Education and Good Child Habits to Encourage Sustainable Littering Behavior. *Sustainability* **2021**, *13*, 8645. [[CrossRef](#)]
30. Pizmony-Levy, O.; Ostrow Michel, J. Pro-Environmental Attitudes and Behaviors in Higher Education: Investigating the Role of Formal and Informal Factors. Available online: <https://academiccommons.columbia.edu/doi/10.7916/D81Z5GWB/download> (accessed on 31 May 2023).
31. Evans, G.W.; Brauchle, G.; Haq, A.; Stecker, R.; Wong, K.; Shapiro, E. Young Children's Environmental Attitudes and Behaviors. *Environ. Behav.* **2007**, *39*, 635–658. [[CrossRef](#)]
32. Helm, S.; Serido, J.; Ahn, S.Y.; Ligon, V.; Shim, S. Materialist values, financial and pro-environmental behaviors, and well-being. *Young Consum.* **2019**, *20*, 264–284. [[CrossRef](#)]
33. Boeve-de Pauw, J.; van Petegem, P. A cross-national perspective on youth environmental attitudes. *Environmentalist* **2010**, *30*, 133–144. [[CrossRef](#)]
34. Kirbiš, A.; Cupar, T.; Tavčar Krajnc, M. Kulturni kapital, avtoritativni vzgojni stil in razvojni izidi mladih v meddržavni primerjalni perspektivi: Analiza desetih držav Jugovzhodne Evrope. In *Kulturna Participacija Mladih v Sloveniji in Evropi*, 1st ed.; Kirbiš, A., Ed.; Kulturni Center: Maribor, Slovenia, 2021; pp. 275–305.
35. Coertjens, L.; Boeve-de Pauw, J.; de Maeyer, S.; van Petegem, P. Do schools make a difference in their students' environmental attitudes and awareness? Evidence from PISA 2006. *Int. J. Sci. Math. Educ.* **2010**, *8*, 497–522. [[CrossRef](#)]
36. Kobierska, H.; Tarabula-Fiertak, M.; Grodzińska-Jurczak, M. Attitudes to environmental education in Poland. *J. Biol. Educ.* **2007**, *42*, 12–18. [[CrossRef](#)]
37. Mladina. *Mladina 2020: Položaj Mladih v Sloveniji*; Univerza v Mariboru, Univerzitetna Založba: Maribor, Slovenia; Založba Univerze v Ljubljani: Maribor, Ljubljana, 2021.
38. Torkar, G.; Debevec, V.; Johnson, B.; Manoli, C.C. Assessing Children's Environmental Worldviews and Concerns. *CEPS J.* **2021**, *11*, 49–65. [[CrossRef](#)]
39. Torkar, G.; Krašovec, U. Students' attitudes toward forest ecosystem services, knowledge about ecology, and direct experience with forests. *Ecosyst. Serv.* **2019**, *37*, 100916. [[CrossRef](#)]
40. Torkar, G. Secondary School Students' Environmental Concerns: A Case Study from Slovenia. *Pol. J. Sustain. Dev.* **2016**, *20*, 177–182. [[CrossRef](#)]
41. Gorenc, T.; Carli, T.; Vračko, P.; Kovač, N.; Kukec, A. Znanje, stališča in vedenja mladih ter pogledi mladinskih organizacij na področje okolje-zdravje v Sloveniji. *Javno Zdr.* **2020**, *2020*, 1–12. [[CrossRef](#)]
42. Kirbiš, A. (Ed.) *Kulturna Participacija Mladih v Sloveniji in Evropi*, 1st ed.; Kulturni Center: Maribor, Slovenia, 2021; ISBN 9789617118032.
43. Kirbiš, A.; Lamot, M. Kulturna participacija: Konceptualizacija, dimenzionalnost in profili. In *Kulturna Participacija Mladih v Sloveniji in Evropi*, 1st ed.; Kirbiš, A., Ed.; Kulturni Center: Maribor, Slovenia, 2021; pp. 1–20.
44. EVS. European Values Study 2008: Integrated Dataset (EVS 2008). 2022. Available online: https://search.gesis.org/research_data/ZA4800 (accessed on 1 August 2022).

45. Toš, N.; Malnar, B. *Slovensko Javno Mnenje 2005/3+4*; University of Ljubljana: Ljubljana, Slovenia, 2010.
46. Kirbiš, A.; Tement, S.; Lahe, D.; Vežjak, B.; Cupar, T.; Tavčar Krajnc, M.; Javornik Krečič, M.; Lamot, M. *Kulturna Participacija mladih v Sloveniji in Eoropi: Dataset*, 1st ed.; Kulturni Center: Maribor, Slovenia, 2021; Volume 16.
47. United Nations Development Programme. Human Development Report 2021/2022: Uncertain Times, Unsettled Lives. In *Shaping Our Future in a Transforming World*; United Nations Development Programme: New York, NY, USA, 2022.
48. Repič, U. Okolju Prijazno Vedenje Bodočih Učiteljev Razrednega Pouka. Master's Thesis, University of Maribor, Maribor, Slovenia, 2020.
49. Aznar-Díaz, I.; Hinojo-Lucena, F.-J.; Cáceres-Reche, M.-P.; Trujillo-Torres, J.-M.; Romero-Rodríguez, J.-M. Environmental Attitudes in Trainee Teachers in Primary Education. The Future of Biodiversity Preservation and Environmental Pollution. *Int. J. Environ. Res. Public Health* **2019**, *16*, 362. [[CrossRef](#)] [[PubMed](#)]
50. OECD. Green at Fifteen? How 15-Year-Olds Perform in Environmental Science and Geoscience in PISA 2006. Available online: <https://www.oecd.org/pisa/pisaproducts/42467312.pdf> (accessed on 31 May 2023).
51. OECD. PISA 2018 Results (Volume VI): Are Students Ready to Thrive in an Interconnected World? Available online: https://www.oecd-ilibrary.org/education/pisa-2018-results-volume-vi_d5f68679-en (accessed on 31 May 2023).
52. Kirbiš, A.; Lamot, M. Izobrazba, splošna stališča do cepljenja ter namera za cepljenje proti gripi in covidu-19 v Sloveniji: Analiza štirih anketnih vzorcev. In *Raziskovanje v Vzgoji in Izobraževanju: Medsebojni Vplivi Raziskovanja in Prakse*; Pedagoški Inštitut: Ljubljana, Slovenia, 2021; pp. 223–239.
53. Kirbiš, A.; Tavčar Krajnc, M.; Musil, B. Sociodemographic and socioeconomic inequalities in physical activity among Slovenian youth. *Obz. Zdr. Nege* **2014**, *48*, 273–285. [[CrossRef](#)]
54. Kirbiš, A. The Impact of Cultural Capital on Vaccine Attitudes among the Slovenian Public. *Vaccines* **2022**, *10*, 1947. [[CrossRef](#)] [[PubMed](#)]
55. Bourdieu, P. The Forms of Capital. In *Handbook of Theory and Research for the Sociology of Education*; Richardson, J.G., Ed.; Greenwood Press: Westport, CT, USA, 1986; pp. 241–258. ISBN 0313235295.
56. Ministry of Education. Programi in Učni Načrti v Osnovni Šoli. Available online: <https://www.gov.si teme/programi-in-ucni-nacrti-v-osnovni-soli/> (accessed on 31 May 2023).
57. Ministry of Education. B. Posebni Del. Available online: <http://portal.mss.edus.si/msswww/programi2012/programi/gimnazija/gimnazija/posebnidel.htm> (accessed on 31 May 2023).
58. Ministry of Education. Srednješolski Izobraževalni Programi: Srednje Strokovno Izobraževanje. Available online: <https://portal.mss.edus.si/msswww/programi2017/programi/Ssi/tehnisko.htm> (accessed on 31 May 2023).
59. Ministry of Education. Srednješolski Izobraževalni Programi: Srednje Poklicno Izobraževanje. Available online: <https://portal.mss.edus.si/msswww/programi2017/programi/SPI/index.htm> (accessed on 31 May 2023).
60. Hadler, M.; Klösch, B.; Schwarzingger, S.; Schweighart, M.; Wardana, R.; Bird, D.N. *Surveying Climate-Relevant Behavior: Measurements, Obstacles, and Implications*; Palgrave Macmillan: London, UK, 2021; ISBN 978-3-030-85795-0.
61. Olsson, D.; Gericke, N.; Boeve-de Pauw, J. The effectiveness of education for sustainable development revisited—A longitudinal study on secondary students' action competence for sustainability. *Environ. Educ. Res.* **2022**, *28*, 405–429. [[CrossRef](#)]

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.