Family congruence in sustainability attitudes and behaviour; an analysis of a household survey in Belgium.

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Abstract
In this paper, I investigated whether the sustainability attitudes and behaviour of young people are similar to those of the older generation. Furthermore, I examined to which extent today’s parents play a role as socialization agents in shaping the broader sustainability attitudes and behaviour of their children by investigating whether specific family characteristics are important to explain this association. The research questions were analysed by using data from a Belgian study conducted among Flemish pupils from 47 primary and secondary schools and one of their parents (n = 880). I found that children’s attitudes towards sustainability are higher compared to those of the older generation (e.g. their parents) but that the older generation, on the contrary, act more sustainably. Furthermore, there were small but positive correlations within the family for sustainability attitudes and behaviour. Finally, the results showed that increased intrafamily discussions are associated with more sustainable attitudinal parent–child congruence. However, the results did not provide evidence in support of behavioural congruence. It was concluded that the transmission of sustainability attitudes and behaviour is not limited to the classic top-down approach where parents influence children’s attitudes and behaviour and children are considered as passive recipients.

Keywords Sustainable development · Family socialization · Sustainability attitudes · Sustainability behaviour · Belgium

1 Introduction

Although sustainable development has become a major issue on the international, national and local policy agenda in many parts of the world, little research has been conducted on the broader consciousness of sustainable development (Gericke et al., 2018). Especially among youth, little is known about the attitudes and behaviour with regard to the holistic approach of sustainable development which does not only include environmental but also social and economic issues (Jickling & Wals, 2008). Young people are considered future policy makers and, thus, important players in the debate on sustainability topics. According
to attitudinal and behavioural studies focusing on the environmental aspects only, young people are more positive in their attitudes towards the environment compared to older people but behave less pro-environmentally (Johnson et al., 2004; Special Eurobarometer 295, 2008). However, other studies looking at the relation between age and environmental attitudes have shown less environmental concern among younger people (Grønhøj & Thøgersen, 2009; Hamilton, 2011; Shao et al., 2014). Given the contradictions in the literature and the importance of youth taking action for a more sustainable world, scholars have highlighted the need for more research within this field (Corner et al., 2015; de Vreede et al., 2014; Grønhøj & Thøgersen, 2009). This study contributed to this debate and added to the literature by broadening the scope of environmental research. Hence, the first purpose of this paper was to examine whether young peoples’ sustainability attitudes and behaviour are different from those of the older generation (e.g. their parents). Second, researchers looking at political socialization emphasized the role of parents in the socialization of children and argued that children and their parents have similar political attitudes and behaviour (Jennings et al., 2009; Rodriguez-Garcia & Wagner, 2009). We see similar results in recent environmental research, often linked to consumer studies, suggesting that parents, as the main socialization agents, play a role in the synchronization of the values, concerns, and behaviour of their children (Casaló & Escario, 2016; Grønhøj & Thøgersen, 2009; Leppänen et al., 2012; Li & Liu, 2016; Matthies et al., 2012; Katz-Gerro et al. 2019).

Yet, little is known about the way in which children acquire sustainability attitudes and behaviour and what the relationship is with their parents’ attitudes and behaviour in this respect. This lack calls for more detailed research exploring socialization processes among young people and their parents in the sustainability context, an area which is currently not well understood (Ojala & Bengtsson, 2019). Thus, the second objective of this paper was to look at the congruence of sustainability values and behaviour related to environmental, economic, and social issues in everyday practices within the family. The present study relates sustainability attitudes and behaviour within families through a case study in the Flemish part of Belgium, using parent and child-level data. Within the parent–child dyads, I furthermore investigated whether the attitudes and behaviour of children and parents were correlated. The children and their parents were questioned separately which gave a reliable measure of the attitudes and behaviour of parents and their children. An important aspect in family socialization is the frequency of family discussions. There is evidence that families with higher frequencies of political discussions are more congruent in terms of their political attitudes (Hooghe & Boonen, 2015). Therefore, as a third objective, this paper investigated whether family discussions interfered for the transmission of sustainability attitudes. In other words, do more parent–child discussions lead to more congruence related to sustainable attitudes within the family? To study the congruence of sustainability attitudes and behaviour between parents and children, the paper started from the perspective of socialization processes in the family. After investigating parent–child relationships for a variety of sustainability values and behaviour, attention is turned to some family characteristics which possibly affected this transmission.
2 Literature review

2.1 Parent socialization

The attitudes and behaviour of children are not formed in a vacuum. Rather, several socialization agents (e.g. parents, school, peers, and media) influence the development of young people. In the traditional political socialization theory, parents are considered one of the most important socialization agents as they have the largest impact on the socialization outcomes of their children (Maccoby, 2007). Through socialization young people acquire the norms, values, and actions that are ‘desirable’ in the culture in which they live (Maccoby, 2007). Two important authors within the political socialization field, Niemi and Jennings (1968), argued that the family is of notable importance and that the influence of parents is seen as substantial and long lasting (Jennings et al., 2009; Zuckerman et al., 2007). Based on Bandura’s (1977) social learning theory, children primarily learn through observing and imitating other people. The visibility of an attitude is enhanced when parents show a strong commitment to that attitude and this increases the likelihood that children identify and copy their parents’ behaviour (Jennings et al., 2009). In the more recent approach of the political socialization theory, family communication and socialization processes are seen as reciprocal and interactive, as opposed to a merely top-down process (Niemi & Jennings, 1986). Children take an active part in their own development and initiate political discussions with their parents (McDevitt & Chaffee, 2002; York, 2019; Zuckerman, 2005).

2.2 Socialization of environmental attitudes and behaviour

Most literature supports age differences in environmental attitudes and behaviour. It has been demonstrated that in spite of being less positive towards environmental issues, older people engage more often in pro-environmental behaviour compared to younger people (Abrahame & Steg, 2009; Casaló & Escario, 2018; Diamantopoulos et al., 2003; European Commission, 2008a, 2008b; Gifford & Nilsson, 2014). However, Grønhøj and Thøgersen (2009) found evidence for the ‘generation gap’ at “all levels of abstraction, from environmental values to attitudes towards the performance of specific pro-environmental behaviours” (pp. 419–420) which is in-line with some other studies (Hamilton, 2011; Shao et al., 2014). As previous environmental research suggests mostly that younger people tend to express more pro-environmental attitudes and act less environmental than older people (Boeve-de Pauw & Van Petegem, 2010; Dunlap et al., 2000; Gifford & Nilsson, 2014; Shen & Saijo, 2008), it was hypothesized that children express more sustainability attitudes; but that their sustainability behaviours are lower compared to those of the older generation (H1).

The intergenerational transmission of political attitudes and behaviour with the focus on the direction from parents to children is another topic discussed in political and social science research. However, only a few studies show the importance of the intergenerational transmission on children in the environmental research domain (Li & Liu, 2016). Grønhøj and Thøgersen (2009) have found parent–child similarities in environmental attitudes and behaviour within the family. Following the authors, adolescents are less likely to act pro-environmental by learning from their parents than vice versa. In a later study, the same authors found that the norms within a family explained as much variance in environmental behaviour of the children as the attitudes of the children themselves (Grønhøj & Thøgersen, 2012). Similarly, Casaló and Escario (2016) found a link between parental
environmental concern and that of their 15 years old children in 16 different European countries. Also Matthies et al. (2012) emphasized the role that parents have in their children’s (8- to 10-year-olds) recycling and reuse behaviour. Finally, a more recent study (Wallis & Klöckner, 2020) showed some strong correlations between parents and children with regard to energy-saving behaviour. Other scholars in this area assumed the reverse, supposing that children influence the pro-environmental behaviour of their parents (Eastering et al., 1995; Larsson et al., 2010). Also Ekström (2007) showed that young people can influence their parents in recycling and purchasing environmentally friendly products. However, most studies conducted in the field demonstrated the role of the parents as main socializing agents of childhood socialization in the children’s attitudes and engagement for environmental problems (Collado et al., 2019; Stevenson et al., 2016). Based on the studies above, I started in this paper from the assumption that parents are the main socialization agents for their children. Based on Bandura’s social learning theory (1977) it can be assumed that parents may contribute to the development of sustainability attitudes and behaviour by serving as social models. Therefore, I expected that parents transmit their attitudes, both consciously and unconsciously, to their children. This leads to a positive correlation between children and their parents’ sustainability attitudes. Not only attitudes, also behaviour is learned in the family, through observational learning and direct influence of the parents. Hence, I also expected a positive parent–child correlation with regard to the daily actions related to sustainability behaviour. Thus, the second hypothesize states that there are positive correlations within the family for sustainability attitudes and behaviour (H2).

The interaction and degree of communication with others is another key factor in the study of pro-environmental attitudes and behaviour among adolescents. Previous studies have shown that more frequent communication and engaging in discussions with peers and especially family increased environmental concerns (Meeusen, 2014; Stevenson et al., 2016). Similarly, Valdez et al. (2017) provided evidence that discussions with family and peers predicted pro-environmental actions of adolescents. In contrast, discussing climate change with teachers, which is more likely to occur, is not related to pro-environmental behaviour. In the present study, I investigated the role of interaction and other possible variables on the parent–child congruence of sustainability attitudes and behaviour within the family and predicted that the degree of communication had an influence on the level of congruence of sustainability values and actions. More specifically, it was hypothesized that today’s parents play a role as socialization agents in shaping their children’s broader sustainable attitudes and that the frequency of family discussions is important to explain this association (H3).

2.3 Sustainable development

‘Sustainable development’, the general framework of this study, is a relatively new concept appearing in both policy documents and everyday language (Johannesson et al., 2011). The term became popular due to the Brundlandt report Our Common Future, published by the United Nations in 1987 (World Commission on Environment and Development, 1987). The term was formally accepted after the Earth Summit in Rio (1992) which resulted in Agenda 21, the plan of action to implement sustainable development worldwide (Gericke et al., 2019). As a result, sustainable development initiatives have been launched in different areas of society by many governmental as well as non-governmental organizations (Gericke et al., 2019; Lele, 1991). The most commonly used definition of sustainable
development is the one in the Brundtland report stating ‘sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs’ (World Commission on Environment and Development, 1987: 43). Sustainable development is a complex concept with different underlying dimensions; harmonizing environmental, economic, and social dimensions (Manni et al., 2013). Some scholars argue that the term has become ‘vague, ambiguous, undefined and contradictory’ (Fergus & Rowney, 2005: 19) and seems to vary in different situations (Johannesson et al., 2011). Another criticism is that the separation into three dimensions leads to a narrow perspective, rather than taking the whole into account (Giddings et al., 2002). Although sustainable development has been criticized, it is nowadays a general accepted approach to achieve social, economic, and environmental goals (Gericke et al., 2015).

3 Data and methods
3.1 Data collection and sampling

Are young people more or less sustainable in their attitudes and behaviour than those of the older generation and is there congruence within the family with regard to sustainability attitudes and behaviour? To answer these questions, the present study builds upon first-hand data collected among students of primary and secondary schools who participated in the VALIES research project. This is a large-scale project which aimed to build teachers’ competences to implement education for sustainable development in their schools. The schools who participated in the study were all located in Flanders, one of the main regions of Belgium. Through their participation in the project, the teachers implemented a school-wide sustainable development intervention during one year while they participated in a teacher professional development trajectory.

Within each school who participated in the study, the pupils of at least one class participated in the survey data. All student data were collected at two different points in time; once before (September 2019) and once after (June 2020) the implementation of the professional development program. Next to student data, we also collected parental data simultaneously. The students were surveyed at school and received one additional (almost) identical questionnaire to take home addressed to one of their parents. Identical questions in the student and parent questionnaire allow us to measure a direct and reliable parent–child congruence (Hooghe & Stiers, 2020). The parents could choose to fill in the questionnaire online or by paper and send it back to the research team in a stamped envelope. The questionnaire for parents and children required about thirty minutes to complete. The fact that the VALIES study includes a large dataset with both children and parental data based on sustainability attitudes and behaviour questions, makes it an appropriate dataset to use to test the hypotheses of this study. Largely due to the impact of the COVID-19 pandemic on the project, the response rate in the second wave for both children and parents was much lower. However, due to the fact that the research questions in this study can be answered with cross-sectional data, the models presented here are only based on the data collected before the implementation of the teacher professional development trajectory (September 2019). For the analyses, I use data from children and one of their parents (e.g. the one who filled in the parent questionnaire) from 47 Belgian Flemish primary and secondary schools that participated in the study. I provided a sample of families consisting of one parent (the parent who filled in the survey) and one child. This paper takes a broad definition of children and
refers to primary and secondary school children as ‘children’. ‘Parent’ includes parents, parental figures, grandparents and foster parents. Children are between 8 and 15 years old and the mean age is 11.34 years old. In total, 2,565 pupils were selected in schools taking part in the project. Parents of 1,872 children signed an informed consent for their children who were questioned during school hours in the classrooms by a written or online questionnaire. In total, 52 per cent of the school children are male, 46 per cent female and 2 per cent does not mention their gender. The student response rate is 73 per cent. For the project, 2,565 parents were contacted by their children to fill in the survey. One month after the parents received the initial mailing of the survey, we arranged a reminder by way of the school teacher who was responsible for the implementation of the project. In total, 1027 parents from the project (a response rate of 40.04 per cent) filled in the survey. The mean age of the parents is 42.03 years old (76 per cent female, 23 per cent male and 1 per cent other). The parent and student samples are matched with an identification code so that parent–child pairs are formed. Households that did not consist of both a parent and a child are excluded from the analyses. The final sample for the analyses consists of 880 dyads: 336 son–mother dyads, 100 son-father dyads, 96 daughter-father dyads, 323 daughter-mother dyads, 10 dyads with a mother and a child which gender was undisclosed, 3 dyads with a father and a child which gender was undisclosed, 3 dyads with a son and another parental, 3 dyads with a daughter and another parental figure and 6 parent–child dyads where the parent and or the child did not fill in their gender. Table 1 contains respondent information of the study sample.

3.2 Questionnaire development

This paper discusses children and their parents’ understandings of concepts related to sustainable development referred to as sustainability consciousness, which was developed by Gericke and colleagues (2018). The concept of sustainability consciousness was developed

| Table 1 | Descriptives for the study sample |
|---------|----------------------------------|
| Children | 1872 | 73 | Range | Mean |
| Child gender | | | | |
| Female | 46 | | | |
| Male | 52 | | | |
| Child age | | 8–15 | 11.34 |
| Parents | 1027 | 40 | | |
| Parent gender | | | | |
| Female | 76 | | | |
| Male | 23 | | | |
| Parent age | | 28–79 | 42.03 |
| Children-parent dyads | 880 | | | |
| Son–mother dyads | 336 | | | |
| Son-father dyads | 100 | | | |
| Daughter-father dyads | 96 | | | |
| Daughter-mother dyads | 323 | | | |
| Other | 25 | | | |
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into a survey instrument (Gericke et al., 2018) investigating the sustainability knowingness, attitudes, and behaviour of students and includes a holistic approach to the environmental, as well as social and economic aspects of sustainability as described in detail by Olsson and colleagues (2015) and Berglund and colleagues (2014). The short version of the Sustainability Consciousness Questionnaire (SCQ) used in this study consists of different items evaluated using a 5-point Likert scale (totally disagree to totally agree with a neutral option in the middle). The wording of the questions from the SCQ was adapted to the differences in age and assumed knowledge of terminology of the two cohorts. A native Dutch speaker, who is also an expert in English, translated all the items of the questionnaire from English into Dutch and another expert translated the items back into English to ensure a correct translation. The sustainability attitudes and behaviours sections reflect (1) feelings about sustainable development and what people think about sustainable development, and (2) the self-reported behaviour of people about their actions in relation to sustainable development. The term knowledge is often related to factual knowledge and an objective truth. However, “knowingness” in the SCQ scale is related to the recognition of the fundamentals of sustainable development and incorporates affective as well as cognitive aspects (Gericke et al., 2017). Even though the participants in this study has been questioned about the knowingness items, it has to be noted that the scope of this article does not allow for discussing the sustainability knowledge for neither parents nor children. The concept of sustainable consciousness, developed by Gericke et al. (2018), is based on the three dimensions of sustainable development (SD) that covers the 15 UNESCO subthemes to the environment, social and economic dimensions outlined by the United Nations on the global agenda in order to improve actions for a sustainable future. The sustainability attitude and behaviour items included in this study reflect (i) people’s feelings about sustainability and what people think about sustainability issues (e.g. the social item: I think that we who are living now should make sure that people in the future enjoy the same quality of life as we do today), and (ii) the self-reported behaviour of people in relation to these issues (e.g. the economic item: I often purchase second-hand goods over the internet or in a shop). Tables 2 and 3 show all the sustainability attitude and behaviour items included in the study. It is also important to note that due to the scope of the research questions, this study focuses more on the sustainability attitudes and behaviour, rather than on the environmental, social and economic components.

3.3 Measures

In order to investigate the congruence and variation of sustainability attitudes and behaviour within families, this study focuses on two main variables, namely attitudes and behaviour. Details about these two variables can be found in Tables 2 and 3. The tables also present the means, ranges, and standard deviations for the variables. For the analyses I use a reduced version of the Sustainability Consciousness Questionnaire. To examine the first indicator, sustainability attitudes, the respondents (both children and parents) were asked to indicate to what extent they agree with statements related to sustainable development, on a 5-point scale ranging from 1 (= strongly disagree) to 5 (= strongly agree) in the parent survey and on a 5-point scale ranging from 1 (= strongly agree) to 5 (= strongly disagree) in the pupil survey. The statements from the pupil survey are reversed so that higher numbers denote more attention for the sustainable issues. Two of the attitudinal items from the SCQ scale were directed towards environmental attitudes (i.e. I think that it is important to take measures against problems which have to do with climate change; I think that we
Table 2  Comparison of attitudinal means between parents and their children; congruence within the family

| Variable name | Description                                                                 | Min | Max | N  | M (SD)   | Differences between parents and children | Correlation within the family |
|---------------|-----------------------------------------------------------------------------|-----|-----|----|---------|------------------------------------------|-------------------------------|
|               |                                                                             |     |     |    | Children| Parents                                  |                               |
| Laws—ENV      | I think that we need stricter laws and regulations to protect the environment | 1   | 5   | 851| 3.975 (.950)| 3.918 (.883) | .058                               | 0.177***                     |
| Measures—ENV  | I think that is it important to take measures against problems which have to do with climate change | 1   | 5   | 852| 4.322 (.804)| 4.076 (.866) | .245***                           | 0.150***                     |
| Training—SOC  | I think that everyone ought to be given the opportunity to acquire the knowledge, values and skills that are necessary to live sustainably | 1   | 5   | 840| 4.315 (.811)| 3.829 (.908) | .487***                           | 0.056                         |
| Future—SOC    | I think that we who are living now should make sure that people in the future enjoy the same quality of life as we do today | 1   | 5   | 857| 4.314 (.842)| 4.377 (.686) | −.063                             | 0.091*                        |
| Education—SOC | I think that women and men throughout the world must be given the same opportunities for education and employment | 1   | 5   | 851| 4.638 (.597)| 4.543 (.655) | .095*                            | 0.082*                        |
| Disposable—ECO| I think that companies have a responsibility to reduce the use of packaging and disposable articles | 1   | 5   | 853| 4.408 (.786)| 4.468 (.730) | −.060                             | 0.129***                     |
| Poverty—ECO   | I think it is important to reduce poverty                                   | 1   | 5   | 850| 4.428 (.712)| 4.364 (.685) | .065*                            | 0.091**                       |
| Employees—ECO | I think that companies in rich countries should give employees in poor nations the same conditions as in rich countries | 1   | 5   | 850| 4.275 (.852)| 4.282 (.812) | −.007                            | 0.037                         |
| 8-item index score |                                              | 1   | 5   | 791| 4.336 (.539)| 4.240 (.539) | .095***                           | 0.205***                     |

*M = mean, SD = standard deviation, and N = number of observations (parent–child dyads). Average scores on the different attitudinal items in the questionnaires. Paired sample *t* tests: significance levels: *p < 0.05; **p < 0.01; ***p < 0.001. The correlations are based on factor scores. The higher the scale value, the more sustainable the respondent.*
### Table 3: Comparison of behavioural means between parents and their children; congruence within the family

| Variable name       | Description                                                                 | Min. | Max. | N    | M (SD)  | Differences between parents and children | Correlation within the family |
|---------------------|------------------------------------------------------------------------------|------|------|------|---------|------------------------------------------|-------------------------------|
| Sorting food—ENV    | I always separate food waste before putting out the rubbish when I have the chance | 1    | 5    | 864  | 4.291 (.830) | 4.705 (.581) | −.414***                   | 0.123***                     |
| Reduce waste—ENV    | I have changed my personal lifestyle in order to reduce waste (e.g. throwing away less food or not wasting materials) | 1    | 5    | 851  | 4.264 (.831) | 4.239 (.843) | .026                       | 0.120***                     |
| Sorting—ENV         | I recycle as much as I can                                                   | 1    | 5    | 866  | 4.283 (.804) | 4.706 (.581) | −.423***                   | 0.221***                     |
| Aidorganisations—SOC| I support an aid organization or environmental group                          | 1    | 5    | 844  | 3.719 (1.098) | 3.499 (1.415) | .220***                    | 0.110**                      |
| Respect mw—SOC     | I show the same respect to men and women, boys and girls                    | 1    | 5    | 856  | 4.202 (.966) | 4.643 (.535) | −.440***                   | 0.028                        |
| Eth consuming—ECO   | I avoid buying goods from companies with a bad reputation for looking after their employees and the environment | 1    | 5    | 825  | 3.588 (1.138) | 3.313 (1.060) | .275***                    | 0.105**                      |
| 6-item index score  |                                                                              | 1    | 5    | 795  | 3.994 (.673) | 4.114 (.559) | −.120***                   | 0.154***                     |

*Mean = mean, SD = standard deviation, and N = number of observations (parent–child dyads). Average scores on the different behavioural items in the questionnaires. Paired sample t tests: significance levels: *p < 0.05; **p < 0.01; ***p < 0.001. The correlations are based on factor scores. The higher the scale value, the more sustainable the respondent*
need stricter laws and regulations to protect the environment). Three attitudinal items from the SCQ scale were directed towards social attitudes (i.e. I think that everyone ought to be given the opportunity to acquire the knowledge, values and skills that are necessary to live sustainably; I think that we who are living now should make sure that people in the future enjoy the same quality of life as we do today; I think that women and men throughout the world must be given the same opportunities for education and employment). Three attitudes from the SCQ scale were directed towards economic attitudes (i.e. I think that companies have a responsibility to reduce the use of packaging and disposable articles; I think it is important to reduce poverty; I think that companies in rich countries should give employees in poor the same conditions as in rich countries).

To study the second indicator, sustainability behaviour, the respondents were asked to indicate how often they engage in the following sustainable behaviour: sorting waste, sorting organic waste and reducing waste (defined as environmentally friendly behaviour), support aid organization, respect men and women (social behaviour) and ethical consuming (economic behaviour). All these behaviours were being measured on a 5-point scale ranging from 1 (= strongly disagree) to 5 (= strongly agree) in the parent survey and on a 5-point scale ranging from 1 (= strongly agree) to 5 (= strongly disagree) in the pupil survey. The statements from the pupil survey are again reversed so that higher numbers denote more action regarding sustainable issues.

The validity of the attitudinal and behavioural scale was tested through exploratory factor analysis. The exploratory factor analysis revealed indeed two underlying constructs for the items: one scale of sustainability attitudes and one scale of sustainability behaviour. To assess the internal consistency of the scales, scale’s reliability was estimated by calculating Cronbach alpha values. The reliability of the attitudinal and behavioural scale was high ranging from 0.68 to 0.82. Since the attitudes are strongly correlated for both parents (Cronbach’s alpha = 0.82) and children (Cronbach’s alpha = 0.78), I could create one measure of sustainable attitudes as an 8-item index score for both parents and children. As the behavioural items were correlated for both parents (Cronbach’s alpha = 0.68) and children (Cronbach’s alpha = 0.79), one measure of sustainable behaviour as a 6-item index score for both parents and children is created.

The dependent variables used in the regression analyses, to investigate whether the frequency of family discussions is important to explain the congruence in sustainable attitudes, are attitudinal congruence and behavioural congruence among the family and more specifically, congruence between the parent and the child. The dependent variable is the absolute distance between the parent and their child. When a parent with an outspoken pro-environmental behaviour (value: 4) has a child with a clear non-pro-environmental behaviour (value: 2), the dependent ‘distance’ variable has the value of 2. When both parent and child select the same option, the score on this variable is ‘0’. I add also several covariates to control for their impact on congruence within the family. First, I include the standard socio-demographic of the respondents (e.g. parents) by including educational level and income. Education level was assessed using a single item ranging from 1 = no formal education, 2 = primary education, 3 = lower secondary education, 4 = higher secondary education, 5 = post-secondary education (non-higher education), 6 = higher non-university education, 7 = bachelor degree to 8 = master degree. Education level was classified in the three following categories for the analyses: 1 (low) = no formal education, primary education and lower secondary education, 2 (middle) = higher secondary education, post-secondary education and higher non-university education and 3 (high) = bachelor degree and master degree. Family income was measured with a self-reported and an ordered categorical item that asked to report how satisfied they were about their total level of household income.
Respondents were asked to indicate which situation applied to their family income: “it is very difficult to make ends meet with the current income” (1); “it is difficult to make ends meet with the current income” (2); “we manage to make ends meet with the current income” (3); “we can live comfortably with the current income” (4). We add this variable in the analyses as 1 = living comfortably or coping on present income and 0 = living (very) difficult. I also control for the language spoken at home, distinguishing between families where Dutch is the main language (reference category) and, families where another language is the main language (1). To investigate the role of the family in shaping sustainability attitudes and behaviour, parents were asked how often they talk with their children about sustainable topics, including sorting waste, protection of the environment, fair trade, equality for men and women and, climate change. Responses were recorded on a 4-point Likert scale ranging from 1 (never) to 4 (several times a week). As the five items are strongly correlated (Cronbach’s alpha = 0.79) I create one measure of family discussions as an index score. Furthermore, I have applied the age of the child as a control variable because I expected that the level of congruence increases as children grow older.

3.4 Data analysis

The first objective of this paper is to investigate whether there is a difference between children’s and parents’ sustainability attitudes and behaviour. In order to examine this, sustainability attitudes and behaviour are calculated in terms of means through paired sample t tests. The second objective of this paper is to study the congruence of certain sustainability values and behaviour within the family. Previous research used correlations of environmental behaviour and found that family socialization is an important factor shaping individuals’ environmental attitudes and behaviour (Grønhøj & Thøgersen, 2009, 2012; Jennings & Niemi, 1968; Matthies et al., 2012). Therefore, bivariate correlations between self-reported single sustainability behaviour and children items from children and one of their parents were analysed. To answer the third objective of the paper, OLS regressions are estimated to investigate whether family characteristics lead to more attitudinal or behavioural congruence.

4 Results

Tables 2 and 3 provide an overview of the descriptive statistics (means, standard deviations) of the two key variables: sustainability attitudes and sustainability behaviour. Moreover, comparisons of attitudinal and behavioural means between parents and their children both at the items level and at the level of the construct; and congruence within the family are given. Comparing the means across the two generations makes it possible to discover whether the younger generation is different from their parents’ generation in the variables of interest (sustainability attitudes and sustainability behaviour). The results show that the parent and children generations rate values and behaviour regarding sustainable development differently. Overall the tables show that both generations display favourable attitudes and behaviour towards sustainability, with most scores higher than 4.

Table 2 shows the results of the average score on individual items and on the attitudinal construct (with a minimum score from 1 and a maximum score of 5) indicating that a significant difference was found between children and their parents (df = 790) = (3.934), \( p < 0.001 \). The results show that the children’s score on the attitudinal sustainability scale is
significantly higher \((M=4.33)\) compared to the mean of parents \((M=4.24)\). An item with a significant higher difference \((0.487)\) is the one dealing with equal opportunities to acquire the knowledge, values and skills that are necessary to live sustainable. Children \((M=4.32)\) score also significant higher than parents \((M=4.08)\) for the item stating that it is important to take measures against problems which have to do with climate change.

The results above show the correlations between the sustainability attitudes and behaviour for children and parents. More specifically, Pearson correlation coefficients were calculated to measure the success of attitude congruence within the family. This method is based on previous research studies reported in the environmental domains (Grønhøj & Thøgersen, 2009; Leppänen et al., 2012; Matthies et al., 2012; Wallis & Klöckner, 2020). Looking at the individual items, sustainability attitudes, the strongest correlations for the environmental items can be found (e.g. stricter laws to protect the environment, \(r=0.177, p<0.001\); take measures against climate problems, \(r=0.150, p<0.001\)) while the weakest correlation for the social and the economy items is found.

For the score on the behavioural sustainability scale, with a minimum score from 1 and a maximum score of 5, the results above in Table 3 indicate that again a significant difference was found between children and their parents \((df=794)=(-4.228), p<0.001\) although in the other direction, parents \((M=4.11)\) score significant higher compared to their children \((M=3.99)\). The difference between parents and children is almost always significant for all the different items. An item with a significant higher difference \((-0.414)\) is the one dealing with sorting food. Parents \((M=4.64)\) score also significant higher than children \((M=4.202)\) for showing the same respect to men and women. However, there is one item where children score higher compared to those of the older generation, ‘avoid buying goods from companies with a bad reputation’.

Pearson correlation coefficients were again calculated to measure the success of behaviour congruence within the family. For sustainability behaviour, again the strongest correlations for the environmental actions can be found (e.g. sorting food, \(r=0.123, p<0.001\); reduce waste, \(r=0.120, p<0.001\); recycling, \(r=0.221, p<0.001\)) while the results show the weakest correlation for the social issues (equal respect to men and women, \(r=0.028\)).

Looking at the index scores, a significant positive correlation emerged in both the sustainability attitudes scale \((r=0.205, p<0.001)\) and the sustainability behaviour scale \((r=0.154, p<0.001)\).

Based on the above I can conclude that sustainability attitudes varied significantly between parents and their children. Children, in general, showed more positive attitudes than their parents. In their behaviour, parents were more positive as their children. The results show that the congruence between parents’ self-reported and children’s attitudes \((0.205, p<0.001)\) is stronger compared to the congruence for the sustainability behaviour \((r=0.154, p<0.001)\). Thus, the first hypothesis is supported by the findings. Children’s and their parents’ sustainability values and behaviour are positively correlated but it should be noted that, overall, congruence in sustainability attitudes and behaviour between parents and children is rather weak. Furthermore, it should be noted that, as an additional robustness test, I also carried out analyses relying on the data from the second wave of the panel study. The results (and the descriptive statistics including means, numbers and percentages of responses) are displayed in Appendix and show very similar results and allow us to expand the generalizability of the results.

In addition to the descriptive statistics, OLS regressions are estimated. This paper investigates whether family characteristics lead to more attitudinal or behavioural congruence. I estimate a regression model, where the attitudinal congruence \((a)\) and the behavioural congruence \((b)\) is the dependent variable. Independent variables are the age of the child,
the educational level of the parent, the discussions going on in families, income, highest level of education, and the language spoken at home. Table 4 indicates that no variable in the analysis with behavioural congruence is significant. I include ‘highest level of education’ in the analyses because I expect that the level of education is positively related to the amount of congruence. The results do not indicate that the level of education influences attitudinal or behavioural congruence. Finally, income or language spoken at home does not seem to predict congruence within a family. Surprisingly, the age of the child is not associated with congruence within the family, possibly due to a quite narrow age span in the sample (8–14 years). I also formulated a hypothesis which predicted that an increased level of family discussions would lead to more congruence within a family. The results support that an increased level of family discussions indeed lead to more attitudinal congruence among families but for behavioural congruence, this hypothesis is not supported. Family discussions do not lead to more behavioural congruence.

5 Discussion

The research literature increasingly focuses on questions concerning children’s pro-environmental attitudes and behaviour. However, there is no literature that is concerned with how parents influence youth’s actions and values within a sustainable context. This study wanted to examine whether there is congruence in children’s and parents’ broader sustainable development, including economic and social dimensions as well as the previously investigated environmental dimension. This research reveals some new first insights in the transmission. First, I compared the sustainability attitudes and behaviour of two generations, the young people and their parents, to examine to what extent parents influence their children with respect to a sustainable context. Pearson product-moment correlation analysis was used to determine how much coherence of sustainability attitudes and behaviour existed between children and their parents. As expected, a positive correlation between parents’ and children’s environmental values and behaviour was found. This was true across all other value domains (social and economic) as well. Following the guidelines of Cohen

| Table 4 | Predicting congruence within the family |
|---------|--------------------------------------|
|         | Attitudinal congruence | Behavioural congruence |
|         | B (s.e.) | B (s.e.) |
| Discussing sustainable issues (parents) | −0.078*** (0.026) | −0.024 (0.030) |
| Parental education: low                |                     |                     |
| Medium                                   | −0.026 (0.065)      | 0.098 (0.077)     |
| High                                     | −0.101 (0.064)      | 0.022 (0.076)     |
| Language at home (ref: Dutch)           | 0.059 (0.057)       | −0.052 (0.066)    |
| Income parent (ref: difficult to live)  | 0.017 (0.053)       | 0.041 (0.064)     |
| Age (child)                             | 0.035 (0.032)       | 0.015 (0.016)     |
| Constant                                | 0.760*** (0.103)    | 0.433*** (0.221)  |
| N                                        | 777                  | 779                |
| $R^2$                                    | 0.025                | 0.009              |

The results are unstandardised OLS coefficients, standard errors in parentheses
Significance levels: *$p<0.10$; *$p<0.05$; **$p<0.01$; ***$p<0.001$
(1988), the results showed a significant, substantial correlation between parents and children. Despite the fact that the correlations between parents and children were rather low, the results make it clear that parents still matter, to some extent, in regard to influencing coping with sustainability attitudes and behaviour and are relevant agents in the sustainable transmission. However, compared to other studies (Grønhøj & Thøgersen, 2009, 2012; Matthies et al., 2012; Meeusen, 2014) the analyses did not show high variability in the similarities between parents and their children and the impact of parents seems minimal as the effective sizes of the correlations were small (Cohen, 1988). The results are consistent with previous research suggesting that youth should be seen as active participants in their own and their families development (McDevitt & Chaffee, 2002), indicate that children do not just simply copy their parents’ attitudes and behaviour. Previous research has argued that young people hold more positive attitudes towards environmental issues, but show less pro-environmental behaviour compared with older people (Leppänen et al., 2012; Casalo & Escario, 2018). Other studies has consistently shown that there is an adolescent decrease in environmentally friendly attitudes and behaviour (Liefländer & Bogner, 2014; Negev et al., 2008) and in sustainable attitudes and behaviour (Olsson & Gericke, 2016). Based on the analyses in this study, I could find evidence that the younger generation has higher attitudes but show less sustainable behaviour compared to those of the older generation. Third, in-line with other scholars (Hooghe & Boonen, 2015) this study finds evidence that in families with a high frequency of political discussions, there is a stronger congruence between the sustainable ideas of parents and their children. For the behavioural congruence, no variables included in this study seem to have an effect on the strength of the relation.

The current study makes significant contributions to the literature, however, the research suffers from some limitations that could provide a starting point for future research. First, the direction of transmission within the family cannot only be determined from correlation analyses. It is more difficult to unravel the different mechanisms that underlie parental socialization processes by focusing on congruence. The results from this study clearly indicate that parent–child congruence and family similarity could also be caused by child-to parent transfer, and thus, as a reverse socialization process (Glass et al., 1986; York, 2019) and other external socialization agents (Vaughan et al., 2003). Second, there is limited generalizability with a case study design and there could be pro-environmental bias of those parents who decided to participate in the VALIES study. Third, future research looking at sustainability behaviour among young people could question youth about the opportunities and difficulties to engage in a variety of sustainability actions. The difficulty is to find more sustainable behaviour that children between age 8 and 15 have the option to engage in. However, Grønhøj and Thøgersen (2012) argue that adolescents have already reached a certain level of maturity. They form their own opinions about a number of issues, and can be held responsible for their everyday behaviour within the family. Finally, it is important to note that the rather small parent–child attitudes and behaviour similarities might be due to its lower visibility within households (Whitbeck & Gecas, 1988).
Appendix: Results for wave 2

The VALIES project is a panel study based on two waves (September 2019 and June 2020). As an additional robustness test, I also carried out analyses relying on the data from the second wave of the panel study to estimate the same models. Parents had to return the questionnaire by mail, together with their (e-mail) address if they wanted to participate in the second part of the study. In total 1009 parents 895 from the VALIES project agreed to participate in the second wave survey. In June 2020, the parents were contacted for the second wave, directly by e-mail or by surface mail to their home address, without involvement of schools. Again, a first reminder letter was sent four weeks later, and another four weeks later a second reminder was sent, with inclusion of a hard copy of the survey. The second sample consisted of 551 parents of the project. The final parent sample consisted of 551 participants who participated in both the first and the second wave. As expected, there was an overrepresentation of women in the sample, as is common in surveys starting within a school context. For this analyses, only full panel participants are included, i.e. parents and children that participated in both waves of the panel. The mean age of the parents was 45 years old (78 per cent female, 21 per cent male and 1 per cent other). In the second wave 740 pupils participated in the survey. Pupils were from 10 to 17 years old and the mean age of the children was 11 years old (52 per cent male, 47 per cent female, 1 per cent other). It is important to note that attrition for wave 2 was only slightly influenced by socio-economic status. 59.75 per cent of the full panel respondents had higher education credentials, compared to 55.03 per cent of the respondents who participated in the first wave only. Also for the second wave, the behavioural items are correlated for both parents (Cronbach’s alpha = 0.60) and children (Cronbach’s alpha = 0.75), although a Cronbach’s alpha of 0.60 is lower than the 0.70 threshold typically desired, it can still be considered as a reasonable level or reliability so I could create one measure of sustainable behaviour as an index score for both parents and children. Also the attitudes are strongly correlated for both parents (Cronbach’s alpha = 0.84) and children (Cronbach’s alpha = 0.87), so I could again create one measure of sustainable attitudes as an index score for both parents and children. The average score on the attitudinal item (with a minimum score from 0 and a maximum score of 5) was 4.41 for children and 4.28 for parents with a significant difference ($p < 0.05$) of 0.13 while the average score on the behavioural item (with a minimum score from 0 and a maximum score of 5) was 4.19 for children and 4.21 for parents, with no significant difference. The robustness of the analyses allows us to expand the generalizability of the results. The results of the analyses can be found in Tables 5, 6 and 7.
Table 5  Replication of Table 2 including wave 2 (comparison of attitudinal means between parents and their children; congruence within the family in W1 and W2)

| Variable       | Description                                                                 | Min. | Max. | N     | M (SD)       | Differences between parents and children | Correlation within the family | N     | M (SD)       | Differences between parents and children | Correlation within the family |
|---------------|----------------------------------------------------------------------------|------|------|-------|--------------|------------------------------------------|-------------------------------|-------|--------------|------------------------------------------|-------------------------------|
|               |                                                                            |      |      |       |              | Wave 1                                   | Wave 1                        |       |              | Wave 2                                   | Wave 2                        |
|               |                                                                            |      |      |       |              | Children                                   | Parents                      |       |              | Children                                   | Parents                      |
| Laws—ENV      | I think that we need stricter laws and regulations to protect the environment | 1    | 5    | 851   | 3.975 (.950) | 3.918 (.883) .058                          | 0.177***                     | 227   | 4.123 (.918) | 3.943 (.765) .181*                        | 0.174**                      |
|               |                                                                            |      |      |       |              |                                           |                              |       |              |                                           |                              |
| Measures—ENV  | I think that is it important to take measures against problems which have to do with climate change | 1    | 5    | 852   | 4.322 (.804) | 4.0076 (.0866) .245***                     | 0.150***                     | 228   | 4.430 (.768) | 4.118 (.790) .311***                      | 0.148**                      |
|               |                                                                            |      |      |       |              |                                           |                              |       |              |                                           |                              |
| Variable  | Description | Min. | Max. | N   | M (SD) | Differences between parents and children | Correlation within the family | N   | M (SD) | Differences between parents and children | Correlation within the family |
|-----------|-------------|------|------|-----|--------|-----------------------------------------|-------------------------------|-----|--------|-----------------------------------------|-------------------------------|
|           |             |      |      |     |        | Wave 1                                 |                              |     |        | Wave 2                                 |                               |
|           |             |      |      |     |        | Children      | Parents      |                              |          | Children      | Parents                  |                               |
| Training—SOC | I think that everyone ought to be given the opportunity to acquire the knowledge, values and skills that are necessary to live sustainably | 1 | 5 | 840 | 4.315 (.811) | 3.829 (.908) | .487*** | 0.056 | 228 | 4.338 (.742) | 3.89 (.795) | .219*** | 0.096 |
| Future—SOC | I think that we who are living now should make sure that people in the future enjoy the same quality of life as we do today | 1 | 5 | 857 | 4.314 (.842) | 4.377 (.686) | −.063 | 0.091* | 227 | 4.370 (.795) | 4.405 (.598) | −.035 | 0.083 |
Table 5 (continued)

| Variable | Description                                                                 | Min. | Max. | N   | M (SD) | Differences between parents and children | Correlation within the family | N   | M (SD) | Differences between parents and children | Correlation within the family |
|----------|-----------------------------------------------------------------------------|------|------|-----|--------|------------------------------------------|------------------------------|-----|--------|------------------------------------------|------------------------------|
|          | Wave 1                                                                       |      |      |     |        |                                          |                              |     |        |                                          |                              |
|          | Wave 2                                                                       |      |      |     |        |                                          |                              |     |        |                                          |                              |
| Education—SOC | I think that women and men throughout the world must be given the same opportunities for education and employment | 1    | 5    | 851  | 4.638 (.597) | 4.543 (.655) | .095* | 0.082** | 228 4.675 (.579) | 4.640 (.533) | .035 | 0.091 |
| Disposable—ECO | I think that companies have a responsibility to reduce the use of packaging and disposable articles | 1    | 5    | 853  | 4.408 (.786) | 4.458 (.730) | −.060 | 0.129*** | 227 4.427 (.696) | 4.533 (.619) | −.106 | 0.209** |
Table 5 (continued)

| Variable | Description | Min. | Max. | N  | M (SD) | Differences between parents and children | Correlation within the family | N  | M (SD) | Differences between parents and children | Correlation within the family |
|----------|-------------|------|------|----|--------|------------------------------------------|-------------------------------|----|--------|------------------------------------------|-------------------------------|
|          |             |      |      |    |        | Wave 1                                   |                               |    |        | Wave 2                                   |                               |
|          |             |      |      |    |        | Children | Parents                     |                               |    |        | Children | Parents |                               |                               |
| Poverty—ECO | I think it is important to reduce poverty | 1 | 5 | 850 | 4.428 (.712) | 4.364 (.685) | .065* | 0.091** | 226 | 4.458 (.653) | 4.44 (.611) | − .004 | 0.165* |
| Employees—ECO | I think that companies in rich countries should give employees in poor nations the same conditions as in rich countries | 1 | 5 | 850 | 4.275 (.852) | 4.282 (.812) | − .007 | 0.037 | 228 | 4.412 (.766) | 4.351 (.715) | .061 | 0.121 |
| 8-item index score | | 1 | 5 | 791 | 4.336 (.539) | 4.240 (.539) | .095*** | 0.0205*** | 224 | 4.411 (.541) | 4.281 (.031) | .129* | 0.240*** |

*M = mean, SD = standard deviation. Average scores on the different attitudinal items in the questionnaires

Paired sample t tests: significance levels: *p < 0.05; **p < 0.01; ***p < 0.001
| Variable                  | Description                                                                 | Min. | Max. | Wave 1 N | Wave 1 M (SD) | Wave 2 N | Wave 2 M (SD) | Differences between parents and children | Correlation within the family Wave 1 | Differences between parents and children | Correlation within the family Wave 2 |
|--------------------------|------------------------------------------------------------------------------|------|------|-----------|---------------|-----------|---------------|------------------------------------------|---------------------------------------|------------------------------------------|---------------------------------------|
| Sorting food—ENV         | I always separate food waste before putting out the rubbish when I have the chance | 1    | 5    | 864       | 4.291 (.830)  | 4.705 (.581)| − .414***   | 0.123***                                 |                                       | − .428***                                 | 0.276***                                 |
| Reduce waste—ENV         | I have changed my personal lifestyle in order to reduce waste (e.g. throwing away less food or not wasting materials) | 1    | 5    | 851       | 4.264 (.831)  | 4.293 (.843)| .026         | 0.120***                                 |                                       | − .184*                                   | 0.196**                                  |
| Sorting—ENV              | I recycle as much as I can                                                  | 1    | 5    | 866       | 4.283 (.804)  | 4.706 (.581)| − .423***   | 0.221***                                 |                                       | − .507***                                 | 0.063                                   |
| Variable               | Description                                                                 | Min. | Max. | Wave 1 Children | Wave 1 Parents | Wave 2 Children | Wave 2 Parents | Differences between parents and children | Correlation within the family Wave 1 | N   | M (SD) | Wave 2 Children | Wave 2 Parents | Differences between parents and children | Correlation within the family Wave 2 |
|------------------------|-----------------------------------------------------------------------------|------|------|------------------|----------------|------------------|----------------|------------------------------------------|--------------------------------------|------|-------|------------------|----------------|------------------------------------------|--------------------------------------|
| Aid organisations—SOC | I support an aid organization or environmental group                        | 1    | 5    | 844              | 3.719 (1.098)  | 3.499 (1.415)   | .220***        | 0.110**                                  | 227                                  | 3.634 | (1.036) | 3.581             | (1.365)        | .053                                     | 0.276***                                |
| Respect mw—SOC        | I show the same respect to men and women, boys and girls                     | 1    | 5    | 856              | 4.202 (.966)   | 4.643 (.535)    | −.440***       | 0.028                                    | 228                                  | 4.680 | (.513) | 4.754             | (.480)         | −.075                                    | 0.073                                  |
| Eth consuming—ECO     | I avoid buying goods from companies with a bad reputation for looking after their employees and the environment | 1    | 5    | 825              | 3.588 (.138)   | 3.313 (1.060)   | .275***        | 0.105**                                  | 229                                  | 3.812 | (.989) | 3.249             | (1.023)        | .563***                                  | −0.006                                  |
### Table 6 (continued)

| Variable       | Description                       | Min. | Max. | N   | M (SD)      | Differences between parents and children | Correlation within the family | N   | M (SD)      | Differences between parents and children | Correlation |
|----------------|-----------------------------------|------|------|-----|-------------|------------------------------------------|-----------------------------|-----|-------------|------------------------------------------|-------------|
|                |                                   |      |      |     | Wave 1      | Wave 2                                   |                              |     | Wave 1      | Wave 2                                   |             |
|                |                                   |      |      |     | Children    | Parents                                  | N                           |     | Children    | Parents                                  |             |
| 6-item index score |                                 | 1    | 5    | 795 | 3.994 (.673) | 4.114 (.559)                            | − .120***                  | 224 | 4.193 (.529) | 4.205 (.505)                            | − .011       |

M = mean, SD = standard deviation. Average scores on the different behavioural items in the questionnaires

Paired sample *t* tests: significance levels: *p < 0.05; **p < 0.01; ***p < 0.001
Table 7 Correlations and means for index scores for wave 1 and wave 2

| Wave | N   | Product-moment correlations of children with parents | # of items in scale | M (SD) children | M (SD) parents | Differences between parents and their children |
|------|-----|-----------------------------------------------------|---------------------|----------------|----------------|-----------------------------------------------|
| 1    | 791 | 0.205***                                           | 8                   | 4.336 (0.539) | 4.240 (0.539) | 0.095***                                      |
| 2    | 224 | 0.233***                                           | 8                   | 4.411 (0.541) | 4.281 (0.081) | 0.126**                                       |
| 1    | 795 | 0.154***                                           | 6                   | 3.994 (0.673) | 4.114 (0.559) | −0.120***                                     |
| 2    | 224 | 0.254***                                           | 6                   | 4.193 (0.529) | 4.205 (0.505) | −0.011                                        |

The correlations are based on factor scores. The higher the scale value, the more environmental the respondent.

Significance levels: *p < .05; **p < .01; ***p < .001
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