Children's engagement with environmental issues

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Abstract

This research offers insights into children's engagement with the environment by exploring whether and how children demonstrate individual and collective engagement with environmental issues. Using a child-centred methodological approach based on individual interviews and drawings, this research shows that children express different levels of engagement with environmental issues, such that they demonstrate varying levels of cognitive, emotional, and behavioural engagement. Our findings show evidence that individual (i.e., knowledge, interest and sustained attention, perceived responsibility and behavioural control), as well as socio-contextual factors (communication within the family setting and outside, processes of (re)socialisation) foster or constrain children's motivational states towards environmental issues. We conceptualize our findings to show children's embodied engagement with environmental issues. From these findings, we provide managerial implications addressed to managers and policymakers.

Keywords: engagement; children; environmental issues; socialisation; family

Summary statement of contribution

This research adds to prior research about consumer engagement while delineating children's engagement with environmental issues. The study offers the novel concept of children's embodied engagement; as well as identifying how a collective (as well as an individual) perspective can enrich our understanding of children's engagement with environmental issues. This research offers insights for managers developing environmental messages and strategies consistent with children's expectations. Social implications further highlight how policymakers might also foster children's engagement.

Introduction

Environmental issues (i.e., climate change, pollution, or resource depletion) concern 'the interaction of the natural world with human activities, the scales and rates of change in the ecosphere caused by natural variability and those precipitated by human activities' (Owen & Pickering, 1997, p. 2). Prior research acknowledges that children have an important role to play in environmental issues that challenge our vision of the environment, the planet, and our sustainable relationship with consumption (Larsson et al., 2010; Walker, 2017). Worldwide, education for sustainable development is one key sustainable development goal promoted by the UNESCO (https://en.unesco.org/themes/education-sustainable-development). Children are key targets for this education because they are the future generation who will make decisions about the future of our planet. It is therefore crucial to offer them the possibility to make informed decisions, both at an individual level and at a collective level since environmental issues linked to sustainable consumption are a collective challenge. Further, the impressions, beliefs, or values formed during their childhood are likely to influence their adult behaviours in the longer run (Wut & Chou, 2013). Moreover, prior research has established the importance of children as consumers (Lindstrom & Seybold, 2003; Flurry & Burns, 2005) and also their influence in the family setting (e.g., Grønhøj, 2007; Matthies et al., 2012). However, just a few studies of children's consumer behaviour have examined whether and how children engage with environmental issues. Most of the research on children and the environment has focused on environmental socialisation and reverse socialisation in particular, with specific attention on adolescents (e.g., Singh et al., 2020), and has largely overlooked children at the analytical stage (7-12 years old, John, 1999). Children from the analytical stage benefit from environmental education at school (Jorgenson et al., 2019) and might be catalysts for

behavioural change in the family setting (O'Neill & Buckley, 2019). They are increasingly involved in family consumption decision-making (Kerrane et al., 2012).

Recent literature about consumer and actor engagement (Brodie et al., 2019; Kleinaltenkamp et al., 2019) helps us to frame children's engagement on both an individual level and a collective level. At the individual level of analysis, the consumer engagement perspective has received a lot of attention in prior research (e.g., Calder et al., 2016; Hollebeek et al., 2016) and has identified the underpinning factors of engagement, as well as the antecedents and consequences of consumer engagement (e.g., Dessart et al., 2016). This research mainly focused on consumer engagement with a brand, and Calder et al. (2016) call for more research about engagement with environmental issues. Further, this prior literature focused on adults and rarely pursued an in-depth understanding of engagement among children. Although it is relevant to explore children's engagement with environmental issues at an individual level, children, as full social actors, evolve in an ecosystem and interrelate with their family, school, peers, and/or mass media. As such, taking an actor engagement perspective (Brodie et al., 2019) could offer us a novel perspective which could contribute to our understanding of children's engagement and might illuminate young children's consumer behaviour in a collective engagement setting (Kleinaltenkamp et al., 2019).

This paper addresses two research questions: How do children manifest their engagement with environmental issues? What factors might foster or constrain children's engagement with environmental issues? To answer these questions, and to pinpoint and delineate children's engagement, qualitative research was conducted with 20 French children aged between 7 and 12 years-old, who were interviewed and asked to draw pictures of how they felt about engagement with the environment. Informal conversations were also held with parents.

By investigating children's engagement with environmental issues from the children's point of view, we expect to extend prior literature in several important ways. First, this research

adds to prior literature about engagement by introducing a child-centred perspective. Second, we propose a definition and some illustrations of the salient dimensions of children's engagement with environmental issues. We thereby show that children are actors embedded in an environmental ecosystem. Third, we add to prior literature about engagement while highlighting the factors that foster or limit children's embodied engagement. Fourth, we start to sketch in how children's engagement with environmental issues is different from adults. The remainder of this paper is organised as follows. The next section offers a review of the literature related to children's environmental socialisation and explores the engagement literature. Then, we detail the methodology for our qualitative investigation (interviews and drawings) with 20 French children (along with informal conversations with their parents), and outline our findings. Finally, we present a revised conceptualization of children's engagement with environmental issues, mapped along two dimensions (individual and socio-contextual factors) using an actor engagement perspective, and introduce the notion of embodied engagement. From here, we offer theoretical and managerial implications as well as future research opportunities.

Children's environmental socialisation

Children are full social actors in the environmental context (Larsson et al., 2010; Walker, 2017) and prior research argues that their environmental socialisation contributes to their engagement with environmental issues (Jorgenson et al., 2019; Ojala, 2020). Environmental socialisation refers to 'the process of learning pro-environmental behaviours, through the acquisition of relevant skills, knowledge, and attitudes' (Gentina & Muratore, 2012, p. 162). In the environmental context, accounting for the environmental impacts of consumption choices seems a desirable consumer socialisation outcome (Grønhøj, 2007). As such, thanks to the socialisation process, children should be able to develop specific skills related to the

knowledge and/or relevant behaviours associated with the reduction of their environmental impact. Prior literature identifies family, school, peers, and mass media, as the main environmental socialisation agents (Aguirre-Bielschowsky et al., 2018; Matthies et al., 2012; Grønhøj, 2007). These all contribute to conveying desirable outcomes to children (Grønhøj, 2007). For instance, Matthies et al. (2012) show that children develop supportive pro-environmental norms thanks to family communication about recycling and re-use behaviours. Therefore, children are likely to develop their cognitive understanding and take an empathetic perspective about environmental issues. Practicing daily environmental behaviours at home seems also to be a way to initiate children into an environmental routine (Scott et al., 2015). Furthermore, school is a relevant socialisation agent as it provides an environmental education (e.g., Jorgenson et al., 2019; Pauw et al., 2015). This research shows the importance of education in raising children's environmental awareness and increasing children's engagement with environmental issues (Jorgenson et al., 2019; Ojala, 2020). Mass media and peers also appear as important factors at the analytical stage of children's development as sources of information and socialisation agents (John, 1999). Though usually associated with undesirable outcomes, such as materialism (John, 1999; Chaplin & Roedder-John, 2005), mass media, and to a lesser extent peers, are important sources of information and influence in the environmental context (Grønhøj, 2007).

Environmental socialisation helps children to develop their knowledge, concerns, values, and positive attitudes towards the environment (Dunlap, 2008). For instance, Schill et al. (2020) show that children exhibit great knowledge about recycling, and more broadly about the environment. Besides providing environmental knowledge, socialisation needs to take into account children's emotions about environmental issues (Ojala, 2013). Indeed, environmental issues might shake up children's visions of the world, because these issues might provoke

anxiety and negative emotions (Walker, 2017). To this end, Ojala (2013) argues for the need to support children with appropriate socialisation to help them to develop coping strategies to manage their emotions, such as helplessness, so that they see the possibility of attaining realistic goals to develop their engagement. However, there is little prior research that identifies the emotions that children feel about environmental issues and how emotions might inform any actions they undertake (or not) with these issues. This is in contrast to earlier research among the adult population which considers emotions as important factors in understanding engagement with environmental issues (Roeser, 2012). While research about emotions remains burgeoning, recent research shows the importance of positive as well as negative emotions in decision-making and in engagement (Odou & Schill, 2020). Furthermore, as the future generation, children receive socialisation that aims to foster behaviour change in the family setting, thanks to resocialisation (Lawlor & Prothero, 2011; Kerrane et al., 2012). In the environmental context, O'Neill & Buckley (2019) argue that an environmental education helps children to become catalysts of behaviour change in the family setting towards more sustainable behaviours, as evidenced in Scott et al.'s (2015) research.

Overall, prior research about environmental socialisation concludes that it is important in supporting and encouraging children's engagement with environmental issues (e.g., Jorgenson et al., 2019; Ojala, 2020). However, this prior research does not specifically define the components of children's engagement with environmental issues. It remains unclear whether exhibiting knowledge, displaying pro-environmental values, feeling emotions, and influencing behaviours in the family setting are sufficient to consider that children are thus engaged with environmental issues. Further and beyond these outcomes deriving from studies of children's environmental socialisation, other insights from the broader consumer engagement literature might illuminate our understanding of how children manifest their engagement with

environmental issues, at the individual and collective levels, since children connect with various socialisation agents in their ecosystem.

Children's engagement with environmental issues

Prior research related to children's environmental socialisation suggests that children might engage with environmental issues. We first explore prior research about engagement that highlights not only the individual level (consumer engagement), but also the need to account for the network, the ecosystem in which individuals (children) are embedded, suggesting a collective level of analysis (actor engagement) (Brodie et al., 2019; Sim et al., 2018). Second, we investigate the factors that might favour or limit children's engagement with environmental issues.

Consumer engagement and actor engagement

According to Brodie et al. (2019), two key streams of research relate to the concept of engagement. First, consumer engagement research mainly explores dyadic firm consumer relationships, and defines consumer engagement as reflecting a motivational state that goes beyond purchase (Calder et al., 2016; Dessart et al., 2016; van Doorn et al., 2010). Formally, Brodie et al. (2011, p. 260) define consumer engagement as 'a psychological state that occurs by virtue of interactive, co-creative customer experiences with a focal agent/object.' Consumer engagement thus involves a subject, i.e., the consumer and an object. In most cases, prior literature examined brands as the object of engagement (e.g., Dessart et al., 2016; Gambetti & Graffigna, 2010), thus exploring consumer brand engagement. The motivational state that reflects engagement is particularly prominent in Higgins and Scholer's (2009, p. 102) work. They see the idea of engagement as 'a state of being involved, occupied, fully absorbed, or engrossed in something – *sustained attention*.' Further, consumer engagement

seems context-specific such that it captures consumer experiences and interactions with a particular brand or in a specific context (Calder et al., 2016). This earlier research, that mainly explored engagement at an individual level of analysis, conceptualised consumer engagement as a multidimensional construct (Bilro & Loureiro, 2020; Brodie et al., 2013; Calder et al., 2016). Consumer engagement comprises cognitive, emotional, and behavioural factors (e.g. Hollebeek et al., 2014 and Dessart et al., 2016 for reviews), as well as social factors (Vivek et al., 2014). The cognitive factor includes a 'set of enduring and active mental states that a consumer experiences' and consists of two sub-dimensions, i.e. attention and absorption (Dessart et al., 2016, p. 410), and is consistent with the 'conscious attention' revealed by Vivek et al. (2014). The emotional factor reflects a lasting emotional state that a consumer experiences, and comprises enthusiasm and enjoyment. This factor reflects the enthusiastic participation suggested in Vivek et al.'s (2014) research. The behavioural factor relates to consumers' behavioural manifestations toward the object of engagement. Dessart et al. (2016), in line with van Doorn et al. (2010), consider this behavioural engagement to go beyond purchase. Most research shares this three-dimensional comprehension of consumer engagement (e.g. Calder et al., 2016; Harrigan et al., 2018; Hollebeek et al., 2014).

Second, the actor engagement perspective, which considers consumer engagement as one type of actor engagement, aims to go beyond the focus on consumers/ customers and their dyadic relationships with firms/ brands while considering the 'reciprocal, social, and collective nature of engagement' (Brodie et al., 2019, p. 173). This emerging stream of research thus develops an actor perspective that 'embraces networks involving multiple actor interactions' (Brodie et al., 2019, p. 177). This is consistent with our focus on children, who might develop a motivational state about environmental issues (consumer engagement perspective), but who are also embedded in a network, an ecosystem, and are thus connected to other actors, i.e., socialisation agents (actor engagement perspective). This is also consistent with Vivek et al.'s

(2014, p. 407) work that highlights the importance of the social connection factor that reflects the 'enhancement of the interaction based on the inclusion of others with the focus of engagement, indicating mutual or reciprocal action in the presence of others.' This dimension suggests the importance of the social group to enhance consumer engagement, especially when considering public or collective behaviours, and suggests the existence of collective engagement. Recent research in the organisational context advances our understanding of collective engagement, which refers to "multiple actors' shared cognitive, emotional, and behavioral dispositions, as manifested in their interactive efforts devoted to a focal object" (Kleinaltenkamp et al., 2019, p. 12). We argue that collective engagement, involving at least one child, might appear because children are likely to interact with many social groups (peers, family for instance) in different contexts (family setting or school setting for instance). Further, children's activities might depend on the social connections they develop with other actors in their surrounding network (Chandler & Lusch, 2015). In an environmental context, the collective engagement might be a powerful benefit to the environment, because, according to Kleinaltenkamp et al. (2019, p. 20), collective engagement goes beyond the sum of individual engagements, and reflects a 'multiplicative […] aggregation of individuals' engagements to the collective level.'

In the context of sustainable and environmental consumption, research is not only scarce about consumer engagement, but mainly considers an individually-based consumer engagement perspective and fails to develop an actor engagement perspective (Piligrimienė et al., 2020). Kadic-Maglajlic et al. (2019, p. 645) define pro-environmental and pro-social engagement as 'a participation in, and connection with, environmental and social issues,' in line with Vivek et al.'s (2014) definition. The limited research about engagement and sustainability has mainly explored the antecedents and consequences of consumer engagement in sustainable consumption that comprises cognitive, affective, and behavioural

factors, at an individual level. Piligrimienė et al. (2020) show the positive impact of internal factors (environmental attitude, perceived responsibility, and perceived consumer effectiveness) and external factors (conditions for sustainable consumption, social environment, and promotion of sustainable consumption) on consumer engagement. Kadic-Maglajlic et al. (2019) further explore self-identity and consumer values as relevant determinants of consumer engagement that also positively influence consumption behaviours.

Although prior research about engagement provides relevant insights for defining and delineating the concept of engagement at an individual and collective level, this literature has mainly explored adult consumer engagement, and has tended to overlook children's engagement. Further, there is little research exploring engagement in the environmental context, and Calder et al. (2016) call for more research about engagement with environmental issues. Considering the lack of research with this analytical age group (7-12 years old, John 1999) about children's engagement and the need for more research about engagement with environmental issues, this research aims to understand the factors that influence children's engagement with environmental issues.

Factors influencing children's engagement with environmental issues

In line with recent research about actor engagement (Brodie et al., 2019; Kleinaltenkamp et al., 2019), children's engagement with environmental issues might be delineated both at an individual level of analysis (consumer engagement perspective) and at a collective level of analysis (actor engagement perspective). Drawing on earlier work on (1) engagement, (2) socialisation, and (3) environment, this section will highlight the factors that might influence children's engagement with environmental issues.

First, using a consumer engagement perspective, according to Calder et al. (2016, p. 580), engagement 'should be considered as a process of positive self-control.' From this perspective, engagement as a motivational state exists because life goals and values are consistent with a specific desire. For instance, in the environmental context, one could consider preserving/ not harming the environment as a high-order goal and recycling its waste on a daily basis as a desirable behaviour. Relying on self-determination theory (Ryan & Deci, 2000), Calder et al. (2016) argue that engagement reflects an intrinsic as well as an extrinsic motivation. Motivation thus reveals the engagement that children might display in relation to environmental issues. Self-determination theory (Ryan & Deci, 2000) posits that individuals are more likely to engage in behaviours they value and whereby they achieve inherent satisfaction. In this individual consumer engagement perspective, individuals experience self-determination, driven by an internal locus of causality, i.e., autonomy. In contrast, individuals might experience amotivation because they do not value the activity, nor expect it to achieve a desired outcome for them. Amotivation is 'a state of lacking any intention to engage in a behaviour and is a completely non-self-determined form of regulation' (Markland & Tobin, 2004, p. 191). In between, we observe a continuum of extrinsic motivations (i.e., external regulation, introjected regulation, identified regulation, and integrated regulation). The more an individual moves towards integrated regulation, the more he/she will value the behaviour and consider it as of personal importance, but still perform actions to attain a separate outcome (i.e., please his/her parents) rather than for satisfying his/her inherent values and needs. Self-determination theory has been successfully used in the environmental context (de Groot & Steg, 2010) and Grønhøj and Thøgersen (2017) show evidence of the importance of adolescents' motivation to engage with behavioural actions in the environmental context. Their findings indicate that adolescents' self-motivation (intrinsic motivation) with environmental issues is associated with a parent's own motivation to act. These authors also

show evidence of the autonomy supporting parenting style as significant in enhancing adolescents' motivation to act. Interestingly, this prior research highlights not only engagement at the individual level of analysis (the adolescent), but also suggests the importance of actors surrounding the adolescents' ecosystem (i.e., the parents), in an actor engagement perspective. These actors might influence children's engagement depending on how children interact with other actors within their ecosystem (i.e., connectedness – Brodie et al., 2019).

Second, prior research about children's socialisation shows that differences in family communication patterns (Hsieh et al., 2006; Grønhøj, 2006) tend to moderate children's engagement with environmental issues. For instance, Gentina and Muratore (2012) and Grønhøj (2006) demonstrate the importance of communication within the family in the context of children's environmental (re)socialisation. Schill et al. (2020) show that children are more likely to participate in recycling activities in families wherein the communication style is favourable and encouragement is provided in the parental microenvironment. Other microenvironments are also potentially relevant, such as sibling microenvironments (Kerrane & Hogg, 2013). Further, besides family, other socialisation agents might be relevant to consider. For instance, media coverage about environmental issues might influence children's engagement with the environment (Grønhøj, 2007), as well as school socialisation and education (Jorgenson et al., 2019). Therefore, we expect that the connectedness between children and other actors of their ecosystem might interact (Brodie et al., 2019; Kleinaltenkamp et al., 2019), and that socio-contextual factors might foster or constrain children's engagement with environmental issues at an individual level, and also at a collective level.

Third, prior research in the environmental context exploring consumer engagement reveals a set of individual factors that might foster or limit children's engagement with environmental

issues. Environmental attitudes, perceived responsibility, and perceived consumer effectiveness are shown to influence consumer engagement (Piligrimienė et al., 2020), as do consumer values (Kadic-Maglajlic et al., 2019). Though these constructs have been explored among adults within the environmental context, there is little research among the younger population. Overall, by investigating socio-contextual factors as well as individual factors, we seek more precise insights into the factors that might foster or constrain children's engagement with environmental issues.

Methodology

This study investigates children's engagement with environmental issues. French children receive an education from primary school until college, about the environment, and more broadly about environmental issues. The aim of this education is to increase children's awareness about environmental issues and the importance of moving towards greener sources of energy. Besides this environmental education, the food-shopping context might illuminate children's engagement with the environment. French families mainly tend to buy their food in supermarkets (88%) for convenience, but they also consider using neighbourhood stores (74%), local marketplaces (62%), and local producers (43%) (Statista, 2014). This behaviour is linked to a greater awareness of environmental problems. French consumers want to give meaning to their food purchases. This market generated 800 million euros in 2018 (LSA 2019). More and more French people are consuming organic, ecological, local and in bulk (LSA, 2020). In addition, 70% of all French people consider themselves to be eco-responsible. Given the influence of children on food shopping in the family setting (Ayadi & Muratore, 2020), this context might arouse children's awareness about the origins of food, and the related natural and environmental issues (including agricultural practices, and the naturalness of the products).

To explore children's engagement with environmental issues, we took a child-centric approach (Banister & Booth, 2005). A two-stage qualitative investigation using interviews and drawings investigated children's (aged 7 – 12 years old) engagement with environmental issues. Informal conversations with parents completed this investigation in order to understand the family context in which children develop. We further took ethical considerations into account during our fieldwork (Christensen & Prout, 2002). Consent for the children's participation was sought from parents. Then, we asked for the children's own consent before the interviews. Children had the choice about whether or not to talk to us alone and in confidence. Families and children were free to withdraw at any stage of the data collection process. We further guaranteed anonymity to each family and used pseudonyms for all the children (Thomas & O'Kane, 1998). We finally had to take account of the potential effects of the research procedures on the children (Christensen & Prout, 2002). We phoned the families a few days after the data collection had been completed to verify that the children had not been affected by their experience of the interview. None of the children was affected by the interview. If it had been the case, we would have met the child with his/her family to understand how s/he was affected and reassure him/her about his/her actions about environmental issues.

Data collection

In line with prior research interested in children's voices (Chitakunye, 2012; Kerrane et al., 2012), we sought children's perspectives on and experiences with environmental issues to highlight their level of engagement with environmental issues, what it meant to them, and the factors that might foster or constrain this engagement. Twenty children from 14 families from all over France were recruited (for a summary profile of families and children, see Appendix A). The families were upper-middle class families, and their socioeconomic status might have

had an effect on their children's environmental engagement (Pearson et al., 2017; Eom et al., 2018). The families were recruited through the use of personal contacts and through a snowballing approach. They were purposively chosen to ensure that the families had at least one child belonging to the analytical stage (John, 1999). We further looked for diversity in the sample, with families exhibiting varying levels of engagement with environmental issues. Prior research successfully used interviews to capture children's voices (Kerrane et al., 2012; Lawlor & Prothero, 2011). Semi-structured interviews were conducted to allow for a free-flowing conversation that helped to increase children's natural and active participation (Banister & Booth, 2005). As schools provide environmental knowledge to children, we felt confident about children's familiarity with this topic. Before the interview, we assured the children that they would not be tested on their knowledge. Eight boys and twelve girls were interviewed about environmental issues. The interviews were conducted between July 2020 and December 2020. Interviews started with general questions about nature and the environment, the extent to which they appreciated being out in nature, what activities they performed, with whom, and their feelings about the environment. Then, we asked the children about the extent to which they believed that the environment is faced with problems and whether they themselves try to protect the environment, inside or outside the family setting, alone or collectively. Then, we asked the children whether they were familiar with environmental practices, such as renting, organic consumption, local consumption, second-hand consumption, and recycling. Finally, we engaged in a conversation about engagement, what it meant to them, and their engagement with environmental issues. All the children gave a definition of engagement with environmental issues, and further explained how little or how much they felt that they were engaged. Because of the cognitive development of children at the analytical stage (Peracchio & Mita, 1991; John, 1999; Wells, 1965), we kept the

interviews fairly short as recommended in prior research designs with children (Banister & Booth, 2005). Interviews lasted between 15 and 40 minutes.

Drawings enriched the children's interviews about engagement. Drawings are part of projective techniques, and seem particularly relevant in tackling abstract themes, and are very useful to access children's imagination (Banister & Booth, 2005). Prior research successfully used this method with children (Chan, 2006; McNeal & Ji, 2003). Drawings helped the children to express an abstract concept graphically, i.e., engagement with environmental issues. The instructions were as follows: 'I would like you to draw what engagement with environmental issues means to you. You can draw using the entire page or not. There are no right or wrong drawings, it is just important that you draw what you think engagement with environmental issues is in the light of the discussion we have just had.' Children had no time limit on doing their drawings. After they drew what engagement with environmental issues meant to them, the researcher asked the children to describe their drawing. Finally, informal conversations with parents completed the data collection right after children's interviews and without their presence. These informal conversations lasted 15 minutes on average. We took notes during these conversations. Given our focus on children's engagement with environmental issues, these informal conversations were not analysed per se, but were used to help to understand the children's family context.

Data analysis

The process of data analysis followed Spiggle's (1994) recommendations. Each interview was transcribed and coded. The drawings were also coded. We were interested in the similarities and differences between the children's drawings, as well as the colours used by the children. The occurrence of the various different elements in the drawings were counted (McNeal & Ji,

2003), and children's descriptions of their drawings enriched the data analysis. Table 1 describes the main themes of the drawings and some illustrations.

Table 1. Main themes of the drawings and some illustrations

Themes of the drawings	Illustrations
A consideration of time	- a man in his 20 years and in his 80 years taking care of the same tree throughout this period (Thomas) - a slogan "adopt these actions quickly" – a feeling of emergency to act (David)
Behavioural dimension	- water savings (for instance showering instead of bathing) (Lily, Chloe, David) - energy savings (Lily, David) - recycling waste (Chloe, Alice, Nathan, Marius, Lise) - consuming local (Alice, David) - cultivating its own garden (Elisabeth)
Emotional dimension	- use of bright and cheerful colours (in the most majority of drawings) that depict a harmony, a well-being with nature (Eline, Lily, Elisabeth, Chloe, Alice, Lea, Gael, Zoe) - in a very few drawings (Olivia), use of dark colours that depict an overall feeling of sadness (grey and dark blue)
Collective dimension	- intertwined hands with a beautiful nature in the background (Eline) - presence of at least 2 individuals on the drawings (Elisabeth, David)

In our data analysis of both the transcripts and the drawings, we first exhaustively categorised units of data to generate rich theoretical categories and then moved on to the identification of themes. The process of categorisation was both deductive and inductive, such that the first two authors located existing and new theoretical categories, in the data, related to children's engagement with environmental issues. Then, we moved beyond categorisation, towards abstraction, to build higher-order conceptual constructs; this process involving the three authors. Second, we explored the data as a whole to enable comparisons between the children's interviews. At this stage, similarities, nuances, and differences appeared in the categories that we had developed. Further, integration helped to explore the relationships between the categories and constructs (Corbin & Strauss, 2008). Using iterations, we developed our understanding of the complete data set. Data analysis was ongoing throughout the data collection, which helped themes and categories to emerge. The authors analysed the

data set first separately and then collectively (Sherry, 2006). This analysis helped to elicit children's engagement with environmental issues, and the factors that may foster or constrain their engagement. In particular, drawings helped to inform the delineation of children's engagement with environmental issues. The multiple data sources – children's interviews, drawings, and informal conversations with parents – and the subsequent triangulation of these helped to ensure the trustworthiness of the findings (Wallendorf & Belk, 1989).

Findings

The interviews conducted with children, as well as their drawings about engagement with environmental issues, and informal conversations with their parents, offer key insights about children's engagement with environmental issues. First, the findings aim to show how children define engagement with environmental issues from the perspective of the theoretical dimensions highlighted in prior literature at an individual level (i.e., cognitive, affective, behavioural, and social factors). The findings further suggest a collective engagement through the environmental ecosystem in which children are embedded (Brodie et al., 2019; Kleinaltenkamp et al., 2019). Second, though children are able to define what engagement with environmental issues is, they are likely to express varying levels of engagement, i.e., motivational states (from amotivation to intrinsic motivation – Ryan & Deci, 2000). Our results show that these differences in engagement (from lack of engagement to embodied engagement) appear to be due to the influence of individual and socio-contextual factors, suggesting interactions between children and actors in their ecosystem. Illustrations of children's engagement with environmental issues are presented in figure 1.

Delineation of children's engagement with environmental issues

A general overview of engagement

The analysis of the children's interviews show that children are able to give a definition of what engagement with environmental issues means. Overall, the children conceived engagement as making a promise and taking action to protect the environment over a long period of time, as Lily (11) highlights:

> 'Engagement is doing something and doing it well. It's a promise. It means paying attention to the environment, not consuming too many plastic bottles, reusing them, recycling, well, doing everything we can do to protect the environment, at home, and even outside the home. It's very important, we engage in protecting our planet.' (Lily, 11)

As Chloe (8) explains, engagement 'is a lot of actions you have to take,' and these actions might relate to purchasing and may concern 'buying organic food, local or second-hand goods, buying things that pollute less, to protect the planet' (Alice, 8). Children also evoke actions unrelated to purchasing, such as 'creating an association for the environment, and giving of your time for this association' (Thomas, 12). David (12) further highlights that engagement, beyond 'taking the right action to protect the environment,' relates to the 'raising of public awareness.' Similarly, Lise (9) considers that 'the best way to get engaged is to talk about it with people around you, to warn people, you have to tell them better late than never.' As Marius (8) explains, engagement can also relate to 'giving money but it must be done regularly.'

Further, as importantly noted by children, engagement should overcome the intention-behaviour gap (McDonald et al., 2015): 'Engagement, it's when you do something, you say you'll do it, and you effectively do it.' (Charlotte, 11).

Overall, children characterise engagement with environmental issues as a promise, promising to take action in the longer-term. Further, engagement exists because individuals pursue a goal (Higgins & Scholer, 2009), more or less persistently, that is a point of view shared by all

the children interviewed: protecting the environment along with living in an environment that offers a feeling of individual and collective well-being. In children's minds, if humans do not behaviourally engage with environmental issues, 'there is a risk that the planet disappears' (Lily, 11). Therefore, children highlight the potential negative consequences for the environment if humans lack any sense of engagement with the environment, but they also describe the positive consequences that follow from behavioural engagement, such as 'feeling good, calmed' (Lea, 11), being 'fulfilled' (Gael, 11), or having a 'feeling of well-being' (Lily, 11) in a protected environment. Children thus express engagement with environmental issues in terms of a personal life goal or value (Calder et al., 2016). Interestingly, though pursuing a personal life goal, children are highly aware of the necessity of collective engagement (Kleinaltenkamp et al., 2019), as exhibited in Eline (11)'s drawing (Appendix B). Eline's drawing shows two hands with a protected environment in the background, suggesting that collective engagement is necessary to fight for protecting the environment.

A focus on the behavioural dimension

Consistent with their discourses, children draw engagement as a set of actions to protect the environment. For instance, Lily (11) draws several actions she thinks important, such as showering instead of bathing, riding her bike to go to school, saving water, switching off the lights (see appendix C). Children also include eco-friendly purchasing such as Charlotte (11):

> 'When we shop, we go to the biocoop [organic store], this store uses cardboard packaging, we buy products in bulk, we consume local, organic, because it's important that products are not imported, because if it's organic and it comes from China, products would have come by plane, so it's useless, because of the transportation that pollutes.' (Charlotte, 11)

Our data further show that children's main behavioural engagement relates to the waste issue. Elisabeth (8) explains that she 'recycles [her] waste, [she is] careful about not littering and avoids water waste.' Like Elisabeth (8), Alice (8), Oliver (9), and Samuel (9) do not litter, but they do not know what else to do, or do not want to do more:

> 'I care about the environment. I throw my papers in a bin. I pick up papers on the floor. But I don't know what else to do to protect the environment.' (Oliver, 9)

These children's focus on engagement with environmental issues seems mainly related to the behavioural manifestations, i.e., pro-environmental behaviours, that go beyond purchase (van Doorn et al., 2010), such as transportation (riding a bike vs. driving a car), water savings, energy savings, waste and recycling, eco-friendly purchasing (organic, local, avoiding over packaging, and second-hand consumption), or do-it-yourself practices. Our data show that children take actions and exhibit behavioural engagement even if they are not much interested in environmental issues.

The cognitive dimension

Besides the behavioural dimension, children express engagement through their awareness about environmental issues, reflecting the cognitive dimension of engagement (Dessart et al., 2016). For most of them, the children consider that pollution is the main environmental problem and Chloe (8) notes that it is because 'there are too many plastics in the natural world.'

Besides pollution, Stella (12) worries 'about sea levels rising and climate change.' As to climate change, Charlotte (11) details:

> 'Humans have a big impact on environment, it's a real problem. You need to know how to manage what humans do, but also, it's not completely our fault! You probably have a

> responsibility as humans, maybe 80%, but you also need to consider the changes in atmosphere, the sun, solar system, the rotation of the earth…' (Charlotte, 11)

Overall, children seemed aware of environmental issues, and considered humans to be responsible. However, even if some children seem fully absorbed with environmental issues (Higgins & Scholer, 2009), such as Elisabeth (8), or Jessica (10), Tom (12) and David (12) who ask themselves questions about environmental issues, it seems that not all children display such strong cognitive engagement. For instance, Samuel (9) is doubtful whether 'the environment has problems' and doesn't have 'any questions about the environment, [he is] not interested in it. [He is] not interested in knowing more about environmental issues.' Similarly, even if Thomas (12) is aware of pollution, he confesses that he is 'not very interested in the environment', and does not 'very often think about the environment.'

The affective dimension

Environmental issues and actions undertaken to fight these issues come with both negative and positive emotions. As to environmental issues (climate change, pollution, and resource depletion), children express sadness and fear, such as Stella (12) and David (12):

> 'Environmental issues make me feel bad and sad. Later, our planet will disappear and it's sad. I feel guilty, because I think I'm responsible for that.' (Stella, 12)
>
> 'Excessive building, deforestations, fires, exploitation of the natural resources for our personal interest, I don't like these much. I feel worried about these problems. I feel angry about people who don't care.' (David, 12)

Chloe (8) is highly affected by deforestation. She receives a daily magazine that reports news from across the world. She explains that she 'cried a lot when [she] read that the Amazon forest was destroyed by humans for their plantations in Brazil.' Children thus express negative emotions when considering environmental issues, and it appears sometimes difficult

to manage these negative emotions (Ojala, 2013). However, they seem to feel happy, satisfied, and even proud when acting on behalf of environmental issues. For instance, Stella (12) feels 'happy when doing something good,' and David is 'very proud to act.' Chloe (8), though she is very affected by environmental issues, feels 'very proud to undertake actions, because all [her] actions are useful.' Children's positive emotions mainly relate to pro-environmental behaviours, with a future-oriented perspective, such as Charlotte (11):

> 'I feel proud to be engaged because I know I leave a better world behind me. Who will care about the environment if children don't? It's at our age that we need to know and act. If today, we don't care about the environment as children, we won't care for our entire life. When I'm an adult, I'll continue my actions.' (Charlotte, 11)

It seems thus that children experience two different emotional states. They feel negative emotions when they consider some environmental issues (e.g., pollution, impact of plastic waste on the oceans) and emotions that are more positive when they undertake pro-environmental behaviours (e.g., saving resources via recycling, non-littering). Thus, their behavioural engagement gives rise to positive emotions (Dessart et al., 2016).

The social dimension that suggests a collective engagement

Though children seem to undertake actions, they acknowledge that, for most of them, they usually do not take actions by themselves or alone, with the exception of non-littering and recycling, suggesting a collective engagement (Kleinaltenkamp et al., 2019). As Tom (12) notes:

> 'It's easier to engage with several people, alone it's more complicated. If I had company I would get involved, I'm not sensitive enough to this cause to do it alone.' (Tom, 12)

Children used to act with other members of their family or friends, revealing a social connection (Vivek et al., 2014; Brodie et al., 2019). For example, Lily (11) explains that

energy savings 'are done all together at home' and the same appears to be the case for riding bikes and recycling. She highlights that 'all these activities are family activities.' In the same vein, Charlotte (11) specifically relates to 'family actions' such as recycling, consuming organic or local produce, or making their own yogurts. Children also enhance their engagement when they include their friends in a mutual action (Vivek et al., 2014; Brodie et al., 2019). Jessica (10) provides such an example of mutual action:

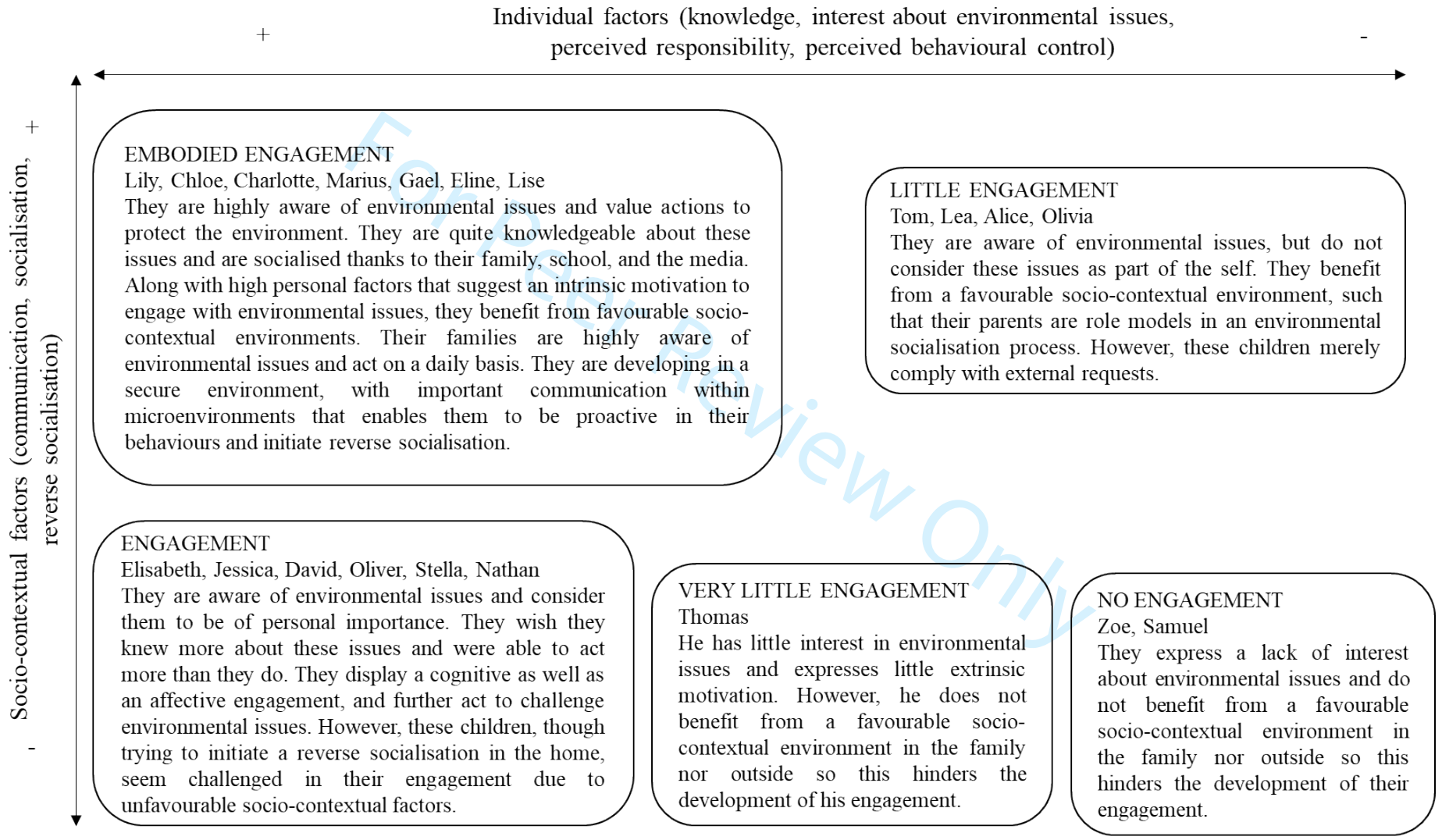
> 'I have friends at school; we created the club 'antipollution'. Our main mission is to make sure that pupils don't litter in the playground. We are about 4 or 5 in the club. We have membership cards; I really enjoy being part of this club.' (Jessica, 10)

In the context of environmental issues, the social group, the ecosystem wherein children evolve seems thus to be important in encouraging and sustaining their engagement, and might further reveal a collective environmental engagement (Kleinaltenkamp et al., 2019).

This first section of our findings has worked to establish that behavioural manifestations along with cognitive, emotional, and social factors underpin children's engagement with environmental issues. Our data reveal that the prominent factor influencing children's engagement relates to the behavioural manifestations of their engagement with environmental issues that encompass children's behaviours, performed either alone or with their family and peers, suggesting that children connect with other actors in their environmental ecosystem. Children might therefore influence or be influenced in their engagement as revealed in an actor engagement perspective (Brodie et al., 2019). Our data also suggests that children are likely to express varying levels of each factor, and thus varying levels of engagement with environmental issues (see Figure 1). As importantly noted by Calder et al. (2016) and Higgins and Scholer (2009), engagement is dynamic and presupposes there is a goal to pursue. Children express a shared goal, i.e., dealing with environmental issues to protect the

environment. The pursuit of such a goal might be intrinsically as well as extrinsically motivated (Calder et al., 2016), and children's engagement might be subject to the level of connectedness among actors who form the environmental ecosystem in which these children are embedded (Brodie et al., 2019), as well as their level of emotional engagement with environmental issues. Consistent with Grønhøj and Thøgersen (2017) and relying on the lens of the self-determination theory (Ryan & Deci, 2000), we argue that children are subject to individual and socio-contextual factors that influence their motivational states about environmental issues. The next sections further explore the factors that might foster or constrain children's engagement with environmental issues, i.e., their motivational states towards environmental issues (see Figure 1 for children's engagement profiles).

Figure 1. Illustrations of children's engagement with environmental issues



Individual and socio-contextual factors that constrain engagement

Our data show that, for Alice, Olivia, Samuel, Thomas, Lea, Zoe, and Tom, socio-contextual and individual factors seem to inhibit engagement with environmental issues (see Figure 1).

A lack of individual engagement and environmental ecosystem

Samuel (9) and Zoe (12) do not seem to value environmental issues and express a lack of interest in this topic. For instance, Zoe (12) consumes what she likes without taking account of environmental issues in her consumption choices. It appears that she consumes organic cosmetic products but confesses that this is not done with an environmental purpose, but for her personal well-being. Samuel (9) is 'not interested in environmental issues' and does 'not feel engaged.' He thinks that our world is 'great as it is.' Both children seem thus to express amotivation about environmental issues because they do not value these issues nor expect a desired outcome if they engage with them (Ryan & Deci, 2000). Further, they seem to lack knowledge about environmental issues and pro-environmental behaviours. For instance, Samuel (9) does not know whether the planet has any environmental problems nor does he know what local or organic production means. Zoe (12) seems further limited in her engagement due to a lack of perceived behavioural control (Ajzen, 2002). She thinks that being engaged is 'hard', one 'needs to think about it all the time', and she considers that it is 'too complicated' for her. Besides individual factors – knowledge, perceived behavioural control, interest about environmental issues – that Zoe (12) and Samuel (9) do not express, they also have very few/ no socio-contextual factors that are supportive in encouraging them to initiate or revive engagement with the environment. They never talk about the environment with their family nor with their friends. Both consider that their parents are in charge of recycling and Zoe (12) explains:

> 'We never talk about environmental issues with my parents. I never talk about that with my friends either. My parents recycle our family waste and buy products without pesticides. That's it.' (Zoe, 12)

Neither of these children is thus able to initiate engagement with environmental issues within their families due to the lack of communication about this topic and a lack of supportive socialisation to enhance behavioural engagement (Figure 1). Overall, Zoe (12) and Samuel (9) do not seem to express any engagement with environmental issues because of a lack of individual engagement (consumer engagement perspective) and a lack of an ecosystem that could be supportive of an actor engagement at a collective level (Brodie et al., 2019).

A little individual engagement but a lack of a supportive environmental ecosystem

Thomas (12), Samuel's big brother, seems to express a little more interest about environmental issues. He explains that he thinks 'from time to time about the environment, but not very often.' He is aware that it is important to respect the environment, but it is not 'dear to [his] heart.' Thomas does not seem to consider environmental issues and related actions as of personal importance, suggesting an external locus of causality (Ryan & Deci, 2000). As an individual, he does not feel personally responsible, and considers that large companies should take their responsibilities more seriously:

> 'Large and well-known companies' managers do not care enough about the environment. At the same time, they produce things we need. However, I think they pollute a lot. They should produce better to protect the environment.' (Thomas, 12)

Thomas (12) further admits that he lacks knowledge about environmental issues but does not wish to know more. Unlike his brother Samuel (9) who seems unmotivated about environmental issues, Thomas (12) expresses a little extrinsic motivation, with a perspective that seems to comply with external requests (Ryan & Deci, 2000). Like his brother Samuel

(9), Thomas (12) has a non-supportive social environment that does not enhance his engagement with environmental issues. He never talks about these issues with his parents, brothers, or friends. His parents do not consider environmental issues as close to them, but rather they are driven by convenience or ease in their consumption choices. Because of few individual and socio-contextual factors, Thomas (12) does not 'feel engaged with environmental issues.' He wishes to do more in his daily behaviour, but feels helpless. Overall, he has very little engagement with environmental issues (Figure 1).

These analyses thus indicate that for these children, minimal influence from socio-contextual factors coupled with individual factors inhibit children's engagement with environmental issues. First, children express no/ very little motivation to engage with these issues, exhibit little knowledge and do not wish to know or do more to protect the environment. Overall, they do not feel responsible nor find it easy to take action. Second, these three children have grown up in families that are non-supportive, such that the children do not have the opportunity to rely on their family as a strong socialisation agent. Further, these children do not seem to communicate about environmental issues with their peers or at school, revealing the absence of an environmental ecosystem surrounding children. In sum, these children are not concerned or are very little concerned about environmental issues.

A lack of individual engagement but a supportive environmental ecosystem

Unlike Zoe (12), Samuel (9), and Thomas (12) above, Tom (12), Lea (11), Alice (8), and Olivia (7 ½) benefit from supportive socio-contextual factors around them, suggesting the existence of a supportive environmental ecosystem in which children might develop connections with other actors (Brodie et al., 2019). However, they seem to be limited by individual factors. For instance, Lea (11) is aware of environmental issues, but does not really

care about the environment when she consumes. She does not feel individually concerned about environmental issues, and thinks that the problem lies in the market offering. She explains:

> 'I don't look at the consequences for the environment, I do what I like. Anyway, China produces everything; they produce everything almost free. We cannot buy French products, because not many things are produced in France. […] To combat pollution, the market offers electrical cars, but they are so expensive! […] We can't always find local fruit or vegetables, their availability is limited'. (Lea, 11)

Like Lea (11), Tom (12), Alice (8), and Olivia (7 ½) do not consider environmental issues to be of personal importance, and they are more likely to develop an extrinsic motivation (Ryan & Deci, 2000). They seem cognitively engaged with environmental issues, while recognising and being aware of the existence of environmental problems, but do not seem to experience those issues as part of the self. Still, they express some behavioural engagement that exists thanks to parental socialisation, and thus connections in their ecosystem (Brodie et al., 2019). For instance, Tom (12) explains that '[his] parents taught him how to recycle, and he learnt about the compost from them. [He] had the basic knowledge at home.' Lea (11) also 'listens to [her] parents who ask [her] to take care of and to act in favour of environmental issues'. Even if Alice (8) and Olivia (7 ½) do not talk much about the environment at home, they benefit from a favourable family environment, wherein their parents act as examples. For instance, Olivia (7 ½) takes part in family actions, such as producing their own yogurt, and Alice (8) recycles her waste by herself because her family does, and she knows that her parents buy local and organic products. She confesses that she could 'be more engaged, but doesn't know if [she] wishes to be more engaged.'

These analyses suggest that these children (Lea, Tom, Alice, and Olivia) are aware of environmental issues, have some knowledge about them, but do not consider these issues as part of the self. They exhibit a form of cognitive engagement but do not express any affective engagement. They seem to act in order to comply with their families' expectations, and benefit from a favourable social context. The parental socialisation seems to be at work for these children such that they reproduce parental behaviours (Grønhøj, 2007) and this opens the way to the development of supportive pro-environmental habits among these children (Matthies et al., 2012), and connections between actors in the children's ecosystem (Brodie et al., 2019). However, these children still express little engagement (Figure 1), because they seem to comply with existing requests, revealing an extrinsic motivation with an external locus of control (Ryan & Deci, 2000).

Favourable individual factors but limited socio-contextual factors constraining engagement

For Elisabeth, Jessica, David, Oliver, Stella, and Nathan, our data show that they display favourable individual factors but socio-contextual factors tend to constrain their engagement with environmental issues.

These children are aware of environmental issues; they consider that protecting the environment is important. Elisabeth (8) explains that taking care of the environment is important for her, because 'we can protect the planet and we'll be happy.' Nathan (11) feels very concerned about environmental issues and likes watching documentaries about animals. He thinks that it is quite easy to take action, such as recycling. He would like to live in a world in which everyone would be happy and make an effort to protect the environment. Oliver (9) and Stella (12) are siblings and both seem animated about the seventh continent, i.e., the plastic continent, and climate change. Stella (12) feels sad about the health of our planet and thinks that taking action is an emergency now. Oliver (9) often thinks about

environmental issues. Both Oliver (9) and Stella (12) consider that taking action is easy and they recycle their waste on a daily basis. They further express some guilt, feeling responsible for environmental problems, and wishing they could live in a non-polluted environment. Jessica (10) and David (12) are also siblings and exhibit a great deal of knowledge about environmental issues. Both feel anxious about the future of the planet and David (12) is angry about people who do not care about the environment. They think they are responsible and are proud to take action. Jessica (10) is even engaged in an 'antipollution club' with her friends. Overall, these six children consider environmental issues to be of personal importance, and display levels of cognitive, affective, and behavioural engagement. They act and behave according to their environmental values, displaying an intrinsic motivation (Ryan & Deci, 2000). However, unfavourable socio-contextual factors might challenge their engagement. The parents of these six children do not exhibit great awareness of environmental issues. None of these six children talks about the environment at home or outside and all six would like to do more for the environment. Elisabeth (8) would like to know 'everything' to attain her environmental goal and feels 'limited to act because [she] doesn't know how to do so.' The same appears to be true for Jessica (10) and Stella (12) as well. These children merely follow their parents' routines such as Nathan (11) who explains that his 'parents do things but they didn't tell [him] to do them, [he] recycles because they do it.' What is interesting here is that some children try to initiate a reverse environmental socialisation at home (Lawlor & Prothero, 2011). For instance, David (12) asks his parents to use the car less; and to use a bike to get around the city. When Nathan (11) sees some organic products in the supermarket, he asks his parents to buy some. He also asks them to travel more by foot rather than always using the car for short distances.

These analyses suggest that these children experience a gap between their engagement with environmental issues and their parents' little engagement. All this latest set of children seem cognitively, affectively and behaviourally engaged with environmental issues, and have the desire to combat these issues. However, the lack of communication and socialisation about the environment at home seem to challenge the development of their engagement (Figure 1). Indeed, they cannot find any support at home to discuss these issues or to develop their autonomy nor any direct agency in relation to environmental issues (Schill et al., 2020). These children seem to establish connections with media and peers in their environmental ecosystem, but fail to develop strong relationships with their parents about environmental issues. These results further suggest that interactions between actors in the ecosystem are of great importance to reach a collective engagement (Kleinaltenkamp et al., 2019). For these children, the child-parents dyad does not seem to fully interact in order to shape and develop a strong collective engagement with environmental issues.

High personal and socio-contextual factors enhancing engagement

Lily, Chloe, Charlotte, Marius, Gael, Eline, and Lise not only exhibit high personal factors, but also benefit from a favourable socio-contextual family environment that sustains, increases, and embodies the development of their engagement with environmental issues (Figure 1).

All these children exhibit a high cognitive, affective and behavioural engagement, as evidenced in the first section of our results. They consider that 'the environment has problems. Nature is dying because humans settle in natural areas, and the natural environment regresses' (Lise, 9). These children consider that environmental problems are of great importance, as Marius (8) explains:

> 'There is global warming. There are people throwing garbage away in the natural surroundings. People who use their cars too often create problems. Nature is being destroyed, huge lakes are dry. The sea of ice is becoming smaller. It is serious.' (Marius, 8)

Gael (11) feels 'pessimistic' about environmental issues, and thinks it is 'unbearable to see so much meat in supermarkets.' These seven children are further highly aware of the consequences of environmental issues, as Lise (9) explains:

> 'The planet at some point will explode and we won't be able to live on it anymore. We should be more attentive.' (Lise, 9)

These children, displaying high cognitive and emotional engagement, act on a daily basis with interest in the environment and express satisfaction, even pride, when acting. They are able to attain a congruency between their higher goals (i.e., dealing with environmental issues) and their desires (i.e., desires to act on a daily basis to fight environmental issues), reflecting an intrinsic motivation (Calder et al., 2016). They are self-determining because they value environmental issues, and wish to attain a desired outcome (Ryan & Deci, 2000). Chloe (8) explains:

> 'My actions are important for people so they can live better, but also to protect the environment. All these little actions help make the environment better.' (Chloe, 8)

These children experience an embodied engagement because they experience favourable personal factors, and further benefit from favourable socio-contextual factors to sustain their engagement. They all develop and grow up in families wherein the environment is of great importance, but can also draw from other environmental socialisation supports, as Charlotte (11) explains:

> 'We talk a lot about environmental issues at school, and every day I talk with my parents about that topic. […] I often hear about environmental problems on the radio.

> Journalists give news, and talk about new technologies that have been set up in order to have a better environment, for instance corn plastic. I usually think about what they have said, and I have questions, I would like to know more.' (Charlotte, 11)

Gael (11) finds further information about environmental issues in documentaries and magazines: 'I am interested in documentaries and in books, I subscribe to 'Sciences et Vie Junior' [a magazine about science and nature for children] and it talks a bit about everything and about the environment' (Gael, 11). Lise receives environmental education at school and explains:

> 'At school, during lunch time, we do a project on ecology; we talk about nature and the environment. Our tutor asks us what we think about it, he teaches us environmental-friendly actions so that we can talk about it with our parents. I suggested that we create a garden at school, at least to plant things that we could harvest and eat in the canteen. It would avoid pollution. I was already doing at home everything the tutor said.' (Lise, 9)

The education at school thus seems to play an important role in engaging these children (Jorgenson et al., 2019), such that they become catalysts for environmental behaviours in the family setting (O'Neill & Buckley, 2019), and provide ideas for children, such as Eline (11) who has asked her parents to buy an electric car. Education at school permits these children to initiate or sustain communication in the family setting about environmental issues. It might also promote reverse socialisation in the home (Lawlor & Prothero, 2011).

In the family setting, children are aware of and participate to the family habits. Lise (9) details:

> 'My parents, they recycle, they don't buy plastic bottles, we plant aromatic plants. We often use our bikes, they buy organic and local produce.' (Lise, 9)

Marius (8) is also aware of his mother 'moaning because the packaging of organic bananas is in plastic,' and considers his parents are aware of environmental issues because they 'do not

take the car all the time, they do not litter, they buy products that are good for the environment, organic and local products.' In Lily's (11) and Chloe's (8) family, children often talk about the environment in the family setting; their parents are interested in this topic and behave environmentally on a regular basis. Lily (11) uses strategies to enhance her family's awareness:

> 'I don't want to brag, but I gave my family the idea to care more about water savings, I told them 'I care more about water,' and since then, we all care about water. Also, one day we received the water bill, and I read it, and told everybody to care about water. […] I also put a paper on the fridge that explains and details all seasonal fruits and vegetables. Because if you eat strawberries in winter, it's not eco-friendly. So that my mother and my father can be aware of that when they go shopping.' (Lily, 11)

Favourable microenvironments in the family might further enhance children's engagement (Schill et al., 2020). For instance, Eline (11) explains her conversations about the environment with her brother:

> 'I talk about the environment with my brother, he tells me to stop using too much paper for drawing on and to use double-sided paper. He often reuses my papers. He tells me that I am responsible for deforestation. My brother is very sensitive to the environment.' (Eline, 11)

Thus, children might have a collaborative communication with their siblings or a contentious one (Kerrane et al., 2012), such as Charlotte (11) who tracks her sister:

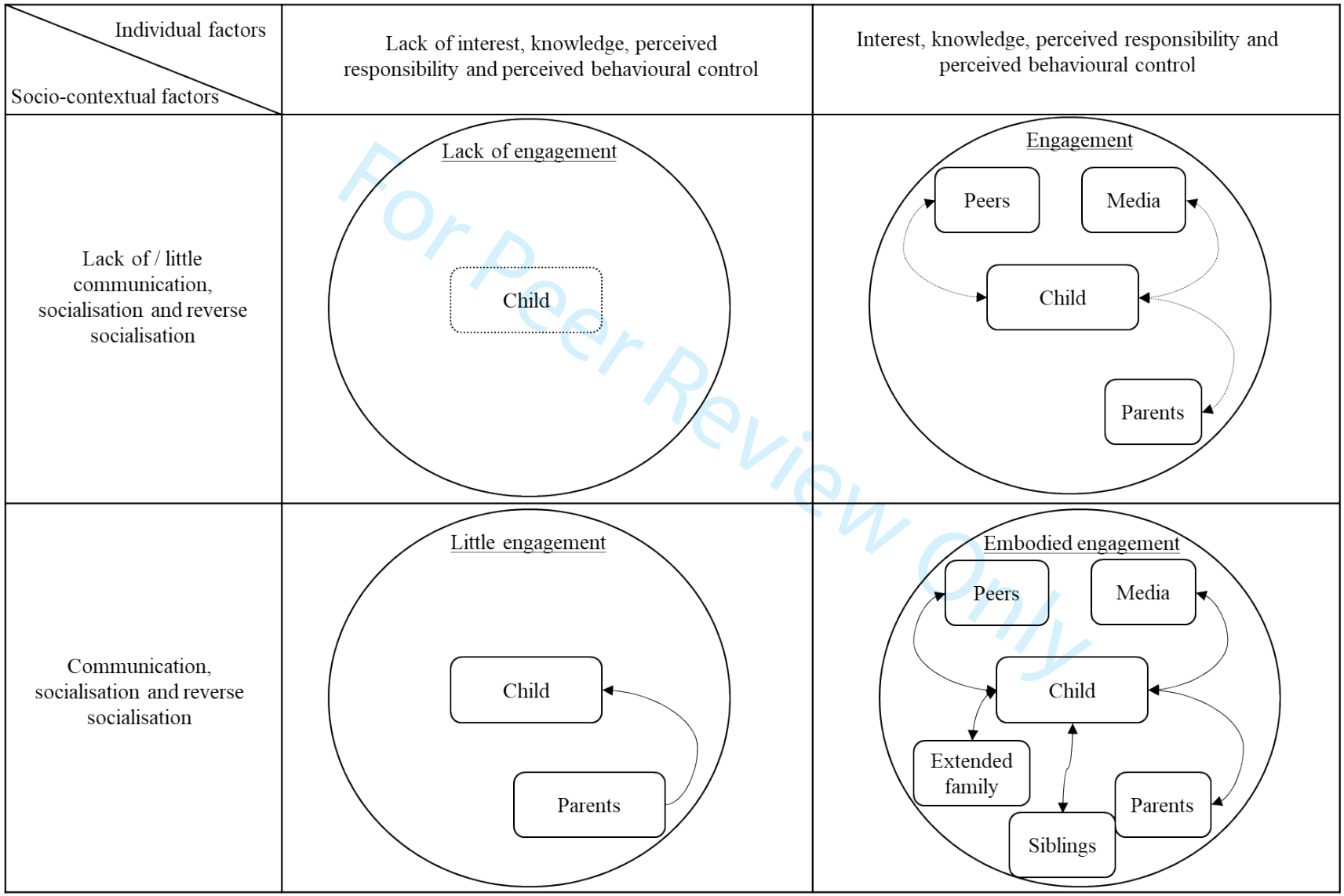
> 'Concerning actions on a daily basis, I talk to my sister [Olivia]. Every day, she leaves the light on in her room, and every day I have to tell her to switch it off in her room, in the bathroom, it's a fight, but I will win this battle with her. It's my mission! I also have to check she does not leave the tap running, yeah, it's every day with my sister!' (Charlotte, 11)

Children further benefit from favourable microenvironments in their extended family, wherein communication is important (Schill et al., 2020). For instance, Charlotte (11) debates a lot with her grandfather about environmental issues:

> 'My grandfather is really concerned about environmental issues. Each time I visit him, we have long debates about environmental issues. For example, we generally say that plastic is not good for the environment, but it's not not good, it's just that humans don't care. He also researched information about electric cars, and wind turbines. Look, we spent more than €10 billion in there to produce less than 1% of French electricity. It's very interesting. I really like talking with my grandfather.' (Charlotte, 11)

Our analyses suggest that for these children, favourable individual factors combined with favourable socio-contextual factors enhance and sustain children's engagement with environmental issues. It seems they express an embodied engagement because of an intrinsic motivation and a high interest about these environmental issues. Their values are consistent with their desires and actions (Calder et al., 2016). They are attentive to all sources of information that communicate about the environment (i.e., school, family, magazines). They are also growing up in families who care about the environment and discuss it regularly, leading to a supportive pro-environmental context within the family setting (Matthies et al., 2012). Therefore, these children are eager to participate in family behaviours (Scott et al., 2015), to initiate new behaviours and to engage with reverse socialisation (Lawlor & Prothero, 2011). In sum, these children are embedded in a supportive environmental ecosystem, that not only emphasises shared emotional, cognitive, and behavioural dimensions suggesting a collective engagement (Kleinaltenkamp et al., 2019), but also strong connections between children and the other actors of the ecosystem (Brodie et al., 2019). We synthesize the interrelationship between individual and socio-contextual factors in Figure 2.

Figure 2. Interrelationship between individual and socio-contextual factors in children's ecosystems



Discussion

This research investigated children's engagement with environmental issues. Consumer engagement has mainly been studied among adults, with a focus on brands as the object of engagement (e.g., Dessart et al., 2016) and has neglected environmental issues as the object of engagement (Calder et al., 2016). However, prior research highlighted the importance of researching children from the analytical stage in the environmental context (e.g., Larsson et al., 2010; Walker, 2017).We therefore respond to the call for research to explore children's engagement with environmental issues (JMM call for papers) and address gaps in this literature by shifting the research focus from delineating consumer engagement among adults and developing measurement scales for studying adults (Hollebeek et al., 2016) towards exploring the components of children's engagement with environmental issues. Therefore, this child-centred research (Banister & Booth, 2005) was carried out with 20 children and contributes to research involving children, engagement, and environmental issues.

As a first contribution, this research examines how children understand the concept of engagement in the environmental context. Earlier research about consumer engagement has mainly focused on adults and their engagement with brands (e.g., Dessart et al., 2016). Prior research related to children in the environmental context mainly placed the emphasis on the adolescent population and explored the (re)socialisation processes that occurred within the family setting (e.g., Singh et al., 2020 for a review). To the best of our knowledge, this research is the first to investigate children's engagement at the analytical stage, and how children might demonstrate their engagement (Figure 1). These children's definition of what environmental engagement meant to them saw "engagement as making a promise and taking action to protect the environment over a long period of time."

Thus this research contributes to defining engagement with environmental issues from a child-centred perspective.

All the children seemed to be aware of the existence of environmental issues (e.g., pollution, climate change, waste issue) and defined engagement with environmental issues as a promise in order to protect the environment in the longer-term. For them the environment could be protected thanks to behaviours performed on a daily basis. Their definition of engagement highlights a higher-goal (Calder et al., 2016), i.e., protecting the environment that might motivate children to engage with environmental issues.

We show evidence that among children, behavioural engagement is the most important dimension of engagement, whereas in the context of adults' engagement, there seems to be more of a balance across all three dimensions (cognitive, affective and behavioural). That said, there was evidence of some strong feelings and emotions that coloured these children's discussions of their engagement with the environment. We found that children felt strong negative emotions associated with environmental issues. This might be related to the communication strategies advanced by policy makers and managers who still mainly put the emphasis on the negative consequences of environmental issues, such as, for instance the extinction of species, the climate migrations, and the natural catastrophes (Manzo, 2009). Children, exposed to the mass media, are likely to be influenced by these negative emotions, and might develop strong negative feelings associated with environmental issues, such as fear or sadness. Interestingly, our study shows that children also feel pride, satisfaction, and contentment, when they act positively in the context of environmental issues.

Our findings also suggest that a number of the children (Lily, Chloe, Charlotte, Marius, Gael, Elise and Lise, Figure 1) expressed an embodied engagement, offering the strongest expression of their emotions, both positive and negative. Children mostly interpreted people as being engaged when people undertake many actions to protect the environment. These pro-

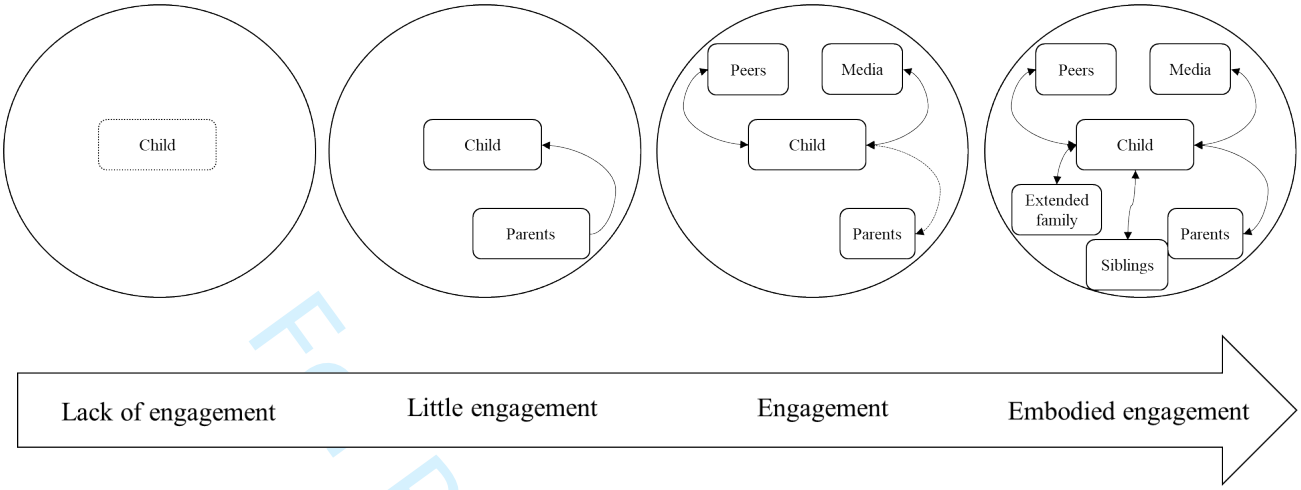
environmental activities seemed to initiate positive emotions. Their drawings further support the importance of a prominent behavioural dimension. Children's definition of engagement with environmental issues is consistent with prior research that considers behavioural manifestations as the main focus of consumer engagement (van Doorn et al., 2010). Moreover, our results provide evidence that even if children are able and proud to perform actions on their own, they acknowledge the necessity for collective engagement, revealing a social and collective dimension to engagement (Vivek et al., 2014; Kleinaltenkamp et al., 2019).

In line with Brodie et al. (2019) and Kleinaltenkamp et al. (2019)'s propositions, we show that children's engagement might be understood not only at an individual level (consumer engagement perspective), but also at a collective level, while considering children as actors among other actors in an (environmental) ecosystem (see Figure 3). Connectedness among actors of the ecosystem is therefore of particular importance as it recognises the interactions between actors and highlights how engagement might be multiplied and go beyond a sum of individual engagements (Kleinaltenkamp et al., 2019). Therefore, we propose to define engagement with environmental issues from a children's perspective as the promise actors make in order to fight collectively to improve the environment in the longer-term thanks to their collective and individual behavioural actions, and to a lesser extent due to their (shared) cognitive and emotional motivational states towards the protection of the environment. The collective engagement seems particularly valued by children, and our results show that the more children are embedded in environmental ecosystems, the more they seem to engage with environmental issues (see Figure 3). We thus highlight the novel concept of embodied engagement, which is characterised by the existence of an advanced/ mature ecosystem surrounding the child as evidenced in Figure 2, and characterised by the intensity/ strength of emotions felt by children that act as catalysts and help to increase their behavioural initiatives

to combat negative environmental issues, and promote pro-environmental issues, at an individual and collective level.

Second, beyond revealing key (re)socialisation processes, this research helps to extend existing knowledge by providing some empirical evidence of engagement with environmental issues among children. From here we extend theoretical understanding of children's engagement by drawing on the work of Brodie et al. (2019), which allows us to identify the importance of collective (as well as individual) perspectives on children's engagement with the environment (discussed in our second contribution). These empirical findings about children allowed us to identify the novel concept of 'embodied engagement' (Figures 1 and 2). However, the findings also showed that even with just twenty participants, it is clearly important to avoid just aggregating all children of an analytical age together when examining their consumer engagement. Mapping our findings (Figure 3) shows the variety of behaviours exhibited by this group of young children around consumer engagement. Further, although earlier studies investigated environmental engagement (Kadic-Maglajlic et al., 2019; Piligrimienė et al., 2020), those studies mostly explored the antecedents and consequences of adults' engagement with the main focus being on individual psychological factors (i.e., attitude, responsibility, behavioural efficiency) without accounting for the complex socio-contextual environment surrounding individuals. The stories from these children show a much more nuanced picture of how parent-child interactions vary in the context of environmentally-friendly behaviour; and demonstrate the importance of the wider ecosystem within which children live (discussed in our third contribution). Therefore, our research contributes to bridge the actor engagement and environmental literatures by exploring whether and how children engage with environmental issues (See Figure 3).

Figure 3. Children's level of engagement: Configurations of children's environmental ecosystem and connectedness between children and other actors



Third, this research helps us to understand which factors might foster or constrain children's engagement with environmental issues (see Figure 2). Indeed, our findings suggest that children display varying levels of engagement with environmental issues (see Figure 1). We find evidence that children's engagement with environmental issues is subject to individual factors (e.g., knowledge, interest and sustained attention about environmental issues, perceived responsibility and behavioural control), as well as socio-contextual factors (communication within the family setting and outside, processes of (re)socialisation). Children's motivational states about environmental issues might range from amotivation to intrinsic motivation (Ryan & Deci, 2000). The amotivational state is not likely to change as these children grow up in non-supportive families, wherein parents do not seem to exhibit a strong engagement with environmental issues, nor socialise their children about these issues. The attitudes of this group of children questions the effectiveness of socialisation in the school setting (e.g., Jorgenson et al., 2019) and further raises questions about the effectiveness of socialisation processes in the family setting (e.g., Grønhøj, 2007). In contrast, children who experience self-determination (i.e., intrinsic motivation) benefit from high personal

factors and favourable socio-contextual factors that sustain their embodied engagement with environmental issues. We observe for these children that displaying an embodied engagement is a virtuous process, in which they are able to express their environmental values and receive support through (re)socialisation processes in the family setting and outside. In between, we find children exhibiting high personal factors that reveal some degree of engagement with environmental issues. However, these children feel limited in their engagement because of a non-supportive environmental context (i.e., lack of communication and (re)socialisation processes that might enhance their engagement). We also find evidence of children with few personal factors, but growing up in families which are engaged with the environment (see Figure 1). In this group, the children seem thus engaged in spite of themselves by reproducing their parents' behaviours (e.g., Matthies et al., 2012), suggesting the relevance of an actor engagement perspective (Brodie et al., 2019). Therefore, this research contributes to understanding children's engagement with environmental issues by showing evidence of personal as well as socio-contextual factors that, combined, might foster or constrain their engagement, beyond their own motivational states (Grønhøj & Thøgersen, 2017), parental socialisation (Matthies et al., 2012), or environmental education in the school context (Jorgenson et al., 2019). It further highlights the components of children's engagement at an individual and collective level, thus suggesting the existence of a collective engagement, by which children are actors embedded in an environmental ecosystem (Kleinaltenkamp et al., 2019).

In summary, children's engagement with the environment varies on a number of dimensions or characteristics compared with adults both at the individual and social/collective levels. At the individual level, children differ from adults because they are usually more limited in their cognitive, affective, and behavioural development, due to their development stage. Although behaviour is the most important component of individual action for both adults and children

in the context of engaging with the environment, the behavioural component necessarily has different outcomes, partly because of the greater degree of agency that adults possess. An example of this would be that children's engagement with the environment tends to be narrower and more locally focused (e.g. family sorting of rubbish; playground tidying up) whereas adults tend to have a wider scope of interest and actions, derived from the adults' greater level of agency. From the social/collective perspective, the nature of the respective ecosystems also varies between children and adults; as well as the balance of power within those ecosystems. An example of this would be the importance of the family context in general and the specific child-parent interactions in particular, as seen throughout our findings. Adults' agency allows them to have much more freedom of action than most of the children described here when engaging with the environment and adopting sustainable consumption practices within their more extended ecosystems.

Beyond these theoretical and comparative implications, this research offers implications for both marketing managers and social policymakers. Managers who market products to children could increase children's loyalty in the longer term and develop their competitive advantage by offering eco-friendly and sustainable products in the marketplace. Beyond the extension of their product ranges, managers should communicate about what promises they make for the environment with their products. Children expressed concerns about managers' degrees of responsibility towards environmental issues. As such, large companies' managers should explain to children what their promise is for the environment, in the long-term, and show how their actions defend environmental issues. Further, marketing communications should place emphasis on collective engagement, and not individual engagement. They could deliver messages to children that show not only their engagement with environmental issues in their company, but also the necessity to engage collectively with these issues. These managerial

communications could further raise parents' awareness about environmental issues, especially for children displaying some level of engagement but constrained by unfavourable socio-contextual factors. Further, it could enhance reverse socialisation in the family setting.

For social policymakers, this research provides insights into how best to develop or sustain children's engagement with environmental issues. As our results show, children consider that behavioural engagement is the most prominent dimension of engagement. Though school provides an important environmental education (e.g., Jorgenson et al., 2019), which helps in raising children's awareness about environmental issues, and also their cognitive engagement, it might be useful to think about how school could put this education into action. For instance, Lise did an ecological project at school, but did not really put into action anything that she had learnt about environmental issues. It might be interesting for schools to develop concrete actions in which children could participate, such as setting up a garden and a compost heap in the playground or generalising recycling in the classroom and outside. Further, policymakers should take account of the negative emotions children associate with environmental issues (Ojala, 2013) and develop appropriate communications that draw on positive outcomes from undertaking actions and avoiding a focus on images or discourses that may shock children of this age group.

This research is not without limitations that constitute opportunities for future research. We conducted interviews among French children, and future research could explore other cultural contexts to have a deeper overview of how children deal with environmental issues. We further interviewed children belonging mainly to the upper-middle class, and could not identify any immediately obvious relationship between families' socioeconomic status and children's environmental engagement, partly because we lacked comparative data across socio-economic groups. Prior research about the socioeconomic status effects reported mixed

results about consumer engagement, perhaps because these effects may depend on the type of environmental context under study (Pearson et al., 2017). However, Eom et al. (2018) showed that beliefs about climate change have a stronger effect on pro-environmental actions among high socioeconomic status individuals in comparison to low socioeconomic status individuals, because higher socioeconomic status individuals have a greater sense of control. Further quantitative investigation about the effects of socioeconomic status effects could be used to compare children's environmental engagement between low vs. high socioeconomic status families. A quantitative investigation could further develop a measurement scale of engagement with children, helping to identify its antecedents and consequences, and also to explore how children's and adults' engagement with environmental issues differ. Further, in adopting a child-centred perspective (Banister & Booth, 2005), we have not captured parents' points of view about their children's engagement with environmental issues, although we conducted informal conversations with parents. Future research could extend the results by taking the family as a unit of analysis. Conducting in-depth interviews with parents would be helpful to understand the extent to which each actor of the ecosystem perceives there to be a shared and collective engagement (Kleinaltenkamp et al., 2019). Future research could explore how engagement is influenced by its institutional context, and the processes by which engagement practices are routinized to attain sustainable consumption practices.

Declaration of interest statement

No potential competing interest was reported by the authors.

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Appendix A. Families and children's characteristics and profiles

Children	Age	Family characteristics	Child's profile
Lily	11	The father (41) is a manager and the mother (38) a teacher. They live in a house in the city with their three children (Benjamin, 14; Lily, 11; and Chloe, 8). The family likes spending time in nature and connecting with the environment during the vacation. Both parents are concerned about environmental issues and try to behave accordingly in their daily practices. The family recycles its waste, is careful about energy consumption, and cycles to work and to school. However, they do not pay much attention to local, organic, and second-hand consumption but would like to do more. Overall, the parents impose their consumption choices on their children but remain open to their children's initiatives.	Lily is highly aware of environmental issues, and feels sad about the health of our planet. She behaves at home and outside the home with care and concern for the environment. She feels very proud of her behaviours, especially when she introduced new behaviours at home, related to the reduction of water wastage and the consumption of seasonal fruits and vegetables. She would like to do more to preserve the environment, but feels powerless by herself. She is convinced about the necessity to act collectively to resolve environmental issues. In the future, she would like to live in a rural area.
Chloe	8		Chloe understands the importance and utility of the environment and nature. To her mind, pollution is the main environmental issue. She participates in family recycling and bikes every day to go to school. However, she lacks knowledge about green business models that might be open to her such as renting practices. Still, she feels proud to act to help the environment. She would like to work in nature in her future professional life and become a veterinarian in forests.
Alice	8	The father (42) is a company lawyer and the mother (43) a nursery nurse. They live in a house in the city with their two children (Ethan, 12; Alice, 8). The family merely recycles its waste as required by public policy makers. They try to limit their car travel and have just one car. They give a second life to their objects they no longer need by giving them away or selling them. They feel something is happening with the planet and have family discussions about environmental issues. Sometimes, the children tell their parents off about the amount of lighting in the home. The parents think that their children get a good education at school. The family communication about environment seems consensual as children have the opportunity to voice their preferences.	Alice would like to know more about environmental issues. Her most important concern is recycling. She is knowledgeable about this practice thanks to what she has learnt at school. However, she seems to lack knowledge about other green behaviours and business models. She is not eager to do anything more than recycling, maybe because she does not know how to do anything else and what else to do.

Elisabeth	8	The father (49) is an engineer and the mother (47) is an air traffic controller. They live in a house on the outskirts of a big city with their three daughters (Emily, 17; Eva, 13; Elisabeth, 8). The mother is aware of environmental issues but does not do much for the environment, with the exception of recycling and the local consumption of fruit and vegetables. The father is uninterested in environmental issues. The parental communication about the environment is more of a laissez-faire style. More communication exists in the sibling microenvironment. Emily (17) often scolds her sisters about their overconsumption of water and energy.	Elisabeth is aware of environmental issues. She is very interested to know more about everything related to the environment, but confesses that she never talks about environment with her parents, sisters, teachers or peers. She feels she does not do enough to protect the environment. Elisabeth is also aware that by herself, she will not be able to change things and that collective action is necessary.
Charlotte	11	The father (40) and the mother (41) are both doctors in a hospital. They live in an apartment in a big city with their two daughters (Charlotte, 11; Olivia, 7 ½). Both parents think that the planet has problems and that something should be done about it. In their daily practices, they recycle waste, consume organic products, produce their own yoghurts, but find it quite difficult to do more such as producing their own detergent or make-up. Furthermore, when consuming organic products or their own home-produced yoghurts, it is more for health and economic rather than environmental reasons. They do not talk about environmental issues at home, and think that school does enough.	Charlotte is highly aware of environmental issues. She would like to do more in her daily practices. She often discusses environmental issues with her grandfather, for instance talking about issues of plastic waste. She is thoughtful about the planet and its problems. She feels very proud to be so engaged with the topic because she believes in a better world, and thinks it is very important to have an opinion and deal with environmental problems. She believes, at her age, that it is possible to do something. And she is motivated to continue her actions when she grows up.
Olivia	7 ½		Olivia does not know what the environment is. She feels attached to nature and thinks that woodsmen damage nature when they cut down trees. She is aware of the importance of not littering but does not participate in recycling at home. She has little knowledge about environmental issues and does not take any action. She would like to know more about this topic.
Samuel	9	The father (44) is an export manager and the mother (42) a buyer. They live in a house in a residential district with their three sons (Liam, 14; Thomas, 11; Samuel, 9). They are not very interested in environmental issues, and are more concerned with convenience, easiness, and comfort in their daily practices. They assume this way of life will continue. Protecting the environment is not a	Samuel is not aware of, nor interested, in environmental issues. His main concern relates to littering. He does not know much about environmental issues and does not want to know more about them. He never talks to his relatives nor friends about this issue.
Thomas	12		Thomas is not very interested in environmental issues, though he acknowledges that it is an important topic. He does not have any significant

		great cause to them, although they are aware of environmental issues. They never talk about environmental issues in the family setting.	knowledge about environmental issues, and does not wish to know more about these issues. However, he would like to do more. He highlights large companies as mainly responsible for environmental problems.
Jessica	10	The father (53) is a musician and the mother (44) works in a hospital. They live in a house near the North Sea and have two children. They are aware of environmental issues, and wish to do well by environmental issues, but only if it is convenient. For instance, they buy in bulk since one of their friends has opened a store near their house. They recycle their waste and find it easy to do. They feel anxious about waste in oceans and find it sad. The father is quite angry about the waste issue. However, they think that their actions are a drop in the ocean. At home, they do not talk much about these issues, and think that the education at school makes the children feel guilty.	Jessica does not think she is engaged with the environment, though she created an 'anti-pollution' club with her friends. She says she is interested in environmental issues a little, wishes to know more and do more. She never talks about environmental issues at home with her parents or brother. Her model is her friend Lilou who loves to protect the planet, the animals and is very careful in the playground.
David	12		David feels worried and preoccupied with environmental issues, especially when he listens to mass media. He is aware of the intention-behaviour gap and feels angry when people do not do what they say they will do. He is quite aware about green business models and expresses knowledge about recycling, and also local consumption. He thinks that environmentally friendly actions are not easy to perform. He feels engaged because he does not do bad things with respect to the environment.
Oliver	9	Both parents (43) are doctors and have three children (Simone, 14; Stella, 12; Oliver, 9). They live in a big house outside the city, with a big garden and a swimming pool. They say that the environment is important, and usually unplug electrical appliances to save energy. They recycle their waste and try to consume local produce. They never talk about environmental issues at home. They feel more worried about more distant issues, such as ice melting and deforestation. They have a laissez-faire communication style.	Oliver is interested in environmental issues, and feels responsible. His main (only) concern relates to the waste issue. He knows really well how to recycle. He is aware of more distant problems, such as plastics in the oceans. He does not know what to do to help the planet. He would like more knowledge about how to act.
Stella	12		Stella is quite distant from environmental issues, and her main concerns relate to the rising of the sea levels. She has some knowledge but feels powerless about what actions could be done. She feels sad and guilty about the planet and its problems.
Marius	8	His parents, 49 and 47 years old, are both teachers. They live in a house close to the sea. His mother is more engaged with the environment than his father is. They consume organic and local food. They compost, recycle, avoid over-consumption and avoid plastic. The mother often looks for more ecological alternatives to	Marius is an enthusiastic child who has confidence in the future. He feels concerned about the environment at his level (i.e., without money to do more things). He has a vision of engagement in the long term, in a collective way in two matters: joining an association but also doing for the planet what others do not

		clean the laundry. Environmental issues preoccupy her and she feels a certain anxiety for the future of her children. The communication within the home is easy but eco-friendly behaviours come mainly from the mother. Therefore, the children are likely to imitate their mother's practices on a daily basis.	do. With his family, he picks up papers, recycles, does composting. For him, engagement must be visible in the long-term and requires time or money. He is aware that he could do better (save water and electricity). He has a good knowledge about environmental issues.
Lea	11	Lea's parents are both 48 years old. The father is a computer executive and the mother is a chemical engineer. The parents love nature and feel that they take care of the environment. The father dreams about living in a small remote mountain village so as to be as close to nature as possible. According to the mother, in the past, it was easier to be engaged because there was a certain stability. Nowadays, there are many other problems at the same time and it is difficult to think about the environment. The mother does not wish to waste her time with environmental issues, and prefers to spend time with her daughter.	Lea does not feel concerned about the environment even if she reproduces her parents' behaviours (composting, recycling). She wants to consume according to her desires while minimizing the prices she pays. Lea would like a world that is technological but also natural. She likes nature but needs to connect to her friends, to her time. Therefore, the environment is not seen as her problem even though she is aware of the problems but she wants to live footloose and fancy free.
Gael	11	The parents (45 and 45) give the children clothes, tend to consume as much as possible organic and local products, and pay attention to the way they consume. They mentioned several disputes with their son about the environment. Their son thinks that there is always more to do (consuming less, buying an electric car). The tensions on the subject are palpable and Gael can show impatience and anger in the face of the environmental emergency. He imagines himself being very involved later on. Eline, their daughter, is sensitive but in a less ostensible way compared with her brother.	Gael is very engaged with the environment, he is very close to nature. He is contemplative; he loves to observe insects and animals. He feels closer to nature than to humans. For him, the engagement is long lasting, can be individual or collective, and is about taking action. There are two profiles of engaged people: those who are engaged in everyday life and those who are activists. He would like to do more, particularly working in the environment. He finds it normal and easy to take action (recycling, taking the bus, turning off the water...). He would like to do much more.
Eline	11		Eline is Gael's twin. She estimates the level of others' engagement according to their values. She feels engaged and is sensitive about the environment. Her brother is for her the most engaged and the most legitimate person that she knows. She takes action (recycling, saving water and electricity) but feels guilty because she uses a lot of paper to draw on and for this she is criticised by her brother. She finds that some actions are easy to perform. She cannot integrate

			environmental-friendly behaviours when it comes to clothing.
Zoe	12	The mother (46) is an accountant, the father (56) is a manager. They live in a city and are not close to nature. They do not feel concerned about environmental issues. They believe that it is government's responsibility to act and not individuals'. They buy organic products for health reasons. They have a good standard of living and are aware that they have a tendency to overconsume. They would like to be more careful but not for environmental reasons, just because they think it would be more sensible overall.	Zoe is not very interested nor sensitive to the environment. She lists some pro-environmental gestures but does not seem convinced by their regularity. She is not enthusiastic but thinks she is doing everything well for the environment while she admits she does not really know what to do (lack of knowledge, difficulty in recycling...). For her, it is too complicated (cognitive charge) even though taking care of the environment is important and useful for people and the Earth. She does not think she can change things because she does not have enough knowledge and at the same time does not want to know more. She never talks about the environment with her parents. She may consume eco-friendly products, but not for environmental reasons.
Tom	12	Tom's mom is a nurse (40) and his dad is a doctor. They are sensitive to ecology, consume organically, local produce to a large extent, do composting and, track plastic. They do not talk much about ecology at home, but check on their son's actions to correct them if he does not pay sufficient attention to the environment. They want to engage in an association 'Surfrider' which collects waste in the sea and on the beaches. They do not question the usefulness of their actions, they want to be able to 'look at themselves in the mirror', take their responsibility and do their best for future generations. Their ecological sensitivity arrived at the same time as the birth of their child.	Tom has rather a good knowledge of the environment but does not feel invested in it. The gestures he makes follow his parental model. He is aware that he should ask himself more questions, especially about his consumption (buying eco-friendly products). He feels that his contribution, i.e. recycling, composting, water and electricity savings are not enough. He sees engagement as something very serious like a moral agreement and he finds it frightening. He thinks that engagement is easier when it is done collectively.
Lise	9	Lise's parents are both engineers. The mother (35) is in the field of renewable energy, the father (36) is in the field of water. They are very close to nature and very engaged (they think about their actions and their impacts). It is not constraining, just a normal routine. Their daughters (4), including Lise, are very curious and have integrated the actions to take into their own lives. They are able to correct their parents and engage in reverse socialisation processes	Lise performs many favourable actions for the environment, she has a very good knowledge and a real enthusiasm and a desire to do well by the environment. She would like to do more but feels she needs more time and to be older (adult). For her, engagement is gradual. It is possible to engage in small things and not necessarily in everything. Engagement with the environment requires time and needs to be done over a long period.

		(encouraging their parents to take the train more than the car).	
Nathan	11	His mom (40) is a dietician and his dad is a salesman (40). They do not feel particularly close to nature. They live in an urban environment and seek comfortable living. They carry out basic actions for the environment's protection (water, energy savings, recycling, buying organic vegetables and fruit) but for the rest, for example personal hygiene products or those for the house, it is not possible for them to buy eco-friendly products because they find that it does not clean everything enough, that things do not smell clean enough...	Nathan thinks he makes a contribution, he is sensitive to environmental issues but he feels that his actions are sufficient and does not wish to become any more engaged. Engagement is personal, but for greater efficiency, everyone must contribute to it. He engages in reverse socialisation processes when asking for products that are more organic, and encouraging his parents to use the car less. Animal causes interest him and the extinction of species in particular. For him it is impossible to engage with the environment without love, we engage with the environment to be in harmony with nature and to ensure the environmental causes succeed.

Appendix B. Eline's drawing

Appendix C. Lily (11)'s drawing