Too Young to Know? A Multiple Case Study of Child-to-Parent Intergenerational Learning in Relation to Environmental Sustainability

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Abstract

Little is known about child-to-parent intergenerational learning for environmental sustainability. This qualitative multiple case study research investigated how young Maltese children (aged three to seven years) influence their parents' pro-environmental actions. Participants included 12 children and 10 parents. Data were collected via observations in one household and two state schools, conversational interviews with children, children's drawings and their interpretations of them, children's photograph interpretations, semi-structured interviews with parents and document analysis. Findings revealed that most parents were influenced by their children's requests to engage in pro-environmental actions, which in turn they had learned about as part of the Eco-Schools programme. Additionally, some parents regarded their children as having agency in discussing environmental issues and strived to empower them in acquiring environmental stewardship skills, but others did not. These findings provide insight into young children's direct and indirect abilities to influence adults' actions towards environmental sustainability.

Keywords: Young children, parents, early childhood education for sustainability, child-to-parent intergenerational learning

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INTRODUCTION

The negative impacts of the current global environmental crisis and the growing demands on the Earth's limited resources call for a behaviour change towards sustainability (Intergovernmental Panel on Climate Change [IPCC], 2018). Early childhood education (ECEC) has been proposed as key to achieving a future which is culturally, economically, environmentally and politically sustainable by helping children acquire the skills and attitudes necessary to live a sustainable life (Pramling Samuelsson & Kaga, 2008; Spiteri, 2020; UNESCO, 2017). As active agents in their own development, children hold unique perspectives on various environmental issues (Lawson et al., 2018; Peterson et al., 2019; Spiteri, 2018, 2020). As intergenerational agents of environmental change, children can bring about positive changes in the environmental behaviour of those around them (Davis, 2018; Peterson et al., 2019), particularly in the early years of life, resulting in child-to-parent intergenerational learning (IGL). IGL refers to the bidirectional learning of knowledge, skills, competencies, attitudes and habits that happen between generations (Istead & Shapiro, 2014; Lawson et al., 2018; Peterson et al., 2019). Previous research mainly focused on IGL with primary school children or secondary school children (Chineka & Yasukawa, 2020; Lawson et al., 2019). This study focuses on children aged three to seven years, and so there might be possible differences in the learning process due to age differences that could be explored.

While a small body of literature has provided some evidence on the potential of environmental IGL in early childhood education for sustainability (ECEfS), much remains to be learned. In fact, child-to-parent environmental IGL has great value for education for sustainability (ESD) (Ballantyne et al., 1998, 2001), but very little is known about this in the context of ECEfS. Clearly, there is an unexplored potential for young children to have a greater role in teaching parents about environmental issues. Equally, there is value in assessing whether child-to-parent IGL could be an effective strategy for helping adults adopt new pro-environmental behaviours. Such research in the field of ECEfS is only beginning to emerge (e.g. Davis et al., 2005, 2008; Istead & Shapiro, 2014; Williams et al., 2017), and the underlying processes that link parental experiences of influence by young children with parental outcomes are unclear.

If young children are to be environmental change agents empowered to transform the world around them, education needs to provide them with the tools and skills to achieve this aim. To do this, we must first understand how this happens. This paper responds to an identified problem in the literature: the lack of research in child-to-parent environmental IGL opportunities which are often missed (Lawson et al., 2019; Peterson et al., 2019; Williams et al., 2017). This study is significant because it can help uncover effective ways of implementing child-to-parent IGL efforts in ECEC. Specifically, the study sought to establish how children can transfer environmental learning between contexts and, thus, pass on environmental knowledge to parents. In doing so, this paper adds to the ECEfS literature on the mechanisms behind the environmental learning across generations by exploiting the rich and in-depth data from child-to-parent IGL for the environment within the Maltese context.

In this study, young children as environmental change agents are those who have a desire to live sustainably and are motivated to influence their parents to adopt this way of living. Thus, this recognizes that young children will grow into responsible adults and they are able to influence decisions that adults make (Cutter-Mackenzie & Rousell, 2019; Duvall & Zint, 2007; Istead & Shapiro, 2014; Williams et al., 2017). This is particularly relevant to the Education 2030 Framework for Action (Target 4.7) and its aim for ensuring that all learners acquire knowledge and skills needed to promote long-term sustainability (UNESCO, 2016).

INTERGENERATIONAL LEARNING

It is commonly believed that the global issues society is currently facing require immediate action, and parents are in a better position than their children to create this change (Sutherland & Ham, 1992; Uzzell, 1999). In the past, it was believed that children could not influence their parents and if that ever happened, such influences would be trivial because of children's immaturity. Consequently, past research in family influence was understood in a direct and linear parent-to-child casual process (Kuczynski et al., 2016), often showing older generations as the primary knowledge-holders, influencing younger generations' knowledge, attitudes and behaviours (Istead & Shapiro, 2014). Since IGL has been considered from a unidirectional point of view, most educational programmes, including environmental education (EE) (Ballantyne et al., 1998, 2001), focused on how adults, such as parents, can influence the knowledge, beliefs and actions of children rather than the ways in which children can influence family members and their community. Therefore, it reported on the role adults played in influencing children's learning. However, relying on older generations to teach younger generations about current environmental issues, such as climate change for example, may be unproductive (Lawson et al., 2018), mostly because human communication is not unidirectional (Uzzell, 1999).

A growing body of evidence suggests that within contemporary families, children are becoming increasingly influential and are exerting more influence on parents, including family dynamics (Kerrane et al., 2012; Lawlor & Prothero, 2011; Lawson et al., 2018, 2019; Peterson et al., 2019), behaviours and attitudes in purchasing power and family consumption patterns (Dikčius et al., 2019; Kerrane et al., 2012), consumer choices (Lawlor & Prothero, 2011) and parenting practices (Kuczynski et al., 2016). Children have also been found to influence grandparents (Liu & Kaplan, 2006). Child-to-adult IGL seems to be an effective way to reach the parents and achieve the desired results sooner rather than later (Chineka & Yasukawa, 2020; Duvall & Zint, 2007; Lawson et al., 2018, 2019; Peterson et al., 2019). Therefore, it is likely that the nature of child-to-parent influences is both direct and intentional (Kuczynski et al., 2016). Such experiences may provide an indirect catalyst for parents' behaviour change towards sustainability. Emerging research also indicates that children may influence their parents' approaches to different environmental issues (Ballantyne et al., 1998, 2001; Chineka & Yasukawa, 2020; Duvall & Zint, 2007; Istead & Shapiro, 2014; Lawson et al., 2019; Rickinson, 2001; Sutherland & Ham, 1992; Uzzell, 1999; Williams et al., 2017).

Child-to-parent IGL raises some ethical questions (Chineka & Yasukawa, 2020; Lawson et al., 2018; Peterson et al., 2019), especially in the early years. For example, is it ethical to place pressure on young children to teach their parents about sustainability issues? Taking this point forward, Peterson et al. (2019) suggest that in order to answer ethical questions related to child-to-parent IGL, one must carefully consider the balance between the ethical concerns of failing to empower children in creating a better world. Additionally, child-to-parent IGL does not turn children into 'agents of conflict challenging their parents views' about an environmental issue; rather it shifts 'roles from being the last barrier to sustainable behaviour to becoming the primary impetus for positive change some parents want to make' (Peterson et al., 2019, p. 293).

ENVIRONMENTAL EDUCATION PROGRAMMES

IGL is not the simple result of an automatic process but can be facilitated by programmes that are enjoyable for children (such as tasks which can involve parents and deal with real local issues) in addition to children and parents working together with an interest in the environment, and good communication patterns between them (Rickinson, 2001). Additionally, Peterson et al. (2019) suggest that the efficacy of child-to-parent IGL depends on two core premises. First, EE can help produce environmental literacy among children via effective educational programmes, and second, children's environmental literacy can be transferred to parents, thus fostering environmental literacy among their parents. Research indicates that effective child-to-parent IGL programmes should be focused on local issues (Ballantyne et al., 2001; Lawson et al., 2018; Peterson et al., 2019; Sutherland & Ham, 1992), should include long-term engagement, in-depth, hands-on projects and parental engagement (Lawson et al., 2018; Percy-Smith & Burns, 2013; Peterson et al., 2019; Sutherland & Ham, 1992) and should include frequent experiences and interactions with wildlife (Ballantyne et al., 2001; Lawson et al., 2018; Peterson et al., 2019). One such programme is the international Eco-Schools programme (Foundation for Environmental Education [FEE], n.d.). This programme is aimed at helping children to adopt pro-environmental behaviour and thus influence their community (Briguglio & Pace, 2004; Pace, 2009). Stated differently, the Eco-Schools programme is designed to encourage children to take local action to address environmental issues in their community (Chineka & Yasukawa, 2020; Ryan & Ferreira, 2019).

In most cases in the Western world, it is likely that EE programmes, such as the Eco-Schools programme, which cater for IGL, result in successful transfer of environmental knowledge, behaviour and attitudes to adults and have direct implications for environmental sustainability. However, there is evidence to suggest that the success of an EE programme is influenced by context and culture. Specifically, research shows that while in the Global North, IGL seems to be influential in helping parents mitigate ideologically fraught topics (Lawson et al., 2019), in the Global South, multiple cultural and historical barriers seem to limit children's ability to influence their parents even when the Eco-Schools programme manages to equip children with some agency to initiate change (Chineka & Yasukawa, 2020). Therefore, while it is true that

in some cases parents can be reached through their children's effective education programmes and encouraged to engage in pro-environmental behaviour change (Lawson et al., 2018; Peterson et al., 2019), the effectiveness of such programmes depends on the context and culture in which the programmes are implemented (Chineka & Yasukawa, 2020).

STUDY CONTEXT

This study was conducted in Malta, a small island in the heart of the Mediterranean Sea, making up an area of approximately 316 km^2 (National Statistics Office [NSO], 2014), with a population of about 475,701 residents (NSO, 2019). It took place in ECEC settings in Malta.

In Malta, education is provided by the state, the church and independent schools. The Ministry of Education and Employment (MEDE) is responsible for the Maltese education system across the board (MEDE, 2012). The Maltese education system is split in two: non-compulsory education (kindergarten) and compulsory education (primary and secondary school; European Commission Directorate-General for Education and Culture [EURYDICE], 2019). Kindergarten settings are located in primary schools and children (aged two years nine months–four years nine months) can spend two years in kindergarten (Sollars, 2017). Since kindergarten is not compulsory, parents can opt not to send their children to school until they turn five. Compulsory schooling starts at age five, when children begin their first year in primary school, and finishes at age 16.

This study was conducted in one household and two state schools, both of which were certified as Eco-Schools. The Eco-Schools programme (FEE, n.d.) was introduced in Malta in 2002 to systematically introduce principles of ESD in schools (Pace, 2009).

THEORETICAL FRAMING

One the one hand, from a sociocultural perspective, the social contexts of family and school function interactively to play important roles in shaping child development (Vygotsky, 1978). Young children have the potential to influence their social environments through social interactions. On the other hand, from a bioecological perspective, family and school are dynamic systems which involve a multitude of interactions between different members, which in turn help reinforce or change the roles and norms of the community (Bronfenbrenner & Morris, 2006). It is commonly believed that the influence between children and parents is bidirectional, in that children influence parental practices and, in turn, are influenced by them, over time (Bronfenbrenner & Morris, 2006). Although the bioecological model of human development posits that both parents and children influence each other, the focus has been on understanding the children's and contextual influences as they pertain to children's own development. Indeed, an implication of the bioecological model (Bronfenbrenner & Morris, 2006) which has received less attention is that young children may also influence their parents. Applying the bioecological perspective to this study would indicate that young children have a role to play in ensuring environmental sustainability.

Taking a children's rights perspective (UN, 1989), and influenced by the new sociology of childhood (Mayall, 2002), this study presents a postmodern view of children and childhood. In doing so, it acknowledges young children as competent individuals worthy of sharing their views and opinions (Christensen & Prout, 2005; Clark & Moss, 2011; James & Prout, 1997). In recognizing young children as being able to construct their own knowledge and understanding in collaboration with each other's agency, this paper acknowledges their right to a voice in research.

METHODOLOGY

This paper emerged from a larger study as part of my PhD research (Spiteri, 2016). Since data sets were rich and detailed, this paper aims to present findings related to the child-to-parent IGL about environmental sustainability. Other papers will discuss the research methods utilized in this study (Spiteri, *forthcoming*) and the children's concerns around environmental sustainability.

To holistically understand the phenomenon under study (child-to-parent IGL about environmental sustainability), this study employed an interpretive methodology and multiple case study methods, which allowed rich descriptions relevant to each case and a comparison of cases deeply embedded in a social context (Stake, 2006).

Data were collected in one household and two state schools using a variety of methods that included observations by the researcher, conversational interviews with 12 children (aged three to seven years), children's drawings and their interpretations of them, children's photograph interpretations, semi-structured interviews with 10 parents and document analysis.

Data were analysed using an inductive approach following the steps suggested by Marshall and Rossman (2011, pp. 209–224), which included organization of the data, immersion in the data, coding, writing analytic memos, generating themes/categories, offering interpretations and searching for alternative understandings, and writing the final report. A two-stage data analysis approach was employed: first, within case, and second, across cases (Stake, 2006), which led to the emergence of major themes and several subthemes. Methodological and data triangulation were employed to ensure the validity and reliability of the research (Denzin, 1978).

Ethical clearance for this study was obtained from the University of Edinburgh and from education authorities in Malta. To protect the privacy of participants, the identity of place, family, school and individuals was anonymized. Participants were asked to identify a pseudonym of their choice. It was explained to participants that their participation was voluntary.

FINDINGS

The Eco-Schools Programme and Environmental Activities

Children spoke about environmental learning that happened in school, either as a result of their participation in the Eco-Schools programme or as a result of activities

organized by the school. Voluntary participation in the Eco-Schools club was open to all children in both schools. In fact, eight out of the 12 children in this study said they were part of the Eco-Schools club. They assumed ownership of the Eco-Schools project in their school as indicated by children's responses:

> I am proud to be an Eco-School member. (John, aged 6)
> I joined the Eco-Schools team to help the environment. (Liam, aged 7)

In one of the schools, recycling was the theme of the project for that year and three teachers assisted and guided the children. The club met during the mid-morning break twice a week, Monday and Thursday, but sometimes they met more frequently, especially if an important event was approaching.

The Eco-Schools club and the schools' environmental activities also had an impact on some of the parents and other members in the family. For example, Georgia (mother) explained how her family started recycling at home following an Eco-Schools activity because 'Denzil told me to and he likes it when I keep recycle material for school.' This was confirmed by Denzil (aged 4), who added, 'I go to the recycling station with my mum and dad but now I save everything to school. My school is going to win the recycling competition for sure.'

Robert (father) also said that while previously his family recycled occasionally, now they recycle often because Ylenia (aged 6) wanted to participate in the school's recycling competition. This was confirmed by Ylenia, who also gave me her reasons for recycling. She explained recycling as:

> We can do something else from that material. For example, we can make tissues from used paper and so on.

Likewise, Natasha (mother) mentioned that she also learnt a lot from Sarah's (age 3) school activities.

> And we recycle too. Sarah wanted to collect paper, plastic and food leftovers for school. So now we have to do it for her. Eventually, recycling and saving water became a habit which the whole family adopted.

Data indicate that the Eco-Schools club and the schools' environmental activities had an impact on the wider community. In fact, some children extended their environmental learning into the community and engaged members of their community to participate as well. This is indeed in line with the Eco-Schools' Seven Steps Framework. While speaking at length about the need to preserve the natural environment mostly by recycling, one boy said that he went to the village shops:

> *During the Easter holidays, I filled a whole potato sack and I would have filled another one if only I had more time to go around and collect more material*. (Liam, aged 7)

Liam wanted me to understand his intentions for recycling and said:

Liam: *Do you know why I recycle?*
Me: *No, not really … but would like to learn why.*

Liam: *I recycle because I want Malta to be the most beautiful place on the face of the Earth. I also want my school to win the recycling competition so I recycle at home and I collect recyclable material and bring it to school, for the competition.*

Liam's actions are an indication of the success of the programme in translating environmental knowledge to the wider community, even if his initial purpose was for his school to win the local recycling competition. Second is his love for his country and therefore his identify and sense of place. Therefore, the school's vision was translated into tangible action within the local business community, and it had a positive impact.

The Eco-Schools programme and the school's activities opened new learning opportunities for children, which were then transferred beyond the boundaries of the school context, into the home and the local community.

Children's Agency

Most parents said that they felt compelled to consent to their children's requests to engage in pro-environmental behaviour. Data indicate that many parents were receptive to their children's ideas and they listened to the children's requests. For example, Robert (father) explained how the family adopted energy and water-saving strategies upon insistence by his daughter, Ylenia (aged 6):

Ylenia told us about how she learnt about saving water and electricity during Science lessons. She told us about this several times and my wife and I decided to try to save electricity and water. It turned out that by doing so we are saving money too. (Robert, father)

During the interview, Julie (mother) talked about how she and her husband took pro-environmental actions at home because Francesco (aged 7) had spoken about them several times. The parents discussed such issues with Francesco, and he was free to express his ideas, and they listened and took them into consideration. This is because they believed that the best way to teach their child to lead a sustainable lifestyle was to lead by example.

Few parents felt they were coerced into complying, especially when children asked incessant questions or when children 'nagged'. Natahsa (mother) described an instance when Sarah (aged 3) constantly nagged her to save water and recycle because she had learned about it at school, to the point where Natasha had no other choice but to do what Sarah instructed her.

I got fed up her nagging. After all, I thought, it might be a worth the try. So, I did my best to save water like she told me to and in the end it paid off … Now I enjoy saving water because I save money too. (Natasha, mother)

Parents were also persuaded by children's thoughtfulness and assertiveness about environmental issues. For example, Georgia (mother) described how she became

aware of the need to save electricity following a conversation she had with Denzil (aged 4), who was very passionate and outspoken about it. She said,

> *He was like a little business man, telling me how to switch off the lights when I leave the room to save the planet. At first I laughed it off because I thought to myself, how much could I possibly save?! But every time we leave the room, he tells me to switch off the lights and I got used to it.* (Georgia, mother)

Whether parents felt that they were receptive, persuaded or coerced depended on the way they interpreted the children's actions. Such interpretation also depended on their emotional state at the time when children attempted to encourage them to change their behaviour.

Resistance to Change

Children's personality was an influential factor in whether parents changed their behaviour or not. Most parents saw children across a continuum, ranging from vulnerable to responsible or somewhere in between. Children were seen as vulnerable because of their tender age but were also seen as responsible when parents were impressed by children's actions or achievements. In such instances, parents gave children the benefit of the doubt and complied with children's requests. For example, some consented to children's requests to change their behaviour for the environment as a result of the children's innocence. For example:

> *However, as time when by Francesco started talking about recycling and he asked me to try it out and I did. He is so observant and thoughtful and I felt compelled to consent to his wishes.* (Julie, mother)

Children seen as vulnerable were described by parents as reserved, quiet, shy and sensitive.

Amie (aged 5) *is a very shy and sensitive girl … I don't think she will every express herself about anything.* (Alison, mother)

Some parents were not affected by the children's knowledge and requests for action and so children were not always successful in translating their environmental knowledge to adults. This happened either because parents were not responsive or else because children simply wanted to emulate the role models in their life, their parents. In fact, this is supported by some parents' responses who refused to consent to children's requests even when they knew that acting on that knowledge would have benefitted their children and the environment. For example, talking about recycling, Josephine (mother) would not allow any member within her household to recycle anything. This was confirmed by her daughter Jazlyn (aged 3), who said: 'My mum does not want rubbish (while referring to recyclable material) in the house.' Thus, in this case, Josephine put limits on how much Jazlyn's knowledge was readily, or even extensively, adopted. Josephine said that Jazlyn constantly talked to her about the school's recycling activities and about the need to save water, but Josephine ignore it. This was confirmed by Jazlyn, who said that she made several attempts to

convince her mother to no avail, and said: 'My mummy does not care when I tell her to save water or recycle.'

Another example of parents refusing to consent to their children's request for behaviour change is Ylenia's (aged 6), who expressed her frustration with her mother's refusal to take her ideas and requests seriously. She claimed that her mother's 'laziness' was causing climate change because she refused to walk short distances and instead chose to drive everywhere and explained:

> *My mum and dad are very naughty, like the teacher. They leave the lights on … they forget I think, so I have to shout 'Switch off the light, please!'*

In contrast, Ylenia's father believed that the family was very environmentally conscious and were doing their best to save the future of the planet.

Children's Age

Some parents were not influenced by children's knowledge and actions because they believed that children were too young to understand environmental issues, their impacts and consequent solutions. Ironically though during the interview, Natasha (mother) pointed out that she did not talk to Sarah (aged 3) about anything related to the environment, because 'Sarah is too young to know these things.' Actually, Natasha believed that environmental issues were too complex and Sarah was still too young to understand.

Likewise, Alison (mother) believe Amie (aged 5) was still too young to possess and process certain abstract thoughts such as those about environmental sustainability and said: 'She (Amie) is too young to know anything about environmental sustainability or about anything related to the environment.'

Ironically, Robert (father), whose family had adopted many of Ylenia's (aged 6) environmental requests, still believed that Ylenia was too young to understand certain environmental issue such as environmental sustainability. This was confirmed in his response:

> *Environmental issues, such as sustainability, poverty, etc. are too complex. I feel that Ylenia is too young to understand*. (Robert, father)

Impact on Relationships

Parents who positively responded to their children's requests for behaviour change stated that by responding to their requests they had improved their relationship with their children. Interestingly, mothers reported spending more time with their children and having more meaningful conversations with them too. Children confirmed that they spent more time with their mothers and their mothers listened to them most of the time.

Parents' responses indicated that children's requests also helped maintain a good relationship between parents and children. Julie (mother) in particular took a strong position in maintaining that both she and her husband wanted Francesco (aged 7) to

grow up believing that he was an influential agent in his life and in the life of others. She explained this view as:

> *By reflecting on my own childhood experiences in nature and how I was treated at home, I believe in the importance of fostering positive relationships with children from an early age. So, I speak to my son about a lot of issues and the environment and of course, sustainability, etc. are things we discuss with him as well.* (Natasha, mother)

Data exposed an unexpected finding, where IGL was observed in relationships between children and grandparents too. Thea (aged 4) said that she spent a lot of time with her grandparents and she visited her grandfather's fields on a regular basis, and they recycled and conserved rainwater. She said:

Thea: *My grandfather does that in his field.*
Puppet: *He does what?*
Thea: *He puts water in a tank to save water.*
Puppet: *Where does he get the water from?*
Thea: *When it rains … I told him to.*

Ayida (aged 4) confirmed that she recycled at her grandparents' house and she was proud of it, while Francesco (aged 7) said that he saved food leftovers because he recycled food with his grandfather too.

Data from these 12 case studies revealed that child-to-parent IGL was present in some but not all of the cases. Some children were attributed the role of decision-makers by parents but others did not have this possibility. Additionally, such learning was not linear and straightforward but rather fluid and was dependent on the context in which it happened and the emotional state of the adult. Children willingly transferred new knowledge they acquired from school activities or the Eco-Schools programmes beyond the school context and into their homes and local community. This was primarily done in an attempt to mitigate some of the impacts of local environmental issues on them and their family.

DISCUSSION

The findings have been based on data collected with 12 children and 10 parents. Even though parents have more power than children, the relationship between children and parents naturally exposed them to both direct and indirect bidirectional influences (Bronfenbrenner & Morris, 2006). This study provided insight into one of these processes, specifically young children's influence on parents that has implication for parents' environmental behaviour. Specifically, this study sought to explore the transfer of knowledge that occurs when children successfully talk to parents about environmental issues. Overall, this study shows a positive association between children's environmental learning in schools and child-to-parent IGL.

Child-to-parent IGL was confirmed by most parents, where children were mostly influenced by the learning which happened due to participation in the Eco-Schools

programme. Most importantly, environmental actions in schools were transferred to the home context and the wider community as well. Indeed, the Eco-Schools programme played a key role in operating as a community resource for environmental learning via children's engagement in activities and the resulting transfer of knowledge beyond the school. This finding is consistent with that of Borg et al. (2017), who reported that the Eco-Schools programme was influential in transferring environmental knowledge from school to home to a degree. Most importantly, the finding in this study is important for several reasons. First, it suggests that by focusing on local environmental issues, children were able to influence the family's environmental behaviours to a degree. This supports previous research, which also suggested that focus on local issues could possibly lead to intergenerational transfer of knowledge, from child-to-parent (Ballantyne et al., 2001; Borg et al., 2017; Davis et al., 2005; Duvall & Zint, 2007; Williams et al., 2017). Second, the finding indicates that while children and parents possessed different knowledge about certain environmental issues, such knowledge was indeed questioned, reflected upon and negotiated, and led to new learning. Third, this finding is important in that it begins to address a critical question posed by researchers (Lawson et al., 2018; Peterson et al., 2019) about the ethics of expecting young children to shoulder the responsibility of influencing adults' decisions and pro-environmental actions. Fourth, it contrasts findings by Sutherland and Ham (1992), who reported that knowledge transfer from child-to-parent was unreliable and vague, and by Chineka and Yasukawa (2020), who reported that the Eco-Schools programme was not always successful in helping children transfer knowledge from school to home contexts. Therefore, it is possible to say that promoting IGL as a result of education programmes, in this case the Eco-Schools programme, has been effective in building environmental engagement among parents through their children, especially where child-to-parent IGL was the result of parent engagement in activities and conversations at familial level (Lawson et al., 2019).

Many parents attributed their receptivity to either their children's requests or their behaviour, which included children engaging in either coercive or persuasive behaviour. Most parents reported that they were compliant to their children's influences. Children's influences operated on two levels: parents' receptivity to children's direct learning and requests for behaviour change, and indirect impact of the outcome of responding to children's requests. Consistent with earlier findings (Istead & Shapiro, 2014; Williams et al., 2017), parents were receptive when they were attuned to their children's needs or their children's ideas mattered to them and they had a good relationship. However, some parents reported some discomfort about children's influences on their behaviour to the point where they felt it undermined their authority as parents, and therefore, they took on the role of the knowledgeable adults. When this happened, they did not see their children either as sources of learning or as part of the solution to the problem they were facing. While this finding is also consistent with previous studies (Chineka & Yasukawa, 2020; Williams et al., 2017), it may reflect a clash between parents' images of children and childhood, where children are often seen as subordinate to adults because of their age or lack of experience, in addition to their image of adults and parenting. Another possible reason for this resistance could be due to parents' assumptions as the knowledgeable

individuals or parents were reluctant to give power and control to their children (Williams et al., 2017).

Additionally, interpretations of children's influences were often guided by children's personality, including responsibility and vulnerability. Some parents attributed their receptivity to children's maturity and sense of agency based on the results of past choices. Others perceived children as vulnerable and too young but consented to their requests to support their holistic development, thus undervaluing children's potential. Interestingly, most parents agreed that the receptivity to their children's requests strengthened their relationship. In turn, children reported that parental receptivity fostered their sense of efficacy. Thus, in responding to children's requests, parents were also fostering children's personal and social development in positive ways. Additionally, parents seemed to have also been influenced by the children's development (cognitive, affective and social), and particularly in translating learning into specific (independent) behaviours. Data indicated that as the children grew older, parents were more willing to listen to them and act upon their requests.

Interestingly, data showed that mothers were more receptive than fathers. While the reasons for greater maternal receptivity were not clear from the data, one explanation is that mothers may have spent more time with their children and they were more involved in their children's lives and, therefore, engaged in more meaningful conversations with the children. Indeed, children's responses showed that meaningful conversations about environmental issues with parents were important for them. Consequently, children tended to relate better to mothers than to fathers, especially since mothers tended to consent more to children's requests to act, such as recycle more or turn off the lights when leaving the room. Similar findings have been reported by Borg et al. (2017), who found that the beliefs and behaviours of mothers and fathers had different effects on children's beliefs and behaviours. This highlights the importance of involving children in hands-on activities and follow-up discussions related to sustainability issues, both at home and at school from an early age (Borg et al., 2017; Davis et al., 2005).

Another surprising finding was related to child-to-adult IGL, where extended family members were involved. Although none of the children's grandparents participated in this study, child-to-grandparent IGL related to environmental sustainability was reported by three children. This finding points to the importance and significance of the extended family in children's lives and is interesting for ECEfS because while IGL between grandparents and children have been studied in other areas of education (e.g., Liu & Kaplan, 2006; Strom & Strom, 1995), child-to-grandparent IGL in ECEfS is scant and needs further investigation.

Taken together, these findings point to the importance of effective ECEfS programmes and the importance of securely attached relationships between parents or significant others, such as grandparents, and children, in which children and adults were more likely to be open to each other's influences and new learning, thus indicating a positive relationship between attachment and the scaffolding of new learning (Lawson et al., 2018; Peterson et al., 2019; Williams et al., 2017). Overall, findings support the argument that child-to-parents IGL in ECEfS may play an important role in developing new environmental knowledge between young children and parents through participation in discussion and involvement in sustainability-related activities.

CONCLUSION

This article addressed a gap in ECEfS literature and child-to-parent IGL by exploring the potential of young children to be agents of environmental IGL. In doing so, it makes several key contributions to ECEfS. First, it adds to studies suggesting ECEfS may be effective in fostering sustainability by empowering young children to take action for sustainability in different contexts, beyond school. Second, it provides insights into the educational, familial and social forces that potentially influence child-to-parent IGL in the early years.

Considering the limitations of this study, its results cannot be generalized, and need to be interpreted with caution. However, the findings demonstrate a significant and positive relationship between children's environmental knowledge, which resulted from school-related activities, and their ability to transfer knowledge beyond the school context. Overall, children felt valued when they were listened to and contributed to their parents' learning or behaviour change. Therefore, it is vital to ensure that young children are given the opportunity to participate in discussions about environmental issues and engage in environmental activities that concern their lives because they are capable of doing so. Ultimately, IGL collaborations significantly enhanced children's skills of and dispositions towards environmental sustainability and, through this common understanding, young children and their parents became better connected.

Finally, it is useful to consider potential next steps. If the benefits of child-to-parent IGL are to be realized, it must be acknowledged that there are potential weaknesses to a case study design, one of which is limited generalizability, and future research would be improved through direct observations of behaviours and studies that cover a wider area, for example, a national scale. Based on the results of this study, suggesting similar strategies with ECEfS may prove to be effective for community engagement with sustainability issues. This study did not seek to establish whether involvement of any other generation, for example, grandparents, would have achieved equivalent or different outcomes. However, the findings indicate that there would be merit in developing a nationally representative survey or longitudinal and/or comparative studies to determine whether multigenerational groups, within different communities, will be able to enhance the child-to-adult environmental IGL in significantly different ways. Such evidence is needed for policymakers and educators to improve educational practices and facilitate the implementation of ECEfS at a broader level.

Declaration of Conflicting Interests

Funding

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