

“When I’m playing with him, everything else in my life sort of falls away”:

Exploring grandparents’ and grandchildren’s learning through outdoor play.

Mathilde Duflos, PhD^{1,3}, Hebah Hussaina^{1,3}, Mariana Brussoni, PhD^{1,2,3,4,5}

1. Department of Pediatrics, University of British Columbia, 4480 Oak St, Vancouver, BC, V6H 0B3, Canada
2. School of Population and Public Health, University of British Columbia, 2206 E Mall, Vancouver, BC, V6T 1Z3, Canada
3. British Columbia Children’s Hospital Research Institute, 4480 Oak Street, Vancouver BC, V6H 3V4, Canada
4. Human Early Learning Partnership, University of British Columbia, 2206 E Mall, Vancouver, BC, V6T 1Z3, Canada
5. British Columbia Injury Research and Prevention Unit, British Columbia Children’s Hospital Research Institute, 4480 Oak Street, Vancouver, BC, V6H 3V4, Canada

Emails:

Mathilde Duflos, mathilde.duflos@univ-tours.fr

Hebah Hussaina, Hebah.Hussaina@bcchr.ca

Mariana Brussoni, mbrussoni@bcchr.ubc.ca

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Abstract

A decline in children's opportunities for outdoor play was observed during the past decades. Expanding opportunities for outdoor play through intergenerational programs for children and elders could benefit their mental and physical health. This study explores the learnings that Canadian grandparents and their 3- to 5-year-old grandchildren attained through intergenerational outdoor play. Semi-structured interviews were conducted with 14 grandparents from British Columbia, Canada. Using thematic analysis, we identified six themes related to what grandchildren learned, two related to what grandparents learned, and one related to what grandparents and grandchildren learned together during outdoor play. Findings from this study indicate that outdoor play provides a unique opportunity to develop skills that are useful at grandparents' and grandchildren's respective life stages and should therefore be supported by educators and other professionals who work with families.

Keywords: outdoors; early childhood; preschool; environmental consciousness; sociocultural theory of learning; ageing

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Outdoor play has been shown to benefit the physical and psychological development of children (Brussoni et al., 2015; Dodd et al., 2022; Dodd & Lester, 2021; Sandseter et al., 2020), as well as older persons’ physical and mental health (Sugiyama & Thompson, 2007; Thompson et al., 2011). However, intergenerational outdoor play between children and their grandparents has been understudied and little is known about intergenerational learning during outdoor play. Intergenerational learning contributes to lifelong learning and is the exchange of conscious and continuous experiences and knowledge between younger and older generations (Boström et al., 2000).

Intergenerational learning reinforces the recognition of elders as key members of society while improving children’s trust in and relationship with elders (Boström, 2011). The present study examined what Canadian grandparents and their preschool-aged grandchildren can learn from playing outdoors together at their respective life stages.

Grandparents’ roles during early childhood

Grandparents can have important roles in the lives of their preschool-aged grandchildren, especially as they often provide informal childcare, during which they may spend long periods of time together (Igel & Szydlik, 2011). Grandparents’ key role in childcare provision was readily apparent during the COVID-19 pandemic as many childcare facilities closed for indefinite periods (Cantillon et al., 2021). Simultaneously, the benefits of being childcare providers at this unprecedented time also become apparent as grandparents who spent more time caring for their grandchildren also reported better mental health than those who reduced their involvement in grandchildcare (Di Gessa,

2022). Moreover, the quality of the grandparent-grandchild relationship during childhood is known to shape the importance of this intergenerational relationship across the grandchild's lifespan (Sciplino & Kinshott, 2019). Therefore, sharing leisure activities during the grandchild's early years that elicit positive emotions between generations – such as play and outdoor activities – could help to develop and maintain close intergenerational relations long-term (Hebblethwaite, 2016). When asked about the most satisfying activities shared with their grandchildren, grandfathers indicated that play was their favourite, after family celebrations, especially with their younger grandchildren (Castañeda-García et al., 2022). Thus, the investigation of play between grandparents and grandchildren during early childhood could help to better understand a key component of intergenerational relationships.

How can grandparents influence their grandchildren's learning?

Grandparents are active agents in facilitating learning in their young grandchildren (Shwalb et al., 2019). According to preschool-aged children, grandparents are likely to teach them stereotypically gendered skills associated with their role (e.g., grandmothers teaching how to bake and cook, grandfathers teaching how to fish or tinker) (Lasota, 2015). Grandparents have been described as funseekers (Celdrán et al., 2014). They appreciate introducing their grandchildren to their own hobbies and to recreational activities (e.g., hockey, soccer, music, woodwork), so they both enjoy interacting with each other and can provide grandchildren with alternative learnings and skills than might be learned from school (Quéniart & Charpentier, 2013). Some grandparents also appreciate being involved in their grandchildren's nature-based learning (e.g., fishing trips, berry-picking) (MacQuarrie et al., 2015), as it can be a way to

transmit family cultural heritage and to generate positive memories. Grandparents are often seen as mentors for younger generations (Giraudeau et al., 2020; Waldrop et al., 1999), teaching tangible skills to their grandchildren, as well as intangible skills related to managing and thriving in the world. This mentoring role can be manifested when grandparents transmit family culture, teaching their grandchildren family history, language and poems from their culture of origin, as well as religious beliefs and moral values (Gantumur et al., 2020; Gutierrez et al., 2014; Lasota, 2015; Quéniart & Charpentier, 2013). Lastly, a side benefit of intergenerational activities that has been underlined in previous literature is that children who share activities with older adults develop more positive attitudes towards elders and improve their social skills (Femia et al., 2008; Gamliel & Gabay, 2014). Previous research on familial and non-familial intergenerational relationships underlined several types of learning that are facilitated by elders, however little has been done to foster our understanding of what preschool-aged grandchildren learn through their interaction with their grandparents, especially during play.

How can children influence their grandparents' learning?

During early childhood, we would expect that grandchildren learn more from their grandparents than vice versa. However, scholars have developed the concept of *child effect* that refers to the active or passive influence of a child on adults' choices and behaviours, and *active child effect* is displayed when children teach their parents or grandparents new skills (e.g., how to use information and communication technologies) (Den Bulck & Den Bergh, 2005). The child effect could be observed beyond media and communication, to other types of grandparent-grandchild interactions. For instance, in

cross-cultural families, grandchildren have been shown to teach their grandparents about the host culture and to facilitate their acculturation by teaching them language skills (Kenner et al., 2007). Grandparents also recognized that their grandchildren taught them about the current world (Mansson, 2016), underlying the reciprocity in teaching and learning in their relationship. Focusing on the specific context of intergenerational play, grandparents reported that playing with their grandchildren helped them to better know each other, as play is seen as a privileged time to talk and listen (Agate et al., 2018). Despite these first insights of reciprocation in intergenerational teaching, little is known about what grandparents, especially during their grandchildren's early childhood, can learn from and with their grandchildren during outdoor play.

Learning through outdoor play

Outdoor play is “a form of play that takes place outdoors,” where the outdoors is defined as “any open-air, wild, natural, or human-made space” (Lee et al., 2022). Participation in outdoor play aids in multiple facets of children's psychological development and learning, including cognitive, physical, social, and emotional (Bento & Dias, 2017). Children can practice large-scale movements which help develop gross-motor skills and increase strength and robustness, including running, climbing, balancing, and rough-and-tumble play (Skarstein & Ugelstad, 2020). This includes learning to cope with risk, and building resilience and strength, while understanding their bodies and practicing boundary setting (Sandseter, 2009). Additionally, playing outdoors offers children many unique learning opportunities, where children explore and learn from nature and gain knowledge that is rooted in experiences while practicing socialization skills, including teamwork, leadership and listening (Davis et al., 2006). Adults can

contribute positively to children's experience of outdoor play as they help children to reflect on what they are experiencing in the outdoors and support their activities (Cheng et al., 2022). Grandparent-grandchild play can help grandparents stay physically and mentally active (Burr et al., 2019), while providing a context for social interaction to experience play from the perspective of the child (Davis et al., 2002). Given that grandparents often provide informal childcare, their role in facilitating learning during children's outdoor play would benefit from further exploration.

Sociocultural Theory of Learning

Vygotsky's (1978) sociocultural theory of learning is suitable to analyse the importance of intergenerational play in children's development. Vygotsky placed play at the center of the child's development and his theory therefore comprehend the importance of play in human's development (Bodrova & Leong, 2015), which could be appropriate to interpret the results of the present study. Indeed, this theory could shed light on how a child who first acquires a new knowledge through grandparent-grandchild outdoor play could then integrate it into other contexts. Grandparents may act as play mentors for their preschool-aged grandchildren, giving them the opportunity to enjoy more mature play and to develop higher level skills (Bodrova & Leong, 2015). Grandparents may therefore act as scaffolds to support their grandchildren's learning, scaffolding being defined as a process "that enables a child or novice to solve a task or achieve a goal that would be beyond his [sic] unassisted efforts." (Wood et al., 1976, p. 90). Along this line, grandparents could support their grandchildren's learning through play until their grandchildren finally mastered these skills and knowledge on their own (e.g., climbing a

tree, throwing and catching balls). Following this, grandparents can provide scaffolding for the next level of play and beyond.

Rationale

During recent decades, researchers have observed a decline in children's opportunities for outdoor play (Clements, 2004; Gray, 2011; Witten et al., 2013), despite its many benefits. Expanding opportunities for outdoor play through intergenerational programs for children and elders could benefit both generations. In a systematic review on intergenerational programs, Giraudeau and Bailly (2019) concluded that to effectively benefit children and older adults, intergenerational programs must be based on meaningful relationships, where the more participants know about each other, the more beneficial the intergenerational activity is. Additionally, while it has been shown that intergenerational programs that take place outdoors offer informal learning opportunities for all participants (Zimmerman & McClain, 2011), further investigation is needed on the types of knowledge exchange that occurs during outdoor play. Studying how young children and their grandparents play outside can be particularly insightful for understanding intergenerational relationship building and learning. The central research question for the present study was: *What do grandparents and their 3-5-year-old grandchildren learn from grandparent-grandchild outdoor play?*

Methods

Design

This study was based on qualitative analysis of semi-structured interviews with grandparents. The aim of these interviews was to explore grandparents' perspectives on outdoor play with their preschool-aged grandchildren, and more specifically mutual

learning that occurs during outdoor play. A phenomenological approach was chosen because this approach aims to better understand the lived experiences of participants (Starks & Trinidad, 2007), and in the present study of grandparents' experience of learning through outdoor play with their grandchildren.

Participants

Eligibility criteria for this study were for grandparents to have at least one grandchild aged between three and five years old whom they saw at least once a month, to not co-habit with this grandchild, and to reside in British Columbia. Recruitment was primarily done through social media advertisements, posters in community centers, and word-of-mouth. Interested participants contacted the research team; after an informed consent procedure, an interview was scheduled, at the convenience of the participants. Fourteen grandparents were interviewed, seven grandmothers (five maternal grandmothers, two paternal grandmothers) and seven grandfathers (five maternal grandfathers, two paternal grandfathers). All participants resided in the Metro Vancouver area or on Vancouver Island. Three participants were between the ages of 51-60, eight participants were between the ages of 61-70, and three participants were between 71-80 years old. Eleven grandparents identified their cultural origin as 'White', and three out of fourteen grandparents identified as 'Chinese'. Grandparents had an average of 2.71 children ($SD = 1.07$), and 3.36 grandchildren ($SD = 2.10$). On average, participants reported they engaged in outdoor play 5.15 times per month ($SD = 3.08$) with the grandchild they refer to in the present study.

Data Collection

Interviews were conducted in English between November 2021 and March 2022, in British Columbia, Canada. Two interviews were conducted in-person, and twelve interviews were conducted using an online video conference platform to accommodate Covid-related sanitary measures and grandparents' preferences. All the interviews were conducted in English by the first author. In-person interviews were recorded using a digital recorder, and online interviews were recorded using the audio recording function of the video conference platform. The interviews lasted between 18 minutes and 50 minutes ($M = 37.33$; $SD = 9.27$). Each participant was offered a \$50 honorarium to acknowledge their participation. Following the interviews, pseudonyms were assigned and identifying features were removed from the written transcriptions to protect participants' anonymity. Ethics approval was obtained from the University of British Columbia/Children's and Women's Health Centre of British Columbia Research Ethics Board (H21-01321).

Measures

Grandparents completed a demographic questionnaire prior to the interview. The qualitative semi-structured interviews focused on grandparents' experience of outdoor play with their 3-5-year-old grandchildren. Grandparents answered in-depth interview questions about outdoor play with their grandchildren and the transmission of knowledge during outdoor play (e.g., *What do you think your grandchild learns from outdoor play? What do you learn from outdoor play with your grandchild? What can you and your grandchild learn/transmit to each other through outdoor play?*). Grandparents with more than one grandchild in this age-range focused on the grandchild they met most often.

Data Analysis

Interviews were transcribed by the first author (MD) and checked for accuracy by another researcher. Data saturation, which refers to the point when no new themes emerge from new interviews (Liamputtong, 2009; Saunders et al., 2018), was reached after the tenth interview. The final four interviews were used to provide further support to themes that were previously identified.

A thematic analysis was used to investigate grandparents' experiences of learning through outdoor play with their grandchildren. This analysis was done following the six stages outlined by Braun and Clarke (2006). First, we (MD and HH) read the transcripts several times independently and discussed topics that emerged from this initial screening. Second, in an inductive process, we generated initial codes based on the interviews' content by extracting interview excerpts and organizing them by codes in an Excel file. Third, we adopted an inductive approach (Frith & Gleeson, 2004) to identify potential themes emerging from the codes identified during the previous stage. Thus, in an Excel file, we indicated temporary theme names along with clusters of code names, keeping in mind that some codes could change or be merged in subsequent analysis. Fourth, we reviewed themes identified during the third stage in terms of their relevance regarding the research questions and the coded extracts. Fifth, we independently verified that the themes matched the identified extracts and named these themes. Based on this step, we reduced the number of themes from 13 to 9. Finally, we prepared a report of the analysis.

Results

Grandparents evoked several types of learning that they experienced with their preschool-aged grandchildren when playing outdoors. Nine themes emerged from the thematic analysis: six related to what grandchildren learned during outdoor play, two

related to what grandparents learned during outdoor play, and one related to what grandparents and grandchildren learned together.

Grandchildren's Learning

Grandchildren Learn How to Take Risks Safely

All the grandparents in our sample shared that they used outdoor play to teach their grandchildren safety habits, such as how to stay safe while crossing the road and how to take precautions while playing in the playground or on nature-based elements. Grandparents found strategies to instil learning about safety through play. For instance, Janet used songs to teach her grandchildren how to cross the road safely:

“And I mean I sing songs to them, I make songs up as we go and I do the ants go marching one by one, and make them stop and so they're learning to stop and freeze, and when a car comes I say ‘car, freeze’ and then they freeze.” (Janet)

Janet further described how important it was for her to see her grandchildren become aware of their environment, which allowed her grandchildren to learn how to take risks during play while remaining safe. She provided guidance to her grandchildren until they could manage the risks themselves:

“When we're down by the stream, it's a little stream, it's a good practice stream, if they fall in, they fall in, they're not going to die, right. But I say ‘well take a look at the land here, that looks pretty steep to me, and because it's slippery, just try moving your foot a bit, and then you tell me if you should go down there’. So I try to give them the choice after looking at the environment to see if it's safe for them, and, and those are small little controlled things, and like I don't want them

to be afraid of trying things, but I want them to make an informed decision.”

(Janet)

Similarly, Ruth, outlined the importance for grandparents to manage their emotions (e.g., fear, stress, anxiety) when their grandchildren were taking risks so grandchildren could explore their environment, experience risk, and learn independently:

“If they’re down by the river they’ll step on rocks that are like, oh my gosh, or climb really high at the playground and stuff like this. So you kind of just... But you have to let them, you know, you have to be there for them and prevent them from doing something you know they’re going to hurt themselves in, but they need to be allowed to, you know, be a bit rough and tumble (laughs).” (Ruth)

Grandchildren Learn to Build Self-confidence and to Achieve Autonomy

Nine grandparents saw outdoor play as a means to foster their grandchildren’s self-confidence and to help them achieve autonomy. For example, Brenda felt that a part of her role as a grandmother was to be involved in outdoor play with her grandchildren, as she saw it as a way to model self-confidence to her grandchildren:

“Their self-image, exactly. Like, ‘I am strong, I am good, I’m powerful, I’m agile, I’m fast, coordinated, I can do this, I can try, I can try harder’. And ‘I know this but I also know that somebody knows this,’ so it reinforces whatever they may have.” (Brenda)

Additionally, Mei-Ling described the process of how she helped to facilitate her granddaughter’s confidence when doing activities that her grandchild perceived as being risky:

“I think might be an area of a bit riskier, so we would do it with her, but somethings we know that she, she has that, that gross motor skills, the dexterities, the things that we know she can do it we would kind of encourage her and, I wouldn’t say be pushy, but just encourage her and do it, and when she does it she’s, she feels confident. So basically to build up confidence in her, yeah. So sometimes you roughly know your kid, that yes she can do it, she just needs to be prodded along, ‘Oh, you know, you can do it.’ Just give her the, the – and then when she does it, you know, they feel good about themselves, ‘I did it all by myself, yay I did it all by myself!’ right [laughs]. So then it reinforces, so then yeah, you can do it, so it’s ok to take some risks, yeah. And even if they fall down and hurt, it’s, it’s not a major injury so it’s ok.” (Mei-Ling)

Mei-Ling goes on to explain how this process eventually led her granddaughter to develop self-confidence and achieve autonomy over the activity: *“She likes us to do it together with her, something that she’s unsure to do, we’ll do it together with her until she’s confident and then she’ll do it herself” (Mei-Ling).*

Grandchildren Learn Social-emotional Skills

Two grandmothers and two grandfathers saw outdoor play as an opportunity to teach their grandchildren social-emotional skills, and more specifically how to regulate their emotions when playing to facilitate interactions with peers. An emphasis was put on how to play fairly; for instance, grandparents purposively let their grandchildren lose sometimes so they could learn how to manage their emotions when playing with others:

“Probably learning, trying to teach them how to play fairly [laughs]. They don’t – they can’t always win and you know, we don’t let them always get a goal in the

goal in the... you know, the net kinda thing. But also that you just keep trying. You know, they'll get frustrated and stuff, and we'll just encourage them to keep trying and you know. You know, nothing's perfect but I think it's different than what they would get playing with peers, right, and parents might get more frustrated with them." (Ruth)

Albert also specified the importance of teaching his grandchildren caring for teammates and developing empathy through play: "I hope that I can pass on to them that sports are fun, that you shouldn't take it too serious, you should be charitable with other players, passing them the ball around rather than just it's all about you." (Albert).

Grandchildren Learn Physical Skills

Eight grandparents shared that they take advantage of outdoor play to help their grandchildren develop their physical skills, more specifically to improve their coordination, dexterity, balance, gross motor skills and to become familiar with sports:

"We were somewhere the other week and we made a hopscotch. And she was so proud of herself that she was physically – the hopping on one foot was hard for her to begin with, but she stayed with it, and she was so proud of herself that she was able to hop on one foot. So that's very joyful to see her get that mastery of physical skills." (Judy)

"Particularly like soccer or baseball. The hand-eye coordination. They're also likely to be enrolled in official soccer or baseball activities. But, by participating with me, they'll improve their skills." (Steve)

Bobby shared that outdoor play was an opportunity for him to encourage his grandchildren to go beyond their comfort zone to explore physical skills that they would

not have explored otherwise: *“Like seeing them play in the playground for example, you know I’ll encourage them to try some acrobatics maybe that they don’t do because it’s a little bit difficult and I’ll be there to support them.”*

Grandchildren Learn Academic Proficiencies

Four grandparents saw outdoor play as a moment to informally teach academic proficiencies. For instance, they evoked grandchildren learning the alphabet, numbers, popular songs, and to identify colours.

“A lot becomes a teaching moment, right? And even we’re teaching her few numbers, number system. So whenever we see a sign post with big numbers, we ask her to recognize the number “Can you read the number?”, that’s it. I can gauge how much she adopts yeah, and ABC as well.” (Guanghong)

Grandchildren Learn to Integrate Their Cultural Background

Three grandparents outlined how outdoor play was an opportunity to transmit aspects of their cultural background to their grandchildren. George and Guanghong, two grandfathers, discussed how they teach songs and riddles in languages from their countries of origin to their grandchildren during outdoor play.

“But more on the, let’s say when we play there is riddles, there is songs, when they were young that I would do in German.” (George)

“One thing I can teach her and get her to be familiar is singing songs from my culture. So, I speak Mandarin, so sometimes I will sing Mandarin songs. She didn’t get to kind of learn it but she recognized it and then the children song, the Mandarin children’s song, so she likes several of the Mandarin nursery rhymes and songs.” (Guanghong)

Grandparents' Learning

Grandparents Being More Mindful in the Moment

Eight grandparents felt that through outdoor play, they learned from their grandchildren how to be present and enjoy the moment with their grandchildren, and how to see the world through their grandchildren's eyes. Judy noted the difference between playing with her children when they were young, and her grandchildren:

“One of the big differences that I noticed between playing with my children outside and playing with my granddaughter outside - cause I played with my children outside a lot too - I'm less concerned about that they're successful or something, or they're great. Like I feel a different kind of just in the moment, let's enjoy ourselves rather than being purposeful. I'm not explaining it very well but I am able to observe her more and not feel like I have to direct her/instruct her. Which I probably felt a bit more with my own kids, that I had to instruct them. And with that I learn how – I'm reminded how children learn, just naturally, how they develop naturally. If you watch them and you just give them space, they grow up, and develop, and learn new things.”

Mei-Ling shared: *“I feel the satisfaction that I'm able to pass on the values of, of enjoying the simple things in life, without having like, no, you don't have to go for a cruise or some exotic places, just kids.”*

Additionally, ten grandparents expressed that, compared to indoor play and to playing with their own children, playing outdoors taught them how to relax with their grandchildren. Kathy outlined the joy of focusing on the moment: *“It's that when I'm*

playing with him, my focus is on him and it's on the simpler joys and everything else in my life sort of falls away."

Grandparents Learn About their Grandchildren

Three grandmothers considered that outdoor play was an opportunity for them to learn more about their grandchildren:

"When I, because I, because there's seven of them now, I like to do one-on-one, and so that's why I call it 'a walk and a talk with Grandma' [...] And then they do talk to me about things, I say, 'Well I don't know about that, tell me about it.' So yeah, I mean, and the slang that they use, I go, 'What are you talking about?' you know. And it sounds like I'm just starting to sound like my mother, right, like my grandmother, 'What are you talking about?'. So, and finding out what kind of things they do at school and how different it is from when we were there, and they're good at explaining things to me." (Janet)

Mutual Learning

Grandchildren and Grandparents Learn to Develop Their Appreciation of Nature and Environmental Consciousness

Ten grandparents outlined that during outdoor play, both grandparents and grandchildren gained new knowledge about their surrounding environment and a sense of respect for nature. George described how during walks with his grandchild, they would both learn about the surrounding nature and how to care for it.

"I teach them about, you know, nature. The last time we looked at needles of trees, and a bark, and at different things, you know, the texture of things. So there's a lot to learn, right? How to care for nature. How to care for outdoors?"

[...] And then we walk the trails, and look at trees, and learn about cedar trees and various things, right? So there is always something to learn, something to see.” (George)

Five grandparents outlined how gardening was a specific activity that they engaged in with their grandchildren outdoors, which helped them to develop their understanding of nature (e.g., becoming familiar with trees, plants and animals, understanding the seasons). Andrew shared how his grandchild learned from gardening: *“So the children were teasing their mother playing with earthworms and we were digging and harvesting potatoes. I find that it’s even science education when you know where your food comes from and getting your hands dirty.”*

Finally, Judy described how time outside benefited her granddaughter, but helped renew her own sense of appreciation for nature: *“I love being outside with her and seeing how she is experiences nature. It’s really, you know, just renewed or deepened my appreciation in nature too.”*

Discussion

The present study investigated Canadian grandparents’ perspectives on what they and their 3- to 5-year-old grandchildren learned through intergenerational outdoor play. Our study, in line with Vygotsky’s sociocultural theory of learning (1978), highlights various types of learning that 3- to 5-year-old children attained through outdoor play and that they could generalize and replicate in other contexts. For instance, grandparents scaffolded grandchildren’s learning on risk management when playing outdoors. Grandparents also used outdoor play to support their grandchildren increasing their self-confidence, independence and autonomy – skills which have been associated with a

greater sense of volition and with developing more satisfying relationships during adolescence and emerging adulthood (Inguglia et al., 2015). Therefore, grandparents can help provide grandchildren with critical life skills.

Grandparents expressed the importance of teaching their grandchildren social-emotional skills while playing outdoors; skills that they associate with being able to regulate strong and negative emotions, such as frustration, and with promoting more positive and supportive peer relationships. This is supported by previous work on emotion regulation and quality of friendship in childhood (Hay et al., 2004). Interestingly, adolescents perceived good grandparents as those who taught them prosocial behaviours (Giraudeau et al., 2020); therefore, grandparents as social facilitators might be an important feature of their grandparenting role throughout grandchildren's development. This may be a role particularly suited to grandparents as they perceived that they felt more patient with their grandchildren than they had been as parents.

Grandparents also took advantage of outdoor play to scaffold their grandchildren in developing their physical skills, supporting physical literacy and development of more complex physical skills in the future (Gabbard, 2021). Some grandparents also saw it as a way to share their sport-related interests with their grandchildren, so grandchildren would be more likely to enrol in a sport that the grandparents enjoy. As sharing interests has been associated with greater emotional closeness (Spencer, 2007), this approach might benefit the quality of their relationship in the long term.

Grandparents reinforced their grandchildren's academic proficiencies through outdoor play. Grandchildren often associated what they learned in formal childcare

settings or preschool to what they saw when playing outdoors with their grandparents. Previous research has highlighted the important role grandparents play in facilitating their grandchildren's literacy (Kelly, 2004) and complementing what children learn in the school system (Kenner et al., 2007). Given the numerous benefits of outdoor learning on children's learning and development (Mann et al., 2022), outdoor play with grandparents can be seen as a unique opportunity of reinforcing children's learning in the outdoor environment while having a positive experience of learning through play.

The grandparents in our sample saw it as their responsibility to transmit their cultural heritage to the next generations, developing the cultural identity of their descendants, and through this process were able to reconnect with their roots. This privileged time during outdoor play between the generations presents an opportunity to familiarize children with and connect them to their culture of origin, through play, riddles and songs. This is consistent with research exploring Indigenous grandparenting, showing that transmitting cultural traditions was central to the grandparent's role within a family and a community (Silvey et al., 2019, p.7).

In our qualitative analysis of intergenerational learning through outdoor play, grandparents also learned from these interactions with their grandchildren. Indeed, a child effect can be observed as playing outdoors with their 3- to 5-year old grandchildren helped grandparents learn how to be more mindful. As individuals age and approach the end of their lifespan, they have been shown to focus on positive emotions and on experiences that positively influence their emotional well-being (Carstensen et al., 2020). Our study suggests that young grandchildren can play a meaningful role in supporting their grandparents to develop emotional skills that are helpful in their psychological

development and emotional well-being (Shook et al., 2017). Through these playful moments, grandparents focus attention on their grandchildren, learning more about them and their daily lives. Huo et al. (2018) outlined that American grandchildren felt closer to grandparents who spent time with them and listened to them. Therefore, prioritizing this time in early childhood can directly benefit the quality of the grandparent-grandchild relationship by improving their emotional closeness, and strengthen the relationship in later life (Siciplino & Kinshott, 2019).

Finally, this qualitative study elucidated the mutual exchange of knowledge and ideas between grandparents and grandchildren. Exchange of knowledge between grandparents and grandchildren has been extensively documented in the literature (Mansson, 2016, Kenner, 2007), however, this is the first study to our knowledge, that demonstrates mutual learning surrounding appreciation of nature and environmental consciousness. The outdoor environment has been promoted as a resource to support and enhance children's learning capacities, such as science and physical education (Skarstein & Ugelstad, 2020). This was reflected in our study, as grandchildren gained new knowledge during outdoor activities with their grandparents, such as gardening or walking in the forest.

When grandparents and grandchildren play outdoor together, they have a unique opportunity to learn. Our study showed the importance of teaching strategies such as scaffolding, providing encouragements, giving the child a safe place to experiment things, providing advices, using songs and riddles, or simply the context of learning through play. In addition, the trust and emotional bonds that are inherent in the grandparent-grandchild relationship appear to be facilitators to learning, making

grandparent-grandchild outdoor play a singular experience for enriching the learning for both generations, beyond the choice of teaching methods.

Implications

These findings can be used to educate families on the importance of making time for grandparent-grandchild outdoor play. Families tend to display compassionate ageism by being overprotective towards their elders, a tendency that increased during the COVID-19 pandemic (Vervaecke & Meisner, 2021). Therefore, families may be reluctant to encourage their elders to play outdoors, especially for fear of injury. However, when grandparents learn how to be more mindful in the moment, this learning promotes grandparents' successful ageing (van Boxtel & Speckens, 2014). Intergenerational outdoor play could be easily implemented in their daily life, making it a preferred way to improve the quality of their ageing. Families additionally may be concerned with injuries in their 3-5 year old grandchildren if they engage in risk-taking with their grandparents during outdoor play. Emphasizing that grandparents can help facilitate positive risk-taking strategies with their grandchildren could reduce family concern. Promoting the benefits of outdoor play to families can empower them to encourage grandparents to play outdoors with their grandchildren.

Psychologists, educators, and planners can utilize these findings to develop and implement intergenerational learning components within their practices. This could include incorporating outdoor play within intergenerational community programming to facilitate benefits for both grandparents and grandchildren, such as through environmental education (EE) initiatives. EE initiatives which include intergenerational components in their programming have yielded positive benefits to children, including

greater improvement and enhancement of their environmental knowledge, attitudes, and responsibility (Liu & Kaplan, 2006). Child participants of these intergenerational EE programs expressed that the elders acted as a source of guidance, and supported the growth of their environmental consciousness (Mayer-Smith et al., 2007). Our study provides support of the inclusion of intergenerational components in EE initiatives to help promote participants' environmental consciousness, which is necessary to support action and political will to address the current climate and environmental crises (Liu & Kaplan, 2006). Furthermore, our results can be extended to inform campaigns advocating for nature and environmental consciousness to the public, specifically targeting multigenerational engagement with the outdoors.

Limitations and future directions

This study was unique in examining learning for both grandparents and grandchildren, rather than focusing on only one side of the relationship. However, it is a limitation that only grandparents were interviewed. Grandchildren's perspective, as well as those of parents and other siblings, could provide a more systemic understanding of intergenerational outdoor play. This study did not investigate what grandparents sought to teach through outdoor play versus what natural teaching and learning emerged and was evident in hindsight. Future studies could investigate grandparents' intentionality within the outdoor play context. Further, a longitudinal study could examine changes in the grandparent-grandchild relationship and their outdoor play experiences across time and how the skills and lessons learned through this intergenerational outdoor play in early childhood translated across development.

Conclusion

This study investigated the learning outcomes of grandparents and 3- to 5-year-old grandchildren when they engaged in outdoor play. Our findings outline the many mutual benefits of intergenerational outdoor play to both grandparents and grandchildren. Skills that were useful at grandparents' and grandchildren's respective life stages (e.g., social-emotional abilities, mindfulness) could be learned and practiced through intergenerational outdoor play. Additionally, outdoor play was a mechanism for both grandparents and grandchildren to develop a sense of environmental consciousness. Our study demonstrates that investing in initiatives that facilitate intergenerational learning and connection through outdoor play can help promote healthy outcomes across the lifespan.

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