Abstract
Children’s gardening programs have enjoyed increasing popularity in recent years. An Australian environmental education non-profit organization implemented a program, entitled Multicultural Schools Gardens, in disadvantaged (low-income) schools that used food gardening as a focus for implementing a culturally-focused environmental education program. While the program included the well documented educational, social, and health benefits of growing food, gardening and cooking were also utilized as leverage in learning about culture, language (English as a Second Language), and environment. Alongside the program’s implementation, a combined methods research approach was applied to gauge children’s learning experiences as program participants. Part of this process involved children researching their own practice, accompanied by researcher interviews and observations with students and teachers. This paper presents an inquiry into practice involving one site, revealing how a culturally diverse school with a high proportion of migrant and refugee families created an engaging garden space. This space led to a strong sense of belonging among students who were formerly dislodged from their birthplaces, together with providing opportunities for learning English language and forming connections to the local environment. The paper provides food for thought with respect to the potential for children’s gardening to transcend language and cultural differences.

Résumé
Les programmes de jardinage pour les enfants ont connu une popularité grandissante dans les années récentes. Une organisation australienne d’éducation écologique à but non lucratif a mis en place un programme intitulé Potagers scolaires multiculturels dans des écoles défavorisées (à faible revenu) qui se servaient du jardinage comme un objectif pour appliquer un programme d’éducation écologique axé sur la culture. Le programme incluait une bonne documentation sur les bénéfices du jardinage pour la santé ainsi que sur le plan pédagogique et social. En même temps, le jardinage et la cuisine ont aussi été utilisés comme levier pour étudier la culture, la langue (anglais langue seconde) et l’environnement.

Avec la mise en œuvre du programme, on a appliqué une combinaison de pistes de recherche et leurs méthodes pour évaluer les expériences d’apprentissage des enfants en tant que participants au programme. Une partie
du processus impliquait des enfants recherchistes sur leurs propres pratiques, accompagnés d’entrevues de recherchistes et d’observations avec les élèves et les enseignants. Ce texte présente une enquête sur la pratique impliquant un espace qui révèle comment une école multiculturelle avec une forte proportion de familles d’immigrés et de réfugiés ont créé un lieu de jardinage engageant. Cet espace a mené à un fort sentiment d’appartenance parmi les élèves qui anciennement, ont été déplacés de leur lieu de naissance et ensemble, ils ont fourni des occasions pour apprendre l’anglais et former des connections avec le milieu. L’article fournit de la matière à réflexion sur le potentiel du jardinage par des enfants afin de transcender la langue et les différences culturelles.

Keywords: multicultural school gardens, children’s gardens, culture, community, environment, experiential learning, ESL

Children’s School Gardening Movement

Growing, harvesting, preparing and eating food from your garden is all part of the same activity and a wonderfully rewarding experience. It should be a grand celebration from garden to table. (Hill, 2004, p. 6)

Gardening programs are currently in vogue in schools around the world as teachers and schools seek pedagogical approaches to engage students in experiential learning and work towards tackling societal concerns such as childhood obesity and environmental sustainability. While gardening programs have become progressively more common, “empirical research into the impact of these programs is limited” (Mayer-Smith, Bartosh, & Peterat, 2007, p. 78). Reff claims that “one of the areas of human culture most neglected by social science and the humanities is the garden” (as cited in Miller, 2007, p.16). However, research and practice in this area is expanding, and in the process is revealing a number of significant trends.

According to Lekies and Sheavly (2007), the benefits of the “children’s garden movement” has become more compelling for schools. Myriad benefits include positive influences on student health and well-being, environmental attitudes, academic performance, physical activity, and social skills. Experiential and community focused projects have also been identified as a significant benefit in that they potentially allow children to engage in meaningful experiences with opportunities for transferring learning into their everyday lives having value beyond school (see Bell & Dyment, 2006, 2008; Corkery, 2004; Dyment, 2005; Miller, 2007). The desire to enable children to experience “slow,” or less technologically-focused experiences (Payne, 2003; Payne & Watcchow, 2008), and to address concerns that children are growing up with what Louv (2005) describes as “nature deficit disorder,” are addi-
tional drivers that have led teachers and communities to embrace school gardening programs. Mayer-Smith, Bartosh, and Peterat (2007) found that “children’s relationship with the environment changed and became more personal” (p.85) over the course of an Intergenerational Landed Learning Project. They noted that, “the majority of children shifted from seeing the environment as an object or a place, to a view characterized by the interconnectedness of humans and environment” (p.83). With that in mind, Wake (2008) argues that further research is needed with respect to “what children are looking for in a nature connection, if indeed they are looking” (p.432) in the context of children’s gardens programs. She maintains that there is a tendency for adults to romanticize nature and utilize this to legitimize children’s interactions with nature through garden programs.

Wake (2008) further contends that children’s garden programs are typically dominated by adult agendas and discourses, rather than focused on children’s needs and interests in garden spaces. She claims that children’s gardens are often designed and maintained by adults with children merely visiting them for activity led experiences. She further alleges that the garden movement has “always aligned itself with promotion of healthy living for children through exercise, exposure to natural elements and the potential to learn about and even grow healthy food for themselves” (p.430). Existing research echoes similar sentiments (Miller, 2007), with Ozer (2007) stating that “it is important that inquiry on school gardens extend beyond nutrition to the potential effects of the psychosocial and academic development of youth and on the school as a setting for development” (p.861). Ozer (2007) avers that there is a significant gap between practice and research such that there is a dearth of research about children’s experiences of garden spaces. That said, opportunities for cultural learning and inquiry through school gardening programs have seldom been discussed and/or explored in the literature. Indeed, this gap in both practice and research led to the development of the multicultural school gardens program.

**Multicultural School Gardens Program**

In 2005, the Gould Group, Australia’s oldest environmental education organization, assisted disadvantaged schools, as identified by the stated education department in the state of Victoria, to establish a multicultural food gardening program as a focal point to bring communities together—to garden, cook, learn from each other, and create a connected community (Gould Group, 2008). However, it became apparent that not all schools, particularly disadvantaged schools, had the resources to construct gardens and/or offer gardening activities to their students. The multicultural school gardens program was created to provide teaching and learning (core curriculum) materials, funding, raw materials, professional development, volunteer recruitment,
and coaching for a school year, to enable disadvantaged schools to establish a culturally focused gardening program. The intention was that the gardens would then be sustained by embedding the program in the school’s curriculum and through the connections made with local community.

As an integral part of the multicultural school gardens program, I was engaged to research the program alongside its implementation. The primary purpose of the research was to gauge the impact of the program against its stated objectives, namely:

- celebrating cultural diversity and demonstrating the benefits of multiculturalism;
- creating multicultural garden and cooking projects within the school;
- helping to develop strong local communities and school communities; and
- fostering healthy eating habits. (Gould Group, 2008, p. 1)

In order to commence the process, schools were encouraged to begin their garden program by asking students: “How do we plant and maintain a garden that is sustainable, reflects our cultural heritage, and engages the whole school community?” Participants were further encouraged to:

- use a whole-school, multidisciplinary approach to the curriculum; model the garden on environmental sustainability practices;
- consider the project as a long term commitment and provide ongoing maintenance;
- empower schools by enabling students to plan and implement a real environmental project;
- stimulate creativity and celebrate diversity;
- connect parents and local multicultural communities with the school;
- contribute to student health and wellbeing build upon volunteer contributions to community well-being and encourage their ongoing support; and strengthen and build the social and educational capacity within the school. (Winters, 2008, pp. 7-8)

As part of the multicultural school gardens program, schools were also advised to incorporate the practice of “gardening buddies,” namely parents/guardians/grandparents (typically new arrivals to Australia) as well as community members working with children in creating food gardens. The idea was for garden buddies to participate in a cultural learning exchange where parents/guardians, grandparents, and community members would share stories and information about gardening and their culture, and students would mentor their buddies in English language helping them to connect with others in their community (Gould Group, 2008).
Mode of Inquiry

From 2006–2007, 23 schools implemented the program. As shown in Figure 1, the research was carried out using a suite of qualitative and quantitative methods incorporating four phases (Cutter-Mackenzie, 2007, 2008). This paper focuses on phases 2 and 3 of the research.

**Phases:**

1. **Phase 1:** Pre surveys to all Schools (teachers and students)
2. **Phase 2:** Children as Researchers
3. **Phase 3:** Researcher field visits, observations and interviews with children and teachers
4. **Phase 4:** Post survey to all Schools (teachers and students)

**Phase 2: Children as Researchers**

Children tend to see the world differently to the way adults see it and, even if they identify similar issues as being of particular importance, invariably they will have different understandings of their nature and significance. (Fielding, 2004, p. 7)

Given the participatory nature of this project it was considered that the children themselves would bring new and valid views and voices to the research process that may not have been ascertained otherwise (Kellett, 2005). It was also acknowledged that children are capable of undertaking research, provided they receive the necessary training and are well supported. Participating adults, such as teacher researchers, have long been acknowledged and accepted as co-researchers. Research is an everyday experience in most
schools, with children collecting, analyzing, and reporting research findings on a variety of topics ranging from pet surveys and waste audits to interviews with community members about their environmental practices in the home. Such research is often seen as practice, “rather than worthwhile in its own right” (Alderson, 2004, p. 143).

In order to gain a deeper understanding of the implementation of the multicultural school gardens program, students were invited to be researchers. Five schools participated in this phase over the 2-year duration of the project. All student researchers were invited to capture their experiences by keeping journals, taking photographs, and interviewing students, teachers, parents, and community members about their multicultural school gardens experiences. The students participated in a research training process, learning data collection skills, specifically those related to documenting observations, photographing, and interviewing.

Phase 2: Interviews and Observations

Following a rich data collection process over the course of the program, student researchers participated in one focus group interview where they shared and discussed their research. It is important to note that all student researchers and their families spoke a language other than English at home. English for most of them was their second or third language. The university researchers also did not speak the students’ first language. Therefore language barriers are a limitation of this study as in some instances the data reported may appear to be lacking in detail. However, as a means of triangulating the data, teachers (program leaders) were also interviewed. I also wrote detailed observations (field notes) during my research visits to the schools.

Data Presentation and Analysis

Inquiry into Practice—Dalem Primary School

This paper reports the journey of one school, namely Dalem Primary School, revealing its unique approach to building, maintaining, and utilizing gardens as a space for learning about language (English), culture, and environment. The school is located in the Dandenong region of Melbourne Victoria. Dandenong is considered Melbourne’s second city, as well as one of the most multicultural cities in the world with many citizens immigrating from Sudan, India, Afghanistan, Vietnam, Cambodia, Sir Lanka, and China. According to the City Council, “approximately 56% of residents were born overseas from over 150 different birthplaces and 51% from non-English speaking backgrounds” (City of Greater Dandenong, 2008, p. 1).
Dalem Primary School has approximately 490 students, speaking over 37 different languages other than English. 70% of the students are drawn from culturally diverse backgrounds with more than half of their total number students qualifying for English as a Second Language funding support from the state government. The school has large Sudanese and Afghani populations that have presented some challenges to the school in terms of providing appropriate language support and cultural awareness programs for students and their families. Indeed, this was a key motivator for the school’s involvement in the multicultural school gardens program.

At Dalem Primary School the multicultural school gardens program is associated exclusively with the English as a Second Language program that involves a total of 70 students. There has been a particular focus on the new migrants program, involving those students who migrated to Australia within the last two years. Some students had only been in Australia as little as 5 weeks when the multicultural school gardens program began. These students (20 altogether) comprise refugees from Afghanistan and the Sudan ranging in from 6-12 years of age.

A small group of students (10) participated as researchers keeping journals, taking photographs, and conducting interviews with other English as a Second Language students. The students collected research for one term (three months) as part of the multicultural school gardens program. Data collection took place during the construction and first harvest phase of the garden. Following data collection, the students participated in a focus group interview with me to discuss their experiences. In addition to making several visits to the school where I observed the program in implementation, I also interviewed the leaders of the program (the English as a Second Language teacher and the school’s environmental education coordinator). Pseudonyms will be utilized with the English as a Second Language teacher referred to as Allison and the school’s environmental education coordinator referred to as Angie. Given the limitations of the students’ English language skills, my observations and the interviews with the program leaders were particularly important in describing and critiquing the depth of the multicultural school gardens program at Dalem Primary School. Dalem Primary School’s inquiry is presented under three subheadings, namely: a community of learners; gardening and teaching English as a Second Language; and nature/environment connections.

A Community of Learners

Drawing on the advice of their parents, grandparents, community volunteers (from Conservation Volunteers Australia) and teachers, the students redesigned an abandoned garden space (2 small garden beds) into an expansive area of food garden beds, with an accompanying kitchen, water tank, worm farm, compost and art feature. The process by which the final design came about fostered intergenerational and cultural learning as the children drew
upon their cultural heritage in designing their multicultural school garden.

Work commenced on the garden with several school and community working bees. The working bees were an effective means of involving the broader school community and generating enthusiasm for the project. According to one student the children’s parents and community volunteers assisted in constructing the garden:

Our parents came and helped us in the garden. They helped us grow the plants and they did some digging. The volunteers from Conservation Volunteers Australia (CVA) helped us with the heavy stuff. We have been doing planting, weeding, and watering. We used straw to put around the plants to protect the plants from the weeds and the sun. We have also made some instructions for the plants and done reading about plants as well. (Year 3 Student, Journal Entry)

The school working bees created a space and environment for teachers, community volunteers, children, and their parents to work together. This finding is contrary to Wake’s (2008) recent study reporting that children have little opportunity to design and work in children’s gardens rather merely visiting them for activity-led experiences.

During the working bee process, there was an active exchange of ideas about growing and preparing food. On one of my research visits to the Dalem Primary School I made the following observations:

I quietly sat with a group of children as they talked about the traditional way of eating in Afghanistan with the right hand and no cutlery. A child modeled a hand-washing ceremony that typically takes place before a meal with a special bowl called a “hafawa-wa-lagan.” He talked about how a young child will usually pour water over a guest’s hands. He then proceeded to pour water over my hands. Immediately following this several children from a Sudanese background talked about how this is similar to the Arabic custom of pouring water over the hands of the guests using the Ebrig, a shiny copper ewer. They also talked about how all guests are offered a towel to wipe their hands and large cloths to cover the knees. During this conversation one of the Sudanese students quickly brought me a towel to wipe my hands and then placed another towel over my knees. While only brief it was apparent that this sort of everyday cultural exchange that the multicultural school gardens program facilitated appeared to take children’s gardening to a new level where the focus isn’t just on gardening, but the children’s culture making it far more meaningful for new immigrants to Australia. (University Researcher Observations)

According to the students’ English as a Second Language teacher, this sort of culture exchange was an “everyday occurrence providing a space for children to talk about their culture whilst speaking and learning English at the same time” (Allison). She talked about how the garden (space) led to “a sense of belonging for students newly arrived to the country that was an ongoing challenge for the school previously.” Such reflections resonate with placed-based education through creating spaces for students to embody their own culture.
through a study of English (language) and the local environment (gardening) (Sobel, 2005).

It was also noted that the focus on the children’s culture, in the context of learning English and gardening, appeared to enhance teachers’ cultural awareness and appreciation. This was evident in Allison’s description of her assumptions about students’ prior gardening experiences before the program commenced. She commented that:

There are a few kids who have grown their own gardens at home. Before the program started though I had these middle-class ideas that they all grow their own veggies but, no, they don’t. Some do or have in the past but perhaps more for survival…I have come to appreciate that many of the kids have grown up in refugee camps or were on the move trying to get out of a place. They have always been dislodged from their homes in the 10 or 12 years that they have been alive. They have had no home to have a garden. (Allison)

Such comments reveal a heightened cultural awareness or sensitivity. Synergies can also be made with Wake’s (2008) research concerning adult agenda for children’s garden programs. The assumptions that Allison originally made, what she called “middle-class ideas,” may well have led to her own agenda, but the focus on the children’s culture in the context of learning English appeared to help diffuse this through building the cultural awareness of teachers and students. The data also revealed that the garden program acted as an engaging space for teaching and learning English as a Second Language.

Gardening and Teaching English as a Second Language

In an interview with the students’ English as a Second Language teacher (Allison) she indicated that the multicultural school gardens program “offered so many experience-like activities and provided a perfect avenue for getting the kids to learn as much language as possible as it facilitated real life conversation.” In a separate interview with the school’s environmental education coordinator (Angie) she further explained how they came to link gardening and teaching English as a Second Language:

I hatched a plan to expand the garden. I was trying all avenues and that is how I got involved in the Multicultural School Gardens program. It was a plan of mine to expand it for the past 5 years as I thought the garden could be a lot better in making strong links to the community and the ESL program in particular. (Angie)

According to Angie, “the garden’s primary aim is to foster a good rounded education on the environment through real life learning.” She further explained that she had intended for the “garden to act as a springboard for reading and writing.” Allison stressed that the school needed:
…to get these kids learning as much language, as quickly as possible. With the garden you are reading instructions and recipes, and you are writing and talking. It’s physical and it’s hands on…It has just been great.

In the focus group interview the students talked about the benefits of learning English through gardening. One student commented in an interview that all the “students were very happy gardening because it was the first time teachers were teaching students this way.” When asked to further explain what he meant by this comment, the student said that prior to the development of the garden, they tended to do most lessons inside the classroom. Another student further explained:

> The garden is definitely good for the school. Obviously there is the healthy eating, and we will have somewhere to relax and somewhere to “slow down” a bit. It is so enjoyable being in a garden, we should have done this a long time ago!

“Slowing down” was a common statement made by students when describing their garden experience. They reported that other aspects of school and their daily lives can often be “rushed.” This echoes the work of Payne and Wattchow (2008) who argue that experiential pedagogies must consider time and space, particularly slowing down time through carefully conceived of, planned for, and managed experiences, which Dalem Primary School did through a dedicated English as a Second Language and garden program. While it is clear that the multicultural school gardens program created a dynamic space for teaching and learning English as a Second Language, the extent and depth of environmental education (teaching and learning) was less apparent.

**Nature/Environment Connections**

As shown in Figure 2, one child took a photo of various vegetables he had planted and made the note that he was not sure what was growing, but he had helped plant it. During the focus group interview I asked him, “If you are not sure what is growing how do you know if it is a weed or vegetable and whether or not it is safe to eat?” He replied that his “teacher would tell him if it was safe to eat.” Further examples like this were apparent in the children’s research revealing that their actual knowledge of plants was lacking. However, scientific knowledge of plants was not overtly identified as an underlying purpose of the garden by the teachers. This downplaying of scientific knowledge has been reported previously in environmental education research (Cutter-Mackenzie & Smith, 2003). The focus on “doing” gardening was reflected in the children’s research. The children tended to see gardening as positive environmental behaviour where they considered that their actions “helped the environment” (journal entry, year 5 student) revealing a sense of agency in protecting the environment. When asked how gardening was helping the environment, a student explained that “growing your own food is more envi-
When asked to explain further, he said “because the food goes from the ground to plate and doesn’t have to come so far.” While this was a particularly insightful and critical view that the student adopted, this student did not make the link between the ideal of growing your own food and having the knowledge to grow (or harvest) food (as shown in Figure 2). It is clear though that children are looking for a nature or environment connection through gardening (Wake, 2008), particularly one that makes them feel empowered in their environmental behaviour and actions. However, the kind of deep interconnectedness and relationships described by Mayer-Smith, Bartosh and Peterat (2007) were not visibly evident among this group of students. Practice (and inquiry) over a sustained period of time, though, may lead to such interconnectedness that in turn filters into other aspects of the students’ lives.

I now synthesize Dalem Primary School’s inquiry drawing on existing research in the field of environmental education research concerning the children’s gardening experiences.

**Concluding and Synthesizing Comments**

The research approach applied facilitated a rich process where children’s voices and insights could be captured alongside the implementation of the mul-
Multicultural school gardens program. Dalem Primary School’s inquiry into practice reveals several key findings that have broader implications for environmental education research and practice.

At Dalem Primary School the multicultural school gardens program was associated exclusively with the English as a Second Language program with a particular focus on the new migrants from Afghanistan and the Sudan ranging in ages from 6-12 years of age.

Students were supported in designing and constructing their gardens, creating outdoor spaces for a community of learners. Recently Wake (2008) noted that children do not typically have these opportunities in children’s garden programs. The process by which this was done for the multicultural school gardens project drew upon the children’s cultural heritage. It was observed that the children’s culture became a rich source of “everyday conversation” in the garden spaces, in addition to acting as a space for improved cultural awareness and sensitivity among the students and teachers. These spaces acted as a key pedagogical opportunity, or address, (McKenzie, 2008) for teaching English as a Second Language.

An experiential approach acted as the key pedagogical driver for the multicultural school gardens project at Dalem Primary School. The students described their garden experience as an opportunity to “slow down” which mirrors the works of Payne and Wattchow (2008) concerning “slow pedagogy” which they maintain acts “as a primacy of experience and the ‘growth’ required in fostering a secondary, deep reflection about the organism-environment interaction, and human nature of experience” (p.36). In the case of Dalem Primary School, the multicultural school gardens program, presented a medium (or space) for slow and experientially driven pedagogies, allowing opportunities for intercultural and environmental learning experiences.

Working in the garden was also seen as positive environmental behavior by the students where they considered that their actions “helped the environment,” revealing a clear sense of agency in protecting the environment. It was observed that the children were seeking a nature or environment connection (Wake, 2008), particularly one that made them feel empowered in their environmental behavior and actions. Students expressed a critical perspective about growing one’s own food, what one student described as “going from ground to plate.” This view reveals a key sustainability or conservation perspective that may in turn transit into the students’ everyday lives.

It was identified earlier that “one of the areas of human culture most neglected...is the garden” (Relf as cited in Miller, 2007). The multicultural school gardens program went beyond a sole (and typical) focus on gardening, incorporating the students’ cultural heritage. The program led to the development of a “space” that facilitated a strong sense of belonging among students who were formerly dislodged from their birthplaces, coupled with enhanced opportunities in learning English language (an essential skill in living in any Western culture) and forming connections to the local environment. This
paper has provided food for thought with respect to the potential for children’s gardening to transcend language and cultural differences, therein providing authentic learning opportunities that extend well beyond previous expectations of school gardening programs.

Notes

1 To protect the anonymity of the school a pseudonym has been utilized.

Acknowledgments

I would like to especially thank the Gould Group and specifically Jodie Robison for her role in the Multicultural School Gardens project. I would also like to acknowledge the Victorian Department of Education and Early Childhood Education Development and the Victorian Government for their funding support through the Community Support Fund. I also thank Kate Eastwood, Tiffany Mosqueria, Helen Widdop Quinton and Wendy May for their involvement in the project as research assistants.

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