Community and School Gardens as Spaces for Learning Social Resilience

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Abstract

Can community and school gardens help people learn to build social resilience to potential food shortages? We seek to address this question through an examination of the ways in which gardens can teach individual and community resiliency in times of emergency, pockets of food insecurity, and the challenges presented by climate change. We focus on the role gardens play in providing access to food and building resilience amongst school-aged children and young adults. A larger Australian PhD thesis is analyzed to provide insights to assist educators, particularly in the policy arena, who are seeking to engage with, or who already engage with, young learners in community and school gardens. While the focus is on the Australian context, we argue that our findings have international relevance.

Résumé

Les jardins communautaires et scolaires peuvent-ils aider les gens à mettre sur pied un système de protection sociale contre d'éventuelles pénuries alimentaires? Nous cherchons à répondre à cette question en examinant les façons dont les jardins peuvent enseigner la résilience individuelle et communautaire en période d'urgence et dans les îlots d'insécurité alimentaire, et en nous penchant sur les défis que posent les changements climatiques. Nous avons mis l'accent sur le rôle que jouent ces jardins dans l'accès à la nourriture et le développement de la résilience chez les écoliers et les jeunes adultes. Nous avons analysé une thèse doctorale australienne plus large dans le but d'éclairer les éducateurs, en particulier dans le domaine des politiques, qui cherchent à susciter l'intérêt des jeunes apprenants dans les jardins communautaires et scolaires. Bien que le cas mis en évidence soit australien, nous avançons que nos constatations sont aussi pertinentes ailleurs dans le monde.

Keywords: learning, food literacy, social resilience, community and school gardens, food security

Introduction

Australia, like most countries, is vulnerable to the impacts of climate change, particularly with regard to the increased risk of extreme weather events (Australian Government, 2011; COAG, 2011). Recent impacts on Australia's urban and rural environments include several annual cyclones and intense floods,

bushfires, and heatwaves (Howes et al., 2013). The Australian Government's *Climate Action Plan* noted that due to climate change, the State of Queensland (where this study was undertaken) can expect a decline in agricultural production due to higher temperatures, reduced rainfall, and extreme weather events (Australian Government, 2011). In addition, and as we have seen with recent flood and cyclone disasters, the immediate anticipation and aftermath of severe weather events sees people's reliance on even a few days' interim food supply undermined by panic buying that results in supermarket shelves cleared (Lodree, 2011). The Australian Federal and State governments undertake the task of emergency food re-supply, however, with disasters, it often takes several days for this food to arrive at supermarkets (Australian Government, 2010; COAG, 2011). The Australian Red Cross has noted that alongside these moments of food shortage and food insecurity people can feel anxious about acquiring food, worry about running out of food, have a less varied diet, cut down on meal size, and/or eat less (Borg, 2008). Although social safety nets such as Food Bank, that intervene and provide food support, exist (Pingali, Alinovi, & Sutton, 2005), having to use food relief is also a sign of food insecurity (Borg, 2008).

Food Security in Complex Emergencies

As a result of severe weather events, there has been an increased emphasis on sustainable local economics to help redress issues faced during times of crisis (Mileti, DeRouen, Darlington, Passerini, Forrest, & Myers, 1995; Morrow, 2008). Sustainable and healthy community agendas have long sought to not only anticipate and ameliorate the impacts of climate events on food production and distribution, but also to address key features of food insecurity. The Food and Agriculture Organisation of the United Nations (FAO) defines food security as food that is "available at all times; that all persons have means of access to it; that it is nutritionally adequate in terms of quantity and quality; and is acceptable within the given culture" (cited in Koc, MacRae, Mougeot, & Welsh, 1999, p. 1). Australia is one of the most prosperous nations in the world, where poverty and food insecurity may seem very far removed (Anglicare, 2012). However, the Australian Red Cross *Food Security Position Paper* identifies growing pockets of food insecurity in Australia. Single parents and indigenous people are at higher risk, with the most significant causes found to be low disposable income, unemployment, and high living costs (Borg, 2008). The Australian Council of Social Services' (ACOSS) 2012 national report on food poverty in Australia claims that up to 45,000 households cannot always afford food. Many of the people who live in these households are recipients of government financial support and "receive part time earnings only, or are raising children on a low wage" (ACOSS, 2012, p. 27), resulting in "almost 1 in 10 of the households surveyed [reporting] their children did not eat for an entire day on a regular basis" (Hall, 2012, p. 1). Clearly, children in such circumstances are already vulnerable to food insecurity that is then heightened further through the effects of climate-

related events on food production and distribution. The need to build disaster-resilient communities, particularly in relation to food security, is therefore great.

Building disaster-resilient communities has much in common with sustainable community agendas that focus on social well-being. The International Federation of Red Cross and Red Crescent Societies (IFRC) argue that resilient communities require a holistic foundational base whereby communities are (a) knowledgeable, healthy, and organized, and (b) connected with infrastructure and services, and have economic opportunities (IFRC, 2012). Both approaches aim to address the immediate needs of vulnerable people, reduce their vulnerability by helping them to build their capacities, and thereby enhance their resilience over the long term (Borg, 2008; COAG, 2011). With climate change impacts in mind, Australia's *National Strategy for Disaster Resilience* has a focus on resilience that calls for adaptive and empowered communities that are "aware of vulnerable elements of the community and consider their needs in the development of programs and plans" (COAG, 2011, p. 10).

Based on a larger PhD study, this paper discusses one question that emerged: Can community and school gardens build resilience to potential food shortage amongst children and youth? The first section of this paper examines how community and school gardens can enable learning for social resilience. The broader study from which this paper is derived is then outlined. Four capacities for building social resilience through community and school gardens are then discussed. The paper concludes by outlining the benefits of educating school children and young learners in and through community and school gardens.

Learning Social Resilience

Social resilience refers not only to capacities to withstand and recover from adversity by "bouncing back," but also to capacities required to "bounce back better." This betterment or creativity feature of resilience refers to both individuals' and communities' capacities to go beyond just regaining an original state or level of functioning, to instead adapt to change and learn about levels of functioning that are more suited to current and ongoing conditions (Maguire & Cartwright, 2008). Learning to be resilient is important in dealing with disaster (COAG, 2011), particularly as an exclusive focus on alleviating food insecurity through social safety nets, such as food relief and income support, reinforces a view of individuals and communities as passive consumers of food. Learning to be resilient in relation to food helps to address vulnerabilities in global food supply chains and provides opportunities for young people to learn about various ways for sharing responsibility for food (Levkoe, 2006). We know that Australia has pockets of child and youth vulnerability to food disadvantage that can, in part, be addressed through building resilience. Vulnerability and resilience can be seen as two sides of the same coin, with resilience largely about building capacities, while vulnerability is indicative of a need to build capacity (Reis, 2013).

One way to build capacity is through education, and many food literacy programs seek to do this. These involve recognizing where food comes from, developing competencies in food procurement, and facilitating behaviour change through reflection, understanding, and dialogue. Food literacy educators deliver, facilitate, and empower learners through developing knowledge, skills, and capacities for adapting to food insecurity. While community and school gardens are physical *places* in which produce is grown and harvested for consumption, they are also learning *spaces* that can, for example, help young people learn how to procure food in times of potential shortage, and participate in the dynamics that enable a wider social resilience to such shortages. Community interests in gardening range from employment opportunities to saving seeds, and sharing skills to enjoyment of outdoor exercise, and engaging with others in a common pursuit.

Community gardens are therefore potentially democratic spaces that allow for young people to gather, share, and act together (Shepard, 2009). Indeed, through sharing concerns, problems can be solved together (Patel, 1996). In this way, connecting young people with people of all ages and people with food is central to building resilience around food within communities (King, 2008). School gardens, similarly, are dynamic spaces that provide "an important role in promoting health, social inclusion, active civic participation and practices of sustainable living in urban environments" (Turner, Henryks, & Pearson, 2010, p. v). They are therefore not just physical sites, but "psycho-social" learning spaces (Kingsley, Townsend, & Henderson-Wilson, 2009).

Study Focus and Methods

This paper addresses one issue that emerged from a larger PhD study that sought to understand the networks of relationships necessary for community and school gardens to function as hubs for building social resilience and food security in South-East Queensland, Australia (Reis, 2013). The study explored this issue with reference to the aims of Australia's *National Strategy for Disaster Resilience* (NSDR), released in 2011. The NSDR identified that a greater focus on strengthening the long-term capacities of local communities in the face of increased severe weather events and climate change was needed to ensure communities become more disaster-resilient (both in short-term responses and longer-term recovery). A key concern is how to support community members most vulnerable to food insecurity.

The broader study synthesized a range of current understandings about how best to do this. New findings from empirical data collected as part of this study provide more holistic understandings of the connections between previously disparate positions and how these could be effectively re-aligned. Data analysis was thematic, with themes that emerged from the literature used to interrogate data collected through interviews. Purposive and snowball

sampling allowed for the selection of 17 representative interviewees and for tracking of connections and relationships within and between groups (Yin, 1992). Interviewees were from local government agencies, local food initiatives, social enterprises assisting youth at risk of drug use and homelessness, school education departments, sustainability consultants, and disaster resilience organizations involved in community safety, disaster recovery volunteering, and climate change adaptation.

This paper addresses: (a) how community and school garden spaces help people to learn about social resilience and food procurement, and (b) the educational implications for policy and planning professionals working with, and/or on behalf of, school students and youth learners. The quotes used below are from interviewees, with each interviewee given a descriptive job title and a number to protect their identity.

Learning Social Resilience through Community and School Gardens

Community and school gardens can assist primary school children, high-schoolers, and young people to learn about social resilience and food procurement. As the broader PhD study indicated, these gardens were able to develop four social resilience capabilities: (a) learning and adaptation, (b) empowerment and participation, (c) inclusiveness and social ties, and (d) self-reliance and self-organization (Reis, 2013).

Learning and Adaptation

Both adaptation and resilience share the common feature of learning sustained behaviour changes to effectively deal with hardships and challenges. Our study illustrated that social resilience requires people who are able to adapt to changing situations beginning in their childhood. As an experienced educator, School Educator 2 explained that teaching children from a young age about dealing with setbacks is a key strategy for trouble-shooting in life, stating that "if the child is developed as a whole child then they are able to deal with all those things that come forward. They're able to deal with their setbacks." Additionally, School Educator 1, who participated in formalizing sustainability in school curriculum, argued that children's capacities are supported through building "the capacity of a community and society, to be flexible to adapt to variabilities, be it environmental, economic or…social." The community's capacity to both change and shape change (Maguire & Cartwright, 2008) are key components of building resiliency for long-term social resilience, and by association, shorter-term disaster resilience.

Adaptation and resilience are characteristics that were also evident in the resurgence of urban gardening and renewal in the 1970s (Patel, 1996). Community gardens then, as now, offered non-formal education and training

opportunities including actions for addressing sustainability and climate change issues (Flowers & Chodkiewicz, 2009). The production of fresh food generated from community gardens contributed to the use and dissemination of community science (such as horticultural techniques and skills) and innovative technologies (such as grey water use, and solar and wind power generation) (Stocker & Barnett, 1998). Such informal educational spaces have provided community members, and by association young people, with sites for incidental learning (Foley, 1999) and experiential learning that is "flexible and adaptable to the needs and interests of learners" (Walter, 2012, p. 3).

Currently, school gardens are being used to enhance student learning—and build their capacities to adapt—in science, maths, language, arts, health and nutrition, ethics, social studies, and history (DeMarco, 1999). Overall improvement in students' academic learning (Canaris, 1995; Klemmer, Waliczek, & Zajicek, 2005), physical activity (Pothukuchi, 2004) and enjoyment of, and learning about fresh produce (Somerset. Ball, Flett, & Ceissman, 2005; Stone, 2007) has been reported in a number of studies of school gardens. School gardens have also helped high school students with science education (Fusco, 2001) and to learn skills needed for understanding and cooking food (Lautenschlager & Smith, 2007). Cross-curriculum approaches (Green & Duhn, 2015), such as those between health and sustainability, have been found to encourage the development of these capabilities (Elsden-Clifton & Futter-Puati, 2015). School Educator 3, who is active in school sustainability initiatives, advised that "ideally, a school garden program would have a formal structure, where students actually learn about food growing in connection with other subjects." Thus, our study indicates that school gardens provide a space where students can learn to adapt to changes in food security.

Consistent with this, School Educator 1 argued that school gardens contribute to food literacy learning through a concept called "learnscaping." This is a planned approach to "have educationally orientated landscaping that includes play, gardens, space to run, quiet areas, food areas [and] chickens." School Educator 2 agreed that these outdoor learning spaces provide the opportunity for "real play [where] students are focused and involved." With these reported benefits in mind, school communities have a pivotal role to play in supporting students' learning (DEWHA, 2009; Earth Charter International, 2009). Based on our review of the literature and interviews, we argue that integrating outdoor learning spaces with the school curriculum is able to enhance learning of children and youth.

Empowerment and Participation

Empowering students to participate as responsible citizens is a key goal of Australian school education. The literature notes that children's active participation in decision-making and leadership, along with a sense of responsibility, can be built and enhanced through garden experiences (Lekies

& Sheavly, 2007; Skelly & Bradley, 2007). School Educator 2, who administers school curriculum, states that "students are encouraged to have a real voice in decision-making processes at school and in the community." This includes, for example, children being involved in the design of community kitchen gardens and outdoor spaces for play (Salvadori, 2001).

For youth and high-schoolers, garden skills can also provide a "connection between mastery of particular competencies and a willingness to try new endeavours" (Lekies & Sheavly, 2007, p. 73). As such, informal garden programs have provided interactive models of learning with multiple opportunities for learning that are not a part of the formal classroom structure (Rahm, 2002; Swayze, 2009). Outcomes have included opportunities for young people to participate in meaningful voluntary work, develop a positive identity, build skills, and reduce neighbourhood crime (Ober Allen, Alaimo, Elam, & Perry, 2008). Additionally, larger organized community gardens, such as city gardens, often provide training for volunteers that lead to employment. Many city gardens operate as social enterprises (CERES, 2015)—that is, businesses that trade for a social purpose such as job creation and training, or businesses that have a commercial orientation with entrepreneurial drive, social accountability, and a socially inclusive values base that encourages citizen initiative and participation (SVA, 2015). In Australia, linking garden-based social enterprises with government youth-based job programs provides a viable avenue for young people not following a formal education pathway. Such avenues provide opportunities for informal apprenticeship (Walter, 2012), youth-based employment and training programs (Eliott, 1983; Pudup, 2008), and entrepreneurialism (Feenstra, McGrew, & Campbell, 1999; Goldsmith & Randolph, 1993).

Empowering young people to learn to participate as a responsible member of society (Corkery, 2004) also helps to build self-esteem (Doyle & Krasny, 2003) and to develop the ability to critically assess—and manage within—a variety of situations (Schusler, Tania, Krasny, Peters, & Decker, 2009). Community gardens also provide an opportunity for young people to learn about the importance of their contributions and to find ways to contribute within their communities (Driskell, 2002; Hart, 1992). For example, Youth Worker and Educator 2 urged that mixing with "small groups, there'd be budgeting; there'd be cooking. It wouldn't just be 'let's go plant a garden'… It'd be a whole range of skills associated with that and connection within your community." With this in mind, School Educator 3, who is active in youth work and school gardening, stated that "understanding how to make good food choices is very much a feature of being a resilient individual and resilient family as well." Youth Worker and Educator 3, who facilitates the learning of life skills through a small community garden, stated that the garden forms a part of "life skills and budgeting skills." Youth Worker and Educator 1 supported these views, stating that "resilience is something that you build up over time…you build up your knowledge, you build up your skills, so if something happens then you're equipped." Youth Worker

and Educator 2, who was involved in an outreach program for youth at risk of drug use and homelessness, argued that community gardens are also able to provide young people with "the skills that maybe Mum and Dad don't have." Youth Worker and Educator 1, from the same program, reported that: "Homelessness doesn't start when there's no roof over their head. The homelessness, as I see it, starts when they become detached from…community." Anecdotal evidence from these youth workers suggests that community gardens are effective at empowering young people, and in teaching—and encouraging—them to participate in their communities.

Inclusiveness and Social Ties

Anglicare (2012), an Australian care agency, assert that, "food insecurity is isolating. All manner of normal social interactions, for children and adults, become impossible when you can't pay your way, join in, or offer hospitality. It denies belonging and participation through the dignity of contribution" (p. 137). The importance of inclusiveness and social ties in building social resilience was evident in our study and was found to require strong social support networks that have "assets" such as knowledge, skills, and abilities (Luthans, Vogelgesang, & Lester, 2006). Disaster Resilience Officer 3, who was involved with coordinating volunteers during the 2010-2011 Brisbane floods, argued, for example, that during a disaster "communities have to be prepared to look after themselves and each other. It's part of the national framework for resilient communities that you have to be prepared for up to 72 hours, and often you can't do that in isolation." Individuals can be encouraged to overcome isolation by drawing on the community's food knowledge and by connecting with diverse forms of knowledge (Krasny & Tidball, 2009), such as other ethnic backgrounds (Cutter-Mackenzie, 2009) and different ages that collectively form the backbone of diverse communities (Nemore, 1998). Community Educator and Advocate 2, who facilitates various city farm workshops, reflected that "the diversity of people [in our community garden] is a wonderful function of this place." She added that they have "made their own way to this kind of learning" due to their particular needs and interests (Davis & Ferreira, 2009). Disaster Resilience Officer 1, who is involved in developing policy around community safety, stated that community resilience must involve "vulnerable people [and]…alternative voices."

School communities can also help to build resilience to adversity by building their students' capacities for autonomy. Building a sense of autonomy in school children enables them, for example, to take age-appropriate risks to build confidence in facing new experiences. Building relationships with others and sharing experiences through social occasions, celebrations, and growing food also helps to build a sense of belonging (Hourigan, 2011). Furthermore, neighbourhood activities in community gardens help to create ownership and support collective responsibility (Teig et al., 2009) for food resilience. Garden participants and their

families therefore learn in a variety of ways how to become co-producers of their food (Ritchie, 2015). Local Government Officer 2, who coordinates community gardens on behalf of the local councils, reported that: "When I think about a community that's resilient…it's one that's very well-informed, educated, active in the space, [and] supportive of each other." School and community gardens are one way through which to build such inclusiveness and social ties.

Self-Reliance and Self-Organization

Learning in and through gardens builds capacities for self-organization and self-reliance, along with strong social support networks (Luthans et al., 2006). School Educator 3, a school garden consultant, noted that: "Food security could be strengthened by ensuring that the domestic and local farming initiatives are in place, so that we can create self-sufficient societies." Strong precedents for this have existed, for example, when English allotment gardens appeared in the early 19th century, providing agricultural land for city dwellers and employment for peasants evicted from the commons (Irvine, Johnson, & Peter, 1999). Since then, emergencies, wars, and economic depression have driven city dwellers to grow their own food, which has then faded away as conditions have improved. For example, during the First World War, *Liberty Gardens* were encouraged by government for self-sufficiency in food needs (Patel, 1996) as the mass migration of the unemployed into urban areas placed pressure on accessible urban food sources (Ohmer, Meadowcroft, Freed, & Lewis, 2009). During the Great Depression, when millions of people were desperate and unemployed, urban gardening again became popular. During World War II, 44% of food produced in the United States was produced through 20 million *Victory Gardens* across the country (Patel, 1996). Cuba provides another example of urban food production during times of crisis. The curtailment of Soviet aid and trade in 1989 led to acute food scarcity, and Havana's 26,000 self-provision gardens were used to address the shortage (Moskow, 1999). More recently, community gardens have responded to economic need and the global financial crisis (McClintock, 2010) by providing a supplement of food to those in need.

Contemporary disaster resilience strategies also call for "local resilience-based planning arrangements" which "encourage and foster self-reliance tailored to community conditions" (COAG, 2011, p. 14). For Local Government Officer 4, who is instrumental in the development of community health policy, planning for local food as a part of community health requires "looking at creating environments that are supportive of health…[and building] capacity around healthy communities." Supporting the vulnerable would form part of such plans. Indeed, as School Educator 3 noted, "school and community gardens could supply fresh food to…vulnerable community members who are low income and who don't have access to the kinds of food choices that many people do." Disaster Resilience Officer 3, who mobilizes volunteers in disaster

conditions, suggested that local food contingency plans should inform disaster contingency arrangements. For Disaster Resilience Officer 1, this would require "a few demonstration projects that can show what can be achieved." Local Government Officer 4 agreed that through proactive leadership and funding, such innovations can be showcased and used as templates for learning within councils:

> Demonstration projects [could be] chosen on the basis that other [local government] councils will be able to learn from [them], identify what their key learnings are, and then explore opportunities to promote that to other councils. A case study template [could then be devised] that gathers information from councils about potentially what is best practice.

There is thus a clear opportunity for community and school gardens to teach communities to be self-reliant and self-organized in times of disaster.

Conclusion

It is clear from our study that community and school gardens can be effective in developing four social resilience capabilities: (a) learning and adaptation, (b) empowerment and participation, (c) inclusiveness and social ties, and 4) self-reliance and self-organization (Reis, 2013). The development of these four capabilities incorporates many of the democratic and participatory skills and values called for in environmental and sustainability education. For example, in building these four social resilience capabilities, learners have to learn to think critically and systemically; to reflect on their own and others' values, attitudes, and actions; to imagine better futures; to work in partnerships; and to learn to participate in decision making (Tilbury, 1995; Tilbury & Wortman, 2004).

In the face of worsening climate conditions in Australia, many communities have pioneered local food initiatives that are inclusive of school-aged children and young people. The need for educators to assist those individuals who wish to participate in sharing responsibility for their resilience is a priority for building disaster resilience (COAG, 2011). Building human capabilities is a core theme in sustainable, healthy communities and building disaster resilience. If educators work to develop the four resilience capabilities outlined in this paper, this will help to foster a sense of community that in turn will help school students and young people to adapt to potential food insecurities as a result of climate change, in both the short and the long-term.

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Notes on Contributors

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